Media 100

User Guide

Media 100®
A Business Unit of BorisFX

BORIS FX SOFTWARE

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Appendix C Storage and Data Rate Chart

Storage and Data Rate Chart C-2

About this Guide

The *Media 100 User Guide* provides a task-oriented approach to help you edit and create your programs. This guide describes the procedures required to acquire and import media, create a program with transitions, titles, and special effects, and output the program.

NOTE If the information in the *Media 100 User Guide* differs from that in the *Release Notes* shipped with your Media 100™ application, use the information provided in the *Release Notes*.

▼ Included in this Guide

The *Media 100 User Guide* takes you through the entire video composition process from start to finish. It includes the following information:

1 Jump Start

Provides an overview of project creation on Media 100 from inception to completion.

2 Project Settings & Preferences

Describes how to set up a Media 100 project's settings and preferences.

3 Managing Project Media

Explains how to organize and manage projects and locate media files.

4 Acquiring Media

Describes how to set up your system for acquiring and explains the acquisition process.

5 Importing Media

Explains how to import video, audio, and still-image media.

6 Working with EDLs

Describes how to import and export standard format edit decision lists (EDLs) to and from the Media 100 system.

7 Working with Bins

Describes how to create and open bins, add clips to bins, and work with the various bin viewing options.

8 Using the Program Window

Describes how to create, open, and play programs. It also describes the features of the Program window.

9 Editing in the Timeline

Explains how to add clips and edit your program in the timeline.

10 Trimming Clips

Explains how to trim clips in bins and programs.

11 Creating Transitions

Describes transition effects and explains how to create, preview, and render them.

12 Creating Video Effects

Describes compositing with alpha channels, keys, opacity and using time and color effects.

13 Creating Titles and Graphics

Describes how to create and overlay titles and graphic effects.

14 Creating Motion Paths

Describes how to apply motion paths to graphics and picture-in-picture effects.

15 Working with Audio

Explains how to adjust audio clips and tracks in the Audio and Program windows.

16 Creating Audio Effects

Explains how to create three types of audio effects, including Audio EQ, Dynamics, and Reverb.

17 Exporting Media

Explains how to export video and audio for use in external systems, including exporting to Adobe After Effects.

18 Mastering to Tape

Explains how to record your finished program on videotape.

A Working with AppleScript

Describes how to use the AppleScript scripting environment to automate repetitive tasks and customize your Media 100 workflow.

B Creating Streaming Media

Describes how to assign metadata and EventStream events to programs before exporting them to Cleaner for streaming media.

▼ Who Should Use this Guide

This guide is for Media 100 users (editors/creators/animators) who are somewhat familiar with video production terminology and concepts and have minimal to advanced video knowledge.

▼ What You Need to Know

Before using the Media 100 application, you should be familiar with the following:

- Macintosh® computer and its operating system
- Standard Macintosh menus and commands

To review these techniques, see your Macintosh user guide.

▼ Conventions Used in this Guide

This guide uses the following conventions to convey important information.

WARNING!

Warnings indicate bodily injury may occur.

CAUTION

Cautions indicate damage to software or hardware may occur.

▼ Related Documentation

For information about using your Media 100 system, refer to the following sources.

Media 100 Install Guide

Explains how to install Media 100 Hardware, connect audio and video equipment and install Media 100 Software.

▼ If You Need Help

If you are experiencing problems using your Media 100 system, please follow these steps:

1. Retry the procedure, carefully following the instructions given for that task. Make detailed notes of the steps that you take.
2. Review the *Release Notes* and *Read This First* included with the most recent release of the Media 100 application.
3. Review the setup procedures in the *Media 100 Install Guide*.
4. Check the *Media 100 Compatible Peripherals Guide* for compliance with system peripherals. The guide is located at http://support.media100.com.

5 Contact the Media 100 Technical Support Center. For the most efficient service, be at your computer with your registration number and system configuration information.

Contacting Technical Support

United States and Canada

Media 100 offers U.S. and Canadian customers a free 30-day technical support period to be used within the first 90 days of ownership. To activate your free technical support, call 800-922-3220, Monday through Friday, from 8:30 AM to 8:00 PM EST, excluding holidays. Follow the prompts to register.

Existing customers who purchase additional products for their current system receive 30 days of technical support from the day of product shipment and do not require activation.

- If you purchased Platinum™ 8–8 Technical Support, call the Technical Support Center at 800-922-3220 or 508-460-1600 between 8:00 AM to 8:00 PM EST, excluding holidays.
- If you purchased Platinum 7x24 Technical Support, call the Technical Support Center at 800-922-3220 or 508-460-1600 seven days a week, 24 hours a day.

To purchase Platinum Support, call a Platinum Specialist at 800-773-1770 or your local authorized Media 100 reseller.

Europe, Asia Pacific, and Latin America

Contact your authorized Media 100 reseller to obtain the appropriate telephone numbers in your area for the following information:

- Technical Support
- Platinum Technical Support
- Platinum Technical Support purchase information

1

Media 100 JumpStart

Welcome to the Media 100 JumpSart chapter and congratulations! Working on a Media 100 system is an opportunity to experience creative flexibility and power.

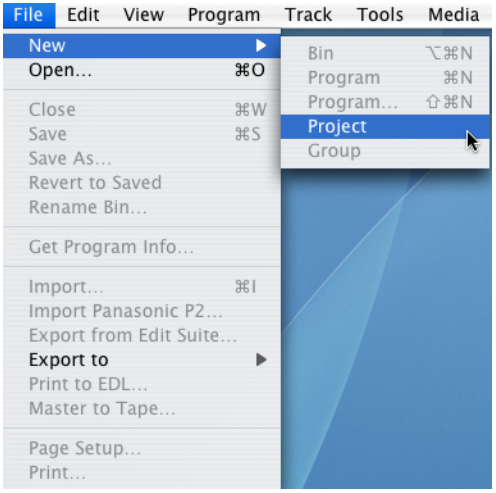
Through an array of features and options you'll find freedom of format with mix and match capabilities directly in the timeline including SD and HD, layering and compositing up to 99 layers with real-time motion alpha channels, color and time effects, keying capabilities, audio effects and more, all at your fingertips ready to integrate into your latest artistic creation. Once you've completed editing the content and are ready for output you also have the power to conform your media in real-time to multiple formats including SD, HD 1080i and HD 720p to quickly meet the deliverable standard necessary to get the job done.

This chapter is designed to get you acclimated with the process of working with Media 100. It's an overview of the evolution of a project from inception to completion. It's a quick way to understand how to get started on the system and complete a project. There's a lot more information on the particulars of the various features and functions of the system throughout the manual, including step-by-step instruction. So use this chapter as a general guide to understanding the workflow and as an overview to the features Media 100 offers.

To get started on a project, the first step is to create a project.

Create a Project

Creating a project is simple. When you launch the application for the first time, it will direct you to create and save a new project. If the application has previously been launched, it depends on how it was closed for how it will open. If the Media 100 application was quit with an active project open, it will relaunch with that last project open. If it was last quit by first closing the project and then quitting the application it will launch a dialog box for you to select the project you wish to open. To create a new project simply cancel the open dialog box or close the active project window first. You can only have one project open at a time. Then from the File menu choose File>New Project.

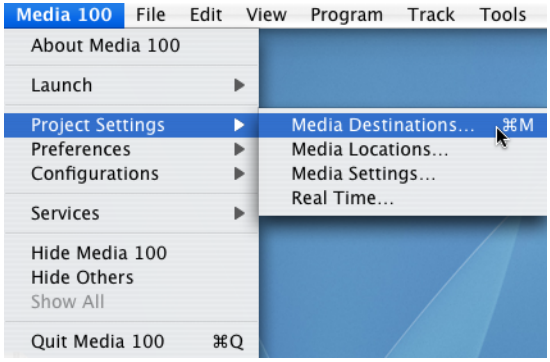


Name your new project and save it, preferably on your local hard drive, not on your video array. The reason? Simple. If your hard drives should go down, you'll have your project, bins, and programs. This means you can easily reacquire and relink your media quickly and your back up and running.

TIP Press the SHIFT key while launching Media 100 to open the application without opening the last saved project files (bins and programs). Press the OPTION key while launching Media 100 to open the application without opening the last saved project. The Open window appears.

Project Settings

Once you've created the new project, you'll need to choose your settings and preferences. From the Media 100 menu choose Media 100> Project Settings.



Clicking on Project Settings launches the dialog box where you indicate various media settings.

The first panel, Media Destinations, is where you specify the location of acquired and imported media, effects and compositions. Video is for video content, Audio is for audio content, Render is the media of rendered effects such as transitions, color effects or motion effects and Title is for titles created using Boris tools. Click the buttons to select the appropriate drives for the respective media content. A gray button is unselected and a blue button is selected. You may spread your content out over various drives. However, be sure that all of your video content is being aquired on an approved external high-speed disk array.

The next panel down is Media Locations. This specifies where your content is located. The application searches the folders listed here when using Find Media commands. You can add and remove folders here to aid in directing where the application will search for media.

The next panel is the Media Settings. This is where you select the compressor type and quality to be used on your acquired or imported media as well as rendered media. By default, the system uses the Media 100 HD compressor. If you are planning on taking content out to a Media 100 i or 844/X system you can choose the respective compressor here. This will eliminate the need to render the file to the host application codec on import. Motion JPEG B is an option for HD media or if you

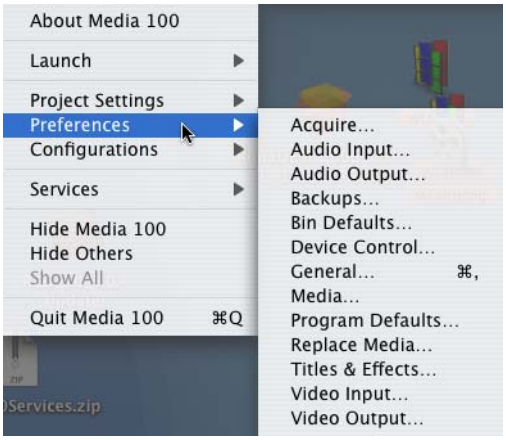
plan on taking your content to a third-party application. DV, DVCPro, DVCPro 50, DVCPro HD as well as uncompressed are additional options as well. The available compression types are dependent upon the video format being acquired as well as the Media 100 system being used.

Quality settings are also specified here as well. Depending on the compressor type selected, the quality settings differ. When using the native Media 100 compressor you choose either 8-bit or 10-bit uncompressed quality. You may also activate the Draft Quality checkbox which will acquire the content at the designated 8-bit or 10-bit setting in a field doubled mode (acquiring a single field and doubling it), thus saving on drive space. When choosing the Media 100 i compressor type you can choose a compressed quality setting between 10 KB and 300 KB as well as lossless compression. The 844/X compressor enables quality settings of 8-bit and 10-bit uncompressed. And the Motion JPEG B enables a quality slider from Least to Best.

The last panel in the Project Settings dialog box is the Real Time panel. Here you can choose to have real-time effects and titles play back at Draft Quality. The reason to select this option is if you are using a compressor other than the native Media 100 HD compressor, the content is being decompressed on-the-fly for playback using the host computer. This ensures a smoother playback. If you choose to play back real-time effects and titles at Draft Quality it is recommended that you also select the Warn Before Mastering checkbox. Then when you go to master to tape, the system will prompt you to disengage this setting.

Preferences

In addition to Project Settings, there are an array of preferences to set as well. Access the Media 100 menu and choose Preferences.



The Preference panels include Acquire, Audio Input, Audio Output, Backups, Bin Defaults, Device Control, General, Media, Program Defaults, Replace Media, Titles & Effects, Video Input and Video Output.

This section will not cover each panel as you will find that information in Chapter 2 Project Settings and Preferences. However, some of the key preferences to be aware of will be explained here.

First, under the Audio Input preference, the Source In selections available are Analog, AES/EBU via XLR connectors, AES/EBU via BNC connectors or SDI embedded, FireWire or None. The Convert to Sample Rate, will convert your audio to the selected sample rate you specify. It should be noted that this setting also specifies the sample rate of your program timeline.

Under the Program Defaults preference you will find the ability to specify the number of Video Composition tracks as well as Audio tracks that you would like to display when creating a new program timeline. In addition, you can indicate the track size for easier viewing capabilities.

The Video Input Preference panel offers significant options when acquiring or importing media. The Source In menu is where you specify the format of your incoming video - SD Y/C, SD Composite, SD Component, SD Serial Digital, SD FireWire, HD Component or HD Serial Digital. (Analog acquisition is available on Media 100 HDe and Media 100 SDe systems) From the Frame Rate menu choose the frame rate in which you are working - 29.97 fps or 25 fps. From the Source Standard menus choose the respective frame size and aspect ratio. All of these preceeding settings are determined by your source content. The next menu selection, Media Standard is where you specify how to conform your content. Media 100 will conform media on-the-fly from the source standard to the selected setting specified.

For example, let's say the incoming source is SD, NTSC, 4:3 that you want to conform to HD. From the Source In menu, select SD Serial Digital. From the Source Standard, select NTSC with a 4:3 aspect ratio. Under the Media Standard menu, choose HD 1920 x 1080i which is automatically a 16:9 aspect ratio, and your media will be conformed during acquisition or import. Because you are conforming between two different standards that incorporate two different aspect ratios there are additional conforming options you can choose. Under the Convert menu you can select the following ways to conform your media: Scale to Fit; 4:3 to 14:9; 16:9 to 14:9, Crop, or Pillarbox.

NOTE Media 100 systems allow for one conversion. Therefore, if you convert the source content to a different standard during acquisition or import, that is the standard the content must be output to. However, if the source content is acquired in it's native form it can be converted on output. Again, only one conversion is allowed. (Media 100 HDx enables multiple conversions.) Also note, the conversion options that are available are dependent upon the Media 100 system being used.

NOTE The Video Input Preference Panel does not allow SD media to be converted from a 4:3 aspect ratio to a 16:9 aspect ratio or vice versa. To accomplish this conversion, acquire the content at it's default aspect ratio, then use the Conform dialog box to convert to the desired aspect ratio.

A key factor to be aware of in this panel is whatever settings you specify under the Media Standard menu is what determines the settings when you create a new program timeline.

The Video Output preference is where you specify the desired outputs. Under the Output selections the Media 100 model is selected to specifiy each respective output connector on the Media 100 junction box - SDI1 and analog. SDI2 is not active and

reserverd for future use. Under the Output selections, FireWire and FireWire (Mastering Only) are additional options to control media through the FireWire port. All outputs are simultaneously active. In addition, conversion options when going from SD to HD or HD to SD media are also available. The first is when Playing 4:3 SD Media to HD Output. The second is when Playing HD Media to SD Output.

NOTE If FireWire is the output selection and a deck is not connected, the timeline will not play because it's attempting to master the timeline as output and it can't. Therefore, if FireWire (Mastering Only) is the selected output, the system will allow the timeline to be played and will seek the deck connection when mastering only.

TIP Once you have completed a program timeline, you can conform the entire program to a new standard by choosing Media>Conform Program

For more information on project settings and preferences refer to Chapter 2 "Project Settings and Preferences."

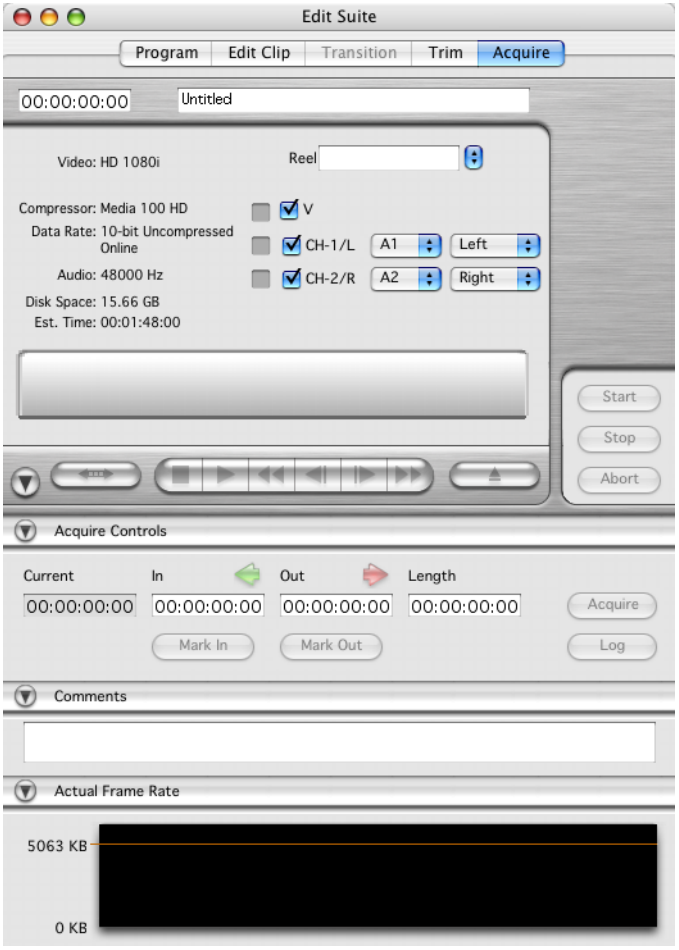
Create a Project Template

Now that you've spent a few minutes setting up your project with the appropriate settings and preferences you'll find this is something you may not want to do for every project. Particularly if most often you use the same standards. Therefore a recommendation is to create a new project, set the Project Settings and Preferences and save it as a Project Template. This way when you're ready to start a new project you can just launch the created Project Template, rename and save it. You're quickly ready to begin your next project without having to specify all the individual settings.

Prepare to Acquire

Prior to composing your program, the content needs to be acquired or imported. Acquisition is the process of obtaining media through source tape be it analog or digital. Importing is the process of obtaining media through another digital format.

To begin setting up for the acquisition process, create a new bin in which to acquire your content. Choose File>New>Bin. Name and save the bin. Engage the Edit Suite in Acquire mode by clicking the Acquire button.



Change the default Untitled clip name to the name of the clip you are preparing to acquire. In the Reel field, specify the reel name. Choose the content to be acquired by selecting the respective V for video checkbox, CH-1/L for left audio and CH-1/R for right audio. For the audio, also designate the track numbers to which you'd like it assigned. (Note, that these can be changed later) as well as the pan settings.The left side of the Edit Suite displays informational content including the Video Standard, Compressor, Data Rate, Audio Sample Rate, and available disk space.

If you have engaged machine control in the Media 100>Preferences>Device Control, you can use the Play controls at the bottom of the Edit Suite to control your deck.

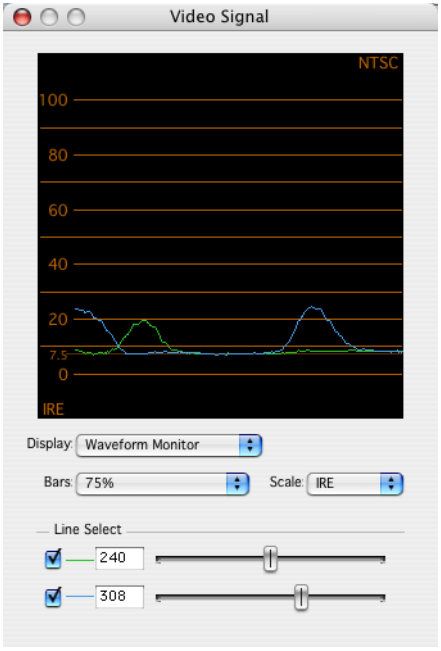
As you play the source tape, you can acquire on-the-fly by pressing the Start and Stop buttons respectively. Upon clicking the Stop button, the content is acquired and is displayed in the bin window.

An alternative option to acquiring on-the-fly is to log your content and batch acquire it. To log your content, expand the Edit Suite by clicking on the Panel Expansion button in the lower left corner. An Acquire Controls panel is displayed (If it is not expanded, click the panel expansion button of the Acquire Controls to expand it). Here you can specify the In and Out timecodes of your clips. As you indicate the In and Out then click the Log button, the clip is displayed in the bin. Note that the media is offline as it has not yet been acquired. Once all of your content is logged activate the bin window with all of the logged content and choose Media>Batch Acquire to launch the Batch Acquisition window. Specify the desired settings in the Batch Acquisition window and click the Acquire button. The system will prompt you to load the appropriate tape based on the reel name and the acquisition will begin.

NOTE Text edit log files (PowerLogs), and edit decision lists (EDL's) may also be imported ready for batch acquisition.

TIP Monitor the audio levels during acquisition in the Audio Window. To open the Audio Window choose Windows>Audio.

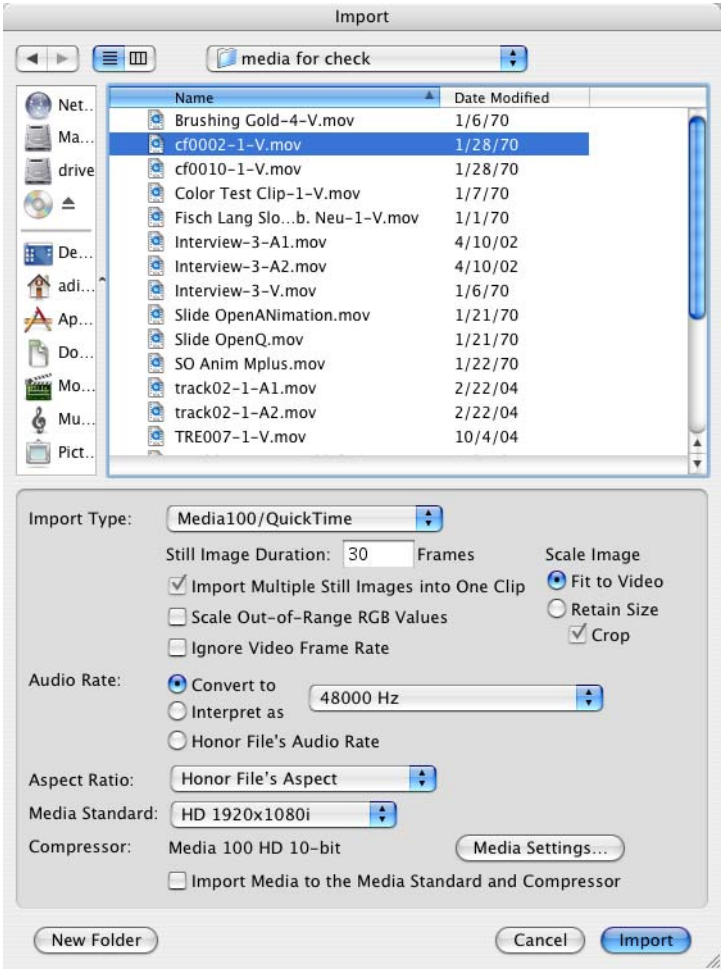
At any time, however most prevalently used during the acquisition process you can monitor the video signal. Choose Windows>Video Signal to display the Video Signal window. You can specify two line selects to view - one green and one blue. And you can choose to display a Waveform Monitor, Vectorscope or Colorbars to check your signal.



For more information on acquisition, refer to Chapter 4 “Acquiring Media.”

Import Media

In addition to acquisition, content may be brought into the system by means of importing. Choose File>Import to launch the Import dialog box.



Here you can navigate to your desired file for import. If the file you wish to import is greyed out change the Import Type menu to All. Specify all of the desired import options.

The Media Standard menu defaults to the settings of the Media 100> Preferences>Video Input panel. These settings may be modified here in the Import window, but know that it is only modifying the Media Standard for the clip(s) you are presently importing. It does not change the Media 100 preference. Remember, the Media Standard setting will import and conform any incoming content on-the-fly to the specified setting. To ensure the conform is what you want you must also engage the Import Media to the Media Standard and Compressor checkbox.

NOTE If selecting the Import Media to the Media Standard and Compressor checkbox be aware that the imported file adheres to the Media Standard and Compressor settings only. The Convert options (4:3 to 14:9, 16:9 to 14:9, Crop, Letterbox, Pillarbox and Scale to Fit) are not applied. Apply the necessary conversion using the Conform dialog box after importing the file.

The compressor type you have selected in the Media 100>Project Settings panel is indicated here as well. To change the compressor or data rate, click the Media Settings button to open the respective panel and make the changes. When you have specified all of your settings and navigated to the appropriate location to save the content, click the Import button to perform the actual import process.

For more information on importing, refer to Chapter 5 “Importing Media.”

Bins

The Bin window is the container for your media clips. The clips displayed in the bin are not the actual media files themselves, rather they are pointers to the actual source media. This way you can have many clips in your bins as well as many bins and they don’t take up much drive space.

To create a new bin choose File>New>Bin or press OPTION-⌘-N.It is always recommeded when you create a new bin to name and save it. Choose File>Save Bin As, name the bin and navigate to where it should be saved. It is also suggested to keep all projects, bins and programs together in a folder, preferably on your local hard drive

.



When working with bins you can choose a variety of ways to view your clips. Display the bin window toolbar, if it not displayed already, by clicking on the Toolbar button in the upper right corner of the bin window. The View buttons in the upper left of the Toolbar let you quickly change the clip views between: Large Poster, Medium Poster, Small Poster, In and Out Points, and List.

Bin clips may be edited by double-clicking a clip to select it or by dragging the clip to the Source Monitor window. Either means will engage the Edit Suite in Edit Clip mode. You can now modify the clip a number of ways. You can use various effects, including compositing, time effects and color effects. These will be discussed later. You can also modify the In and Out points as well as specify the poster frame or keyframe to be displayed on the clip in the bin.

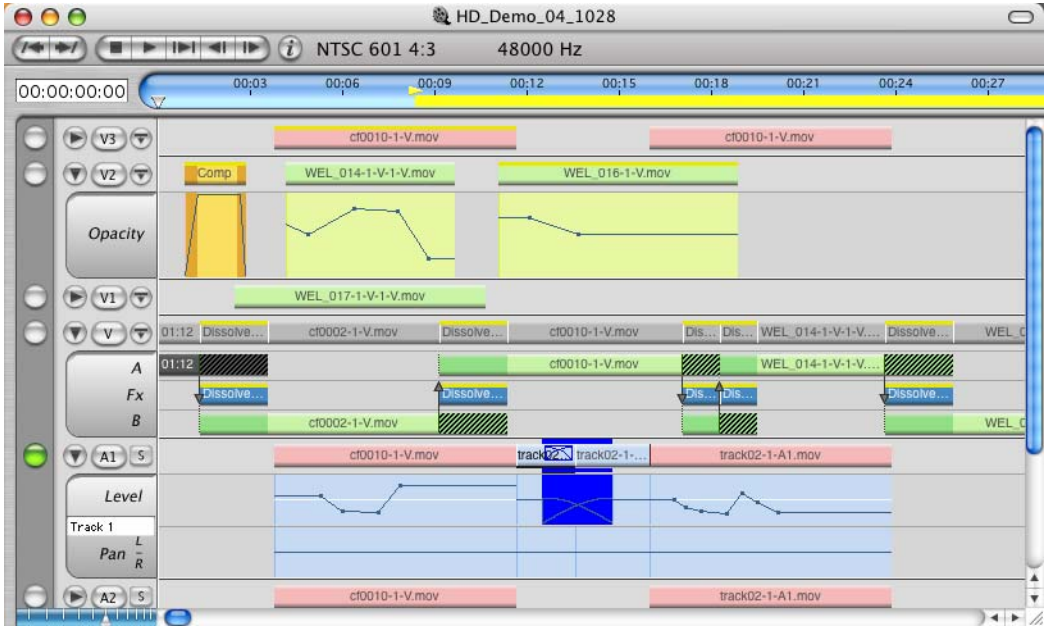
To modify the In and Out point you can type the values in the respective fields or on the green bar in the Edit Suite which represents the clip, you can move the green triangle to change the Mark In and the red triangle to change the Mark Out. The poster frame is easily specified by sliding the green Poster Indicator to the desired frame. Upon modifying the In, Out and Poster frames, clicking the Apply button will apply the changes to the clip in the bin.

Clips can be copied from one bin to another by simply dragging. A clip can be duplicated in the same bin by pressing ⌘ and dragging the clip. Shift-click clips to select multiple clips in a bin.

For more information on bins, refer to Chapter 7 “Working with Bins.”

Programs

The Program window is where you assemble your video, audio and graphic content. To create a new program, choose File>New>Program. There are two options here. One is the keyboard shortcut ⌘-N. This will launch a new program window based on your preference settings. The second new program selection is the keyboard shortcut SHIFT-⌘-N. This will launch the Create New Program dialog box enabling you to specify the desired program timeline settings including such parameters as the number of video composition and audio tracks and their respective size.



A program timeline can have up to ninety-nine (99) Video Composition tracks plus one (1) Master Video track and twenty-four (24) Audio tracks plus one (1) Master Audio Bus track.

The Master Video track, when expanded, displays the traditional **A/B** roll editing functionality with an **Fx** track in between for the creation of transitions. The Video Composition tracks when expanded, display an Opacity control line. By adding

nodes to the opacity line, adjustments can be made over the duration of the clip to composite it with the underlying video elements. Nodes are created by clicking the line. To adjust the overall levels SHIFT-CLICK and drag the line to the desired level.

NOTE Clips do not need to be on contiguous vertical tracks for compositing. For example, a clip on track V6 will composite over a clip on track V3 with tracks V4 and V5 being empty.

TIP When modifying the Opacity, the Opacity level is displayed in the upper right corner of the Program window.

The audio tracks, when expanded, display a Gain level line and a Pan level line. These may also be manipulated by placing nodes to adjust the levels over the duration of the clip. The Master Audio Bus track, when expanded, displays the gain level over the entire program. Nodes can be placed on the Gain level line to control the levels at various points of the program or the entire clip's gain level line can be adjusted by SHIFT-CLICK and dragging the line to the desired level.

TIP When modifying the audio Gain levels, the Gain level is displayed in the upper right corner of the Program window.

Trimming can be performed in the timeline by positioning the mouse pointer at the head, tail or cutpoint of a clip. When positioned in one of these locations the mouse pointer changes to a black line with an arrow (or dual arrows if you're at the cutpoint of two clips). By click-dragging you can trim the clip. The modified In, Out or Joint timecode is displayed in the upper right corner of the program window.

TIP Use the Track View button, to the right of the track number, to view all tracks from the selected Track View down.

Clips can easily be dragged from the bin or from the Source Monitor to their desired location in the program timeline. New black or color clips can be created by choosing Program>New Black Clip or New Color Clip respectively. New Boris composition clips can be created by choosing Tools>New Composition. The Boris application is launched by double-clicking the Boris Composition clip to activate the Edit Suite window. In the Edit Suite click Edit, the Boris FX or Boris Red application launches.

The majority of program controls such as removing gaps, making selections, synching clips can be found in the Program menu.

With the flexibility of formats Media 100 offers, you will find when dragging clips to a program timeline that are not the same media standard as the program, a Conform dialog box is displayed. This enables you to convert the video immediately by scaling using the software. Or, by selecting the checkbox Make re-acquirable media offline (to re-acquire later), the content will be offline until it is actually acquired. Upon reacquisition, the conform process is performed by the hardware. You also have access in the Confom dialog box to modify the selected compressor type and conversion settings.

NOTE QuickTime imported media and still image media (media that does not have timecode and reel name attributes) can not be reacquired later, therefore it will always be converted now.



Playing the content in your program timeline and how many tracks you can see played back in real-time is dependent on the host computer. Please refer to the Media 100 Compatible Peripherals Guide for further information.

For more information on programs and editing, refer to Chapter 7 “Using the Program window” and Chapter 8 “Editing in the Timeline.”

Transitions

Conventional transitions are created on the Master Video track. When expanding the Master Video track an **A, B** and **Fx** track are displayed. Clips can be positioned on the respective **A/B** tracks with transitions occuring on the **Fx** track.

When clips are placed on the Master Video track, by default they are placed on the **A** track of the expanded Master Video track. By alternating clips on the **A/B** tracks, cutpoint arrows are displayed indicating the cutpoint or transition from one clip to another.

TIP To alternate clips on the **A/B** tracks choose Track>Swap A/B or Stagger A/B Selected. Swap A/B moves the selected clip and all clips following it to the opposite track. Stagger A/B Selected moves the selected clip to the opposite track (if only one clip is selected) or staggers a range of selected clips between the **A/B** tracks. Be aware that Swap A/B preserves any exisiting transitions whereas Stagger A/B Selected removes any existing transitions.

Transitions, other than cutpoints can quickly be created by click-dragging the cutpoint arrow in the **Fx** track. Using modifer keys you can indicate the type of cut. SHIFT-drag the cutpoint arrow to the right to create a start-at-cut transition. SHIFT-⌘-drag the cutpoint arrow to the left to create an end-at cut transition. OPTION-drag the cutpoint arrow to the right to create a center-over-cut transition. In order to create the transition there must be additional media available on the respective head or tail of the clip. If the clip has the necessary additional media but it’s not visible in the track press the CONTROL key in addition to the other modifier keys to create the transition.

The type of transition created will either be the last transition type used, or the default dissolve transition. To modify the transition type, double-click the transition to activate the Edit Suite in Transition mode. The three buttons in the upper right corner of the Edit Suite let you choose from an array of transition types including dissolves, wipes and DVE's.



Some transitions offer additional modification controls such as borders, crop, and start from and play to ranges. To access the additional options, double-click the transition in the program timeline to activate the Edit Suite in Transition mode. Click the Panel Expansion button in the lower left corner to display the Transition Settings panel.

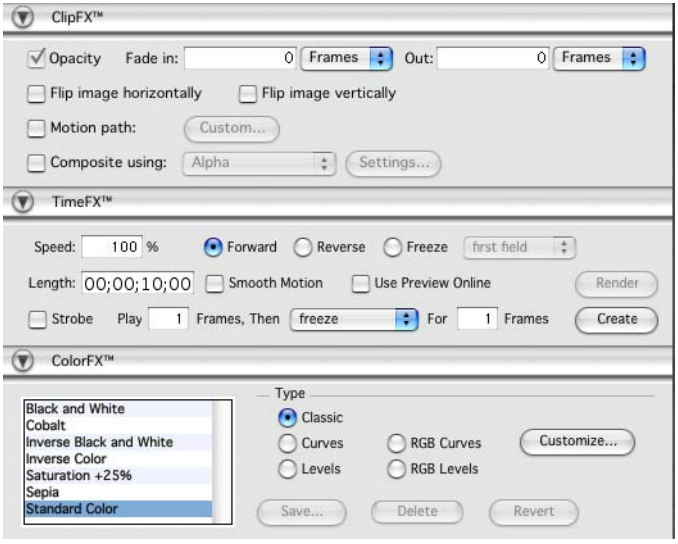
NOTE Any FastFX transition is a real-time transition when using SD media. Any transitions created using HD media require rendering. Again, remember the real-time playback of the system is determined by the host computer.

For more information on transitions refer to Chapter 11 "Creating Transitions."

Effects

The Media 100 system offers an array of effects including compositing and key effects, time effects and color effects.

By double-clicking a clip in a bin or program, the Edit Suite is activated. Click the Panel Expansion button in the lower left corner of the Edit Suite to display a variety of effects.



The ClipFX panel lets you quickly create a fade-in, fade-out and flip an image horizontally, vertically or both by selecting the respective checkboxes. In addition, you can apply motion paths to your clips. You can also choose to composite an image using the embedded alpha channel or using the Keyer. When choosing to composite with alpha on video, thus using a motion-alpha rather than static-alpha, know that the motion alpha must have been generated using a supported codec. The codecs that support motion alphas are Media 100 HD or Animation codecs. When choosing to composite using the Keyer, the Settings button is activated. Upon clicking on the Settings button, the Keyer window is displayed. Here you can choose to pull a chroma key in either RGB, YUV or HSL color space. You also have the option of pulling a Luma/Component key. Luma generates the key off of the luminance values in the image, Component enables you to specify one particular color channel - red, green or blue on which to pull the key.

The TimeFX panel enables the ability to alter the speed of a clip. In addition to increasing or decreasing the speed, you can also play it forward, backward or freeze a frame. Strobe effects can be applied here as well. You specify the number of frames the clip is to play and then whether it freezes or plays black and the number of frames.

The ColorFX panel offers a selection of color presets to quickly modify the color of your clip including Black and White, Cobalt, Inverse Black and White, Inverse Color, Saturation +25%, Sepia and Standard Color. In addition you can create and save your own color effects. The Classic color effects when selected and the Customize button is clicked, engage adjustment of Luminance controls - brightness and contrast, Chrominance controls - tint and saturation and Style controls - posterize and solarize. The Curves control adjustments can be performed in either YUV color space or RGB color space by selecting the Curves or RGB Curves radio buttons respectively. The Curves controls deliver precise, robust color and tonal correction by adjusting points along a scale. The Levels control adjustments can also be performed in either YUV color space or RGB color space by selecting the Levels or RGB Levels radio buttons respectively. The Levels controls enable color and tone adjustments by remapping the minimum, maximum and mid-range values while using a histogram.

For more information on effects refer to Chapter 12 “Creating Video Effects” and Chapter 14 “Creating Motion Paths.”

Titles & Graphics

Titles and graphics are created on any Video Composition track using Title Suite. Titles and graphics, created in supported formats using third-party applications, can also be imported.

To create a title choose Tools>New Title or ⌘-drag in a track. A new title clip is created in the selected track at the position of the CTI (Current Time Indicator). The default title length is 2 seconds as specified in the Titles & Effects preferences. By using the ⌘-drag method of creating a new title, it’s duration is as long as you drag out the clip. Title clips also have a default 10 frame fade-up and fade-out. The default settings can also be modified in the Titles & Effects preferences.

To edit the title, double-click the title clip to activate the Edit Suite. In the Edit Suite you can modify the fade-up and fade-out durations by expanding the Edit Suite to display the ClipFX panel. You can modify the fades either by specifying a timecode or the number of frames. To activate Title Suite and generate a title, click the Edit button. The Title Suite application is launched. Once you have created the title in Title Suite, click Apply in the timeline to close the application and reactivate Media 100.

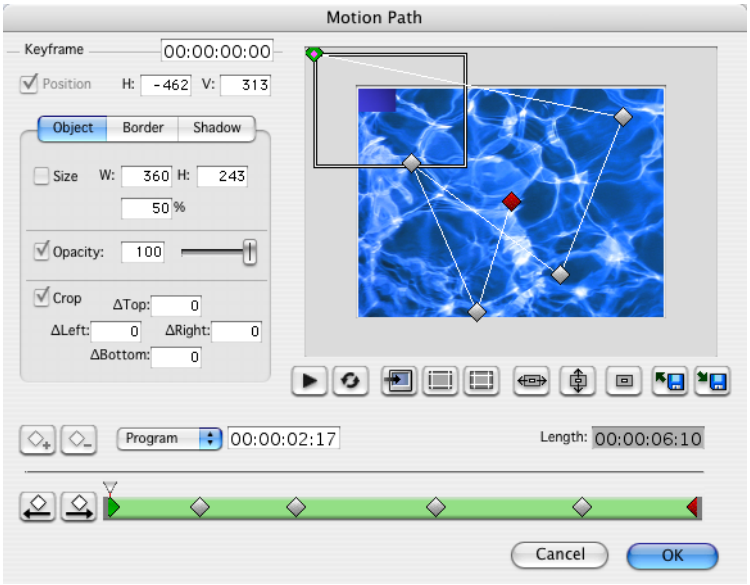
For more information on titles and graphics refer to Chapter 13 “Creating Titles and Graphics.”

Motion Paths

Using the Media 100 Motion Path editor, you can apply motion path effects to video and graphics. In addition, you can use the Motion Path editor to modify Picture-in-Picture transitions.

To access the Motion Path editor, double-click a clip to activate the Edit Suite. Click the Panel Expansion button in the lower left corner to display the ClipFX panel. In the ClipFX panel, select the Motion Path checkbox and click the Custom button. The Motion Path window displays. To access the Motion Path editor for a Picture in-Picture transition, double-click the transition to activate the Edit Suite. Click the Panel Expansion button in the lower left corner to display the Transition Settings. Click the Custom button to launch the Motion Path editor

.



The Motion Path editor allows you to keyframe and adjust over time, the position, size, opacity and cropping of a clip. Border and Shadow manipulation are available when modifying a Picture-in-Picture transition.

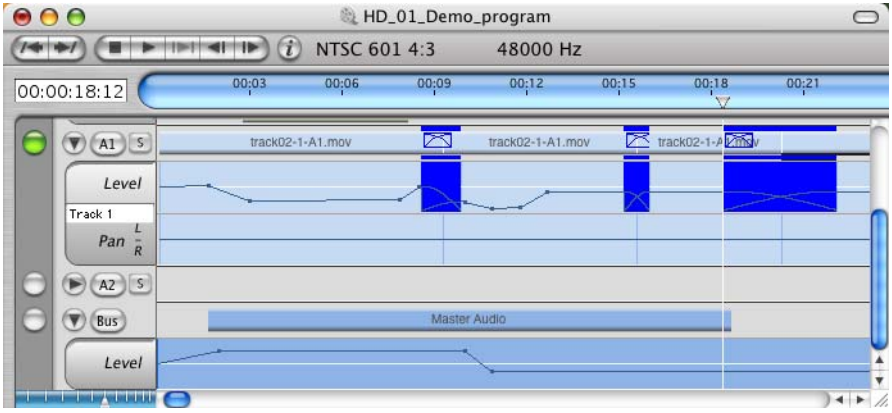
In addition to creating and saving custom motion paths, automatic motion path effects are available as well. In the Motion Path editor window, the fifth button from the right under the subsampler is an automatic crawl. The next button is an automatic scroll followed by a static button.

Once you've completed creating the motion path, click OK to close the Motion Path editor and apply the effects.

For more information on motion paths refer to Chapter 14 "Creating Motion Paths."

Audio

Media 100 offers up to twenty-four (24) tracks of audio in a single program timeline. And with the ability to mix down audio, you have the potential for unlimited audio. In addition to the standard audio tracks, there is an Audio Bus track which is designed to control the overall gain and pan levels of the program. The Audio Bus track can also be used to apply audio effects over sections of a program or an entire program timeline.



When expanding an audio track in the program timeline, you will find controls to manipulate gain and pan levels. This is done by placing nodes on the gain and pan lines to alter the levels over the clip duration. If you want to modify the levels over the entire clip press SHIFT while click dragging. While adjusting the audio, the decibel levels are displayed in the upper right hand corner of the program window. To see a waveform representation of the audio select the desired audio track and choose Track>Show Audio Waveform.

Audio crossfades combine the sound of two clips at the crossfade mid-point. They can be applied in the program timeline to ensure a clean transition between two audio clips. To apply an audio crossfade, position two audio clips with trim handles (extra media to generate the crossfade) next to one another in the same audio track. Position the mouse pointer at the cutpoint of the two clips so it changes to a black line with dual arrows. Press the OPTION key and you'll notice the black dual arrow line changes to blue. Click-drag to create the crossfade. To modify the type of crossfade applied choose Program>Crossfade Type and select between the options:

Equal Power; Linear; Exponential; Classic Equal Power; Classic Linear; or Classic Exponential. Audio crossfades may be trimmed directly in the timeline just like any other clip.

TIP When creating a video transition from one clip to another, an audio crossfade may be automatically applied to the synced audio by selecting the checkbox in the Edit Suite, Crossfade Synced Audio.

Another tool available when working with audio is the Audio window. To open the Audio window choose Windows> Audio.



The Audio window toolbar (displayed by clicking the Toolbar button in the upper right corner of the Audio window) provides settings for the Audio Peak Hold indicator which appears for the chosen duration when the audio track signal peaks. Also in the toolbar you'll find settings for the Nominal Reference Indicator. This indicates the available headroom, the point on the meter where the display changes from green to yellow. This does not affect the audio signal, rather it is used to match the scale of the reference levels on the external equipment you are using for input or output.

The Clip and Track buttons in the Audio window let you specify whether the changes to the gain and pan levels are to be applied to an individual audio clip or over the entire track. When the Track button is selected, Auto Fade buttons are available. Engaging the Auto Fade button automatically sets the fade-in and fade-out to less than a frame to minimize audio popping.

The Audio Bus panel lets you adjust the master fader control on a per frame basis or across the entire program by selecting the respective radio button.

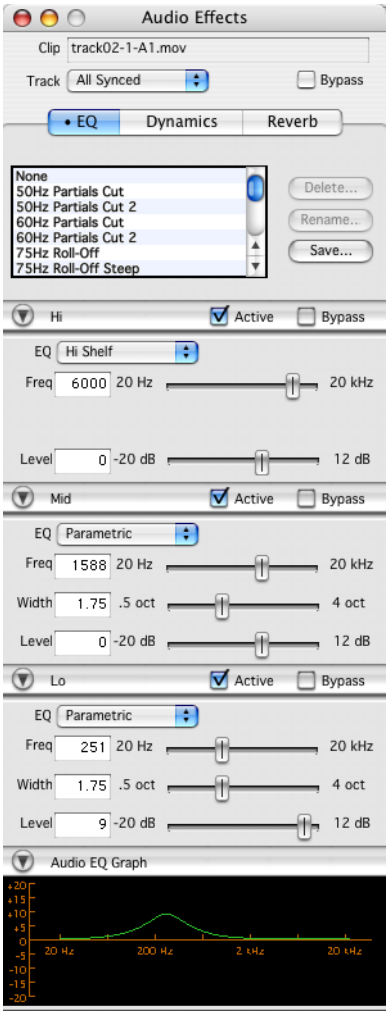
Individual audio tracks may be muted or solo'd by clicking the respective buttons. In addition when working on a clip basis, pan adjustments can be made using the L-R slider. All tracks including the Audio Bus gain levels can be manipulated by sliding the gain faders.

For more information on audio refer to Chapter 15 "Working with Audio."

Audio Effects

Media 100 allows you to apply audio effects using EQ, Dynamics and Reverb. Audio effects can be applied to individual audio clips, a section of a program or an entire program timeline. To apply effects over a section of a program or the entire timeline, create a Master Audio clip on the Audio Bus track. To create a Master Audio clip press ⌘-drag in the Audio Bus track.

To access the Audio Effects window, choose Windows>Audio Effects. Under each of the respective audio effects there are preset effects that you can choose from and further manipulate to create custom effects. You can also start with no preset effect and simply create your own from scratch.



Audio EQ filters change the tonal characteristics of audio by boosting or cutting a frequency or range of frequencies across the Hi, Mid or Lo bands or an audio clip.

Audio Dynamics perform both track and master processing. At the track level, the Dynamics processor provides Noise Gating, De-essing, and compression of dialog, sound effects and music. At the Bus level, Audio Dynamics applied to a master Audio clip lets you master compression, limiting, and loudness maximization.

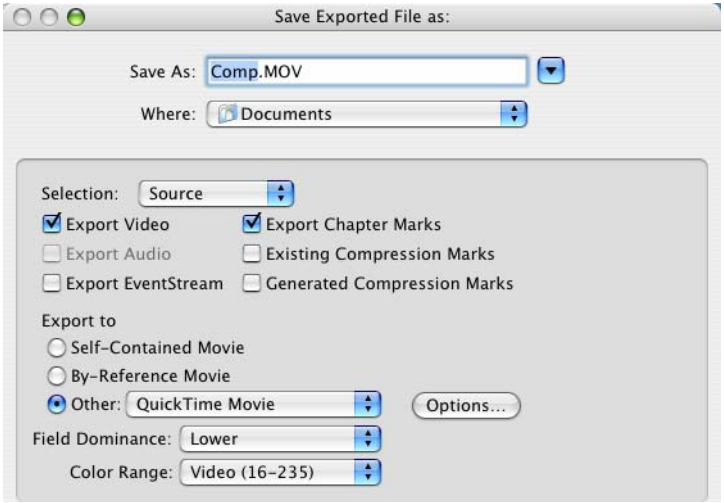
NOTE You can not apply Dynamics to synced audio clips.

Audio Reverb provides professional quality stereo reverb that can simulate a variety of spaces. Independently adjusting the room size and decay times produces the basic room character.

For more information on audio effects, refer to Chapter 16, “Creating Audio Effects.”

Export Media

Content can be exported from Media 100 on an individual clip basis, a complete program timeline, a range within a program timeline or any frame of a clip or program timeline.



To export an individual clip, double-click the clip to activate the Edit Suite. Choose File>Export from Edit Suite. The Save Exported File as dialog box displays. Specify a name and location to save the file. Under the Selection menu choose whether you wish to export the entire Source, the Select (from the clip’s In to Out

points) or a Frame (selected by the location of the CTI on the clip). Select the checkboxes to specify what you want exported - video, audio, both etc. Then choose how you wish to export the content under the Export to settings. Self-Contained exports the file using the CODEC(s) of the media being exported. For example if some of the media being exported is native Media 100 and some is 844/X the self-contained selection will export the file using the multiple CODECs. By-Reference creates a small pointer file to the original media. Other, lets you select from an array of export formats. When choosing Other be sure to click the Options button to specify the additional export settings.

To export a program, activate the program window and choose File>Export from Edit Suite. The Save Exported File as dialog box displays. All of the parameters here are the same as when exporting an individual clip except for the Selection. Under the Selection menu, specify whether you want to export the entire Program, a Range of your program (the range must already be set in the program timeline) or a single Frame of your program (selected by the location of the CTI in the program timeline)

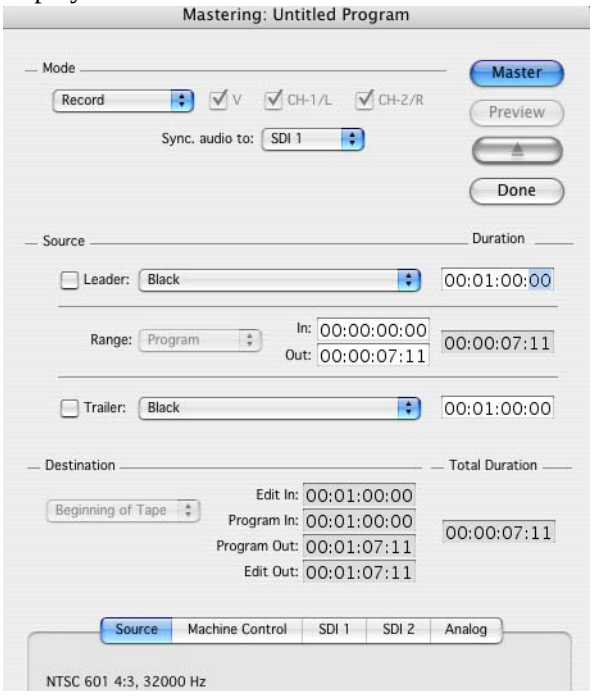
NOTE When exporting a still image, choose Other under the Export to option and select Image Sequence from the menu. When you click the Options button you can choose the desired still image format for export.

Additional export options including exporting to 844/X, After Effects and XML can be found by choosing File>Export to.

For more information on export refer to Chapter 17 “Exporting Media.”

Master to Tape

Once you have completed your program you can master it to tape. Activate the program timeline and choose File>Master to Tape. Media 100 will then render anything in the program timeline that needs rendering and the Mastering window is displayed.



In the Mastering window specify the mode in which you will work, either Record, Assemble or Insert Edit. Machine control must be engaged in order to perform assemble or insert edits. Select the elements you wish to master, video-only, audio-only or both video and audio. Also specify which output on the junction box, the audio is to be synced to.

Set your leader and trailer options and select whether you are mastering the entire program timeline or a range of the timeline. The range must already be indicated in the timeline for the option to be available. Then choose to start mastering at the Beginning of the Tape, the Current Position or a specified Timecode. Click the Master button and the program timeline will begin playback as it is mastered to tape.

For more information on mastering to tape, refer to Chapter 18 “Master to Tape.”

Wrap-Up

You now have a solid, basic understanding of the Media 100 workflow. This chapter gave you an overview of the process of project creation from inception to completion. With this knowledge you are ready to create projects and edit programs implementing an array of features and functions. The remainder of this manual is dedicated to an in-depth look at the functionality that was briefly overviewed in this chapter.

2

Project Settings and Preferences

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▼ Introduction

The first step in creating video and audio compositions in Media 100™ is to create a *project*. A project controls, tracks, and displays all the elements you assemble for a video composition.

Within a project, you create *bins* and *programs*.

- A bin contains video and audio clips and other media.
- A program is where you arrange and edit clips on a timeline.

This chapter explains how to create a Media 100 project. It helps you

- Plan a project
- Create a new project
- Prepare a project for importing media and editing
- Set up the Quick Launch feature

▼ Planning a Project

Before beginning a project, determine what input sources and output formats you plan to use to ensure the best final output.

In the preproduction phase of your project it is important to shoot and prepare your source footage with editing in mind. While planning your project, consider the issues in this section.

Careful planning before you begin creating a project helps eliminate the need to reacquire media part way through the project.

NOTE Existing video, photographic, and audio materials are generally protected under copyright law. Secure permission from the copyright owners before incorporating any such material into a program.

Source Video

Media 100 supports both digital and analog source in 8-bit and 10-bit uncompressed and compressed native HD and SD video signals. The system also integrates full support for offline formats, allowing the capture of HD content as SD offline-quality media. The SD offline programs can then be automatically conformed at full uncompressed HD resolution.

Media 100 also supports real-time broadcast format conversions between HD and SD formats. This conversion is available upon input as well as output. There are independently assignable digital and analog output signals, all simultaneously active. Video Input Settings are modified in the Video Input panel of the Media 100 Preferences.

Video Source	Source Standard	Media 100 SDe Media Standard (Conversion Options)	Media 100 HDe Media Standard (Conversion Options)	Media 100 HD Suite Media Standard (Conversion Options)
SD Composite NTSC or PAL 4:3 or 16:9	■ SD 720x486i (NTSC) SD 720x576i (PAL) ■ HD 1920x1080i	■ SD 720x486i ■ SD 720x576i 16x9 or 4x3	■ SD 720x486i ■ SD 720x576i 16x9 or 4x3	■ NA
SD Component NTSC or PAL 4:3 or 16:9	■ SD 720x486i (NTSC) SD 720x576i (PAL) ■ HD 1920x1080i	■ SD 720x486i ■ SD 720x576i 16x9 or 4x3	■ SD 720x486i ■ SD 720x576i 16x9 or 4x3	■ NA
SD Serial Digital NTSC or PAL 4:3 or 16:9	■ SD 720x486i (NTSC) SD 720x576i (PAL) ■ HD 1920x1080i	■ SD 720x486i ■ SD 720x576i 16x9 or 4x3	■ SD 720x486i ■ SD 720x576i 16x9 or 4x3	■ HD 1920x1080i ■ SD 720x486i ■ SD 720x576i 16x9 or 4x3
SD Y/C	■ SD 720x486i (NTSC) SD 720x576i (PAL) ■ HD 1920x1080i	■ SD 720x486i ■ SD 720x576i 16x9 or 4x3	■ SD 720x486i ■ SD 720x576i 16x9 or 4x3	■ NA
SD FireWire	■ SD 720x486i (NTSC) SD 720x576i (PAL) ■ HD 1920x1080i	■ SD 720x486i ■ SD 720x576i 16x9 or 4x3	■ SD 720x486i ■ SD 720x576i 16x9 or 4x3	■ SD 720x486i ■ SD 720x576i 16x9 or 4x3
HD Serial Digital Component	■ HD 1920X1080i 16x9 ■ HD 1280X720p 16x9	■ NA	■ HD 1920X1080i 16x9 ■ SD 720x486i ■ SD 720x576i 16x9 or 4x3	■ HD 1920X1080i 16x9 ■ SD 720x486i ■ SD 720x576i 16x9 or 4x3
HD Serial Digital	■ HD 1920X1080i 16x9 ■ HD 1280X720p 16x9	■ NA	■ HD 1920X1080i 16x9 ■ SD 720X486 16x9 or 4x3	■ HD 1920X1080i 16x9 ■ SD 720X486 16x9 or 4x3

NOTE Media 100 systems allow for one conversion. Therefore, if you convert the source content to a different standard during acquisition or import, that is the standard the content must be output to. However, if the source content is acquired in it's native form it can be converted on output. Again, only one conversion is allowed. (Media 100 HDx enables multiple conversions.) Also note, the conversion options that are available are dependent upon the Media 100 system being used.

NOTE When converting between 4:3 and 16:9 aspect ratios, additional conversion options are enabled. These include 4:3 to 14:9, 16:9 to 14:9, Crop, Pillarbox and Scale to Fit. In addition a Custom Scaler offers complete flexibility of conversion options.

TIP All clips in a program must use one video standard. If a clip to be used in a program is a different standard, Media 100 offers the ability to conform the media to the program standard. When a clip with one standard is dropped in a timeline with another standard, a Conform dialog box opens. This enables the media to be conformed by scaling the clip or by reacquiring the content.

Source Audio

Media 100 supports AES/EBU digital, balanced analog source audio and FireWire. When selecting audio files for your project, consider the following:

- Decide the audio sample rate to use for the entire project. You can not use audio files that are sampled at different rates in the same program.

  The Media 100 system will resample audio upon acquisition to your desired sample rate (11025 Hz, 22050 Hz, 32000 Hz, 44100 Hz, 48000 Hz).

- If the source audio uses different sample rates, determine which files, if any, you can re-sample to achieve one rate for the project.

Audio Input Settings are modified in the Audio Input panel of the Media 100 Preferences (Media 100>Preferences>Audio Input).

NOTE Although you may convert the audio sample rate on acquisition, all audio is handled at 48 kHz through the Media 100 hardware.

NOTE Media 100 HD supports SDI embedded audio.

Computer Graphics

Keep in mind video and computer signals are fundamentally different. Video signals are comprised of non-square pixels, while computer-based pixels are square. If you plan to use many square-pixel still images created in a third-party product, such as Adobe® Photoshop®, determine the most effective approach for their use.

- Design elements in these applications for square pixel resolution and enable Media 100 to apply the necessary scaling on import to convert the aspect ratio.
- Design elements at a resolution of 648x486 for NTSC SD 4:3. This will eliminate the possibility of jaggies as the interpolation takes place along with the scanline, not against it. The mapping of pixels then from 648 to 720 is just a small scale of the pixel aspect ratio.
- Another popular resolution is 720x540 for NTSC SD 4:3, however there is a bit more room for error on the scaling down to 486.

TIP If you are working on an element with horizontal lines, stretch the resolution from 648 to 720 so you are working at 720x486. This will aid in the elimination of buzzing.

Video Standard	Square Pixel Graphic Resolution
NTSC SD 4:3	■ 648 x 486
NTSC SD 16:9	■ 864 x 486
PAL SD 4:3	■ 768 x 576
PAL SD 16:9	■ 1024 x 576
HD 1920 x 1080	■ 1920 x 1080
HD 1280 x 720	■ 1280 x 720

NOTE HD resolutions are already square pixel so work in the native resolution. No scaling is required.

Output Formats

Media 100 enables simultaneous output of digital signals, analog signals and a reference out. You may elect to output SD, HD 720p or HD 1080i. Keep in mind for output you are allowed only one conversion of format. Therefore if you perform a conversion on acquistion, for example an SD signal to HD 1080i that is using your one conversion of format and thus you could not cross-convert on output to 720p. Output Settings are modified in the Audio Output and Video Output panels of the Media 100 Preferences (Media 100>Preferences).

Video Output	Video Output Options
Output	■ Media 100 system ■ FireWire ■ FireWire (Mastering Only) ■ None
SDI	■ SD 720x486i (NTSC); SD 720x576i (PAL) ■ HD 1920x1080i ■ HD 1280x720p
Analog	■ SD Composite ■ SD Component ■ SD Y/C ■ HD Component

NOTE When converting from 4:3 SD media to HD output, additional conversion options are enabled. These include 4:3 to 14:9, 16:9 to 14:9, Crop, Pillarbox and Scale to Fit. When converting HD media to SD output, additional conversion options of 4:3 to 14:9, 16:9 to 14:9, Crop to 4:3, Letterbox to 4:3 and Scale to Fit 16:9 are also available. In addition a Custom Scaler offers complete flexibility of conversion options.

NOTE If FireWire is the output selection and a deck is not connected, the timeline will not play because it's attempting to master the timeline as output and it can't. Therefore, if FireWire (Mastering Only) is the selected output, the system will allow the timeline to be played and will seek the deck connection when mastering only.

▼ About the Interface

The Media 100 interface complements the Mac® OS X™ operating system. Some of the OS X features that Media 100 has implemented are:

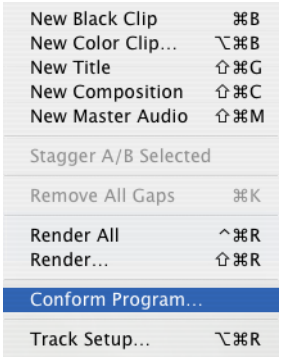
- Flashing buttons that require action
- Window tabs
- Two-button mouse contextual menus

TIP For a one button mouse, click and press the HELP key to access contextual menus.

- Mouse buttons mapped to the application

Using Contextual Menus

Media 100 provides contextual menus in the Program, Bin, and Project windows. To access the contextual menus, press HELP and click the mouse in the Program, Bin or Project window. The following example is a Program window contextual menu.



▼ Creating a Project

To start a new project, create, name, and save three elements: the project file, one or more bins, and one or more programs. As you create these elements, Media 100 generates a separate window for each.

Project window Maintains a list of all the bins and programs in a project.

Bin window Contains acquired clips or other media that you store in the bin. You can create an unlimited number of bins.

Program window Displays a representation of the clips you assemble and manipulate. You can create an unlimited number of programs.

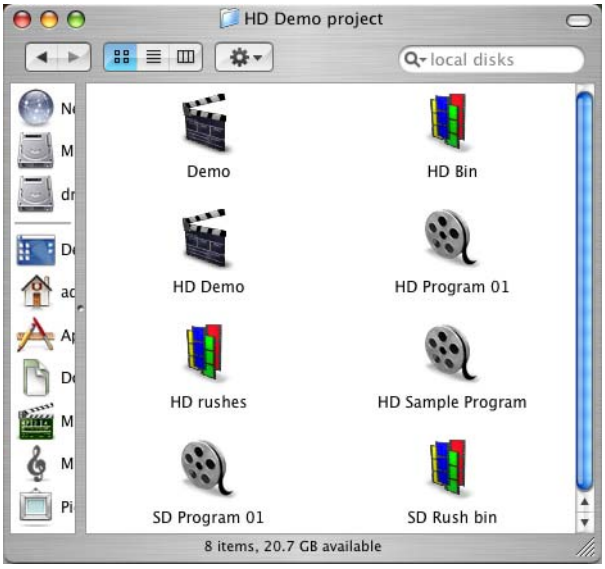
When you create each element, Media 100 stores them as files on your system. To locate these files easily, create a separate folder for each of your projects.

NOTE You can use the same bins and programs in multiple projects. The media folders are shared.

Setting Up Project Folders

To set up a project folder, decide where you want to store your project. For example, to create a project called “Demo,” first create a folder called “Media 100 Projects.” Then, within this folder, create another folder called “Demo.”

Store your Demo project, bin, and program files in the Demo folder. Media 100 automatically stores these files in Icon view.

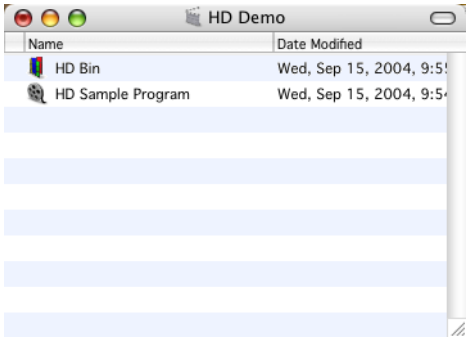


Memory Requirements

The Media 100 application requires 2GB (Gigabyte) of Random Access Memory (RAM). If you do not have at least 2GB of RAM, system performance may be affected.

Creating a New Project

The Project window is the primary interface to the project and remains open while you work with its bins and programs. As you create bins and programs for your project, the Project window displays a list of all the associated bins and programs.



You cannot open more than one project at a time. When you close a project, you also close associated bins and programs. You cannot open a bin or program without having a project open.

To create a new project for the first time

1 Launch Media 100.

The startup screen appears, and a directory dialog box opens.

2 Type a name for your project, select a location to store it, and click Save.

The Project Settings dialog box appears.

NOTE Unless you plan to use another system, save the project files to your internal drive. This makes it easier to troubleshoot media problems, and may improve system performance.

Relaunching Media 100

Press the SHIFT key while launching Media 100 to open the application without opening the last saved project files (bins and programs).

Press the OPTION key while launching Media 100 to open the application without opening the last saved project. The Open window appears.

Choosing Project Settings

The Project Settings dialog box has four panels.

Media Destinations	Defines where on your system to store media files.
Media Locations	Lists the location of your stored media files.
Media Settings	Defines compression settings that control the quality of acquired or imported video material, as well as rendered media such as transition effects, and graphics.
Real Time	Plays real-time effects and titles at Draft Quality

To open the Project Settings dialog box

1 Press ⌘-M or choose Media 100>Project Settings.

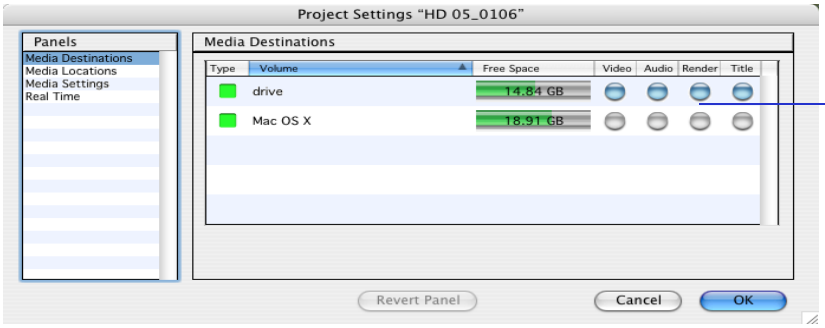
2 Click a panel name in the Panels list to switch to that panel.

Media Destinations

Specify where to store your media in the Media Destinations panel. Where you store media affects the speed with which Media 100 accesses the media. Store all content on high-speed external drives.

To specify Media Destinations

➤ In the Media Destinations panel, click the intersecting lines in the grid to select the external drive(s) where you want to store the following types of media files: Video, Audio, Render, and Title. Render is where rendered effects, filters and all other rendered clip media will reside. Title is where where titles created using the Boris tools will reside. Render and Title media will be placed in the project media folder in a subfolder labeled “Rendered Media” and Titles” respectively.

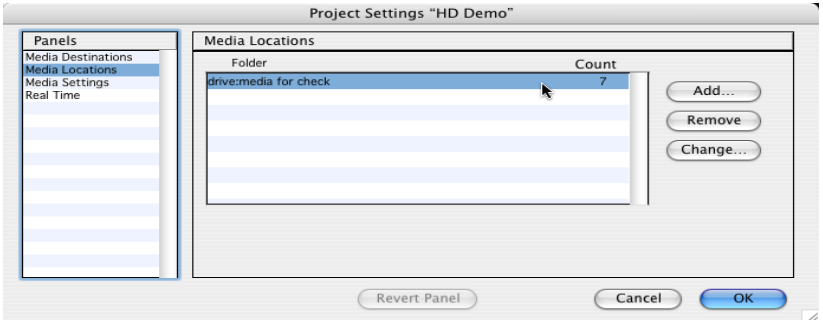


Teal spheres appear where you click the grid, indicating the selected drives for the acquired media files.

If you do not specify where to store media file types for a new project, the system defaults to the disk where the new project resides, which may be the internal system drive.

Media Locations

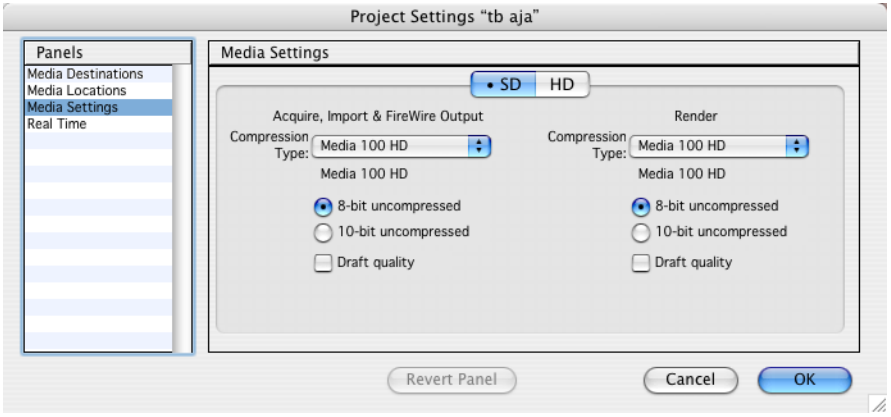
The Media Locations panel lists where your media is located. When you use the Find Media command, Media 100 searches the folders in the Media Locations panel.



NOTE An italicized folder name means that the system could not find the folder.

Media Settings

The Media Settings panel is where you choose a compressor to be used for acquired or imported media as well as a compressor for rendered media. Settings are specified separately for SD media and HD media.



To choose a compression type

➤ Choose a compressor type for acquisition, importing and FireWire output from the Compression Type menu. Choose a compressor type for rendered media from the Compression Type menu. These settings controls how the Media 100 system compresses your video data for acquisition, import, FireWire output and rendered media respectively.

Choose...	To...
Media 100 HD™	Create the best quality content **NOTE** This is the only available compression when acquiring HD content
Media 100 i™	Take your final output to a Media 100 i system
Media 100 844/X™	Take your final output to a Media 100 844/X system.
DV	Supports SD only; Good Quality; 3.13 MB/sec data rate
DVCPro	Supports SD only; Good Quality
DVCPro 50	Supports SD only; Very Good Quality; 6.26 MB/sec data rate
DVCPro HD	Suports HD only; Excellent quality; 12 MB/sec
Motion JPEG B	Supports SD or HD; Very Good Quality
Uncompressed 8-bit 4:2:2	Supports SD or HD; Excellent quality; 21 MB/sec data rate for SD; 100-124 MB/sec data rate for HD
Uncompressed 10-bit 4:2:2	Supports SD or HD; Excellent quality; 28 MB/sec data rate for SD; 133-166 MB/sec data rate for HD

NOTE Compression Type options vary depending on the video standard selected (Media 100>Preferences>Video Input). For example if HD 1920x1080i is the selected standard, the compression type options are: Media 100 HD; Motion JPEG B; Uncompressed.

Codec Selections by Model

CODEC	SDe SD	SDe HD	HDe SD	HDe HD	HDSuite SD	HD Suite HD
Media 100 HD™	X	X	X	X	X	X
Media 100 i™	X		X		X	
Media 100 844/X™	X		X		X	
DV	X		X		X	
DVCPro	X		X		X	
DVCPro 50	X		X		X	
DVCPro HD		X				X
Motion JPEG B	X	X	X	X	X	X
Uncompressed 8-bit 4:2:2	X	X	X	X	X	X
Uncompressed 10-bit 4:2:2	X	X			X	X

Setting the Quality Data Rate

The Quality settings vary based on the compressor selection. The Media 100 HD compressor is the native compressor for the Media 100 system. When choosing the Media 100 HD compressor, the quality data rate of the acquired content can be either 8-bit or 10-bit uncompressed. You may also elect to acquire at draft quality which field doubles the media on acquisition (acquiring a single field and doubling it). The 844/X compressor enables Draft Quality, 8-bit uncompressed or 10-bit uncompressed quality options. The Media 100 i compressor enables Draft Quality and compression options from 10 KB per frame to 300 KB per frame as well as Lossless Compression. The DV, DVCPro, DVCPro 50 and Motion JPEG B compressors enable a slider option from Least to Best.

The target data rate (kilobytes per frame) directly affects the amount of disk space each frame of the source media occupies. The target data rate also determines the quality of the image produced when the media is acquired and compressed.

Lower target data rates let you store more data on your disk at a lower image quality. As your data rates rise, the image quality improves, and the disk storage capacity decreases.

8-bit versus 10-bit

One bit of data can define two levels, for example black and white. Two bits of data can define four levels, three bits of data define eight levels and so on. Therefore, eight bits can define two hundred fifty six levels and ten bits can define one thousand twenty four levels.

8-bit images use 8 bits of data per channel which delivers a data range between 0 and 255 for each channel. 10-bit images use 10 bits of data per channel which delivers a data range between 0 and 1023 for each channel. Therefore a 10-bit image can carry four times more data per channel than an 8-bit image.

Every video signal is comprised of luminance and chrominance. Luminance is the brightness of the signal from black to white and chrominance is the color part of the signal in regards to hue and saturation. There is one luminance (Y) part and two chrominance (Cr, Cb) parts to every video signal. Every line of a standard definition video image has 720 luminance samples and 360 chrominance samples each for Cr and Cb. This totals 1440 samples per line.

In a NTSC 525/60 (720 x 486) picture there are 486 active lines. Therefore, 486 active lines sampled at 1440 per line means there are 699,840 pixels per picture. If each pixel is sampled at 8-bit resolution, the total number of bits is 5,598,720 or 699,840 bytes or 699.8 KB (kilobytes) per frame. At 29.97 frames per second, the total throughput is 20,973 KB or 21 MB (megabytes) per second. At 10-bit resolution, there are still 699,840 pixels per picture, however sampled at 10-bit resolution, the total number of bits is 6,998,400 or 874,800 bytes or 874.8 KB per frame. At 29.97 frames per second, the total throughput is 26,224 KB or 26 MB per second.

The same can be applied to a PAL 625/50 (720 x 576) picture which is comprised of 576 active lines. Sampled at 1440 per line there are 829,440 pixels per picture. At 8-bit resolution, the total number of bits is 6,635,520 bits or 830 KB. At 25 frames per second, the total throughput is 20,750 KB or 21 MB per second. At 10-bit resolution, the total number of bits is 8,294,400 or 1,036,800 bytes or 1036.8 KB per frame. At 25 frames per second, the total throughput is 25,920 KB or 26 MB per second.

As 8-bit quality for both NTSC and PAL is approximately 21 MB per second which is equivalent to 1,260 MB per minute or 75,600 MB per hour. This means one hour of 8-bit video content will require approximately 76 GB of drive space.

As 10-bit quality for both NTSC and PAL is approximately 26 MB per second which is equivalent to 1560 MB per minute or 93600 MB per hour. This means one hour of 10-bit video content will require approximately 94 GB of drive space.

In an HD 1920 X 1080 picture there are 1080 active lines. Therefore, 1080 active lines sampled at 1920 per line means there are 2,073,600 pixels per picture. If each pixel is sampled at 8-bit resolution, the total number of bits is 16,588,800 or 2,073,600 bytes or 2073.6 KB (kilobytes) per frame. At 29.97 frames per second, the total throughput is 62,145.8 KB or 62 MB (megabytes) per second. At 10-bit resolution, there are still 2,073,600 pixels per picture, however sampled at 10-bit resolution, the total number of bits is 20,736,000 or 2,592,000 bytes or 2,592 KB per frame. At 29.97 frames per second, the total throughput is 77,682 KB or 78 MB per second.

The throughput at 8-bit quality for HD 1920 x 1080 is approximately 62 MB per second which is equivalent to 3720 MB per minute or 223,200 MB per hour. This means one hour of HD 1920 x 1080 video content will require approximately 223 GB of drive space.

NOTE The data rate applies only to video source material. It does not apply to audio material, as acquired audio files are not compressed.

Using Draft Modes

The batch acquire feature gives you the flexibility to initially acquire your video media at a draft-quality setting and then reacquire at the online-quality setting.

Video media acquired using draft-quality settings results in lower picture quality and lack of detail unsuitable for final output. Draft quality settings use field doubling at playback as only a single field (the dominant field) is acquired. Draft quality settings also use higher compression ratios when the video source is acquired using a compressor that enables compression such as Media 100 i or Motion JPEG B.

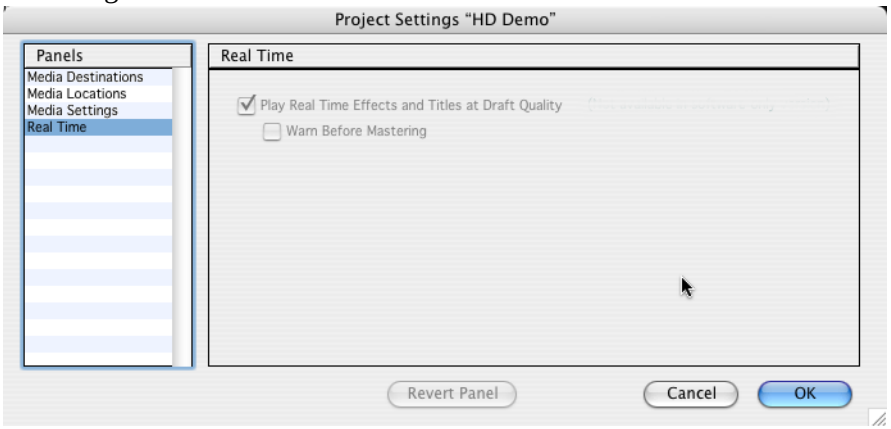
Therefore, by using draft quality, more content may be stored on the disk arrays for the editing process. But keep in mind the content will need to be reacquired at an uncompressed or higher quality compressed rate for final delivery.

NOTE You cannot use batch acquire for audio source media without integrated timecode.

Real Time

The Real Time panel is where you specify the playback of real-time effects and titles to occur at draft quality. When a compressor other than the native Media 100 HD format is used, this enables smoother playback as each frame is decompressed

on the fly during the playback process. If you select this option, you can also choose to Warn Before Mastering as a reminder to deselect the draft quality playback when mastering.



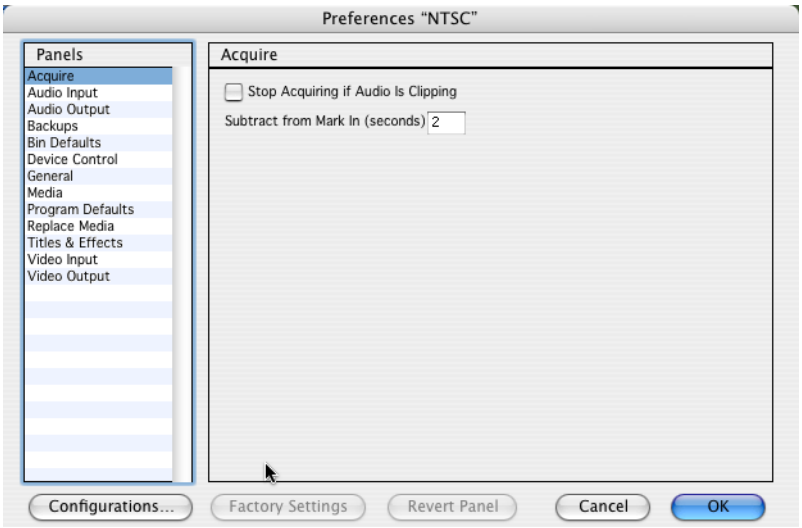
Setting Preferences

Before creating bins or programs for your project, configure your Media 100 system by selecting settings from the Preferences dialog box.

To access the Preferences dialog box

➤ Choose Media 100>Preferences.

The Preferences dialog box appears.



The following table explains elements common to all panels.

Preferences Dialog Box Elements

Name	Description
Panels list	Displays the Preferences panel names. Click a panel name to switch to that panel.
Configurations button	Accesses the Configurations dialog box to use customized preference settings.

Preferences Dialog Box Elements *(Continued)*

Name	Description
Factory Settings button	Changes the settings in the current panel to the Media 100 HD default settings.
Revert Panel button	Changes the settings in the current panel to the previously saved settings.
Cancel button	Closes the dialog box without saving changes to any panel.
OK button	Saves the settings in all panels to the active configuration and closes the dialog box.

Working with Preference Configurations

Media 100 provides two preference configurations: NTSC and PAL. You can customize and save preference configurations. Each configuration contains a particular set of Preference settings. Only one preference configuration is active at a time. The active configuration remains in effect until you change or delete it.

You can set custom configurations to use for different types of projects. This feature is also useful if you are working in a multi-user environment, where each user has individual project requirements.

NOTE If you are working in a multi-user environment or on multiple projects, when you open a project, verify that the correct configuration is active.

You can

- Create a custom configuration
- Set a preference configuration
- Export and import a configuration
- Rename a configuration
- Delete a configuration

Preference configurations are located in the Media 100 Preferences folder. The Media 100 Preferences folder is located in the User Account/Library/Preferences/ Media 100 Preferences.

Creating a Custom Configuration

Create a configuration using one of the following methods:

- Change and rename

  Change the settings of the current configuration, then rename your new settings.

- Duplicate and change

  Duplicate a configuration, rename it, then change the settings as needed.

To create a configuration by changing and renaming

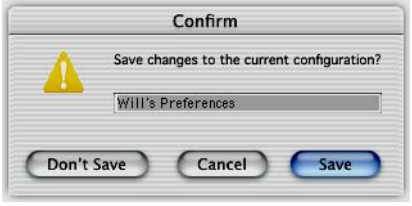
1 Choose Media 100>Preferences.

  The Preferences dialog box appears.

2 Make the necessary changes to the current configuration.

3 Click Configurations.

  The Confirm dialog box appears.



4 Type a new name in the name field.

  The Save button changes to a Create button.

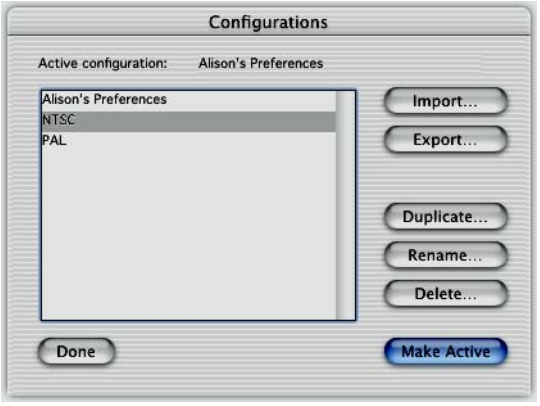
5 Click Create.

  The new configuration appears in the Configurations list.

To create a configuration by duplicating and changing

1 Choose Media 100>Configurations>Edit Configurations.

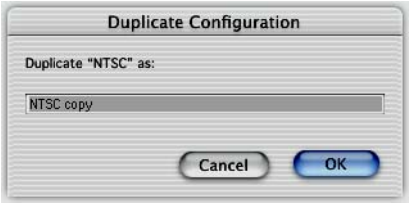
The Configurations dialog box appears.



2 Select a configuration from the Configurations list.

3 Click Duplicate.

The Duplicate Configuration dialog box appears.



4 Type a new name in the name field and click OK.

Media 100 returns you to the Configurations dialog box.

NOTE If you type a name that has illegal characters or is already in use, an error message appears. Click OK and type another name.

5 Click Make Active.

6 Make the necessary changes in the Preferences dialog box and click OK.

Setting a Preference Configuration

Media 100 provides two configurations: NTSC and PAL. You can use one of these, or you can create or select a custom configuration.

To set a preference configuration

➤ Choose Media 100>Configurations and select a configuration from the submenu.

Or

1 Open the Configurations dialog box by doing one of the following:

- Choose Media 100>Configurations>Edit Configurations.
- Choose Media 100>Preferences and click Configurations.

2 Select a configuration from the list.

3 Click Make Active.

The selected configuration becomes active.

TIP Although you can change the NTSC and PAL configurations, you may want to create a custom configuration when you alter the settings to maintain the integrity of the original.

Exporting and Importing Configurations

Export a configuration to a disk or shared volume for use on another Media 100 system or as a method of backup.

To export a configuration

1 In the Configurations dialog box, select a configuration and click Export.

2 Select a destination in the Export dialog box and click Export.

Once you export a configuration, you can import it.

To import a configuration

1 Choose Media 100>Configurations>Edit Configurations.

The Configurations dialog box appears.

2 Click Import.

3 Select the configuration location in the Import dialog box and click Import.

Renaming a Configuration

You can rename a configuration to make the name more relevant.

To rename a configuration

1 In the Configurations dialog box, select the configuration and click Rename.

2 Change the name in the Rename dialog box and click OK.

NOTE If you type a name that has illegal characters or is already in use, an error message appears. Click OK and type another name.

Deleting a Configuration

Delete a configuration when it is no longer useful.

TIP To delete a configuration from the current list, but save it for future projects, export the configuration to disk, then delete it from the Configurations list.

To delete a configuration

1. In the Configurations dialog box, select the configuration and click Delete.
2. In the Confirm dialog box that appears, click Delete.

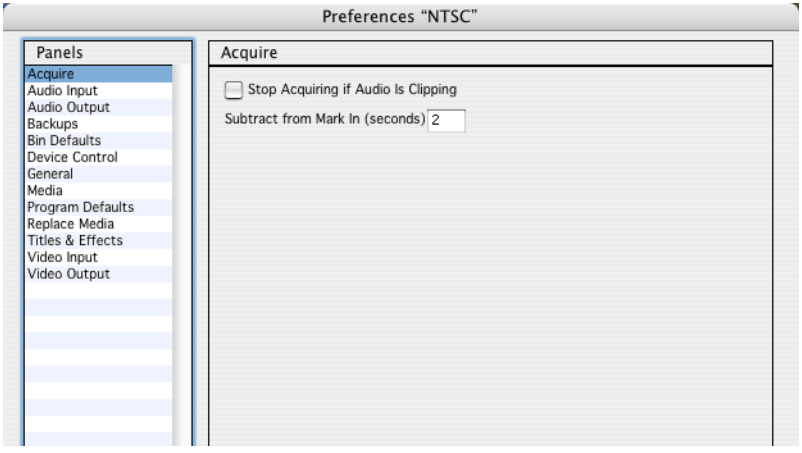
NOTE Although you can delete the NTSC and PAL configurations, it is not recommended, as you may need them in the future. To restore them, you need to trash your Media 100 Preferences folder (User Account/Library/Preferences/Media 100 Preferences). You will lose any custom configurations that you do not move or export elsewhere.

Preference Panels

The following sections explain the preference options in each panel.

Acquire Panel

The Acquire panel contains settings for acquiring media.



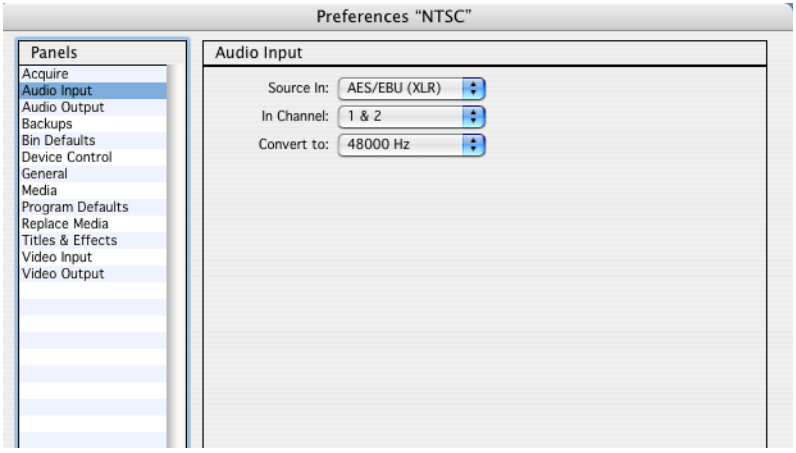
The following table describes the Acquire panel elements.

Acquire Panel Elements

Name	Description
Stop Acquiring if Audio Clips check box	Stops the acquisition process when audio is clipping until you press Start in the Edit Suite window.
Subtract from Mark In (secs) field	Sets the time (from 1 to 5 seconds) subtracted from the In mark in the timecode field when using the Mark In button to set a start point for acquiring media. This compensates for the delay between when you see the desired start point and when you click Mark In.

Audio Input Panel

The Audio Input panel contains settings for acquiring audio media.



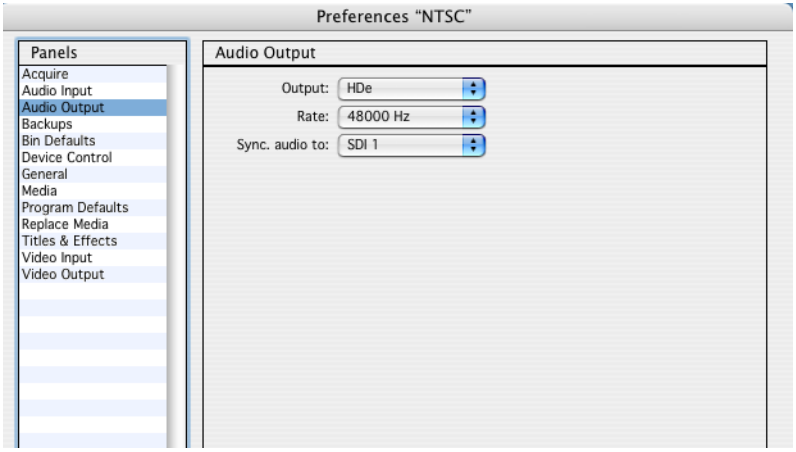
The following table describes the Audio Input panel elements.

Audio Input Panel Elements

Name	Description
Source In menu	Specify the audio input source: Analog; AES/EBU via XLR connectors; AES/EBU via BNC connectors; SDI Embedded*; FireWire; None **NOTE** *SDI Embedded is available on Media 100 HDx.
In Channel menu	Specify the channels through which the audio source is being acquired.
Convert to Sample Rate menu	Specify the desired sample rate to convert the audio clip. **NOTE** This setting determines the audio sample rate when creating a new program timeline as well.

Audio Output Panel

The Audio Output panel contains settings for audio output.



The following table describes the Audio Output panel elements.

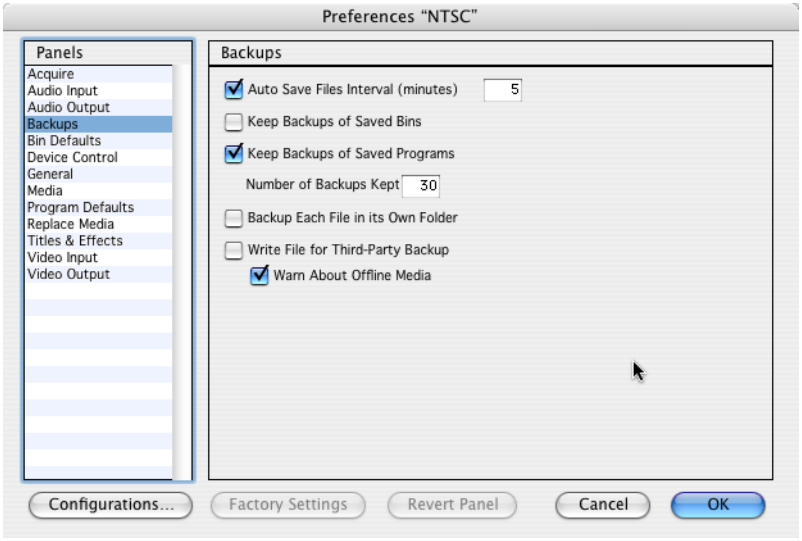
Audio Output Panel Elements

Name	Description
Output	Specifies the Media100 system; FireWire; FireWire (Mastering Only) or None for audio output.
Sample Rate	All audio output through the Media 100 hardware is sampled at 48 kHz.
Sync audio to	Specify the video output to sync the audio to.

NOTE If FireWire is the output selection and a deck is not connected, the timeline will not play because it's attempting to master the timeline as output and it can't. Therefore, if FireWire (Mastering Only) is the selected output, the system will allow the timeline to be played and will seek the deck connection when mastering only.

Backups Panel

The Backups panel contains project backup and auto save settings. The actual folder in which the backup selections are stored is located in User Account/Documents/ Media 100 Backups.



The following table describes the Backups panel elements.

Backups Panel Elements

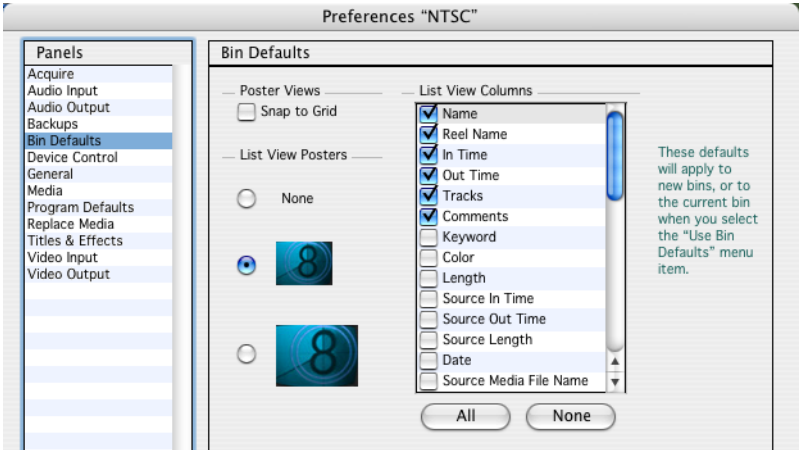
Name	Description
Auto Save Files Interval check box and field	Saves all your project files at the interval you type in the field. Specify a value from 5 to 60 minutes. Media 100 will activate auto save only after you save a new file at least once.
Keep Backups of Saved Bins check box	Creates a backup copy of a bin when you save it (or when autosave activates) and stores it in the Backups folder in the Media 100 folder.
Keep Backups of Saved Programs check box	Creates a backup copy of a program when you save it (or when autosave activates) and stores it in the Backups folder in the Media 100 folder.

Backups Panel Elements *(Continued)*

Name	Description
Number of Backups Kept field	Limits the combined number of bin and program backup copies to the specified number (from 1 to 99). The Backups folder stores the backup files by date modified, with the most recent file listed first. Once the limit is reached, the system replaces the oldest files first.
Backup Each File in its Own Folder check box	Creates a folder under the Backups folder for each program with the name of the program. Once the quantity of backups specified in Number of Backups Kept is reached, the oldest version of the program in that folder is deleted.
Write File for Third-Party Backup check box	Creates a database of project information.
Warn About Offline Media check box	Alerts you that you have offline media when backing up a project.

Bin Defaults Panel

The Bin Defaults panel contains default settings for new bins.



The following table describes the Bin Defaults panel elements.

Bin Defaults Panel Elements

Name	Description
Snap to Grid check box	In Poster view, confines movement of clips to a grid.
List View Posters	In List view, determines the size of the poster, if any.
List View Columns	The check boxes selected in this section represent the columns of clip information displayed and their order when bins are in list view.
Name	Displays the clip name.
Reel Name	Displays the name of the reel from which the media was acquired.
In Time	Displays the In point time of a clip.
Out Time	Displays the Out point time of a clip.
Tracks	Displays the audio and video track(s) to which the media is assigned.
Comments	Displays comments that you typed into the field providing clarifying or instructive information about the clip.
Media Online	Allows you to categorize all the online media in your project. Any media not listed as online is offline. This media you need to relink or reaquire.
Frame Size	Displays the frame size of a clip.
Aspect Ratio	Displays the aspect ratio of a clip.
Data Rate	Displays the data rate - uncompressed or compressed with the KB rate and mode (Draft or Online) at which the clip was acquired. Or, in the case of logged clips, the KB rate at which the clips will later be acquired.
Keyword	Displays a key word that is a representative word for the clip.
Color	Displays a selectable color tag for each clip.

Bin Defaults Panel Elements *(Continued)*

Name	Description
Length	Displays the length of a clip.
Source In Time	Displays the In time of the source media, regardless of trimming.
Source Out Time	Displays the Out time of the source media, regardless of trimming.
Source Length	Displays the length of the source media, regardless of trimming.
Date	Displays the date the clip was acquired or rendered.
Source Media File Name	Displays the file name of the actual acquired or imported media.
Input Setup	Displays the input setup type used when the media was acquired.
Standard	Displays the PAL or NTSC video standard of the media.
ColorFX™	Displays any color effect applied to the clip.
TimeFX™	Displays the speed applied to the clip.
Audio Frequency	Displays the audio frequency of the clip.
Audio EQ	Displays the Audio EQ applied to the clip.
Rendered Media File Name	Displays the file name of the media that has been rendered.
Source Media File Size	Displays the file size of the source media in megabytes (MB) before any changes have been made to it during a Media 100 session.
Rendered Media File Size	Displays the file size of the rendered media in megabytes (MB) after rendering.
Audio In Channel	Displays the number of the Audio In Channel.
Audio Dynamics	Displays the Audio Dynamics applied to the clip

Bin Defaults Panel Elements *(Continued)*

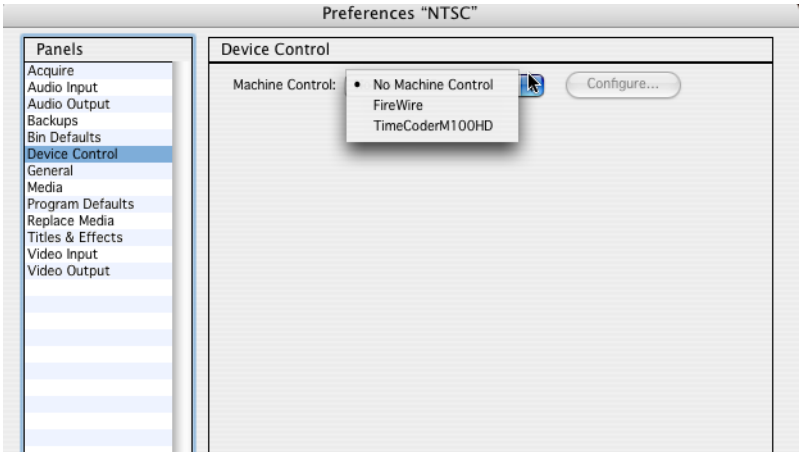
Name	Description
Reverb	Displays the Reverb applied to the clip.
Compressor	Displays the compressor used when the clip was acquired.
Frame Rate	Displays the frames per second of the acquired clip.
Interlacing	Displays the content as interlaced or progressive.
Bit Depth	Displays the bit depth of the acquired clip - 8-bit or 10-bit uncompressed.
Draft	Displays the content as draft or online quality.
Alpha	Displays the presence of an alpha channel on the acquired clip.
Input Scaling	Displays the type of input scaling

NOTE You can change the order that settings appear in the bin in List view by dragging the setting to a new position in the List View Columns section.

To change the view settings for a selected bin only, choose View>View Settings or select Settings in the Bin toolbar. You can change the order that settings appear in a specific bin in List View by dragging the column heading to the desired location.

Device Control Panel

The Device Control panel contains settings for VTR machine control.

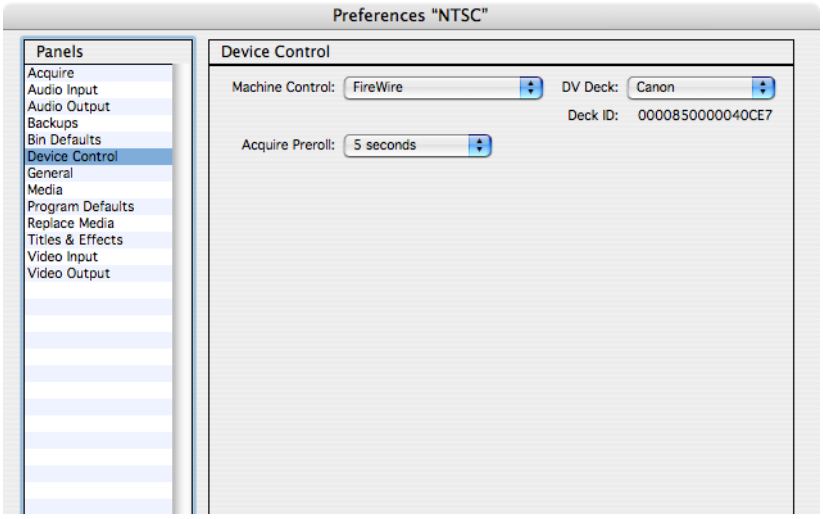


The following table describes the Device Control panel elements.

Device Control Panel Elements

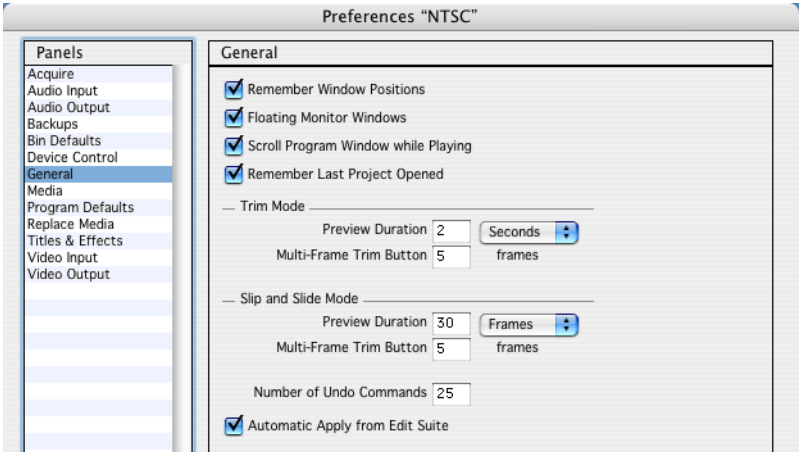
Name	Description
Machine control	Choose whether to use TimeCoderM100HD, FireWire or no machine control.
Configure	Click to open additional setting options for the TimeCoderM100HD.

When FireWire is the selected machine control, a selection for the type of DV Deck becomes available as well as a duration for preroll during acquisition.



General Panel

The General panel contains miscellaneous settings.



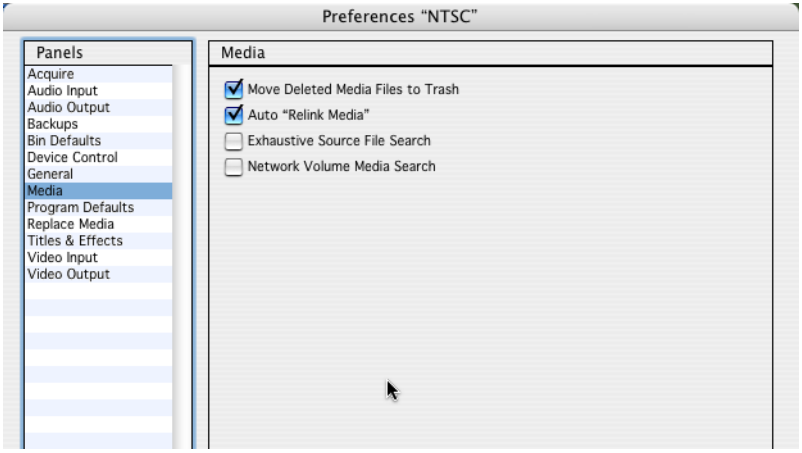
The following table describes the General panel elements.

General Panel Elements

Name	Description
Remember Window Positions check box	Remembers the position of your windows when you quit. When you launch the application, your windows appear in the same position as when you last quit the application.
Floating Monitor Window check box	Keeps the Monitor window in front of all other windows.
Scroll Program Window while Playing check box	Scrolls the Program window as you play a program to let you view each part of the program.
Remember Last Project Opened check box	Opens the last project saved the last time the application was open.
Trim Mode Preview Duration field and Multi-Frame Trim button	Sets the amount of time (seconds or frames) to preview a video selection at a trim point using Play Selected in the Edit Suite window. Half the time is allocated to preview the material before the trim point and half to preview it after the trim point. Multi-Frame Trim button specifies the number of frames to be trimmed when using the multi-frame trim button in the Edit Suite window.
Slip and Slide Mode Preview Duration field and Multi-Frame Trim Button field	Sets the amount of time (seconds or frames) to preview a video selection at a trim point using Play Selected in the Edit Suite window. Half the time is allocated to preview the material before the trim point and half to preview it after the trim point. Multi-Frame Trim button specifies the number of frames (from 2 to 30) that a trim point moves when you use Multi-Frame Forward and Multi-Frame Backward in the Edit Suite window.
Number of Undo Commands field	Specifies the number of commands that can be stored and available to undo (from 1 to 150). The default is 25. A higher number requires a greater amount of system memory.
Automatic Apply from Edit Suite	Applies changes made to a clip in the bin or timeline without clicking the Apply button.

Media Panel

The Media panel contains settings for manipulating media.



The following table describes the Media panel elements.

Media Panel Elements

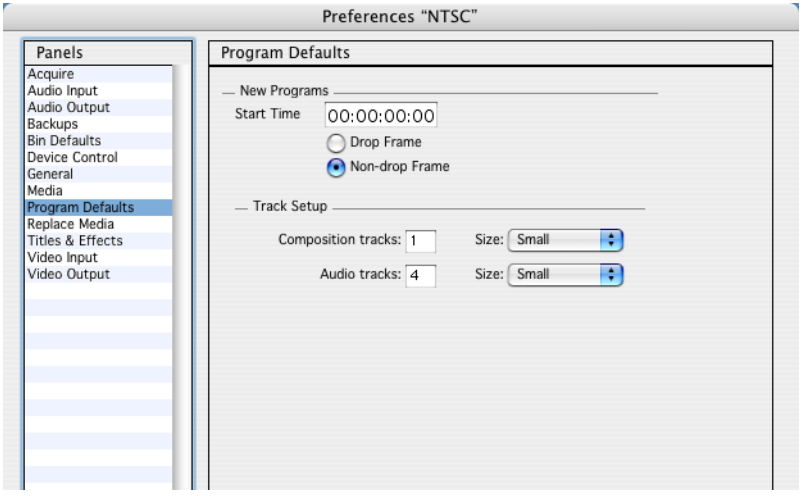
Name	Description
Move Deleted Media Files to Trash check box	Moves media files that you delete to the Trash. You can retrieve these files from the Trash or delete them by emptying the Trash. If you do not select this preference, the Media 100 program permanently removes deleted files from your hard drive.
Auto "Relink Media" check box	Relinks media in projects, bins, and programs to their source media files when you move media files to different folders or drives, change the names of folders or files, or open a bin owned by another project in a new project.

Media Panel Elements *(Continued)*

Name	Description
Exhaustive Source File Search check box	Searches the last place where source media was stored. If the source media is missing, it searches through all mounted drives and network volumes for PICT or QuickTime source files. Select this preference if you moved your source files and you intend to export, master to tape, render all, or force render all. If you do not select this preference, the Media 100 program only searches the last place the source file was found.
Network Volume Media Search check box	Searches in all network volumes for offline media when you open a project or select Relink Media.

Program Defaults Panel

The Program Defaults panel contains default settings for new programs.



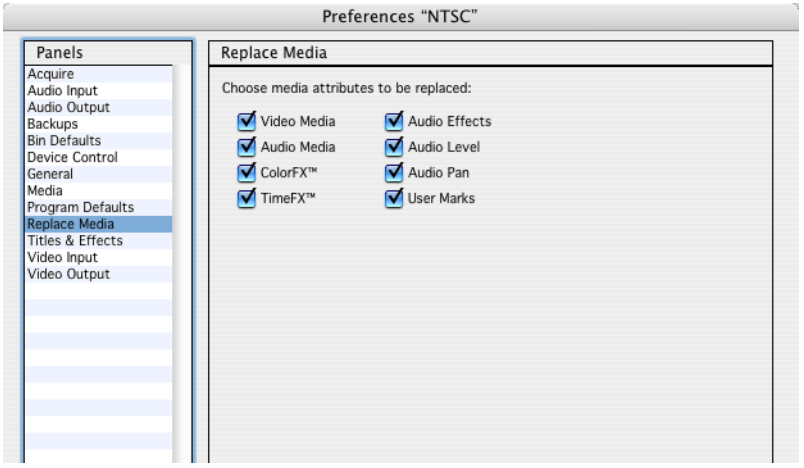
The following table describes the Program Defaults panel elements.

Program Defaults Panel Elements

Name	Description
Start Time text field	Set a specific start time for new programs.
Drop Frame radio button	Sets new NTSC programs to use drop frame timecode.
Non-drop Frame radio button	Sets new NTSC programs to use non-drop frame timecode.
Track Setup section	Set track setup defaults for the number of composition tracks and audio tracks for new programs. To change the track setup for the currently selected program, use the Track Setup dialog box (Track>Track Setup).
Audio Track Size	Set the expanded (Level and Pan display) audio track size for the entire project. Sizes include: ■ Small ■ Medium ■ Large To change the track size for the currently selected program, use the Track Setup dialog box (Track>Track Setup).
Video Track Size	Set the expanded (Opacity display) video track size for the entire project. Sizes include: ■ Small ■ Medium ■ Large To change the track size for the currently selected program, use the Track Setup dialog box (Track>Track Setup).

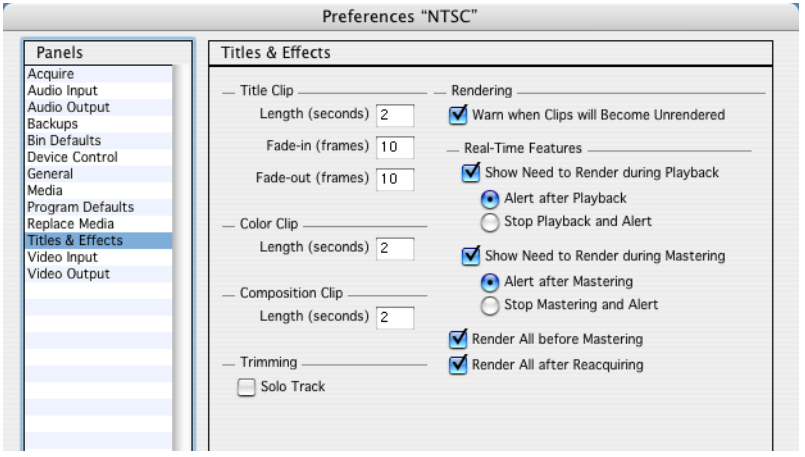
Replace Media Panel

The Replace Media panel lets you choose the clip attributes to replace when using the Replace Media command. See chapter 9 “Replacing Media.”



Titles & Effects Panel

The Titles & Effects panel contains settings for rendering titles and effects as well as title clip length, fade-in, and fade-out.



The following table describes the Titles & Effects panel elements.

Titles & Effects Panel Elements

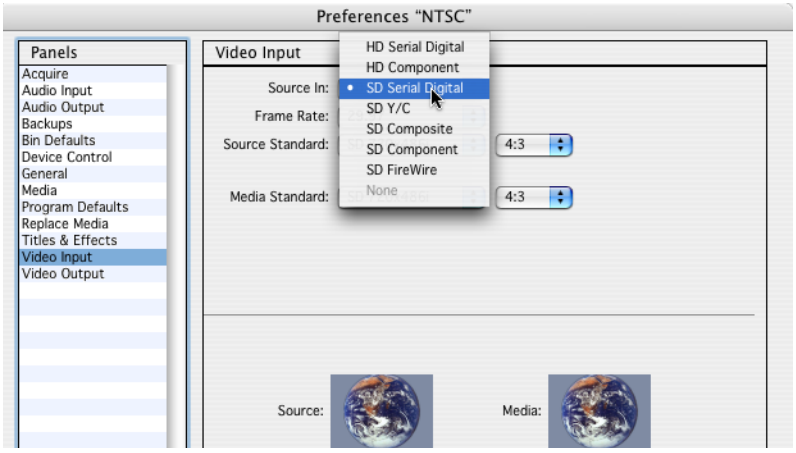
Name	Description
Length (seconds) field	Sets the default length of a title clip.
Fade-in (frames) field	Sets the default fade-in duration of a title clip.
Fade-out (frames) field	Sets the default fade-out duration of a title clip.
Color Clip Length (seconds) field	Sets the default length of a color clip.
Composition Clip Length (seconds) field	Sets the default length of a composition clip.
Render All before Mastering check box	Renders all titles and effects before mastering.
Render All after Reacquiring check box	Renders all titles and effects after reacquiring.
Warn when Clips will Become Unrendered check box	Alerts you if an action that you are performing on a clip, such as adding a transition or effect, causes the clip to unrender. Applies primarily to actions involving composition clips.
Show Need to Render During Playback check box	Notifies you if you need to render a title before you can preview it during playback. You can choose for the system to alert you when playback is complete or to stop playback and alert you.
Alert after Playback radio button	Alerts you that you need to render a title when playback is complete.
Stop Playback and Alert radio button	Stops playback and alerts you that you need to render a title before playback is complete.
Show Need to Render During Mastering check box	Notifies you if you need to render a title before mastering it to tape. You can choose for the system to alert you after mastering, or to stop mastering and alert you.

Titles & Effects Panel Elements *(Continued)*

Name	Description
Alert after Mastering radio button	Alerts you that you need to render a title when mastering is complete.
Stop Mastering and Alert radio button	Stops mastering and alerts you that you need to render a title before mastering is complete.

Video Input Panel

The Video Input panel contains settings for acquiring video media. This includes batch acquisition as well as conforming media from its source media standard to a media standard on disk.



The following table describes the Video Input panel elements.

Video Input Panel Elements

Name	Description
Source In	Specify the video source for your equipment.
Frame Rate	Specify the frames per second - 25 (PAL) or 29.97 (NTSC)

Video Input Panel Elements *(Continued)*

Name	Description
Source Standard	Specify the resolution; and aspect ratio **NOTE** Only HD media offers resolution selections.
Media Standard	Specify the format to convert the video source to.
Video Pedestal	Specify the playback reference black levels for the NTSC standard. ■ 0 IRE - The reference black signal for NTSC in Japan ■ 7.5 IRE - The reference black signal for NTSC in countries other than Japan **NOTE** The Video Pedestal selection only displays if the Video Input Standard is NTSC Composite, Y/C or Component analog. The pedestal is always 0 IRE for PAL video standards
Convert	Specify how to convert the video source. Options include include 4:3 to 14:9, 16:9 to 14:9, Crop, Pillarbox and Scale to Fit. In addition a Custom Scaler offers complete flexibility of conversion options The Convert button only displays if the Video Input Standard differs from the Media Standard.

Conversion Descriptions

Convert	Description
4:3 to 14:9	Conversion to BBC recommended standard. Crops the top and bottom, and pillarboxes the result (black on left and right)
16:9 to 14:9	Conversion to BBC recommended standard. Crops the left and right, and letterboxes the result (black on top and bottom)
Crop	Crops the top and bottom.
Pillarbox	Adds black on left and right.
Scale to Fit	Stretches the image to fit the new aspect ratio.
Crop to 4:3	Crops the left and right.
Letterbox	Adds black on top and bottom.

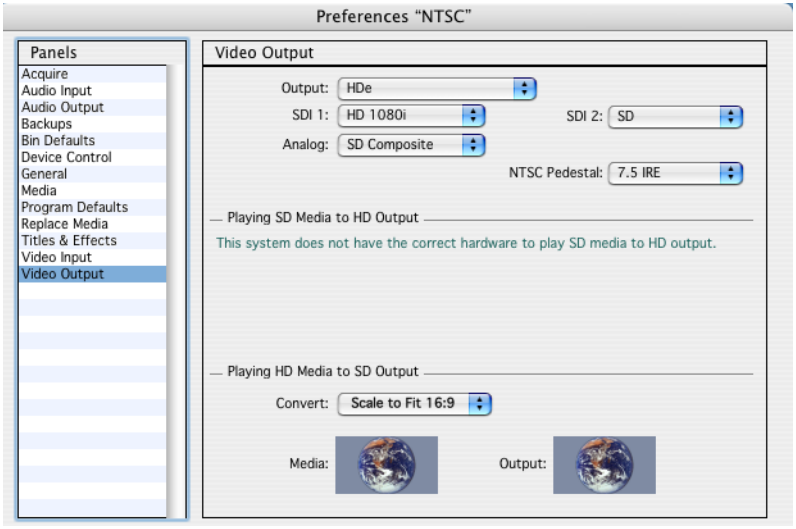
NOTE Media 100 systems allow for one conversion. Therefore, if you convert the source content to a different standard during acquisition or import, that is the standard the content must be output to. However, if the source content is acquired in it's native form it can be converted on output. Again, only one conversion is allowed. (Media 100 HDx enables multiple conversions.) Also note, the conversion options that are available are dependent upon the Media 100 system being used.

NOTE The Video Input Preference Panel does not allow SD media to be converted from a 4:3 aspect ratio to a 16:9 aspect ratio or vice versa. To accomplish this conversion, acquire the content at it's default aspect ratio, then use the Conform dialog box to convert to the desired aspect ratio.

NOTE If you choose 720p input your external monitors will display garbage. Go to the Video Output preference panel and set SDI 1 to 720 to see your video. However, this will blank out any external monitor using SDI SD.

Video Output Panel

The Video Output panel contains settings for the output of video media. This includes mastering to tape and conforming media for output.



The following table describes the Video Output panel elements.

Video Output Panel Elements

Name	Description
Output	Specifies the Media100 system; FireWire; FireWire (Mastering Only) or None for video output.
SDI 1	Specify output options - HD 1080i, HD 720p, SD
SDI 2	not currently active (reserved for future use)
Analog	Specify output options - SD Composite, SD Component, HD Component, HD VGA
NTSC Pedestal	Specify the playback reference black levels for the NTSC standard. ■ 0 IRE - The reference black signal for NTSC in Japan ■ 7.5 IRE - The reference black signal for NTSC in countries other than Japan **NOTE** The Video Pedestal selection only displays if the Video Input Standard is NTSC Composite, Y/C or Component analog. The pedestal is always 0 IRE for PAL video standards
Playing 4:3 SD Media to HD Output Convert	Specify output options - 4:3 to 14:9; 16:9 to 14:9; Crop; Pillarbox; Scale to Fit
Playing 4:3 SD Media to HD Output Custom button	Activates Custom Scaler dialog box for Crop, Side Panel, Tilt and Anamorphism adjustments.
Playing 4:3 SD Media to HD Output Save button	Saves the custom conversion setting to the selection list.
Playing 4:3 SD Media to HD Output Delete button	Deletes the custom conversion setting from the selection list.

Video Output Panel Elements *(Continued)*

Name	Description
Playing HD Media to SD Output Convert	Specify output options - 4:3 to 14:9; 16:9 to 14:9; Crop to 4:3; Letterbox to 4:3; Scale to Fit
Playing HD Media to SD Output Custom button	Activates Custom Scaler dialog box for Crop, Side Panel, Tilt and Anamorphism adjustments.
Playing HD Media to SD Output Save button	Saves the custom conversion setting to the selection list.
Playing HD Media to SD Output Delete button	Deletes the custom conversion setting from the selection list.

NOTE Only one conversion on a source clip is permitted. Therefore, if source media is converted upon input it can not be converted to something other on output.

NOTE If FireWire is the output selection and a deck is not connected, the timeline will not play because it's attempting to master the timeline as output and it can't. Therefore, if FireWire (Mastering Only) is the selected output, the system will allow the timeline to be played and will seek the deck connection when mastering only.

▼ Quick Launch of Third-Party Applications

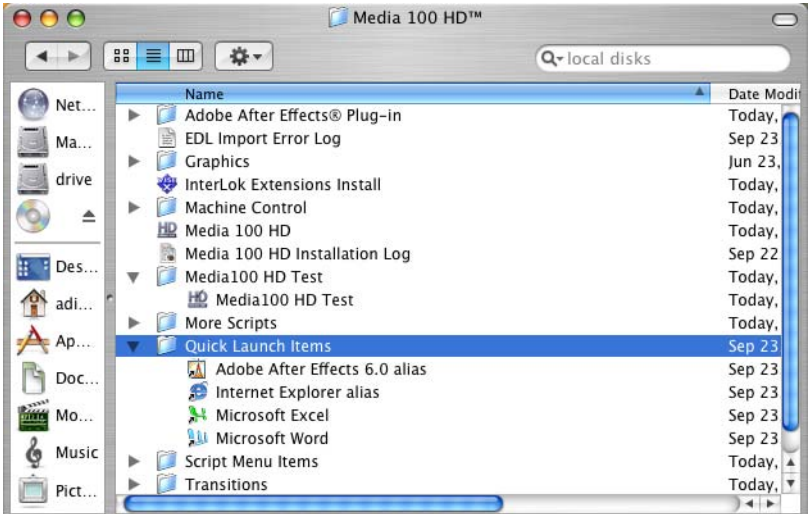
Quick Launch lets you open third-party applications from within Media 100.

NOTE You can use Quick Launch to access aliases of any kind, including documents, folders, scripts, servers, and so on.

To set up the Quick Launch feature

1 Create aliases of the items you want to appear in the Quick Launch submenu.

2 Move the aliases to the Quick Launch Items folder in the Media 100 folder.



To use Quick Launch

➤ Choose Media 100>Launch and select the alias to launch from the submenu.

The Finder switches control to the selected application. Media 100 runs in the background; you can switch to it as necessary.

Although you can put an unlimited number of aliases in the Quick Launch Items folder, only the first 30 appear in the Quick Launch submenu. The submenu is updated each time you switch from another application to Media 100, making it possible to switch to the Finder, modify the Quick Launch Items folder, and then switch back to Media 100 to use the new items.

NOTE Although you can put an application into the Quick Launch Items folder, it is not recommended. An alias is more efficient and keeps the folder size smaller.

3

Managing Project Media

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- Identifying Project Elements. 3-3
- Toolbar Tools 3-4
- About the Project Media Folder 3-4
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▼ Introduction

The Media 100 application is a project-based system. The project serves as a container for bins and programs.

Media 100 keeps track of the elements used in a project through media management. Although the application performs some media management, use your own media management system in conjunction with the Media 100 system to help your production go smoothly.

This chapter describes the Media 100 media management and how you can use your own media management methods. It explains the interdependence of the Media 100 system and source media, and makes suggestions about how to best manage your projects and media. The chapter explains how to

- Organize a project
- Work with media files
- Manage bin and program links
- Find clips
- Archive projects

▼ Organizing a Project

This section explains how to effectively organize a Media 100 project. It identifies the elements of a project, explains how to work with the Project Media folder, and how to set up project folders.

Identifying Project Elements

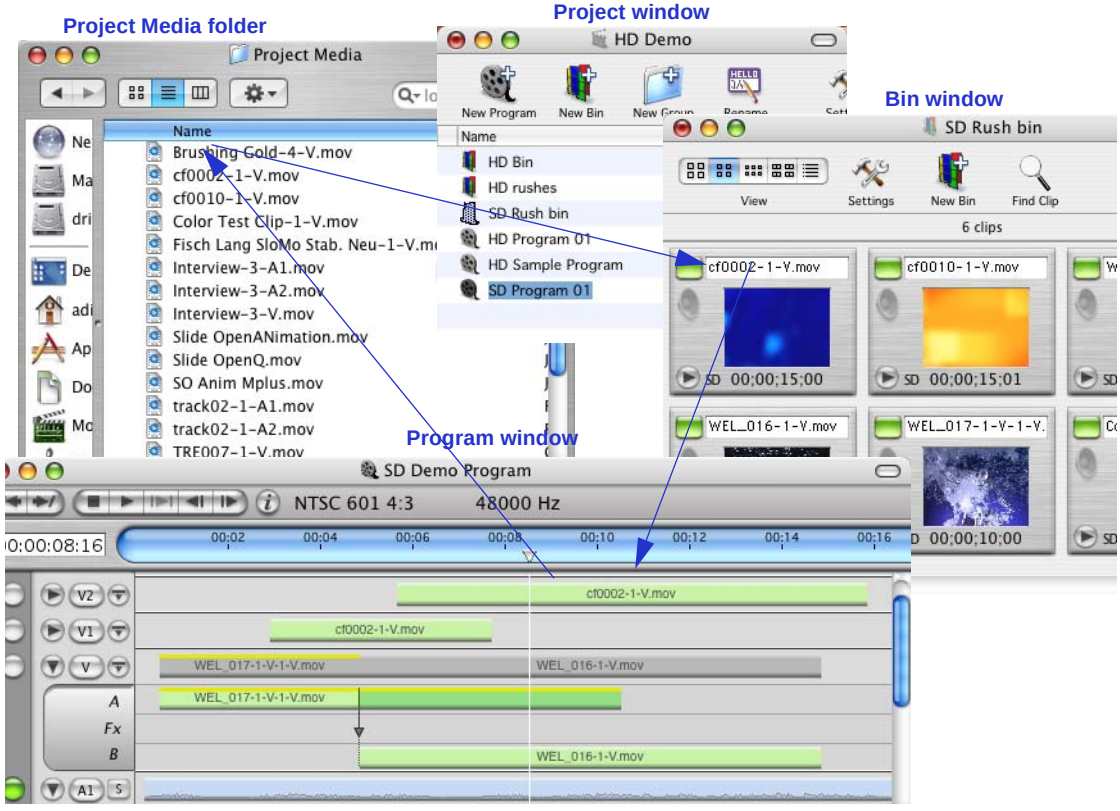
When you add clips to bins and programs in a project, Media 100 creates links between the clips and the source media of the clips. The following diagram shows the relationship between the project media folder and the project, bin, and program.

Project Window — Lists the programs and bins in the project

Bin Window — Contains acquired, imported and effect-generated clips that link to the project media folder

Program Window — Contains clips from the bin

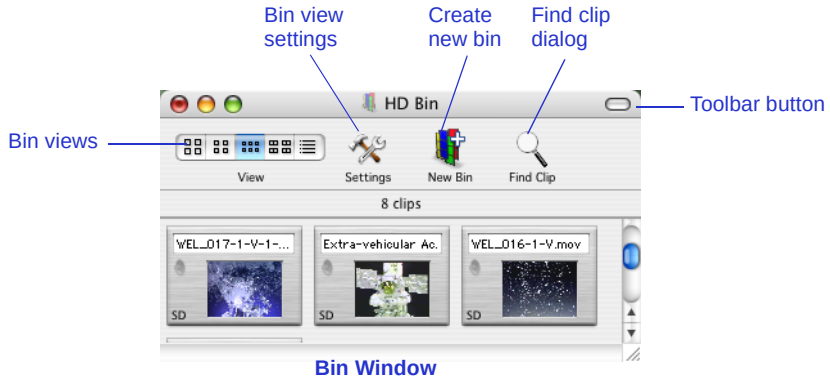
Project Media Folder — Contains media files for acquired, imported, or created clips as well as transitions and titles created in the timeline



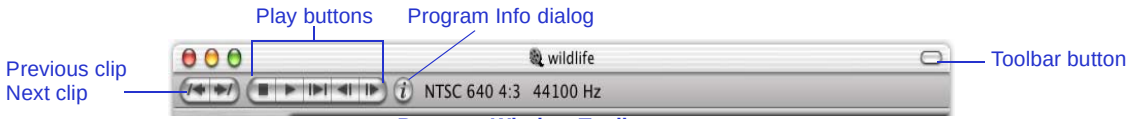
Toolbar Tools

The Toolbar button in the Project, Bin, and Program windows reveals clickable icons to create new bins or programs, change bin views, play programs or access settings.

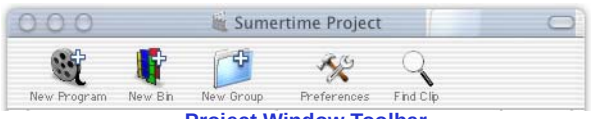
NOTE If the Toolbar is not visible in a window, click the Toolbar button to display it



Bin Window



Program Window Toolbar



Project Window Toolbar

About the Project Media Folder

When you open a project, the Media 100 system creates a project media folder at the top level of the drive or volume that you select as the project media destination. The folder has the same name as your project, appending the word “Media” to the name.

When you acquire, import, or create media, the system stores the media in the media folder for that project. Media 100 also maintains links between imported clips and their source directories.

Media 100 points to the media files that it stores in the project media folder. If you move media files from their original media folder location, choose Media> Relink Media to reconnect the files to your project.

Setting Up Project Folders

When planning Media 100 projects, set up a file structure that allows you to store and track your source media and project files.

However you choose to set up your files, remember that the Media 100 system links to the directories and files from which data is brought into the application. If you move the directories and files, Media 100 must relink them.

One way to effectively organize project files is to build a master folder for your project files to store project, bin, and program files.

NOTE Keep project files (projects, programs, and bins) on your system drive, and the project media folders on your external media drives. This optimizes the performance of the media drives and makes it easier to troubleshoot media problems.

In the project media folder on your external media drive, create subfolders to contain media created in third-party applications that you plan to use in your project. That will keep your newly acquired media, media created in the application, and your third-party media in one place.

▼ Grouping Bins and Programs

You can organize your bins and programs in the Project window into groups to better manage your projects. Create a Program group and drag all your programs into that group. In addition, create a Bin group, then add subgroups for specialized bins such as third-party effects and title bins. You can nest the subgroups under the Bin group. Subgroups do not appear outside the Project window and are not saved to a directory.

To organize the Project window

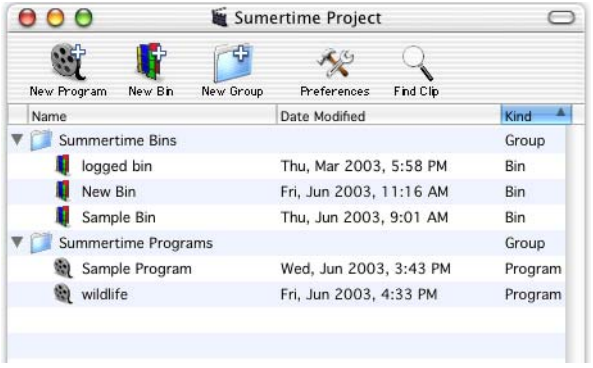
1 Click the Group icon in the Project window toolbar or choose File>New>Group.



2 Enter the name in the Group Name field of the Project Group dialog.

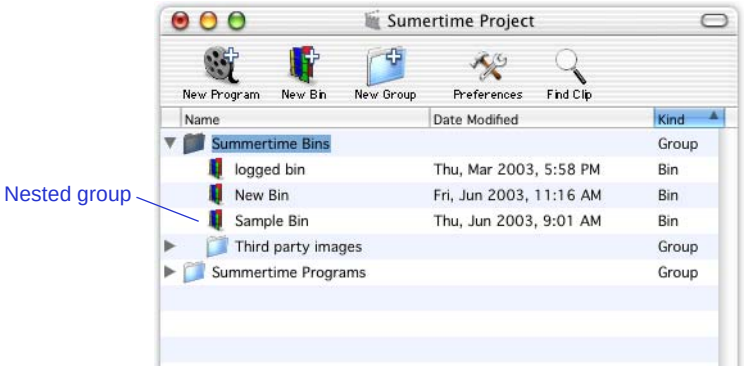
3 The icon appears in the Project window.

4 Drag the bin or program files into the Group icon.



The Project window stores the Group entries. They are not saved to the directory.

You can also nest subgroups under a Group. There is no limit to the number of groups you can have in a project.



To delete a Group

➤ Click the Group icon and choose File>Clear.

The Group disappears. If the Group has entries, you are asked to confirm deleting the Group.

▼ Working with Media Files

Media files contain acquired or imported video and audio content. When you acquire media into a Media 100 bin, the system creates a link pointing to the media file. This section explains how to

- Identify media file types
- Find media files
- Link and unlink media files
- Delete media files

Identifying Media File Types

The Media 100 system assigns names to files acquired, imported, and created within a project. This section describes media file types used with Media 100 and the naming conventions used for each file type.

Acquired Media File Names

Acquired media file names contain the following notations:

Reel Name	The reel or cassette name (up to 12 characters)
Timecode	The media starting timecode; or “NT” for no timecode, followed by an incrementing number
Track Name	**V** for video track; **A1** or **A2** for audio track 1 or 2
Video Standard	SD - Standard Definition or HD - High Definition
Rate	The compression - KB rate if applicable or Unc for Uncompressed and the data rate - 8 or 10 bit.
Number	An incrementing number to uniquely identify a media file, if necessary

CAUTION

Do not rename media files, the Media 100 system will not be able to find them.

The following table provides sample file names assigned to acquired media.

Sample Acquired Media File Names

Name	Description
Dogs-00.00.03.02-V80	
Reel Name	Dogs
Timecode	00.00.03.02
Track Name	V for Video track
Rate	Acquired at 80 KB
Number	Not applicable
Dogs-00.01.04.15-V.mov-SD-Unc10	
Reel Name	Dogs
Timecode	00.01.04.15
Track Name	V for Video track
Video Standard	SD
Rate	Uncompressed - 10-bit
Number	Not Applicable
Cats-NT1-A1	
Reel Name	Cats
Timecode	NT1 for No timecode
Track Name	A1 for Audio track 1
Rate	Not applicable
Number	Not applicable
Cats-NT1-A1-1	
Reel Name	Cats
Timecode	NT1 for No timecode
Track Name	A1 for Audio track 1
Rate	Not applicable
Number	1 to distinguish this clip from the previous clip

Imported Media File Names

When you import files into the Media 100 system, the system creates media file names from the existing file names. The system adds numbers to make each name unique. In addition, the system appends suffixes to indicate a video file (V) and a video standard (SD or HD) or an audio track (T) and an audio channel (A).

The following table provides sample file names assigned to imported media.

Sample Imported Media File Names

Name	Description
Fruit Bowl.tif-V-SD	
File Name	Fruit Bowl
File Type	V for video file
Video Standard	SD for Standard Definition
LaMusic.aiff-T1-A1	
File Name	LaMusic
File Type	T1 for QuickTime track number (in the order audio tracks are found)
	A1 for audio track and the channel number

Rendered Media File Names

Rendering reduces two or more source images into a single new image by intermingling the images on a pixel-by-pixel basis. Media 100 stores the new media created by rendering in the project media folder for the current project. Rendering audio EQ, time effects, titles, composition clips and transition effects creates new media files.

The following table provides sample file names assigned to rendered media.

Sample Rendered Media File Names

File Type	Name	Description
Audio EQ Clips	Fiddle.M1QA-EQ File Name File Number File Type EQ Contents	 Fiddle M1 QA for QuickTime Audio file EQ for Audio EQ in file
Time Effects	River (30%)-80KB Clip Name Time Setting Compression Setting	 River 30% 80 KB
Titles	Credits.HAL Clip Name Rendered Title Suffix	 Credits HAL (suffix for all rendered titles)
Transition Effects	Kayak-Waterfall-Roll Aw-80KB First Clip Name Second Clip Name Effect Name Compression Setting	 Kayak Waterfall Roll Aw (Roll Away) 7 char. max. 80 KB

Finding Media Files

The Find Media tool helps you identify and locate media files stored by the Media 100 system. This tool lets you search for media associated with a project, open document, or a specific bin or program.

Find Media searches in folders specified in the Media Locations panel of the Project Settings dialog box for file types specified in the Find Media dialog box.

To open the Find Media dialog box

➤ Press OPTION-⌘-F or choose Media>Find Media.

The Find Media dialog box appears.



The following table describes the Find Media dialog box elements.

Find Media Dialog Box Elements

Name	Description
Find menu	Choose one of the following options: **All**. Search for used and unused media in all bins and programs in the current project. **Used**. Limit the search to media used in the selected documents. **Unused**. Limit the search to media not used in the selected documents.
Video check box	Select this option to find video media.
Audio check box	Select this option to find audio media.
Effects check box	Select this option to find media created by effects.
Graphics check box	Select this option to find graphics media, including titles.
In menu	Choose where to search for the media files from the following options: **Project**. All project bins and programs. **Open Documents**. All open bins and programs. **Selected Documents**. Bins and programs selected in the Project window.

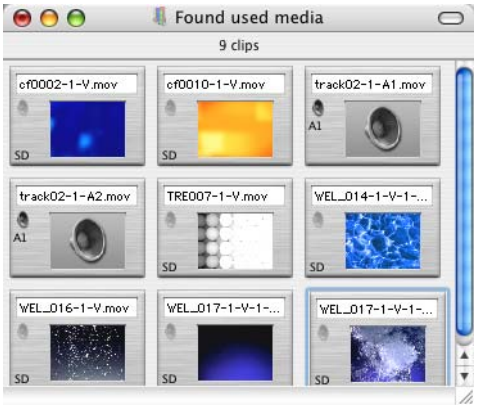
NOTE When using the Find Media command, clips with TimeFX, ClipFX or ColorFX will use the clip name as the Reel Name.

To locate media files

1 In the Find Media dialog box, choose what media to find from the Find menu and the media type(s) from the check boxes.

2 Choose where to search for the media from the In menu and click Find.

Media 100 searches the folders that appear in the Media Locations list for files that match the specified criteria and creates a bin containing clips that represent the media it finds.



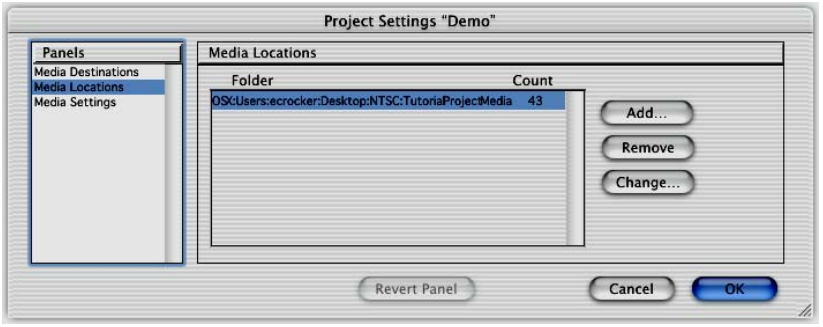
If you do not have write-access to the partition or drive (a function of the operating system) where the media files are stored, or if you move media files without having the Auto “Relink Media” option selected in the Preferences dialog box, Media 100 cannot locate the files. To resolve this problem, add folders to the Media Locations panel of the Project Settings dialog box and reinitiate your search.

To add folders to the Media Locations panel

1 Press ⌘-M or choose Edit>Project Settings.

2 Select the Media Locations panel.

The Media Locations panel appears.



3 Click Add.

The Choose a Folder dialog box appears.



4 Locate the desired media folder(s) and click Choose.

The Media Location panel reflects the addition of the folder(s).

5 Click OK.

To find media in the newly added folders, reinitiate the Find Media search.

NOTE To save changes you make to media files, obtain write-access to the partition where the media files are located or save the files to a partition for which you have write-access.

You can also remove folders from the Media Locations panel of the Project Settings dialog box to restrict your Find Media search to particular folders.

To remove or change folders in the Media Locations panel

➤ Click Remove to delete the highlighted folder from the media locations list.

Or

Click Change to substitute the highlighted folder with a different folder.

Linking and Unlinking Media Files

Clips in programs and bins point to media files in project media folders. If you move media files and folders, the media files become unlinked from the clips that point to them. The Media 100 system must relink the media so that your clips point to the correct media files.

When you move media files or remove Media Locations folders, Media 100 relinks them to bins and program clips if you selected the Auto “Relink Media” option (the default) in the Media panel of the Preferences dialog box.

CAUTION

Do not rename media files, the Media 100 system will not be able to find them.

You can take media files that you are not using offline to open projects without searching for media files you do not need.

To unlink media files

1 Choose Edit>Preferences and select the Media panel.

2 Deselect Auto “Relink Media.”

3 Copy the media files to a new location and delete the original files.

When you need to use the media files again, manually relink them as follows.

To relink media files

➤ Choose Media>Relink Media.

To relink only the video or audio portion of a synced video and audio clip, permanently remove the link between the audio and video media of a synced clip.

To unlink synced audio tracks

1 Select a synced video clip in the bin.

2 Press ⌘-U or choose Edit>Remove Synced Audio.

The media file remains in the Project Media folder, but the link between the video and audio portions of the media is removed.

Deleting Media Files

Delete media files to free disk space in the following situations:

- Delete unused media as a project comes to completion.
- Delete the source material produced when you remove a rendered transition effect, time effect, title, or audio clip. This material remains on disk until you delete it.
- Search for and delete unused audio media when you remove EQ from a rendered clip. The media file for that clip stays in the media folder until you remove it.

To delete unused media files

1 Press OPTION-⌘-F or choose Media>Find Media to locate media files not used in your project.

2 Select the bin containing the unused media.

3 Press ⌘-A or choose Edit>Select All.

4 Choose Edit>Delete Clip and Media.

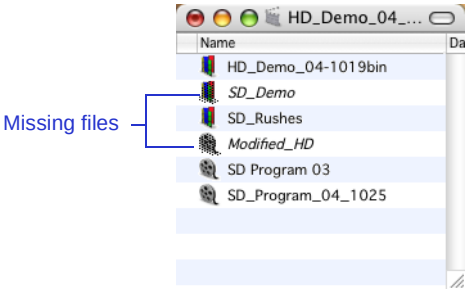
If another project uses the media files, an alert message appears. Use caution when deleting media files that are shared among multiple projects; deleting shared media files makes them unavailable for any project.

NOTE If you select “Move Deleted Files to Trash”(the default) in the Media 100 Preferences Media panel, the system places files in the Trash, where you can later retrieve them if needed.

▼ About Bin and Program File Links

The Media 100 system does not automatically relink bin and program files that you relocate. If you move a bin or program file from the folder where it was originally saved, or if the disk is offline, the Media 100 system loses the link to it.

When you open a project after moving, deleting, or renaming a bin or program file, Media 100 cannot find the unlinked files. The files are italicized in the Project window. Manually relink relocated bin and program files to your project as described in this section.



To relink a bin or program file

➤ Move the bin or program file back to its original folder.

Or

1 Open the Project window.

2 Open the folder where the unlinked file is located.

3 Choose File>Open.

4 Navigate in the Open dialog box to the file and click Open.

The Project window displays the name in normal text, indicating that it is linked to the project. The window also displays the italicized name.

5 Delete the duplicate italicized file name.

6 Save the project.

▼ Finding Clips

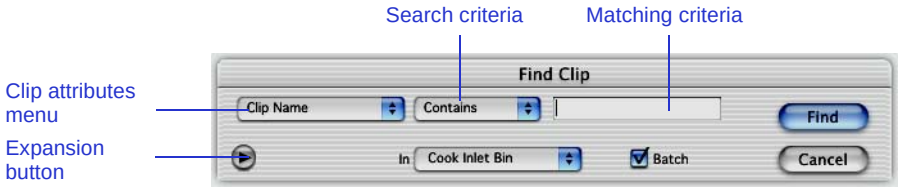
Search for clips in a program or bin by selecting the Bin or Program window that you want to search. Search for clips in all the bins and programs in a project by selecting the Project window. Find clips as detailed in the following procedure.

To find clips

1 Click the Project, Bin, or Program window to make it active.

2 Press ⌘-F or choose Edit>Find Clip.

The Find Clip dialog box appears.



3 Choose a clip attribute from the Clip Attributes menu for your primary search criterion.

Depending on the attribute, Media 100 updates the Find Clip dialog box with new options to further define your search. Define the search options through fields and/or menus.

4 Type or choose the options that best match the clip(s) you want to find.

The table that follows describes the options available. Not all options are available for all clip attributes. Only those options appropriate for the clip attribute appear in the dialog box.

Choose...	To search for...
Is	The exact text string (for example, a reel name) or value (for example, **A1**).
Contains	Part of the text string (for example, a word contained in a clip title).
Starts with	The first letter(s) of the text string.
Equals	An exact quantity.
Greater than	A quantity when you know the lower limit.
Less than	A quantity when you know the upper limit.

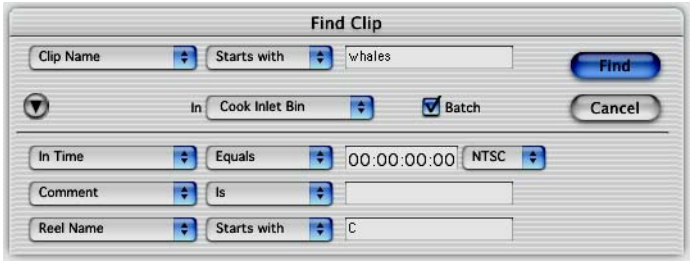
5 If the clip attribute you select is related to timecode, select the timecode standard from the menu that appears: PAL, NTSC, or Drop (drop-frame NTSC).

6 If searching the entire project, choose where to search from the In menu.

Choose...	To...
Project	Search for the designated clip(s) in all programs and bins in the active project.
Open Documents	Limit the search to all open bins and programs.
Selected Documents	Search in bins and programs selected in Project window.

7 Enable the Batch check box to search for every clip that matches your criteria; disable the check box to search for only one clip at a time.

8 Click the More expansion button to further refine your search.



9 Choose an attribute from one or more of the Attribute menus and click Find.

- If you specified a batch search, the system creates a bin called “Found Clips” that contains all the matching clips.
- If you specified a single clip search, the system highlights the clip and scrolls it into view in the selected bin or program. Press SHIFT-⌘-F or choose Edit>Find Next to find the next clip that meets your criteria.

▼ Archiving Projects

When you complete your project, consider storing all the elements in one place. The following is a list of options for archiving your finished projects:

- Copy all separate folders that are part of your project such as Backup and Graphics folders into your Master Project folder.
- Copy the Master Project folder and related media folders to a backup medium.
- Maintain a written record of the clips included in the project to refer to if you want to reuse them in another project.

4

Acquiring Media

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▼ Introduction

Before creating a program using Media 100, select the media to use and acquire it from the source to your computer system. As you acquire source material, clips representing the stored media files appear in a Bin window.

This chapter explains how to acquire audio and video source material. It tells you how to

- Set up for acquisition
- Acquire individual or multiple clips on the fly
- Acquire and reacquire batches of clips
- Monitor disk space

▼ Setting Up for Acquisition

Before acquiring, you need to adjust several settings to prepare your system. You must configure

- Source media file destinations in the Media Destinations panel of the Project Settings dialog box
- Uncompressed or compressed media, compressor selection, and quality settings, in the Media Settings panel of the Project Settings dialog box
- Video Source, Media Standards and any format conversion options in the Video Input panel of the Preferences dialog box
- Audio Source, channels and sample rate in the Audio Input panel of the Preferences dialog box

Specifying Media Settings

Set the compressor type and data rate quality for your source material in the Media Settings panel of the Project Settings dialog box. The Media Settings panel defines how the system acquires content - the bit rate: 8 or 10-bit, uncompressed or compressed and the specific target data rate (in KB per frame) if applicable for your acquired video media files.

When using the Media 100 i compressor, the Lossless Option supports acquiring with lossless compression and quality. Specify Lossless in Media Settings to acquire with this option.

Select the drives where your acquired media files are stored using the Media Destinations panel of the Project Settings dialog box.

Specifying Input and Device Control Settings

The Acquire, Audio Input, Device Control and Video Input panels of the Preferences dialog box provide the settings you need to work with external audio/video hardware. To properly acquire media, you may need to change the default settings. Choose settings carefully to correctly acquire video and audio.

NOTE If you need to add hardware, do so before starting your system and selecting the settings in Media 100. See the documentation that came with the device for installation and connection details.

To access the Preferences dialog box

➤ Choose Media 100>Preferences.

The Aquire panel controls settings to stop the acquisition process when audio is clipping. It also enables a time setting from 1 to 5 seconds to be subtracted from the In mark in the timecode field when using the Mark In button to set a start point for acquiring media. This compensates for the delay between when you see the desired start point and when you click Mark In.

The Audio Input panel displays the Source In and the Sample Rate. The In Channel specifies the channel pair of incoming audio. Media 100 enables audio sample rate conversion on acquisition. Using the Convert to Sample Rate, select the desired

sample rate at which to convert the incoming audio. If no sample rate conversion is desired, set the Convert to Sample Rate at the same sample rate as the audio being acquired.

Adjust the audio settings to keep audio from clipping as you acquire source media. These adjustments include: setting the nominal reference; raising or reducing audio levels, if necessary and monitoring the audio playback to check volume levels.

To set the nominal reference

1 Press ⌘-2 or choose Windows>Audio.

The Audio window appears.

2 Click the toolbar button to display the Audio Window Toolbar.

3 Choose a setting from the Nominal Reference menu or type a custom nominal reference in the Nominal Reference field.

To adjust source audio levels

➤ Adjust source audio levels manually on the VTR.

To monitor source audio

1 Press ⌘-2 or choose Windows>Audio.

The Audio window appears.

2 Click the toolbar button to display the Audio Window Toolbar.

3 Choose a peak hold preference from the Audio Peak Hold menu.

See “Working with Audio” chapter for further information on audio settings.

The Device Control panel specifies the machine control. By selecting No Machine Control you can control the deck manually using the controls on the VTR itself. By selecting TimeCoderM100HD you can control a VTR through the RS-422 standard.

To control your deck manually

➤ Choose Machine Control>No Machine Control.

To control an RS-422 deck from within the Media 100 system

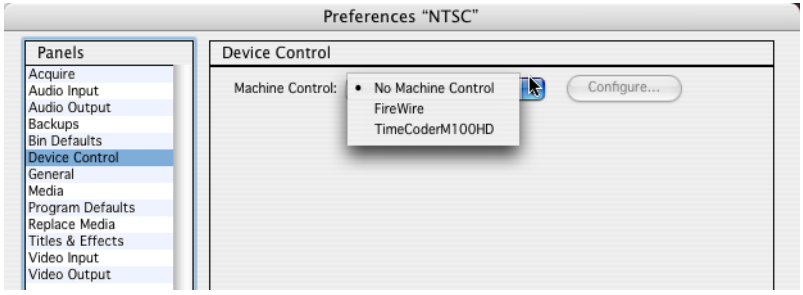
NOTE You need to install a VTR remote control cable to use machine control with RS-422 devices.

1 Select TimeCoderM100HD from the Machine Control menu.

Choose this setting if you have a controllable tape deck with an RS-422 connector and you want to start and stop play from within Media 100.

2 Click Configure if the TimeCoderM100HD dialog box does not appear.

The TimeCoderM100HD dialog box appears.



3 Select from the menu to indicate where you installed the remote control cable.

NOTE The software requires exclusive use of the port you select. Disable any other software that uses the same port, such as AppleTalk®.

4 Click OK.

The Preferences dialog box reappears.

5 To select how a VTR cues to the next preroll point, press ⌘-CONTROL-SHIFT and click Configure in the Device Control panel. The VTR must be connected.

The Deck-Specific Options dialog box appears, displaying the name and ID code of the connected VTR.

6 Select one of the Cueing radio buttons to configure the VTR to use the Diaquest fast cue or the Deck internal cue (default).

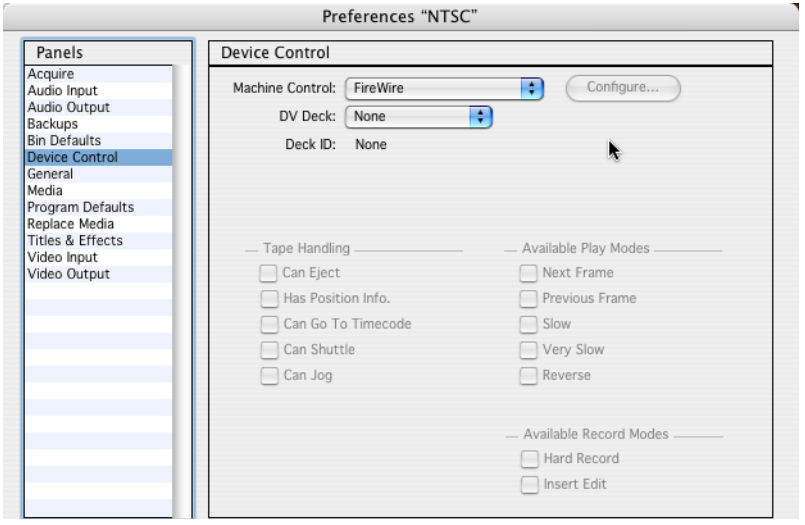
If your timecode is one or two frames off as you acquire, you can adjust it by selecting a value from the Frames menu.

7 Select ±1–3 from the Frames menu.

To control a deck through FireWire within the Media 100 system

1 Select FireWire from the Machine Control menu.

The FireWire deck control options appear.



2 Select from the options, the desired deck control features to be enabled.

▼ Acquiring Source Media

After you choose your input, device control, and media settings and set the audio nominal reference, you are ready to acquire media. Acquiring source media involves the tasks listed next, which are described in the sections that follow:

- Selecting Acquire mode in the Edit Suite
- Identifying media by assigning names to the clips you are acquiring and specifying the source reel
- Enabling the audio and video input channels and designating audio track assignments
- Acquiring source media files

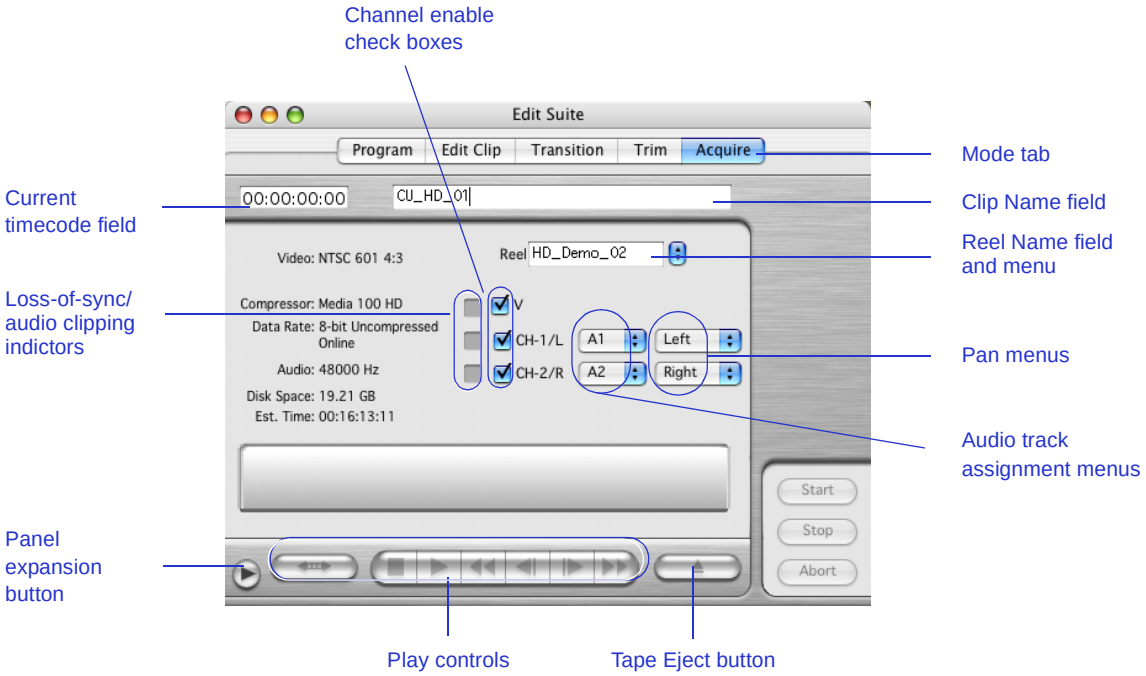
About the Acquire Mode Controls

Before acquiring, make sure the Bin window is in the foreground and is unobstructed.

To access Acquire mode

➤ Press ⌘-D or choose Tools>Edit Suite Mode>Acquire.

The Edit Suite switches to Acquire mode.



The following table describes the elements in the Edit Suite in Acquire mode.

Acquire Mode Elements

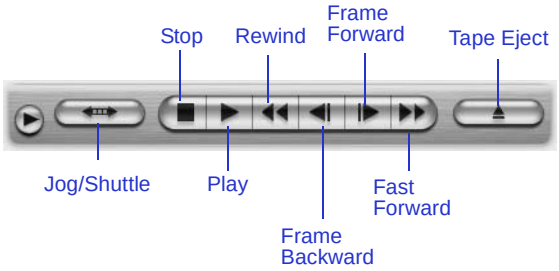
Name	Description
Channel Enable check boxes	Specify the input video and audio channels to be acquired.
Current timecode field	Indicates the current timecode location of the tape in the VTR.
Loss-of-sync/audio clipping indicators	The loss-of-sync indicator for the video channel or either audio channel turns yellow when synchronization momentarily fails, indicating that part of the signal may be lost. The audio clipping indicator for each audio channel turns red whenever audio momentarily clips.

Acquire Mode Elements *(Continued)*

Name	Description
Panel expansion button	Click to expand the Edit Suite panel and access the Acquire Controls, Comments, and Actual Frame Rate panels.
Mode tab	Provides access to different Edit Suite modes.
Clip Name field	Lets you name the clip you are acquiring.
Reel Name field and menu	Lets you name the reel or choose from a list of recently used reel names. The system adds reel names to the menu as you acquire and stores the names in the preferences file.
Pan menus	Assign one of four pan distribution settings for the audio signal for each track.
Audio track assignment menus	Assign audio media from each channel to a specific audio track in the timeline. When you drag a clip or synchronized video/audio clip from the bin to the Current Time Indicator (CTI) in the timeline, audio is automatically placed in the designated track.
Start button	Starts acquiring source media.
Stop button	Stops the acquiring process.
Abort button	Stops the acquiring process and deletes the source media files currently being acquired.
Play controls	Control the videotape in the VTR when machine control is enabled.
Tape Eject button	Ejects the tape currently in the VTR when machine control is enabled.

Play Controls

When the Edit Suite is in Acquire mode and you have machine control enabled, you can use the Edit Suite play controls to control the tape in the VTR.



The following table describes the Acquire mode Play controls.

Acquire Mode Play Controls

Name	Description
Jog/Shuttle	Moves the tape backward or forward a variable number of frames by moving the control to the left or right.
Stop	Stops playing the tape.
Play	Plays from the current tape position.
Rewind	Rewinds the tape rapidly.
Frame Backward	Plays one frame backward.
Frame Forward	Plays one frame forward.
Fast Forward	Advances the tape rapidly.
Tape Eject	Ejects the tape from the VTR. This button is active if the deck supports the eject feature.

Identifying Source Media Files

Assign names to your reel and clips in the Edit Suite before you begin acquiring.

To identify media files

1 In the Reel Name field, type a name or choose a name from the menu for your source video cassette.

You cannot acquire source material unless this field contains a name. Use the same name for the Reel Name field as the external label on the source media.

If the source cassette contains gaps and/or repeating sections of timecode, you can assign unique reel names for broken or repeating sections. Mark changes on the cassette label as well.

2 In the Clip Name field, type a name for the clip you are acquiring.

If you do not assign a name to the clip, Media 100 assigns the name Untitled. If you do not specify a new name when you acquire subsequent clips, Media 100 appends the next sequential number to the last name used.

Enabling Audio and Video Channels

Select the audio and video input channels to acquire from your source media.

To enable audio and video channels

1 In the Edit Suite, click the appropriate channel enable check boxes to enable audio and video input channels to use for your source media.

Choose...	To enable...
V	The source video signal.
CH-1/L	Channel 1 source audio.
CH-2/R	Channel 2 source audio.

The system can acquire, in any combination, one video signal and up to two audio signals. To acquire audio only, disable the video (V) check box. To acquire video only, disable the audio (CH-1/L) and (CH-2/R) check boxes.

CAUTION

When acquiring audio separately from video, acquire both at the same standard (NTSC or PAL). Failure to do so results in incompatibility between the clips.

2 Choose the destination audio track for each channel from the corresponding audio track assignment menu.

3 Choose an audio input pan setting for each channel from the corresponding pan menu.

Choose...	To distribute the audio input signal...
Mono	Equally between the left and right channels. The system adjusts the gain level by +3 dB to compensate for the appearance of diminished single-channel level output. Choose Mono if you have a single channel of audio.
Left	Entirely to the left channel.
Center	Equally between the left and right channels.
Right	Entirely to the right channel.

TIP To acquire mono audio, click only the CH-1/L check box to enable it and set the pan assignment to Mono.

Acquiring Media

The drive to which you are acquiring media must have a minimum of 100 MB of free space for SD media, 1 GB for HD media, for the acquiring process to work properly. Complete the steps that follow to acquire source media files.

To acquire media

1 Open a Bin window, making sure that it is not obstructed by other windows.

If you do not select a bin for your newly acquired clips, Media 100 opens a new bin after the first clip is acquired.

2 Press ⌘-2 or choose Windows>Audio to open the Audio window.

The Audio window opens.



TIP To ensure that no distortion is introduced while acquiring audio, listen to the audio while visually monitoring the meters. Ideal peak audio levels reach the top of the yellow portion of the meter.

3 Use the play controls in the Edit Suite to position the videotape in your VTR at the desired starting point.

NOTE If you selected No Machine Control in the Preferences dialog box Device Control panel, use the play controls on your VTR.

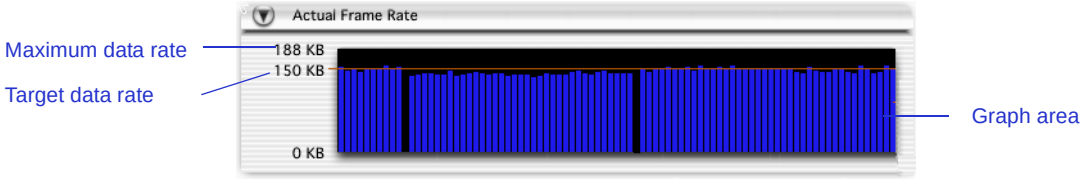
The Source Monitor window and the external video monitor display the source material.

4 To add comments, click the panel expansion button to open the Comments panel. The panel accepts up to 255 alphanumeric characters.



You can edit comments after the clip is acquired and placed in the bin.

5 To track the actual frame rate of the media as it is acquired, open the Actual Frame Rate panel.



The target data rate depends on the settings specified in the Media Settings panel of Project Settings.

The following table describes the Actual Frame Rate panel elements.

Actual Frame Rate Panel Elements

Name	Description
Maximum data rate	Displays the maximum viewable data rate.
Target data rate	Shows the data rate specified in Media Settings for acquisition. Media data rates may fall below or spike above the target data rate. **NOTE** Target data rates only display when using the Media 100 i or Motion JPEG-B codecs and the media is being compressed.
Graph area	Displays bars representing actual data rates depending on the chosen mode. The taller the bar, the higher the data rate. Capture types appear in different colors: ■ Online mode – blue ■ Draft mode – yellow ■ Lossless– green

6 Click Start to begin acquiring.

TIP You can also control the acquisition process using the numeric keypad.

The system acquires the media and displays the word “Acquiring” in the Edit Suite. It disables the Start button and enables the Stop and Abort buttons.

7 To stop acquiring, do one of the following:

- Click Stop or Abort.
- Press the SPACEBAR.
- Press the ESC key.
- Press 0 on the numeric keypad.

Acquiring stops automatically if

- The system reaches an Out point timecode
- The available disk space on the target drive falls below 30 MB for SD media or 5 GB for HD media.

A clip appears in the active bin for the portion of source material acquired. Acquiring video and audio simultaneously synchronizes the material and results in a single poster icon.

NOTE Press ⌘-DELETE or click Abort to stop the acquire process without saving the source media file being acquired. Acquiring halts immediately without saving a clip to the bin.

8 Repeat steps 3 through 7 for each portion of source audio or video to acquire.

Monitoring Disk Space

Media 100 allows you to monitor your media files when they are acquired to ensure that you obtain the quality that you want in relation to the amount of disk space available on your system.

As you acquire source material, the Edit Suite displays the estimated amount of time left and space remaining on your system drives.



The time and space estimates depend on the size of the files you are acquiring and the amount of space available on the drives you select to store your media. The values reported are the current limitations.

The system automatically stops acquiring and displays an alert message before you use all your disk space.

Monitoring the Video Signal

Media 100 offers a waveform monitor, vectorscope and colorbars for use in monitoring the incoming video signal. Two lines may be selected and monitored simultaneously. This is an informational window only as no modifications can be made to the incoming signal in this window. All adjustments to the incoming signal are controlled on the VTR.

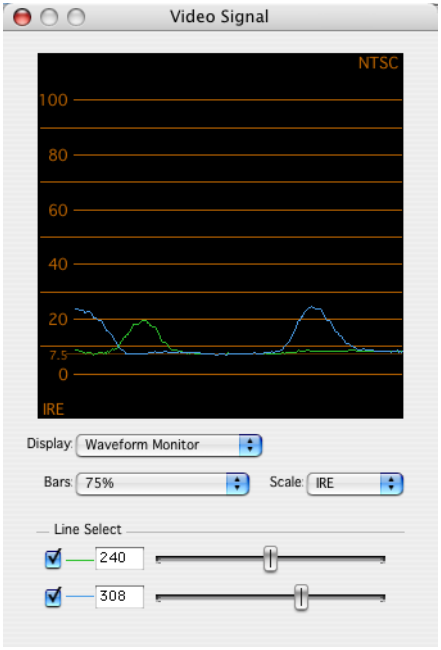
To monitor the Video Signal

1 Press ⌘-3 or choose Windows>Video Signal.
The Video Signal Window appears.

2 From the Display menu, choose, Waveform Monitor, Vectorscope or Colorbars.

3 Activate the Line Select checkbox and choose the line to monitor.

NOTE The Video Signal can be monitored at any time when working on the system by activating the Video Signal window.



Waveform Monitor

A waveform monitor displays the brightness (gain) and contrast (setup) in a video signal. Media 100 generates a synthetic waveform monitor, which uses acquired picture information. Video blanking interval levels (such as sync signals) are not displayed.

The waveform monitor plots the gain and setup information from a selected scan line. The waveform monitor lets you quickly look at your video monitor to see if the color bars test signal is passing through your system. You can then be sure that you are viewing all the subtleties of the material recorded on the tape.

The NTSC waveform monitor measures the video signal in IRE units. For PAL, the video signal is measured in volts.

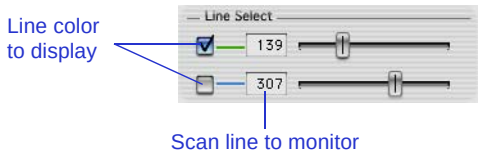
To monitor video input levels using the waveform monitor

1 Press ⌘-3 or choose Windows>Video Signal.

2 In the Video Signal window, choose Display>Waveform Monitor.

3 In the Bars menu, choose 75%, 100%, SMPTE, SMPTE RP-219 4:3, or SMPTE RP-219 16:9 for the type of color bars recorded on your videotape.

4 Under Line Select, click the check box next to the blue or green line to associate a color with the scan line(s) to be monitored.



5 Select a scan line that passes through the colors in the color bars. Do so using one of the following methods:

- Enter the number of the scan line to monitor in the field next to the colored line selected.
- Use the slider controls to choose a scan line.

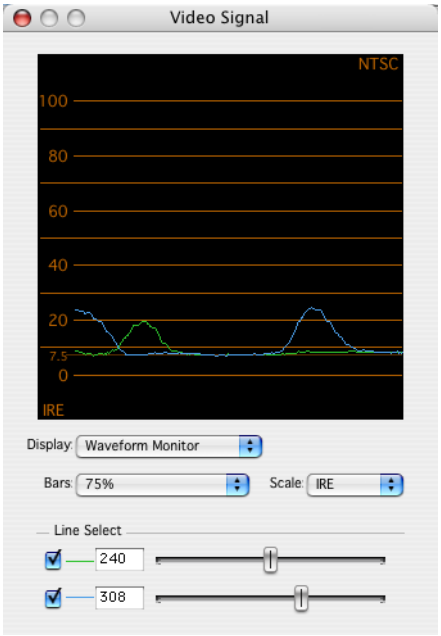
For 75% or 100% color bars, any line will work. For SMPTE color bars, select a line in the upper portion of the display.

TIP The waveform monitor displays one or two horizontal lines at a time. Scan the picture from top to bottom using the Line Select controls to locate the horizontal area of interest.

6 Put the Edit Suite into Acquire mode and click the Play button to play the color bars from your videotape.

NOTE Pausing or stopping the deck while viewing the waveform monitor or vectorscope produces incorrect results. Make sure that the tape continues playing during the entire video adjustment process. If necessary, rewind the color bar portion of the tape and repeat the steps.

The color bar signal appears on the waveform monitor.



On the waveform monitor, the small steps at the top and bottom of the signal correspond to 98% and 2% video levels, respectively. These are labeled on the video display of the color bars signal. If your video levels are set properly, both steps appear on the waveform monitor and the video monitor. If you do not see one of the steps on the video monitor, levels may need adjustment.

As you adjust the controls on your VTR, watch the waveform monitor for signal clipping. The clipped areas disappear from the video monitor.

7 Adjust the controls until the white (highest) portion of the signal on the waveform monitor appears at the appropriate peak white level.

- For NTSC, adjust the white level to 100 IRE (for 100% color bars) or 77 IRE (for 75% color bars).
- For PAL, adjust the white level to 0.7 V.

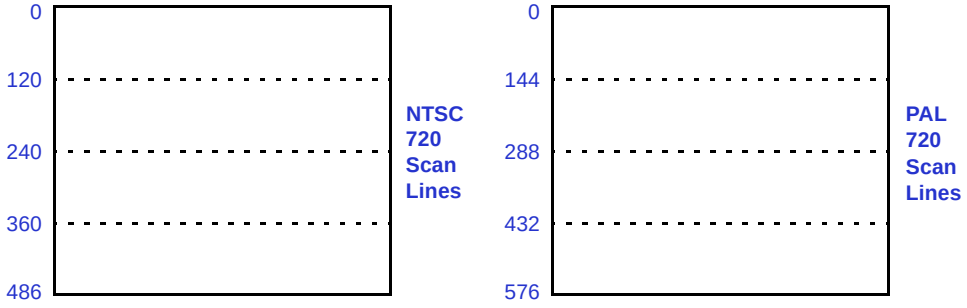
TIP Some source equipment can have peaks in the white that go as high as 107 IRE. Because 100 IRE is the reference point, anything above 100 clips, resulting in flat whites and highlights. To prevent clipping set the white bar at 93 IRE to accommodate the peaks without distortion.

8 Adjust the controls so that the black (lowest) portion of the signal on the waveform monitor appears at the appropriate reference black level.

- For NTSC in North America, adjust the black level to 7.5 IRE (unless you have a specific requirement for 0 IRE).
- For NTSC in other areas, adjust the black level to the reference black standard for your country.
- For PAL, adjust the black level to 0 V.

Active Video Scan Lines

NTSC 720 active video scan lines are numbered 0 to 486. PAL 720 active scan lines are numbered 0 to 576.

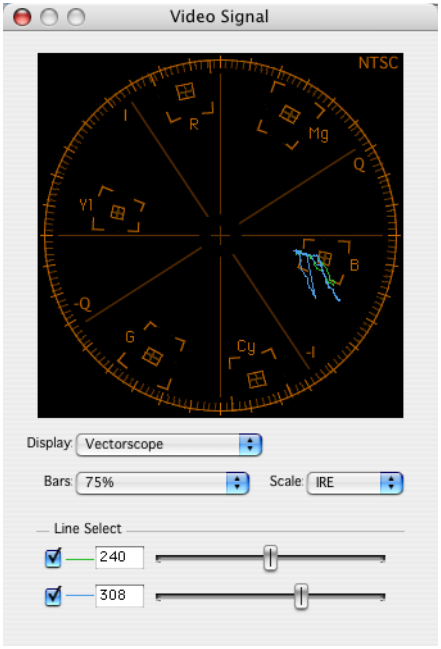


Vectorscope

A vectorscope displays the color components of a video signal and lets you plot the intensity of the color. Vectors (lines having direction and distance) are drawn within a circular scope to represent the color signal. Hue is represented by the angular placement of a vector on the scope. Saturation is the distance of the vector from the center of the scope.

To monitor video input levels using the vectorscope

1. Press ⌘-3 or choose Windows>Video Signal
2. In the Video Signal window, choose Display>Vectorscope.
3. Verify that the selected scan line passes through the color of the color bar signal.
4. Put the Edit Suite into Acquire mode and click the Play button to play the color bars on your videotape.



Target boxes in the vectorscope define the optimal values for the six colors (yellow, red, magenta, blue, cyan, and green) found in a color bar signal. The colors appear as bright dots connected by lines. When the signal is properly adjusted, each color falls within the corresponding target box.

- If the lines extend beyond the boxes towards the outer edge of the circle, color saturation is too high.
- If the lines are closer to the center, the saturation is too low.

5 Adjust the controls on your VTR to move the six points of the color bar signal as close as possible to the center of the corresponding target boxes on the display.

6 Switch to the waveform monitor and check the peak white and reference black values.

Component Color Bars

The Component Color Bars tool lets you monitor all of the video input signal elements simultaneously.

To monitor video input levels using the component color bars

1 Press ⌘-3 or choose Windows>Video Signal

2 In the Video Signal window, choose Display>Component Color Bars.

3 In the Bars menu, choose 75%, 100%, SMPTE, SMPTE RP-219 4:3, or SMPTE RP-219 16:9 for the type of color bars recorded on your videotape.

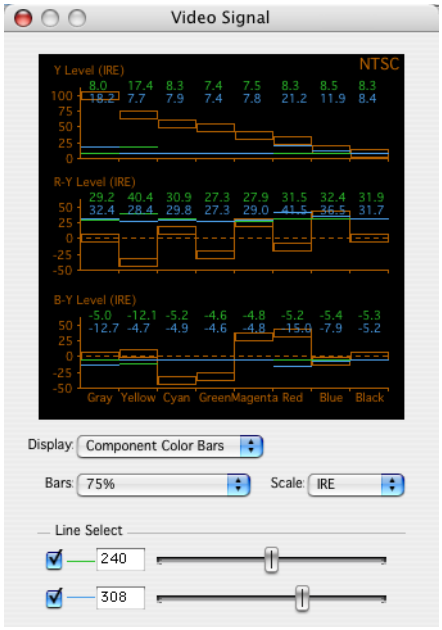
4 Under Line Select, click the check box next to the blue or green line to associate a color with the scan line(s) to be monitored.

5 Select a scan line that passes through the colors in the color bars. Do so using one of the following methods:

- Enter the number of the scan line to monitor in the field next to the colored line selected.
- Use the slider controls to choose a scan line.

For 75% or 100% color bars, any line will work. For SMPTE color bars, select a line in the upper portion of the display.

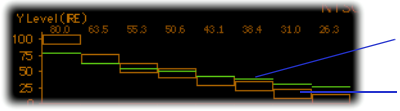
6 Put the Edit Suite into Acquire mode and click the Play button to play the color bars from your videotape.



The video input signal appears as three components:

- Y Level displays the luminance information in the video input signal.
- B–Y Level displays the blue difference component of the video input signal. It is derived by subtracting the value of luminance (Y) from the blue chrominance signal (B).
- R–Y Level displays the red difference component of the video input signal. It is derived by subtracting the value of luminance (Y) from the red chrominance signal (R).

Each component view shows target ranges for the eight colors in the color bar signal (from left to right: white, yellow, cyan, green, magenta, red, blue, and black). Your color bars should fall within these ranges.



7 Use your VTR controls to adjust the luminance levels in the Y Level signal view.

- Adjust the controls until the white (highest) portion of the signal in the Y Level display falls within its target area.
- Adjust the controls until the black (lowest) portion of the signal in the Y Level display falls within its target area.

As you make changes, the corresponding IRE (NTSC) or voltage (PAL) value is updated above each target area in the display.

8 Adjust the B–Y control until the signal in the B–Y Level display falls within its target area.

9 Adjust the R–Y control until the signal in the R–Y Level display falls within its target area.

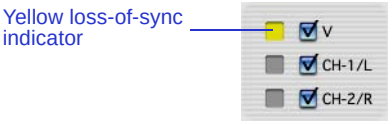
▼ Acquisition Errors

Occasionally, video or audio errors may occur when you acquire media. These errors are caused by a loss of sync or audio clipping.

Loss of Sync

Acquisition problems can result from conditions like excessive noise in the input video signal, an abrupt change from simple to extremely complex frames, or a partial or full loss of input video or audio. This is known as *loss of sync*.

When a loss of sync is detected, the yellow indicator lights. It is likely that synchronization momentarily failed and that part of the signal is lost.

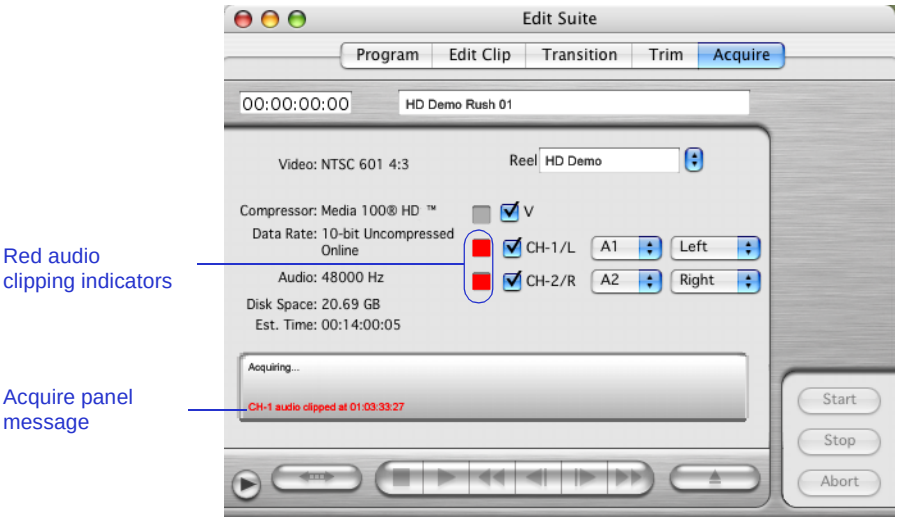


The system automatically stops acquiring and saves all material acquired to that point. A loss-of-sync message appears.

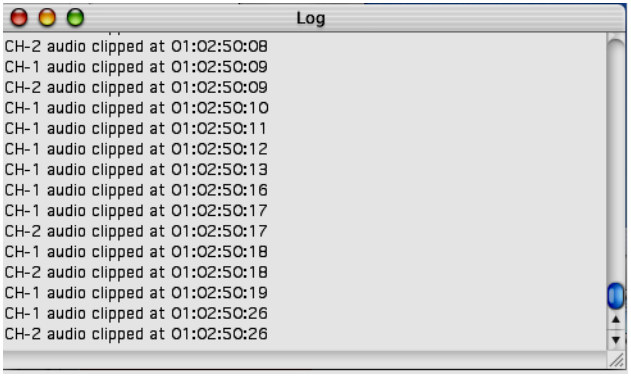
Audio Clipping

Audio clipping occurs when a digital audio signal peaks above the maximum level. If audio clips during acquisition, the audio on the acquired clip is distorted.

If an audio file clips while acquiring, the red audio clipping indicator in the Edit Suite lights. The Acquire panel reports the timecode where clipping first occurred.



After acquiring is complete, press ⌘-6 or choose Windows>Log Window to view the timecodes and channels where the audio clipped. You can save the Log window information as a text file, print it, or copy it.



Delete the new media files that contain the distorted audio, adjust the audio settings, and reacquire the clips noted in the Log window.

When satisfied that the audio is playing at peak levels without clipping, you are ready to reacquire the source media.

▼ Acquire Controls

The Acquire Controls let you specify a clip start point (In point) and end point (Out point). You can mark In and Out points on the fly as the reel plays or type timecodes into the In and Out timecode fields as you work. Marking the In and Out points of a clip is a more precise method of acquiring than relying on the Start and Stop commands in the Edit Suite.

Once you set In and Out points for a clip, you can

- Acquire it immediately and save it in a bin
- Create a clip without media, log and save it in a bin, and acquire the media later

If you log a number of individual clips to a bin, you can batch acquire them later.

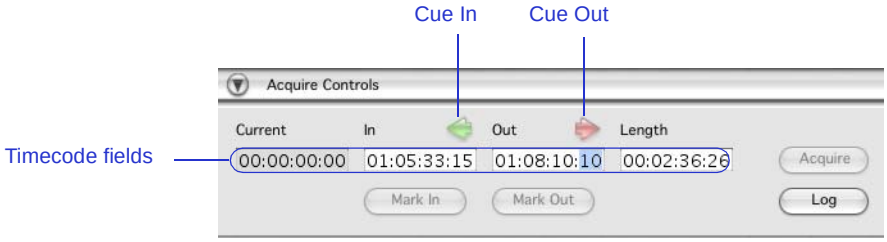
About the Acquire Controls Panel

The Acquire Controls panel is where you specify the In and Out points of the clip.

To access the Acquire Controls panel

1. Press ⌘-D or choose Tools>Edit Suite Mode>Acquire.
2. Click the Panel expansion button in the Edit Suite.

The Acquire Controls panel appears.



The following table describes the Acquire Controls panel elements.

Acquire Controls Panel Elements

Name	Description
Cue In button	Cues the VTR to the In point of the clip.
Cue Out button	Cues the VTR to the Out point of the clip.
Timecode fields	Specifies the timecode for the corresponding field. Options are: **Current**. Indicates the current timecode position of the source material in the VTR. You cannot type values in this field. **In**. Type a timecode in this field to select the clip In point. **Out**. Type a timecode in this field to select the clip Out point. **Length**. Type a timecode in this field to select the total length of the clip. When you type a timecode, the Media 100 system adjusts the value in the Out timecode field accordingly.
Mark In button	Sets the In point of the clip to match the In timecode.
Mark Out button	Sets the Out point of the clip to match the Out timecode.
Acquire button	Acquires the selected source material.
Log button	Creates an empty clip that contains a pointer to the appropriate In and Out points of the source footage.

Setting In and Out Points

Select a clip and set the clip In and Out points in one of the following ways:

- Click the Mark In and Mark Out buttons.
- Type timecodes in the timecode fields in the Acquire Controls panel.

NOTE Media 100 requires a 5-second preroll for each individual clip it acquires because many VTRs rely on a 5-second preroll for frame accuracy. Therefore, you cannot use a timecode between 00:00:00:00 and 00:00:05:00. If the timecode on your tape starts with a higher timecode setting than 00:00:05:00, allow a 5-second preroll before you select the In point.

To set In and Out points using Mark In and Mark Out buttons

1. Place a videotape in your VTR and set it to Remote.
2. Click Play in the Edit Suite to view the source material in the Source Monitor window.

   You can view source material in the Source Monitor window or on an external monitor. The timecode for each frame appears in the Current timecode field.
3. Press F1 or click Mark In to set the In point of the clip.

   The In point timecode appears in the In timecode field.

TIP You can also use the numeric keypad shortcuts on the extended keyboard. However, when the timecode fields in the Acquire Controls panel are highlighted, you cannot use the keyboard to control the deck.

   When you click Mark In, the system automatically subtracts a specified number of seconds from the In timecode field. The subtraction compensates for the delay that occurs between the time you see the desired In point and the time you actually click Mark In. To reset the subtraction time, type a value of 1 to 5 (seconds) in the Subtract from Mark In field in the Acquiring panel of the Preferences dialog box (Media 100>Preferences>Acquiring).
4. Press F2 or click Mark Out to set the Out point of the clip.

   The Out point timecode appears in the Out timecode field.

5 To stop playing the VTR, do one of the following:

- Press the SPACEBAR.
- Press ESC.
- Press the Stop button on the VTR.

To set In and Out points using the In and Out timecode fields

1 Type the timecode for the In point of the clip in the In timecode field.

2 Type the timecode for the Out point of the clip in the Out timecode field.

NOTE When you change the timecode in either the In or Out timecode field, the system automatically adjusts the value in the Length timecode field. If you type a new value in the Length timecode field, Media 100 adjusts the value in the Out timecode field.

About the Timecode Mode in NTSC

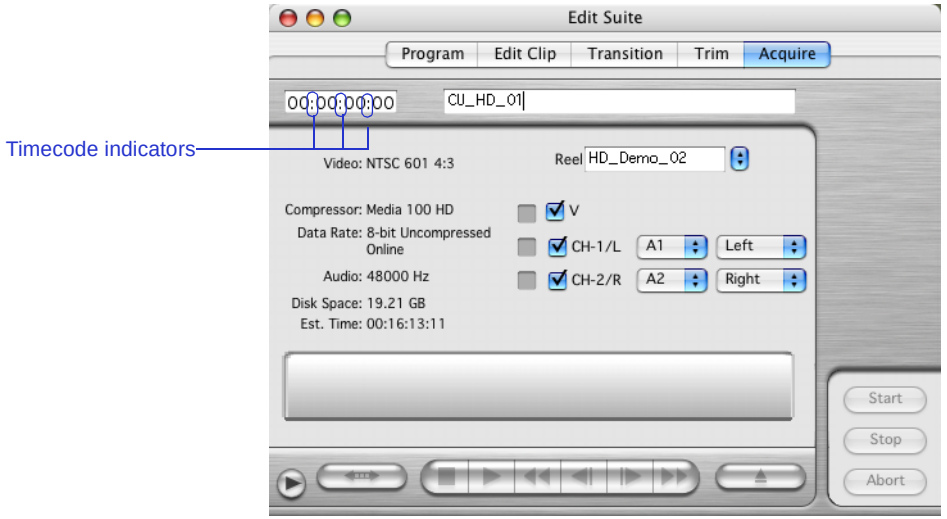
Before acquiring or logging NTSC clips, configure your system to read the source tape timecode mode correctly.

The default timecode setting is non-drop frame.

To check the timecode mode

➤ Play the first few clips on your tape and look for the timecode separator.

By playing the source tape in your VTR before acquiring or logging clips, the system detects the timecode mode of the tape and acquires in that mode.



- A SEMICOLON (;) in the timecode indicates drop frame mode.
- A COLON (:) in the timecode indicates non-drop frame.

When you play the tape in Acquire mode, the Edit Suite also displays the timecode mode under the video standard.

Acquiring Individual Clips

Use the following procedure to acquire individual clips using the Acquire Controls.

To acquire a single clip

1. Set the In and Out points for the clip to acquire.
2. Press F3 or click the Cue In button, and press F4 or click the Cue Out button to review the In and Out points of the clip before acquiring.
3. Click Acquire in the Acquire Controls panel.

   Media 100 inserts a 5-second preroll, brings the VTR up to speed, and acquires the clip. It saves the clip to the currently active open bin. If you do not have an open bin, it creates a new one.

Logging Multiple Clips to a Bin

Rather than immediately acquiring a clip, you can log individual clips to a bin and batch acquire those logged clips later. Log a clip to a bin by marking the clip to acquire and using the Log button in the Acquire Controls panel. When you click Log, Media 100 creates an empty clip that contains a pointer to the appropriate In and Out points of the source footage.

CAUTION

Clips are logged in the current timecode mode. The Media 100 default is non-drop frame. You cannot acquire clips that are logged in a mode that does not match the reel on which they reside.

See “About the Timecode Mode in NTSC” for information about changing the timecode mode.

CAUTION

Once a clip is logged the video standard can not be modified for acquisition. Be sure to set the appropriate video standard prior to logging.

Also, a clip can not be re-acquired at a different standard unless you conform the clip to the different standard first, then re-acquire.

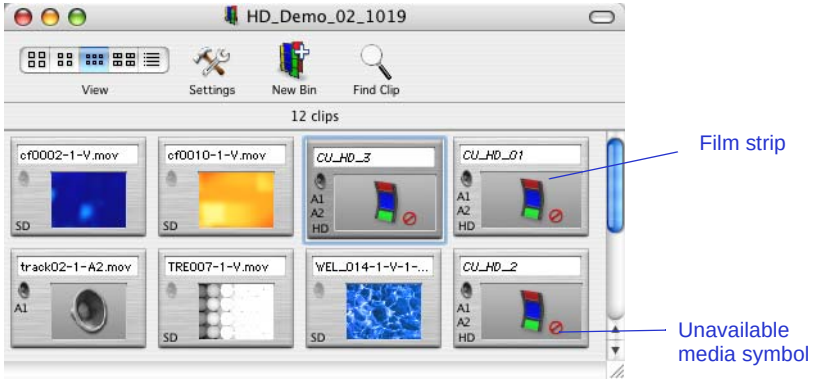
To log a clip

1 Select the In point and Out point of the first clip to acquire.

2 Verify the timecode mode and track settings.

3 Press ENTER on the numeric keypad or click Log.

The system displays the logged clip in the current bin and shows a film strip with an unavailable media symbol. This indicates that no source media is currently associated with the clip.



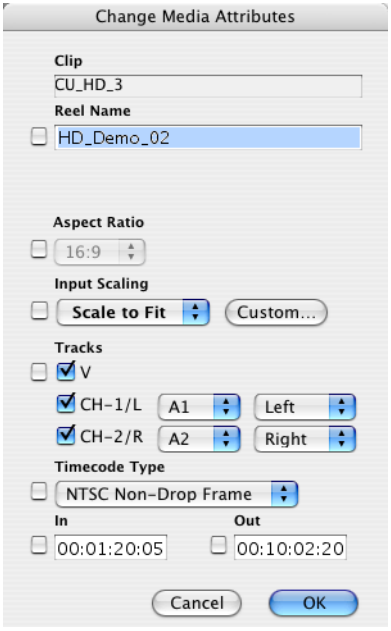
4 Repeat steps 1 and 3 for each clip to log.

Correcting Acquisition Log Errors

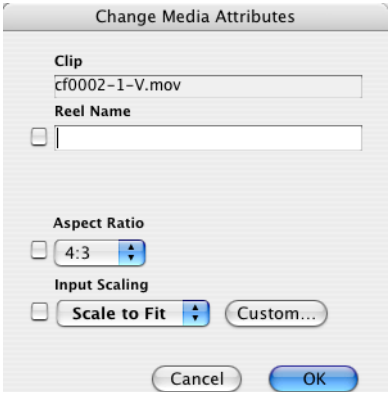
The Change Media Attributes dialog allows you to change the following attributes of one or more selected clips simultaneously.

- Reel name
- Aspect Ratio
- Acquire video
- Acquire audio 1, track assignment, pan
- Acquire audio 2, track assignment, pan
- Timecode type
- Input scaling when acquiring HD media and conforming to SD media or when acquiring SD media and conforming to HD media
- In point
- Out point

The Change Media Attributes dialog allows you to correct errors made during logging.



If you select clips with acquired media the following Change Media Attributes dialog appears.



In this dialog, you can change only the Reel Name, Aspect Ratio and Scaler used (for reacquire only).

The Change Media Attributes dialog adjusts to the following criteria:

- Clips selected from the timeline or bins with media allow only the reel name and aspect ratio controls to change.
- Selected multiple clips does not allow In and Out points to change.
- If the timecode type is changed, the original timecode or a close facsimile is preserved.

You can Undo changes as long as the acquire parameters are not changed.

▼ Batch Acquire

The Batch Acquire feature allows you to acquire a logged group of clips. You can batch acquire the following:

- Clips recently logged through the Acquire Controls panel.
- Text edit log files imported using the PowerLog feature.
- Edit decision lists (EDLs) imported using the PowerLog feature.

When to Batch Acquire

Use the Batch Acquire feature to reacquire media for clips in your bins or programs. The ability to reacquire lets you create programs in lower-quality Draft mode and later prepare a final version in higher-quality Online mode. Conversely, you can reacquire media that was acquired at high data rates to lower data rates for reuse in new programs. Use the same batch acquire procedures to acquire new media or reacquire existing media.

You may decide to use the draft mode clips as your final output for the following reasons:

- Although resolution is reduced, draft mode sometimes produces better images because less compression is applied to each frame.

- Acquiring your program in draft mode at a high-quality resolution can produce a film-like effect.

In addition to changing the quality, Batch Acquire lets you change other settings at which to acquire the clip. However, you cannot change from NTSC to PAL or PAL to NTSC because of the frame rate differences.

NOTE You cannot reacquire source material from a videotape without timecode. To reacquire material, use videotapes that contain timecode.

If Media 100 determines that you do not have enough disk space to batch acquire the selected clips, a message appears. (Your target drive must have a minimum of 100 MB for SD media and 1 GB for HD media, of available space to acquire.) You can continue or go to the Media Destinations panel of the Media Settings dialog box to change the target drive.

When Not to Batch Acquire

Batch acquiring in Media 100 with the Delete Replaced Media option checked breaks the connection between a Boris composition clip and the media, resulting in a black clip.

The Boris composition clip always points to the original media file. Use final-quality clip media to create Boris composition clips. Avoid batch acquiring clip media used to create Boris composition clips.

If you cannot avoid batch acquiring clips used to create Boris composition clips, manually relink the clips to the new media in the Boris tool as follows.

To manually relink Boris composition clip media

1. Open the Boris tool that you used to create and edit the composition clip.
2. Open the Media 100 Bin Browser and display the bin containing the clip(s) used in the composition clip.
3. Select the original clip(s) in the bin and click OK.

The new media is reassociated with the clip and composition clip in Boris.

NOTE You will need to rerender your clips.

About the Batch Acquire Dialog

Use the Batch Acquire dialog to specify which clips to acquire.

To batch acquire, activate machine control through the Device Control panel in the Preferences dialog. If machine control is not active, an alert message appears. The message lets you open the Device Control panel of the Preferences dialog and set machine control. You can also access the Device Control panel from the Batch Acquire dialog any time you want to change the settings.

To access the Batch Acquire dialog

1 Press SHIFT-⌘-P or choose Tools>Edit Suite and click the Program tab.

2 Select the clips to batch acquire.

Open...	To...
A Bin or Program window	Select and acquire specific clips.
A Project window	Select and acquire clips that appear in multiple locations. Select the bins and programs containing the clips.

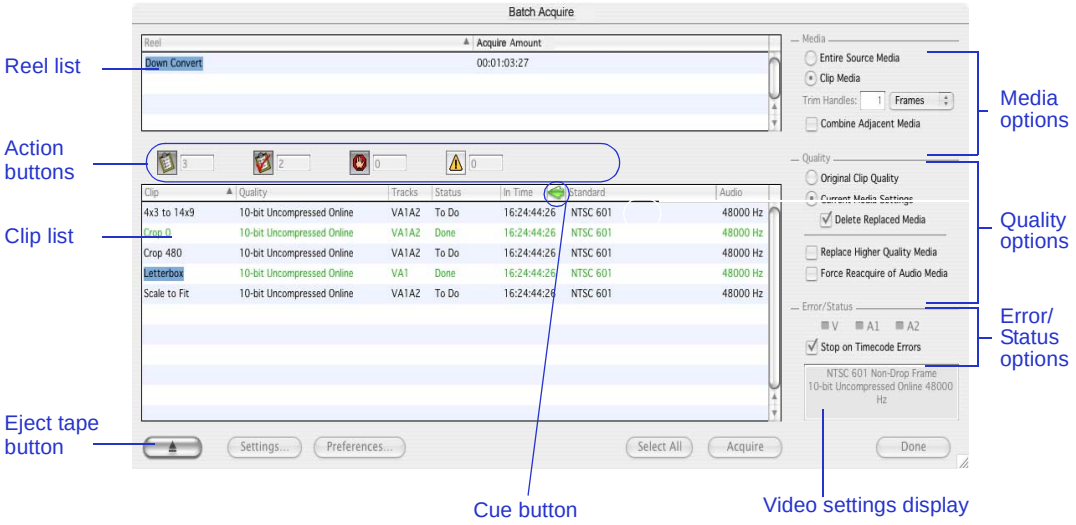
TIP Select Combine Adjacent Media in the Batch Acquire dialog box to avoid acquiring duplicate media.

3 Choose the acquisition mode to use. You can only use one mode at a time.

Choose...	To...
Media>Batch Acquire	Acquire everything in the active window, regardless of whether specific bins, programs, or clips are selected.
Media>Batch Acquire Selected	Acquire only the items selected in the active window.

To make clips in a bin and program point to the same media, select both the bin and program in the Project window. If you acquire media in an individual bin, only the clips in the bin are reacquired. A program that uses the original clips from the bin no longer points to the same media files.

The Batch Acquire dialog box appears.



NOTE If some clips do not appear in the Clip list, check that the audio sampling rate or the video standard for the clips matches the settings in the Audio and Video Input panels of the Preferences dialog box. Also, check the Action buttons as some clips may not appear due to being filtered out. And, check the In point timecode, if it reads 00:00:00:00, the clip is omitted because the system sees the clip as being acquired from a tape without timecode.

The following table describes the Batch Acquire dialog elements.

Batch Acquire Dialog Elements

Name	Description
Reel list	Lists the names of the reels containing source media identified for acquisition and the amount of media to be acquired on each reel.
Media options	Allow you to configure source media settings.

Batch Acquire Dialog Elements *(Continued)*

Name	Description
Action buttons	Clickable buttons that perform the following activities: **To Do**. Filters the clips to batch acquire. **Done**. Filters the clips that have assigned media and data rate is the same as the current rate. **Error**. Filters the clips that were not acquired because of errors. **Hardware Mismatch**. Filters the clips that were not acquired because the video, audio or device control settings do not match the current settings.
Quality options	Allow you to specify how quality settings are used.
Error/Status options	Provide loss-of-sync indicators and allow you to set the Stop on Timecode Errors option.
Clip list	The clip list contains seven columns: **Clip**. The clip name. **Quality**. The current quality setting. **Tracks**. The associated video and audio tracks. **Status**. The current state of the clip. **In Time**. The In point of the selected clip. **Standard**. Video Input setting Video Standard. **Audio**. Audio Input setting Sample Rate. Click a column heading to sort the list using the heading as your sort criteria. **NOTE** Media 100 reacquires by In Time values, regardless of the current sort order.
Cue button	Cues the VTR to the In point of the selected clip. Before using this button, make sure only one reel in the Reel list is selected.
Eject Tape button	Ejects the tape from the VTR. This button is active if the deck supports the eject feature.
Settings button	Allows you to change the quality setting.
Preferences button	Accesses the Video and Audio Input panels.

Batch Acquire Dialog Elements *(Continued)*

Name	Description
Select All button	Selects all the listed clips to acquire.
Acquire button	Acquires the selected clips.
Done button	Closes the dialog after acquiring.

Choosing Source Media Options

You can choose the portion of the source media to batch acquire.

To choose source media options

1 Select settings from the Media section of the Batch Acquire dialog box.



Choose...	To acquire...
Entire Source Media	All of the source media for logged clips.
Clip Media	The source media from each clip In and Out point.

2 If you select Clip Media in step 1, type a value in the Trim Handles field. The value set defines the number of seconds or frames to be acquired preceding the In point and following the Out point.

3 Select or clear the Combine Adjacent Media check box.

- When you clear the check box, the system acquies a separate file for every logged clip.

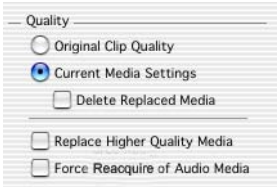
- When you select the check box, the system merges the media for clips that are adjacent on the same reel and have overlapping In and Out points. Only a single media file is acquired for these clips.

Choosing Quality Options

Choose the quality setting to use for batch acquiring as described next.

To choose quality options

1 Select settings from the Quality section of the Batch Acquire dialog box.



Choose...	To...
Original Clip Quality	Retain the quality setting you selected in the Media Settings dialog box when you logged your clips.
Current Media Settings	Use the quality setting that is currently selected in the Media Settings dialog box. Choose this option to reacquire clips at a different quality level.

2 If you select Current Media Settings in step 1 and you want to delete the old media, select the Delete Replaced Media check box.

When you enable this check box, Media 100 deletes the old media files and replaces them with new media files that have the currently selected quality settings. Deleting the files provides more disk space. A media file is never deleted until a replacement for it is successfully acquired.

3 Enable the Replace Higher Quality Media check box to replace old media files that have higher-quality settings with new media files that have lower-quality settings.

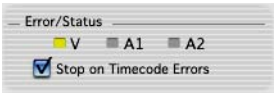
4 Enable the Force Reacquire of Audio Media check box to automatically reacquire audio media and replace the old audio media files with the newly acquired audio media files.

NOTE By default, the system does not reacquire audio media if the media is already available.

Handling Errors

The Error/Status area contains video loss-of-sync and audio clipping indicators. The loss-of-sync indicator for the video channel or either audio channel turns yellow when synchronization momentarily fails, denoting that part of the signal may be lost. The audio clipping indicator for each audio channel turns red whenever audio momentarily clips.

The Stop on Timecode Errors check box in the Batch Acquire window allows you to determine whether batch acquiring continues when the system detects timecode errors.



The Stop on Timecode Errors option behaves as follows:

- When the check box is selected (the default), the batch acquire process stops if it detects a timecode error. The clip is not acquired.
- When the check box is clear, the batch acquire process continues even if timecode errors are found. If clips contain timecode errors, the following occurs:
  - The offending clips are not acquired.
  - The Status column reports the clip as Not Found.

- An alert appears after all clips are processed and reports the errors found.

CAUTION

If the check box is cleared, the system may record over timecode breaks on the tape. If this happens, you cannot reacquire later.

NOTE The batch acquire process may still stop if it finds errors that are not timecode related.

Manually reacquire clips that have timecode errors.

Changing Current Settings

Clips that are logged to the bin are acquired at the rate specified in the Media Settings panel of the Project Settings dialog box when the clip was logged or imported. If needed, you can change the settings at which the clips are batch acquired.

- Change quality settings from the Batch Acquire dialog box.
- Change the target drives from the Batch Acquire dialog box.
- Change the aspect ratio, video dimensions, audio sample rate and scale settings for conformed clips, then use shortcuts to implement the new settings while accessing the Batch Acquire dialog box.

To change the quality setting for batch acquisition

1. In the Batch Acquire dialog box, click Settings.

   The Media Settings panel in the Project Settings dialog box appears.

2. Choose the compressor type, quality and data rate if applicable.

To change the target drive for batch acquisition

1. In the Batch Acquire dialog box, click Settings.

   The Project Settings dialog box appears.

2 Select Media Destinations from the Panels list.

3 Choose the drive where the new media files will be stored.

To change Audio and Video Input settings before batch acquiring

1 Click the Preferences button to access the Audio and Video Input panels and change the standard, aspect ratio, or audio sample rate as needed.

2 Press the following keys while opening the Batch Acquire dialog box to implement the changes for batch acquiring video or audio:

- Press CONTROL-SHIFT to reacquire video with the new standard or aspect ratio.
- Press OPTION-⌘ to reacquire audio with the new sample rate.

Batch Acquiring Logged Clips

After you choose the Media and Quality options in the Batch Acquire panel, you are ready to batch acquire the logged clips.

NOTE Before you start, check the Standard and Source Standard settings in the Video Input Panel of the Preferencs dialog box. If the setting is incorrect, acquiring stops after the VTR preroll without giving an error message.

To batch acquire logged clips

1 Select the reel(s) to acquire from the Reel list.

The clips from those reels are selected to acquire.

2 Select some of the clips in the list by pressing one of the following buttons:

Click the button...		To...
	To Do	Select the To Do clips to batch acquire.
	Done	Select clips that have assigned media and data rate is the same as the current rate.

Click the button...	To...
Error	Select all the clips that were not acquired because of errors.
Hardware mismatch	Select all clips that were not acquired because the clip audio or video input settings do not match the current settings.

3 Select features in the Batch Acquire dialog to complement the acquisition process.

4 Click Acquire to acquire the clips you selected.

Or

Click Select All to select all the listed clips.

5 Load the reels when prompted by the Batch Acquire Progress dialog.



TIP The Skip Reel button lets you skip a tape that you do not have and continue reacquiring.

6 Click Ready to begin acquiring.

Media 100 searches for the In point of the first clip and begins acquiring. The system displays the compressor type, data rate and mode it is using to acquire each clip (for example, Media 100, 10-bit Uncompressed, Online).

A Progress bar provides a graphical view of the approximate time remaining.

Time in Reel Remaining field — Indicates the amount of material remaining to be acquired on the current reel.

Time in All Reels Remaining field — Indicates the time required to acquire all remaining media on all selected reels.

7 To stop acquiring, do one of the following:

- Click Stop.
- Press ESC.
- Press ⌘-PERIOD (.).

Click Ready to start acquiring again.

When all the selected clips and/or reels are acquired, Media 100 system sounds a tone and redisplays the Batch Acquire dialog.

8 Click Done in the Batch Acquire dialog when you finish acquiring.

The Batch Acquire dialog closes. The Log window appears if there are audio clipping errors.

Batch Acquiring Clips in Multiple Locations

This section describes how to batch acquire clips that are used in multiple locations and have the clips point to the same source media. For example, clips from a bin are dragged into a program. For the bin and program to use the same reacquired media file, you must batch acquire the bin and program together. Follow the instructions given next to do so.

To make clips in multiple locations point to the same media file

1 Put the Edit Suite into Program mode.

2 Click the Project window to make it active.

3 Select the bin(s) and program(s) containing the clips to reacquire.

Activating just the bin or timeline reacquires only the media used in the active window. Clips in unselected bins and programs use the original media files.

4 Choose Media>Batch Acquire Selected.

5 Click Combine Adjacent Media in the Batch Acquire dialog box.

Be careful when using this option.

- Combining adjacent media can result in extremely large file sizes.
- Deleting a media file linked to clips in a number of locations can result in unavailable media.

Reacquiring

Use the Batch Reacquire panel to reacquire clips in bins and programs or bins and programs in a project.

NOTE Reacquire all media to the same aspect ratio and sampling rate. A message appears if you try to open a program with mismatched media.

You can take one of several approaches when reacquiring media, including:

- Reacquire the final trimmed media in your program. This saves disk space by reacquiring the trimmed media and replacing the original untrimmed media.
- Reacquire the media for trimmed clips in a program while retaining untrimmed clips in related bins at their draft quality setting. Reacquire the media for trimmed clips in a program as well as untrimmed clips in related bins.

NOTE You cannot reacquire clip media that was imported from a QuickTime movie that was not originally acquired with timecode information. However, the QuickTime-derived media does appear in the Batch Acquire dialog box. Deselect the reel name in the Batch Acquire dialog box that corresponds to the QuickTime-derived media. The reel name is identical to the clip name.

NOTE All previously rendered titles and effects require rerendering after reacquiring. To deselect rerendering, choose Media 100>Preferences>Titles & Effects and clear the Render All after Reacquiring check box.

To reacquire clips

1 Choose one of the following:

To reacquire clips...	Open the...
In a single bin or program	Bin or Program window and choose Media>Batch Acquire.
In multiple locations	Project window, ⌘-click the programs and bins to reacquire and choose Media>Batch Acquire Selected

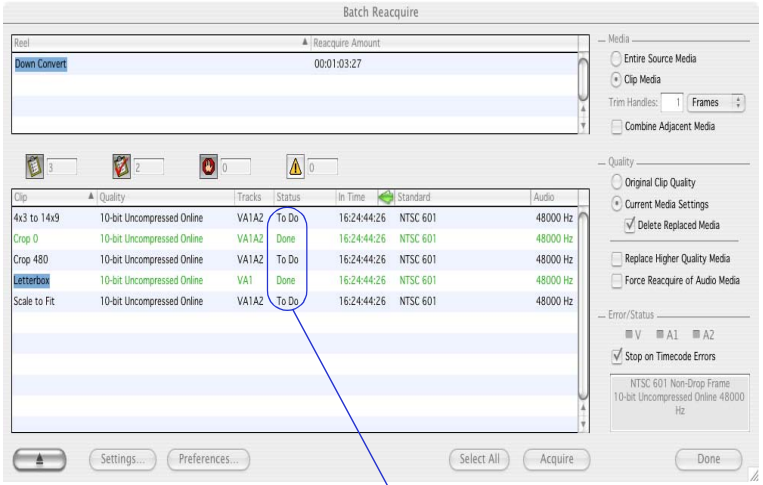
The Batch Reacquire dialog box appears.

NOTE Clip status is “Done” if the media is available, and target data rate is the same as the current rate. Clip status is “ToDo” if the media is not available or you changed the settings.

2 Click the Settings button to display the Media Settings panel in the Project Settings dialog box.

3 Choose the new target quality data rate for reacquiring and click OK.

The Batch Reacquire dialog box now lists the clips at the new data rate with the clip status changed to “ToDo.”



4 Select or deselect the Delete Replaced Media check box to choose whether to save the original media.

- Selecting the check box replaces original media with newly acquired media.
- Clearing the check box creates new media files at the new rate and retains the original media files.

5 To replace previously acquired media with media being acquired at a lower-quality setting, click the Replace Higher Quality Media check box.

6 To reacquire audio media, select the Force Reacquire of Audio Media check box.

CAUTION

Do not interrupt Batch Acquire when reacquiring audio. If you select “Force Reacquire of Audio Media,” complete the process or the program will not play back correctly.

7 Do one of the following to select which media to acquire:

- Clicking the Acquire All button acquires the media on all the reels.
- ⌘-clicking reels and clicking the Acquire button acquires the selected reels.

8 Load the reels when prompted by the Batch Acquire Progress dialog box.

9 Click Done in the Batch Acquire dialog box when the process is complete.

Clip Status Messages

The status column in the Batch Acquire dialog box displays the status of each clip as you acquire it. The following table lists status messages and explanations.

Clip Status Messages

Message	Explanation
Always Do	An indicator for all audio clips when the Force reacquire of audio media option is enabled.
Bad Media	An error in the media, such as discontinuous timecode, was detected.
Bad TC	Timecodes errors may appear in the Status list when you select Acquire All. To prevent the system from stopping at each timecode error, disable the Stop on Timecode Errors check box in the Batch Acquire window.
Can't Record	Media 100 cannot begin recording. Make sure the VTR is not in Local mode when Media 100 tries to locate media.
Disk Full	The disk to which the clip is being acquired reached its capacity.
Done	The clip was acquired.
High Rate	Acquisition was aborted because the specified data rate for the clip was too high. This may occur because the external disk drive is too slow.
No Control	Media 100 system cannot control the VTR. Ensure that the VTR is not turned off or in Local mode, and a machine control device is selected and correctly configured in the Device Control panel of the Media 100 Preferences.
No Sync	Video signal synchronization was interrupted. Aquisition is aborted.

Clip Status Messages *(Continued)*

Message	Explanation
Not Found	Media 100 could not find the correct timecode for the beginning of the clip. This problem can occur when ■ The needed timecode does not appear on the tape. For example, the first frame is at timecode 01:00:00:00, and the system is searching for timecode 00:20:00:00. ■ There is a mismatch of timecode modes. For example, your source tape uses drop-frame, but Media 100 is using non-drop frame. ■ Media 100 prerolls into a discontinuous timecode (a break in the source timecode). For example, the source tape may include two sections — one starts at 00:30:00:00 and ends at 01:20:00:00, and another starts at 00:48:00:00 and ends at 01:12:00:00. If the system searches for 00:40:00:00 in the second section, it does not find it.
Stopped	You manually interrupted the acquisition process using the Stop button.
TC Same TC Greater TC Less	Timecodes errors may appear in the Status list when you select Acquire All. To prevent the system from stopping at each timecode error, disable the Stop on Timecode Errors check box. in the Batch Acquire window.
Timecode	Media 100 could not subtract the 5-second preroll.
ToDo	The clip is not yet acquired.

5

Importing Media

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▼ Introduction

This chapter describes how to import files into the Media 100 system. It explains how to import

- Video files
- Still image files
- Audio files
- Bins and programs
- Text edit log files using PowerLog™

Before importing media files, adjust the following settings:

- Video and audio input settings in the Media 100 preferences. (Media 100 >Preferences).
- Compressor type, quality data rates, and media file destinations in the Project Settings dialog box. (Media 100>Project Settings).

CAUTION

Do not import media directly from removable disks (CDs or diskettes). Once the pointer to the original file is lost, you must reimport it. Instead, copy the files to a hard disk first, then import.

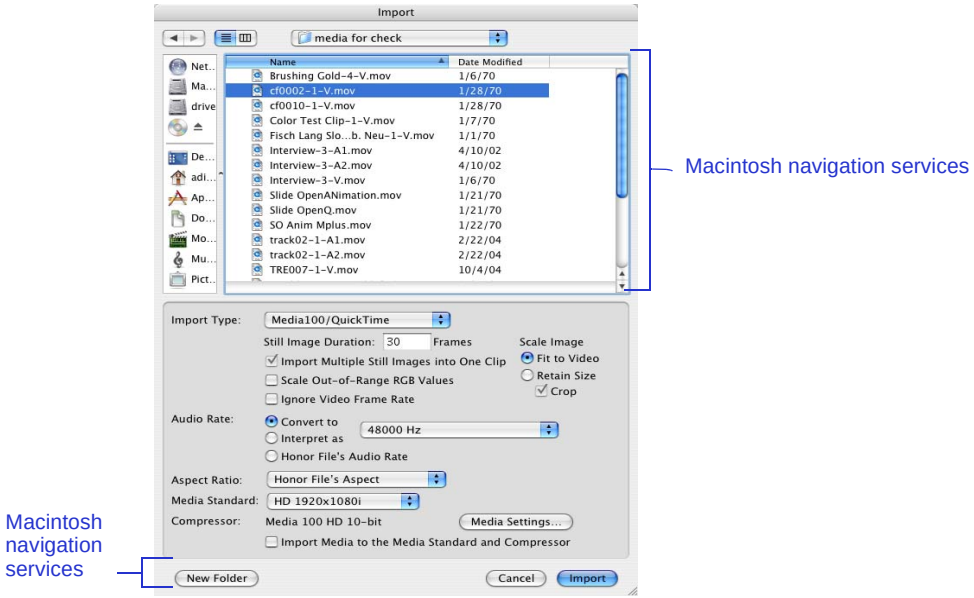
▼ About the Import Dialog Box

You can import video, still image, and audio files using the Import dialog box or drag-and-drop. This section explains the elements of the Import dialog box.

To open the Import Dialog box

➤ Press ⌘-I or choose File>Import.

The Import Dialog box appears.



The following table describes the Import dialog box elements.

Import Dialog Box Elements

Name	Description
Macintosh navigation services	Standard Macintosh operating system navigation elements. For details, see your Macintosh documentation.
Type menu	Select the type of file to import.

Import Dialog Box Elements *(Continued)*

Name	Description
Still Image Duration field	Type the number of frames for a still image to repeat. This option is only available when Still Image is selected in the Import Type menu.
Import Multiple Still Images into One Clip check box	Click to import multiple still images into one clip, as opposed to separate clips for each image. This option is only available when Still Image is selected in the type menu.
Scale Out-of-Range RGB Values check box	Click to compress all color values to fall within the legal 8-bit RGB color range of 16 to 235 from a possible input range of 0 to 255 or 10-bit color range of 64 to 940 from a possible input range of 0-1023. If the option is not selected, the original colors are retained.
Ignore Video Frame Rate check box	Click to maintain the frame rate of the original file. Each frame of the original clip becomes a video frame. When you deselect this check box, the imported file is converted to the NTSC or PAL frame rate. Frames from the original file may be duplicated or dropped.
Audio menu	Choose an option from the menu to set the rate at which to import the audio file. The options are: Convert - imports the audio altering the rate to the selected Hz. Interpret - imports the audio at its original sample rate but reports it as using the selected Hz. **NOTE** This will cause the audio to play at a faster or slower speed. Honor File's Audio Rate - imports the audio at its actual sample rate.
Aspect menu	Choose an option from the menu to set the aspect ratio at which to import the video file. The options are: Honor File's Aspect - imports the file using the original aspect ratio of the file. Use 4:3 aspect ratio - imports the file as 4:3 Use 16:9 - imports the files as 16:9

Import Dialog Box Elements *(Continued)*

Name	Description
Fit to Video radio button	Select this option to stretch or shrink the video or still image to the video frame size. Image distortion may occur.
Retain Size radio button	Select this option to retain the original size of the video or still image file. This option works differently for video and still image files.
Crop check box	Select this option to crop still image files that are larger than the video frame. This option is only available for still image file import.
Media Standard	Specify the format to convert the video source to.
Compressor	Informative field displays the Compressor Type specified in the Media Settings Panel of the Media 100 Project Settings
Media Settings button	Opens the Media 100 Project Settings>Media Settings Panel
Data Rate	Informative field displays the Data Rate specified in the Media Settings Panel of the Media 100 Project Settings
Import Media to the Media Standard and Compressor checkbox	If checked the imported content will be converted to the Media Standard and Compressor specified

CAUTION

If selecting the Import Media to the Media Standard and Compressor checkbox be aware that the imported file adheres to the Media Standard and Compressor settings only. The Convert options (4:3 to 14:9, 16:9 to 14:9, Crop, Letterbox, Pillarbox and Scale to Fit) are not applied. Apply the necessary conversion using the Conform dialog box after importing the file.



Importing Video Files

Media 100 supports the following digital video formats:

- DV
- MPEG
- OpenDML
- QuickTime Movie
- Video for Windows (AVI)
- P2

NOTE Media 100 uses QuickTime for its import and export routines and due to the way QuickTime handles multiplexed audio when importing MPEG movies, Media 100 supports audio or video import only. If the movie contains both audio and video, the audio is stripped and only the video is imported.

Media 100 may support additional video formats as new versions of QuickTime are released. Visit the Apple website at www.apple.com/quicktime for a list of the current QuickTime supported file formats.

This section describes how to import video files, although these files may also contain synced audio or only audio.

To import video files using the Import command

1. Press ⌘-I to open the Import dialog box.
2. Choose Media 100/QuickTime or All from the Type menu.

   Depending upon the type you select, different options become active.
3. Select the file(s) to import using the Directory menu and list.

TIP To import multiple files, SHIFT-click each file.

4 Click an image scaling radio button to adjust your movie file to the currently selected NTSC/PAL video frame size.

Choose...	To...
Fit to Video	Resize a video file to match the currently selected NTSC or PAL frame size.
Retain Size	Create a centered image in a video frame surrounded by black if the image is smaller than the video frame. Truncate the image if it is larger than the video frame.

TIP For the best results, create your movie files at the appropriate NTSC or PAL frame size and select the Retain Size radio button.

5 Select the aspect ratio for the imported clip from the Aspect menu:

Choose...	To...
Honor File's Aspect	Use the original aspect ratio of the file. If Media 100 does not recognize the aspect ratio, it chooses a value based on the frame aspect of the source image boundary.
Use 4:3 aspect ratio	Import the file as 4:3, regardless of any previous aspect ratio.
Use 16:9 aspect ratio	Import the file as 16:9, regardless of any previous aspect ratio.

NOTE Importing a file at a different frame aspect than its image boundary distorts the image. The default setting is Honor File's Aspect. The Aspect menu setting remains changed until you change it again or quit the application.

6 Select or deselect the Ignore Video Frame Rate check box.

7 Select or deselect the Scale Out of Range RGB values check box.

8 If the file contains audio, choose one of the following options from the Audio menu to set the rate at which to import the audio file.

Choose...	To import the audio file...
Convert to __Hz	Choose the sample rate from the menu.
Interpret as __Hz	At its original sample rate, but report it as using the rate selected in the sample rate menu. If the original sample rate is lower than the selected sample rate, the audio plays at a faster speed. If the original sample rate is higher than the selected sample rate, the audio plays at a slower speed.
Honor File's Audio Rate	At its actual sample rate.

9 Click Import.

A Progress bar appears as the clip(s) are rendered and imported.

The Media 100 system

- Recompresses the movie based on the Compressor Type selected in the Media Settings Panel (Media 100>Project Settings>Media Settings).
- Creates a source clip for the imported material.
- Places a poster representing the clip in the active bin, creating a new bin if there is not one active.
- Establishes a pointer to the original movie file.

CAUTION

Do not move, rename, delete, or modify the original movie file unless you are not using it in a program. Once the pointer to the original file is lost, you must reimport it.

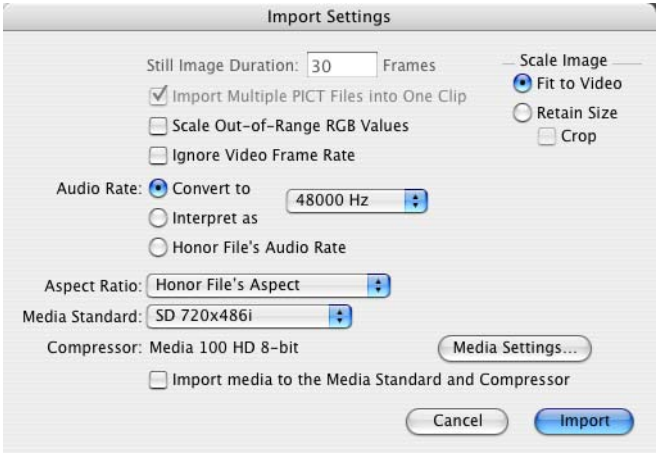
You can also import files by dragging them over the Media 100 application icon.

To use drag-and-drop importing

1 Do one of the following:

- Drag files onto the Media 100 icon or a Bin window.
- Drag folders onto a Media 100 Project window.

If you select multiple files, the Import Settings dialog box appears.



2 Choose the desired settings and click Import.

Fast Import

If the media file being imported was generated from a Media 100 i or 844/X system, the Media 100 system will automatically perform a Fast Import. In addition Fast Import is performed on single-codec SD DV media as well as media using the Animation codec. On a Fast Import Media 100 reads the existing file and does not modify it other than a few header parameters. It does not create a new source media file, nor does it move the imported file into the project media folder. Therefore, use

caution when deleting Media 100 i and 844/X files from your system as they may belong to an active Media 100 project even though they do not reside in the respective Media 100 media folder.

TIP When bringing Media 100 i and 844/X files into a Media 100 project, copy them from the original system to the respective Media 100 project's media folder. This will aid in organizing the content being used for a project.

NOTE To bypass the fast import and generate a media file, rather than a pointer to the original Media 100 i or 844/X file, select the Import Media to the Media Standard and Compressor checkbox in the Import dialog box prior to clicking the Import button.

▼ Importing Still Image Files

Media 100 supports the following still image formats:

- BMP (Windows Bitmap)
- FlashPix
- GIF
- JFIF/JPEG
- MacPaint
- Photoshop
- PNG
- QuickDraw GX Picture
- QuickDraw Picture (PICT)
- QuickTime Image File
- Silicon Graphics Image File
- Targa Image File
- TIFF

Media 100 may support additional still image formats as new versions of QuickTime are released. Visit the Apple website at www.apple.com/quicktime for a list of the current QuickTime supported file formats.

Before You Begin

If you are importing still image files created in Adobe Photoshop or another similar graphics application, it is important to plan ahead.

- Before importing a file, consider the pixel format in which it was created and the format you are using in your program.
- If you are importing images created using Adobe Photoshop correct the color settings.
- Change a background from black to transparent.

NOTE Adobe Photoshop images must be flattened prior to importing into Media 100.

Resizing a Still Image

When importing still images created in a square pixel application such as Adobe Photoshop be sure to create your image at a size that avoids distortion. Distortion may occur as the image is taken from a square pixel application to a non-square pixel application.

Therefore, to avoid distortion, create your image based on the following table so that during import the interpolation will take place along with the scanline, not against it.

Video Standard	Square Pixel Graphic Resolution
NTSC SD 4:3	■ 648 x 486
NTSC SD 16:9	■ 864 x 486
PAL SD 4:3	■ 768 x 576
PAL SD 16:9	■ 1024 x 576
HD 1920 x 1080	■ 1920 x 1080
HD 1280 x 720	■ 1280 x 720

NOTE HD resolutions are already square pixel so work in the native resolution. No scaling is required.

To properly size PICT images before importing

1 Launch your graphics application.

2 Set the image size to 648 x 486 (NTSC SD 4:3); 864 x 486 (NTSC SD 16:9); 768 x 576 (PAL SD 4:3); 1024 x 576 (PAL SD 16:9).

3 Create your image.

You may already have images that you want to import into your non-square pixel program. These images require cropping and resizing before you import them.

To resize a previously created image before importing

1 Launch your graphics application.

2 Resize the image to 648 x 486 (NTSC SD 4:3); 864 x 486 (NTSC SD 16:9); 768 x 576 (PAL SD 4:3); 1024 x 576 (PAL SD 16:9).

Correcting Color Settings

When importing a still image file from Adobe Photoshop, black and white in the image may clip within Media 100. Correct the color settings before you import the clip.

To correct color settings

1 Open the image in Adobe Photoshop.

2 Choose Image>Adjust>Levels.

3 Change the output black level to 16.

4 Change the output white level to 234.

If you already have images in the Media 100 application that are clipping, you can adjust the color as described next.

To adjust the color image

1 Double-click the clip and open the ColorFX panel in the Edit Suite.

2 Click the Classic radio button and click Customize.

3 In the ColorFX Classic dialog box, make the following adjustments:

- Set Brightness to –3.
- Set Contrast to –19.
- Set Saturation to –17.

Creating a Transparent Background

Perform the following procedure to replace a black background with a transparent background.

To create a transparent background

1 Open the image in Adobe Photoshop.

2 In the Layers palette, double-click the italicized Background layer.

3 Click OK in the Make Layer dialog box.

4 Save the image and reimport it into Media 100.

Importing Still Images

You can import still image files using the Import command or drag-and-drop.

To import a still image using the Import command

1 Open the Import dialog box.

2 Choose Type>Still Images.

3 Select the file(s) to import using the Directory menu.

4 Type the number of frames for the clip in the Still Image Duration field.

Enter a value from 1 to 99999. The value sets the playback duration for the clip. The media file for the image stores only the single frame. When played, the clip frame repeats for the specified duration. When importing multiple files, this setting applies to each file.

TIP Consider setting the duration to some multiple of the NTSC or PAL standard that sets the clip length to 1 or 2 seconds. This gives you a substantial number of frames with which to work. You can also alter the clip length within Media 100 after importing the files.

5 Select the Import Multiple PICT Files into One Clip check box to import multiple files as a single clip.

NOTE An image sequence using alpha PICTs will not render as a whole movie. Make a QuickTime movie before importing the sequence into the Media 100 application.

6 Select or deselect the Scale Out of Range RGB Values check box.

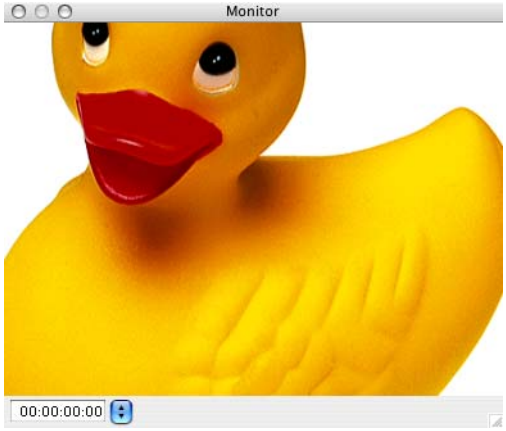
7 Click the Fit to Video or Retain Size radio button to adjust your files to the currently selected NTSC/PAL frame size.

The following examples show a PICT imported using the Fit to Video and Retain Size scaling options.

- The Fit to Video radio button resizes the image to the frame size specified in the Video Input panel of the Media 100 Preferences. Because it is resized, the image may become distorted.



- The Retain Size radio button imports the image at its current size, whether the image is larger or smaller than the current frame size.



Images where one axis is smaller than the frame size and the other is larger are centered within the frame along the smaller axis. Images that exceed the current frame size setting cannot be played as real-time static titles.

- The Crop check box truncates large still images to the size of a single frame. The check box is enabled for still image imports only when the Retain Size radio button is selected.

TIP For the best results, create your image files at the appropriate NTSC or PAL frame size and select the Retain Size radio button.

8 Click Import.

The import process begins, and a Progress bar appears.

The Media 100 system

- Creates new RealTime Image (RTI) and M1P media files for the imported material in the Project Media folder.
- Places a poster representing the clip in the bin. If no bin is open, the Import command creates a new bin.
- Establishes a pointer to the original PICT file.

CAUTION

Do not move, rename, delete, or modify the original PICT file unless you do not use it in a program. If you change the original file, you must reimport it.

If you import multiple files as a single clip, the Media 100 system sorts the multiple PICT files in alphabetical order and places them in a single clip.

▼ Importing P2 Files

P2 is a tapeless data storage format for files that can then be directly imported into the Media 100 system.

To import P2 files

1 From the File menu choose Import Panasonic P2 and select the appropriate P2 content for import.



▼ Importing Audio Files

The Media 100 system imports the following audio file formats:

- AIFF/AIFC
- AU
- Audio CD Data
- AVI
- Wave
- Sound Designer II
- Standard MIDI
- General MIDI
- System 7 Sound

Media 100 may support additional audio formats as new versions of QuickTime are released. Visit the Apple website at www.apple.com/quicktime for a list of the current QuickTime supported file formats.

The Media 100 system can also import audio from an audio CD, but converts it to a QuickTime file first.

To import audio files

1 Open the Import dialog box.

2 Select the file to import using the Directory menu.

3 Choose Media 100/QuickTime, AIFF, or All from the Type menu.

4 Choose one of the following options from the Audio sample rate menu to set the rate at which to import the audio file.

Choose...	To import the audio file...
Convert to __Hz	At the sample rate set in the Audio Input panel (Media 100>Preferences>Audio Input).
Interpret as __Hz	At its original sample rate, but report it as using the Convert to Sample Rate selected in the Audio Input preference panel. If the original sample rate is lower than the Convert to Sample Rate in the Audio Input preference panel, the audio plays at a faster speed. If the original sample rate is higher than the Convert to Sample Rate in the Audio Input preference panel, the audio plays at a slower speed.
Honor File's Audio Rate	At its actual sample rate.

NOTE All audio clips in your program must have the same sample rate, which you set in the Audio Input panel. If you use audio that has different audio sample rates, reacquire or reimport the source media at a sample rate consistent with your program.

5 Click Import.

A Progress bar appears while the Media 100 system imports the file. When the import process is complete, an audio clip appears in the bin.

As you import stereo audio clips, the Media 100 system pans the first track to the left, then the second track to the right, preserving a clear stereo signal. To preserve signal quality, the Media 100 system does not compress the audio and assigns sequential timecode to the file contents starting from 00:00:00:00 to the end. The timecode format is based on the current selection in the Video Input panel. Each session is stored in a separate media file.

To import audio files from an audio CD

1 Open the Import dialog box.

2 Choose Type>Media100/QuickTime.

TIP Although the various video-oriented fields remain active in the Import dialog box, they do not apply to audio import and are ignored by the Media 100 system.

3 Choose Honor File's Audio Rate from the Audio sample rate menu to maintain the imported audio file at its original sample rate.

4 Using the Directory menu, navigate to the CD and select it.

5 Highlight the track to be imported.

6 Click Import.

The import process begins and a Progress bars appear. The Media 100 media file is saved to the disk specified in the Media Destinations panel. (Media 100 >Project Settings>Media Destinations).

The Media 100 system places the imported audio clip in the active bin, or creates a bin if there is not one active.

▼ Importing Bins and Programs

You can import previously created bins and programs into a project.

To import a bin or program into a project using the Import command

1. Open the Import Dialog box.
2. Choose Type>All.
3. Select the bin(s) and/or program(s) to import from the Directory menu.
4. Click Import.

TIP You can also use the File>Open command or double-click the bin or program in the Finder.

To use drag-and-drop importing

1. Open the project into which you plan to import bin(s) and/or program(s).
2. In the Macintosh Finder, locate and select the files to import.
3. Drag the files onto the open Project window.

▼ Importing PowerLog Files

The PowerLog import format allows you to import text edit log files created by other applications. When you select an edit log file to import, the Media 100 system scans the text file, converts it to the PowerLog format, and creates a clip for each row in the file. The Media 100 system displays these clips in a new bin when you import them. Later, you can acquire these clips using the Batch Acquire feature.

Before using the PowerLog import format, set the quality levels and media destinations in the Project Settings dialog box to the desired settings. The Media 100 system uses these settings when acquiring imported edit logs. You can change quality settings before acquiring.

File Formatting Guidelines

To use the PowerLog import format, store the edit log file as a TEXT file. If your file is incompatible, modify it with a text editor to conform to the PowerLog file format specification.

The Media 100 system can import any text edit log file that conforms to the following guidelines:

- The file must be a “Save as Text” file. The file can have an unlimited number of rows. Each line in the file, including the last line, must end with a carriage return. Each field within a line must be separated by a single tab.
- Each line in the file must provide, as a minimum, the following three columns, with each column separated by a single tab:
  - Reel name
  - Start timecode
  - End timecode
- In addition to the previously listed three columns, the Media 100 system can also translate, as a maximum, the following three columns (for a total of six) separated by a single tab:
  - Clip name
  - Track name
  - Comments

Typically, the top of an edit log file contains header information that describes its contents. PowerLog ignores lines of header data in the edit log file.

File Organizing Guidelines

Edit log files contain three types of information:

- Timecodes
- Text

- Track names

You can arrange these three types of information in any order in a line, as long as the order within these types adheres to the rules listed in the following sections.

Timecodes

A valid line must contain two timecodes specifying the start and end values. You can place these timecodes anywhere in the line, as long as the Start timecode is before the End timecode. Timecode must be in standard timecode format (00 00 00 00).

The Media 100 system accepts any timecode punctuation: periods, colons, semicolons, commas, or spaces. Timecode punctuation depends on the source tape used and is interpreted as PAL or NTSC according to the format specified in the Video Input preference panel.

Timecode punctuation includes the following.

: (colon)	NTSC non-drop frame
; (semicolon)	NTSC drop frame
. (period)	PAL

The use of at least one semicolon (;) within the timecode identifies NTSC drop frame timecode. If PowerLog identifies a semicolon in the timecode and a frame rate of 29.97 in the Video Input preference panel, that clip is considered a drop frame clip. If PAL mode is specified, the semicolon is not significant.

Text

The Media 100 system assigns fields in a line of text in the following order:

Reel name

Although the reel name can be up to 32 characters, the Media 100 system permanently truncates names longer than 12 characters in the bin. Therefore, you may want to trim the name to 12 characters to preserve its integrity.

Clip name

If no clip name is specified, the default clip name is the reel name. You can use up to 32 characters.

Comments (optional)

When used, comments can be any text not containing tabs or carriage returns. You can use up to 255 characters.

You must specify a clip name if you plan to add comments. If you do not specify a clip name, the second text field is interpreted as the clip name, even if it is intended as a comment field.

Track Names

You can optionally specify video and audio tracks by V (video), A1 (audio 1), and A2 (audio 2). A1 and A2 correspond to CH-1/L and CH-2/R on the junction box. These designations are also used when the Media 100 system is in Acquire mode.

Valid track names are

- V
- A1
- A2
- A1A2
- VA1
- VA2
- VA1A2

If a track name is not specified, VA1A2 is used as the default setting.

NOTE When you specify a single audio track (A1 or A2) for import, the audio clip is labeled “A” when it appears in the bin. You can then place the audio file on any audio track in your program.

Edit Log File Examples

This section provides two sample edit log files to illustrate the various format variations. When reviewing the samples, remember the following conventions:

- If you do not specify a clip name, the Media 100 system uses the reel name.
- The Media 100 system automatically calculates the length of the clip upon import, based on the start and end timecodes.
- If you do not specify audio and video tracks, the Media 100 system uses the all tracks (VA1A2) designation.
- The Quality setting for the imported clips is based on the current Quality setting in the Media 100 system (Media 100>Project Settings>Media Settings).
- The Standard setting for the imported clips is based on the current Standard setting in the Video Input panel (Media 100>Preferences>Video Input).
- If there is a problem with a clip during import, the Media 100 system displays a notation in the Comment field of the bin.
- If you specify timecodes in the correct format but in the wrong order (start value greater than the end value), they are automatically switched and the following text appears in the clip Comment field:

  ERRORTimecodes found in reverse order.***FIXED***

The first sample edit log file illustrates the minimum information required for an edit log file. No clip or track name is specified; only the reel name and the timecodes (non-drop frame) are specified.

Sample 1

Reel	Start	End
Lisa's Eye	00,04,23,12	00,04,40,22
Mud Shot	00,04,23,12	00,04,23,12
Roller Blader	01,02,21,29	01,02,23,21

The second sample edit log file uses multiple timecode delimiters and shows clip name, track name, and comment information.

Sample 2

Reel	Clip	Track	Start	End	Comments
Harbor	Seals	VA1A2	00.04.23.12	00.04.40.22	Seals playing
Aquarium	Pen	A1	00,04,23,12	00,04,23;12	
Changing to a new reel here!					
Reel	**Clip**	**Track**	**Start**	**End**	**Comments**
Demo	Show	V	01 02 21;22	01 02 23;21	Changed reels

For NTSC, the Media 100 system interprets the two clips containing semicolons in the preceding example as drop-frame timecode.

TIP Regardless of the information specified in the edit log file, the information displayed in the bin in List view after you import the file depends on the View Preferences dialog box settings. However, the Media 100 system always displays the clips in the order in which they were entered in the edit log file.

Importing Edit Log Files

When you select an edit log file to import, Media 100 scans the text file, converts it to the PowerLog format, creates a clip for each row in the file, and displays the clips in a new bin. You can acquire the clips later using the Batch Acquire feature.

To import an edit log file

1. Press ⌘-I or choose File>Import.
2. Choose Type>PowerLog.
3. Select the file(s) to import.
4. Click Import.

   The Media 100 system reads the edit log file and imports it into a new bin. Multiple files are imported into separate, new bins.

6

Working with EDLs

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▼ Introduction

You may need to develop your programs on one system and then complete them on another. For example, you may have developed your programs on another digital video editing system, but want to transfer them to the Media 100 system to take advantage of its higher quality video. EDLs allow you to document decisions and edit points you make while designing your video. You can then transfer this information to another system without re-creating your work.

This chapter explains how to work with EDLs. It describes

- The common uses of EDLs
- EDL formats and structure
- How to import an EDL into a Media 100 program
- How to create and export an EDL from a Media 100 program

▼ About EDLs

An EDL is a text description of the final production. It can take many forms, depending on the editing requirements of the project. Regardless of the EDL form used, its purpose is to specify the program sequence, identify the sources from which you intend to extract pictures, audio, and graphical material, and detail any other operations needed to produce the final product.

Online and Offline Editing

The Media 100 system enables you to use EDLs when performing either online or offline editing.

Online Editing

When you import an EDL into the Media 100 system to perform final editing and output, you are using the Media 100 system as an online editing tool.

Online Nonlinear Editing

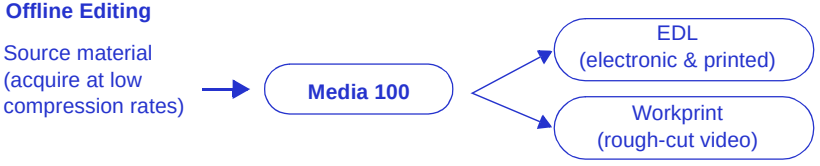


The Media 100 system supports CMX, Grass Valley Group, and Sony EDL formats to ensure compatibility with almost all offline systems. Importing EDLs into the Media 100 system assures you of the highest possible image quality for your finished video program.

Offline Editing

When you use the Media 100 system to output or print an EDL of your program for final production at a post-production facility, you are using the Media 100 system as an offline editing tool.

Offline Editing



TIP If you use the Media 100 system as an offline system and take the EDLs to a post-production facility, you may want to use the Media 100 system as a cuts-only editor. Media 100 EDLs report transitions by their wipe codes and do not include any custom settings.

EDL Formats

The Media 100 system can import and export text files that conform to any of the following EDL formats:

CMX 3400	Allows two audio tracks, and refers to different reels of videotape by using reel number assignments from 001 to 253. A suffix of ‘B’ can be added.
CMX 3600	Allows four audio tracks and uses an 8-character (alphanumeric) reel assignment.
Grass Valley	Allows four audio tracks and uses a 6-character (alphanumeric) reel assignment.
Sony BVE 2000	Allows four audio tracks and uses a 4-digit reel assignment.
Sony BVE 5000	Allows two audio tracks and uses a 3-digit reel assignment.
Sony BVE 9000	Allows four audio tracks and uses a 3-digit reel assignment.
Sony BVE 9100	Allows four audio tracks and uses a 4- to 6-character (alphanumeric) reel assignment.

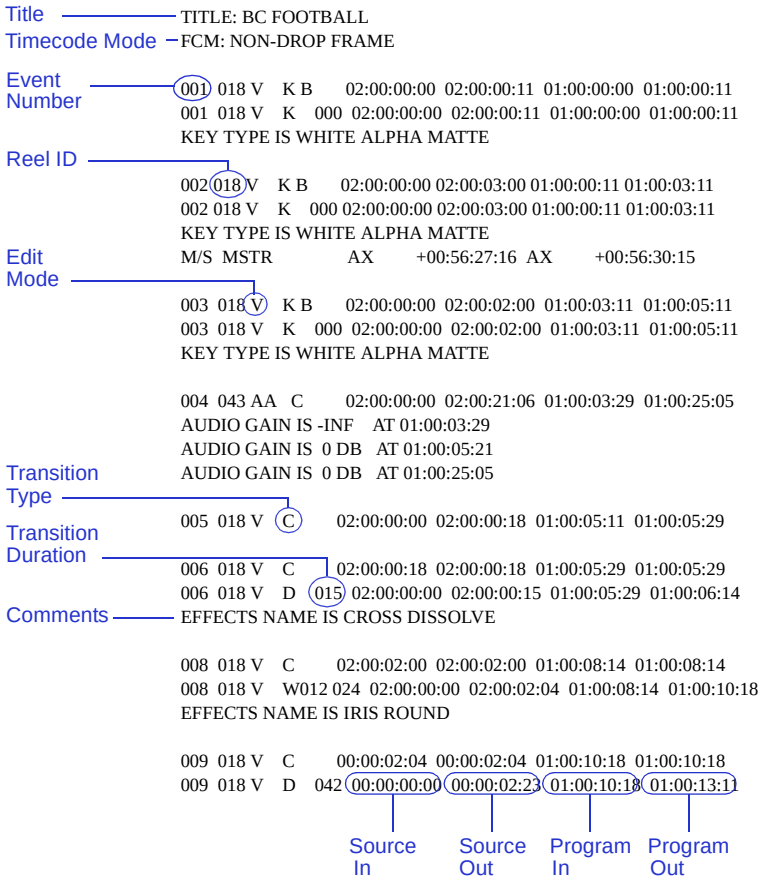
NOTE When creating reel names for the Sony EDL formats, do not use the letter “B” as a suffix.

An EDL is a list of events that describes intended edits, the location of source material, and the tape to which the video will be recorded. It describes the source and destination tape locations in the form of timecode values. In addition, an EDL describes reel names, edit types (video or audio), and transitions.

Structure of an EDL

EDLs are ASCII text files. While the formats the Media 100 system supports differ slightly in content, the elements of an EDL appear in electronic or printed forms for all formats, usually as unlabeled columns.

The following is an example of an EDL in CMX 3600 format. Although each EDL format displays slight variations in field spacing and location, this example illustrates all of the basic components of an EDL.



The following table describes the elements found in the preceeding sample EDL.

EDL Elements

Name	Description
Title	First line of the EDL. The title you assign when you create the EDL.
Timecode Mode	Second line of the EDL. Specifies the class of timecode used in the source program. ■ CMX format EDLs include a frame code mode (FCM) entry that indicates non-drop frame or drop frame timecode. ■ Grass Valley format EDLs do not include a timecode mode entry. The timecode punctuation in the EDL indicates the timecode mode: colon for non-drop frame and semicolon for drop frame. ■ Sony format EDLs do not include a timecode mode entry. The timecode punctuation in the EDL indicates the timecode mode: colon for PAL, period for non-drop frame, and comma for drop frame.
Event Number	First column from left. Specifies an incremental number that identifies individual events in the editing process. An event can have multiple lines. A single line represents a cut. Two lines represent dissolves, wipes, or keys. Unnumbered lines represent notes or comments.
Reel ID	Second column from left. Identifies the source reel. ■ CMX 3400 format EDLs include a 3-digit number (between 001 and 253) that indicates the reel number, followed by an optional letter B for black source. This format may use alternate 2-character descriptors: the letters BL indicate a black source; the letters AX indicate an auxiliary source. ■ CMX 3600 format EDLs use an alphanumeric reel identification (up to 8 characters). This identification is assigned when the source material is acquired. BL, BLK, or BLACK indicate a black source. ■ Grass Valley format EDLs use an alphanumeric reel identification (up to 6 characters). This identification is assigned when the source material is acquired. BL, BLK, or BLACK indicate a black source. ■ Sony 2000 format EDLs use a numeric reel identification (up to 4 digits). This identification is assigned when the source material is acquired. The letters BLK indicate a black source.

EDL Elements *(Continued)*

Name	Description
Reel ID *(continued)*	■ Sony 5000 format EDLs use a numeric reel identification (up to 3 digits). This identification is assigned when the source material is acquired. The letters BLK indicate a black source. ■ Sony 9000 format EDLs use a numeric reel identification (up to 4 digits). This identification is assigned when the source material is acquired. The letters BLK indicate a black source. ■ Sony 9100 format EDLs use an alphanumeric reel identification (up to 6 characters). This identification is assigned when the source material is acquired. The letters BLK indicate a black source.
Edit Mode	Third column from left. Describes the channels involved in the edit. ■ CMX channel assignments **V**. Video only **A**. Audio only **B**. Audio 1 and video **A2**. Audio 2 only **A2/V**. Audio 2 and video **AA**. Audio 1 and audio 2 **AA/V**. Audio 1, audio 2, and video **NOTE** CMX 3400 EDLs cannot access audio channels 3 and 4. CMX 3600 EDLs can access audio channels 3 and 4 by including entries (AUD 3 or AUD 4) in the comment field following the associated event. ■ Grass Valley channel assignments **A1**. Audio 1 only **A2**. Audio 2 only **A3**. Audio 3 only **A4**. Audio 4 only Grass Valley EDLs can use any combination of these channel assignments. For example, A3V represents audio 3 and video, and A123 represents audio channels 1, 2, and 3. ■ Sony channel assignments **V**. Video only **VA1**. Video and audio 1 **VA2**. Video and audio 2 **VA1A2**. Video, audio 1, audio 2 **A** or **A1**. Audio 1 only **A1A2**. Audio 1 and audio 2 **A2**. Audio 2 only

EDL Elements *(Continued)*

Name	Description
Transition Type	Fourth column from left. Specifies the transition type, defined as follows. **C**. Cut **D**. Dissolve **W (plus a wipe code)**. Wipe. The program that creates the EDL assigns the wipe code. **K**. Keys (superimposed title clips) The EDL treats all transitions other than cross dissolves and direct transitions as if they are wipes. EDLs do not include special settings, such as From/To percentages and border widths.
Transition Duration	Fifth column from left. Cross dissolves and wipes report the duration of the effect (in frames).
Source In, Source Out	First and second columns of timecode information. Represents the source timecode associated with the In frame and Out frame of each source clip.
Program In, Program Out	Third and fourth columns of timecode information. Represents the record timecode associated with the In frame and Out frame of each clip positioned in the program timeline.
Comments	Unnumbered lines under events. All Sony EDLs display comments before the event. Grass Valley and CMX EDLs display comments after the event. Speed control comments are indicated by PEG or M2, followed by a value. Comments in the format CLIP: <name> place text in the clip name field in the Media 100 system.

Media 100 Wipe Codes

Many offline editing applications assign codes to various wipe patterns. Media 100 interprets these codes according to its own internal wipe-code mapping table. The following table lists the Media 100 wipe codes and the corresponding wipe pattern.

Media 100 Wipe Codes

Code	Wipe Pattern	Code	Wipe Pattern
D	Dissolve-FastFX		
W001	Additive Dissolve	W002	Dither Dissolve
W003	Non-Additive Dissolve	W004	Band Wipe
W005	Band Wipe-FastFX	W006	Barn Doors-FastFX
W007	CheckerBoard	W008	CheckerBoard-FastFX
W009	Clock Wipe	W010	Clock Wipe-FastFX
W011	Inset-FastFX	W012	Iris Cross-FastFX
W013	Iris Diamond-FastFX	W014	Iris Heart-FastFX
W015	Iris Points-FastFX	W016	Iris Round-FastFX
W017	Iris Square	W018	Iris Square-FastFX
W019	Iris Star-FastFX	W020	Paint Splatter
W021	Paint Splatter-Fast FX	W022	Pinwheel
W023	Pinwheel-FastFX	W024	Radial Wipe
W025	Radial Wipe-FastFX	W026	Random Blocks
W027	Random Blocks-FastFX	W028	Random Wipe
W029	Random Wipe-FastFX	W030	Sliding Bands
W031	Sliding Bands-FastFX	W032	Spiral Boxes
W033	Spiral Boxes-FastFX	W034	Venetian Blinds

Media 100 Wipe Codes *(Continued)*

Code	Wipe Pattern	Code	Wipe Pattern
W035	Venetian Blinds-FastFX	W036	Wedge Wipe
W037	Wedge Wipe-FastFX	W038	Wipe-FastFX
W039	WipeDesigner-FastFX	W040	Zig-Zag Blocks
W041	Zig-Zag Blocks-FastFX	W042	Band Slide
W043	Center Merge	W044	Center Split
W045	Cross Stretch	W046	Cross Zoom
W047	Cube Spin	W048	Curtain
W049	Doors	W050	Fold Up
W051	Funnel	W052	Luminance Map
W053	Multi-Spin	W054	Page Turn
W055	Picture Zoom	W056	Picture-In-Picture
W057	Push	W058	Roll Away
W059	Slash Slide	W060	Slide
W061	Sliding Boxes	W062	Spin
W063	Spin Away	W064	Split
W065	Stretch	W066	Swap
W067	Swing In	W068	Swing Out
W069	Swirl	W070	ChromaKey
W071	LumaKey	W072	Boris Effects
W073	Ultimatte	W074	Iris Box
W075	Iris Oval	W076	QuickTime Effects

▼ Importing EDLs

When you import an EDL, the Media 100 system scans the EDL text file and creates a new program containing the clips, transitions, and time effects described in the EDL. All the media associated with these clips is initially offline. To obtain the source media, batch acquire or reacquire the media for your program from your source videotapes.

Before you import an EDL, select the video standard and image quality setting. The following sections provide instructions for selecting these settings.

Selecting the Video Standard

Before importing your EDL, check that your video standard setting is correct. The default video standard is NTSC (29.97 fps) 720 x 486 with a 4:3 aspect ratio. Choose your settings in the Video Input panel of the Preferences dialog box. (Media 100>Preferences>Video Input).

NOTE If you attempt to import a PAL EDL when the standard is set to NTSC (or the reverse), you may receive an error message. However, even if you do not receive a message, the timecode will be incorrect when you acquire.

Selecting Image Quality Settings

EDLs are imported at the current image quality level setting for video data. Before you import an EDL, verify that the image quality level is at the desired setting. Adjust the quality of acquired or imported video material in the Project Settings dialog box Media Settings panel. (Media 100>Project Settings>Media Settings) Also verify that your media storage settings are correct in the Media Destinations panel of the Project Settings dialog box. (Media 100>Project Settings>Media Destinations)

Importing EDL Files

You can import EDLs using the Import command or by dragging single or multiple EDL files over the Media 100 application icon or alias.

To import an EDL

1 Open the Media 100 project in which you plan to use the EDL.

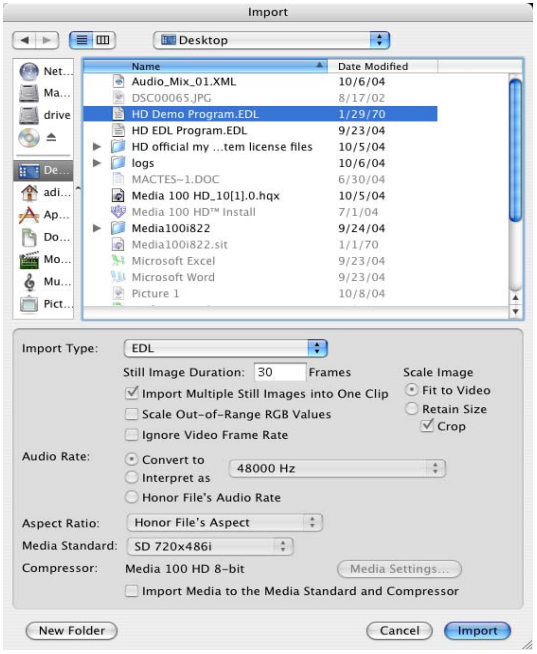
2 Use one of the following import methods:

➤ From the Macintosh desktop, drag the EDL file(s) onto the Media 100 icon (or alias) and release the mouse button when the icon is highlighted.

Or

a Press ⌘-I or choose File>Import.

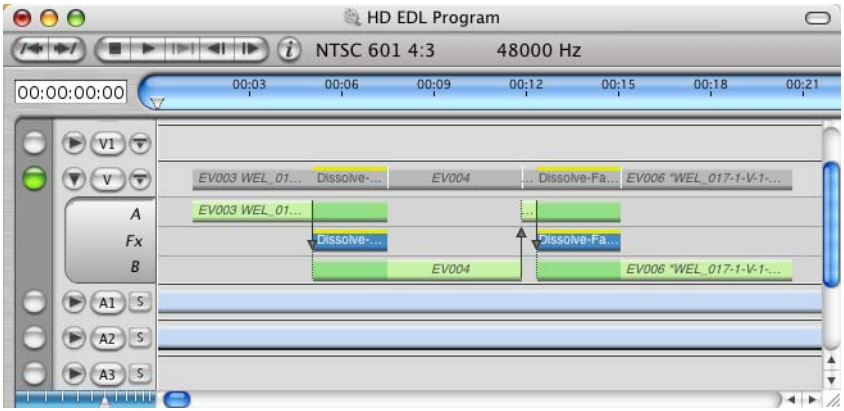
The Import dialog box appears.



b Choose Type>EDL.

c Navigate to where the EDL file is stored and click Import.

The Media 100 system reads and imports the EDL into a new program, displaying the clips as they were written in the EDL.

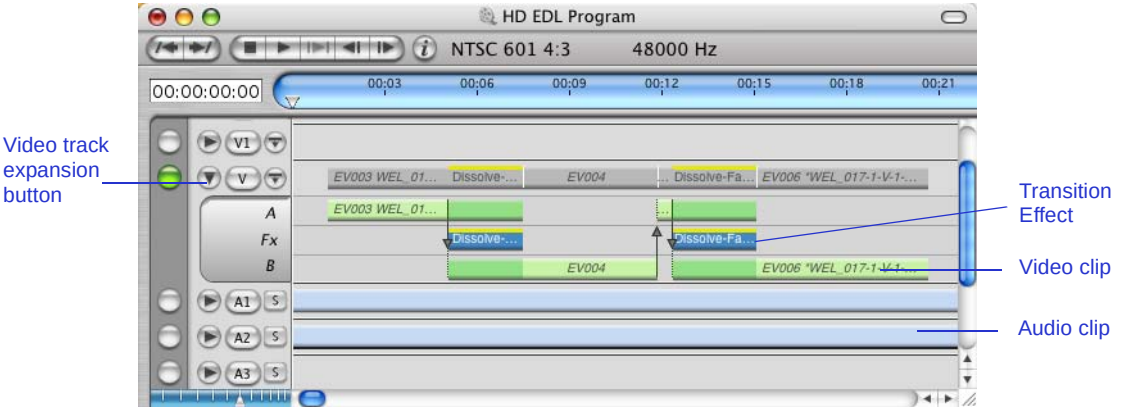


The clip names in the program are italicized, indicating that the associated source media is unavailable since it is not yet acquired.

Working with the Program

After you import your EDL, batch acquire your media using the Media>Batch Acquire command. Once acquired, the audio and video clip names are no longer italicized, indicating that the corresponding media is now online.

If your program includes transitions, click the video track expansion button to view the transitions in the video **Fx** track.



You can now use the Media 100 system to perform final editing on your program.

Interpreting Media 100 EDLs

This section provides additional information about how the Media 100 system handles specific elements when importing EDLs.

Adding Text to Clip Names

Each event in an EDL is imported as a clip named EVxxx, where “xxx” is the associated event number. Before you import your EDL file, you can edit it to append text to the standard clip name format. Use a text editor that creates .txt files.

NOTE Leave a space between the colon and the text describing the clip.

Viewing Comments

An asterisk (*) after a clip name indicates that the clip contains comments.

To view clip comments

1. Create a new bin.
2. Drag the clip to the bin.

TIP To copy all the clips in your program to the bin, select the program, press ⌘-A to select all the clips, and OPTION-drag the clips to the new bin.

3. Open the comment box in Medium Keyframe, Large Keyframe, or In and Out Frames view, or display the comments column in List view.

Editing Transition Effects

The Media 100 system translates the transitions contained in your EDL and places them in your program. When viewing your program, if you find that a transition specified in the EDL does not match a transition in your program, there is probably a mismatch between the wipe codes used by your offline editing application and the Media 100 system.

You can edit your EDL to use the correct wipe codes before importing it into the Media 100 system, or you can use the Media 100 system to select the correct transition types after importing your EDL. See the Media 100 Wipe Codes.

Custom border or direction settings are not stored in the EDL. You can apply these settings in the Media 100 system. See the “Creating Transitions” chapter 11 for information.

Time Effects

The Media 100 system translates speed control comments in an EDL (indicated by PEG or M2 followed by a value) to time effects with the proper speed. Clips containing time effects are purple in the timeline. The Media 100 system imports time effects with reverse and forward speeds between –1200% and 1200%. It imports freeze frames if the PEG or M2 rate is 0. It does not recognize strobes.

NOTE Sony EDL formats only recognize speeds between -100 and 100.

Black Clips

Reel names of BL, BLK, or BLACK indicate a black source. The Media 100 system imports clips on these reels as black clips in the video track. If a black clip is synchronized to an audio clip, it is pink in the timeline.

Keys

Keys represent titles and, in some cases, foreground titles over background video. The Media 100 system does not import all the attributes of a title. Instead, it puts a place-holder for the title length and position in the track. If an EDL background key is present, the background key is placed in the video track and treated as a video clip.

Error Handling

If errors are detected while importing an EDL, the process halts, and an alert appears. If the file does not contain valid PowerLog or EDL information, a message appears stating that the system could not find any valid lines while trying to parse the file as a PowerLog or an EDL.

If errors are detected within a valid EDL file, the import process halts and a message appears stating that *X* number of errors were discovered while trying to import the EDL.

Using the EDL Import Error Log

The EDL Import Error Log is stored in the Media 100 application folder. When you import an EDL, a new EDL Import Error Log file replaces the previous version. If there are no errors in the EDL, the file is blank.

If there are errors reported in your EDL, open and print the file. To save the file, use the Save As command to save it with a different name; otherwise, the next EDL import operation will overwrite it.

NOTE Close the EDL Import Error Log file before attempting to import additional EDLs. The Media 100 system cannot import EDLs when this file is open.

The EDL Import Error Log flags each error according to its corresponding event number in the EDL. The event number is the first number found on each line in the EDL; it is not the line number.

NOTE Several lines can contain the same event number, especially when the Media 100 system transcribes transitions.

EDL Error Types

The following table describes the types of errors that Media 100 reports in the EDL Import Error Log.

EDL Error Types

Name	Description
Invalid Timecode Error	The EDL contains invalid timecode values. For example: Event 1: An invalid timecode was found. (02:00:00:xx") This error may occur if your video standard is set to PAL when attempting to import an NTSC EDL (or the reverse).
Clip Timecode Error	The source timecode range is less than the record timecode range. For example: Event 7: An error in clip timecode was found. (sourceOut - sourceIn < recordOut - recordIn)
Invalid Edit Mode	The audio/video edit mode is missing or specified incorrectly. For example: Event 5: An incorrect, or missing A/V mode was found. ("G")
Invalid Transition Type	The transition type is missing or specified incorrectly.
List Cleaning Error	The Media 100 system is unable to sort the events in the EDL.
Out Of Memory Error	There is not enough memory available to import the EDL.
NTSC Import Error	The Media 100 system is set to the PAL standard and you try to import an NTSC EDL containing more than one timecode mode entry (indicated as FCM). This error does not specify an event number.
Unexpected Error	A bad file or other input/output problem occurs during the import operation. This error message contains the Apple OS error number. That this error does not specify an event number. For example: An unexpected error (-1) occurred.

Troubleshooting Tips

If you receive errors when importing EDLs, try the following:

- Open the file in a text editor and delete the offending line.
- Return to the offline editor and modify the event that caused the error.

▼ Exporting EDLs

You can export standard format EDLs from your Media 100 programs. When you use the Media 100 system to create an EDL of a program for final production, you are editing offline.

Reporting Video Edits in EDLs

When the Media 100 system outputs an EDL, it reports video edits as if it were writing the contents of the Media 100 **V** (video) track to tape. The **V** track represents one of the following:

- A cuts-only, single-track stream of video edits
- A composite of edited clips present on virtual video tracks **A** and **B**, and transitional effects, if any, represented on virtual video track **Fx**

Although many transition effects available with Media 100 cannot be adequately described in an EDL, the name of the effect is always presented in a comment. Effect settings (for example, border width and softness) are typically not reported.

Producing an EDL Record

Before you produce an EDL record of a program, open and select the Media 100 program and verify that your media files are online and linked to the program.

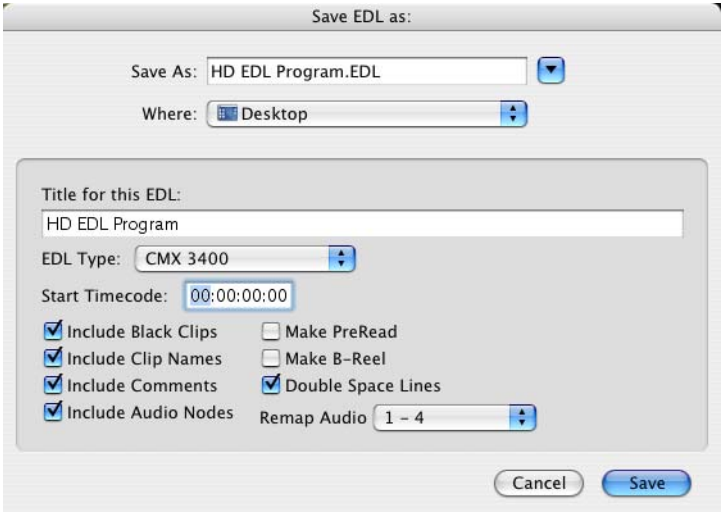
NOTE To export only certain video or audio tracks from your program, disable the tracks you do not want and export the remaining tracks.

To export EDLs

1 Select the program to export.

2 Choose File>Print to EDL.

The Save EDL as dialog box appears.



3 Navigate to the drive and directory where you want to export your EDL.

4 Type a name for your EDL file in the Name field.

5 Type the title for your EDL in the Title for this EDL field.

The title you type appears in the header section of the EDL file.

6 Choose an EDL format from the EDL Type menu.

7 Type the starting timecode for your program in the Start Timecode field.

8 Click any of the check boxes to select the options to include in your EDL.

Select...	To...
Include Black Clips	List black clips in the EDL file.
Include Clip Names	List clip names in the EDL file.
Include Comments	List comments in the EDL file.
Include Audio Nodes	List the audio nodes (as audio gain settings) in the EDL file.
Make PreRead	Signal the edit system to switch to the pre-read head rather than to another VTR. It reports transitions by extending the source clip by the duration of the effect and marking the destination clip as pre-read. For CMX EDLs, the reel name is set to PRE-READ, and for GVG or Sony EDLs the reel name is set to PRE-RD.
Make B-Reel	Create effects between clips on the same reel. It reports transitions by appending a B to the reel name of the destination clip to denote that the clip is coming from a B-reel.
Remap Audio 5-8	Remap audio tracks 5–8 to tracks 1–4.
Double-Space Lines	Use double-spacing in the EDL.

9 Click Save to export your EDL.

TIP You can select either the Make B-Reel or Make Pre-Read check box. Selecting one check box disables the other. In most cases, you should use the Make B-Reel option.

▼ Viewing and Printing EDLs

You can use the following methods to view and print EDLs:

- Use a word processor to view and print CMX 3400, CMX 3600, and Grass Valley EDLs. If you use this method, do not introduce extraneous characters if you intend to use the EDL in an online editing suite.

NOTE Sony EDLs contain embedded characters that you cannot view or print using a word processor or SimpleText.

- You can use Edl Pro®, an EDL translation utility, to view and print the contents of EDL files. Edl Pro translates the structures of EDL files for input to CMX and Grass Valley editing systems.

7

Working with Bins

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▼ Introduction

Media 100 bins contain poster icons that represent the video and audio clips you acquire and import. The actual acquired media files for the clips are stored in the Project Media folder that the application automatically creates.

You can create separate bins for a variety of categories, such as clients, subjects, videographers, and so forth. You can then use these bins for any project. Bins let you store, view, sort, and edit clips in a variety of ways, making it easy to locate your video and audio clips.

This chapter provides detailed information about bins and how to use them effectively. The chapter tells you how to

- Create, save, rename, open, and print bins
- Select clips in a bin
- Add clips to a bin and remove clips from a bin
- Work with poster and list views
- Sort clips in a bin

▼ Using the Bin Window

This section explains how to perform the following tasks:

- Create a bin
- Save a bin
- Rename a bin
- Open a bin
- Print a bin

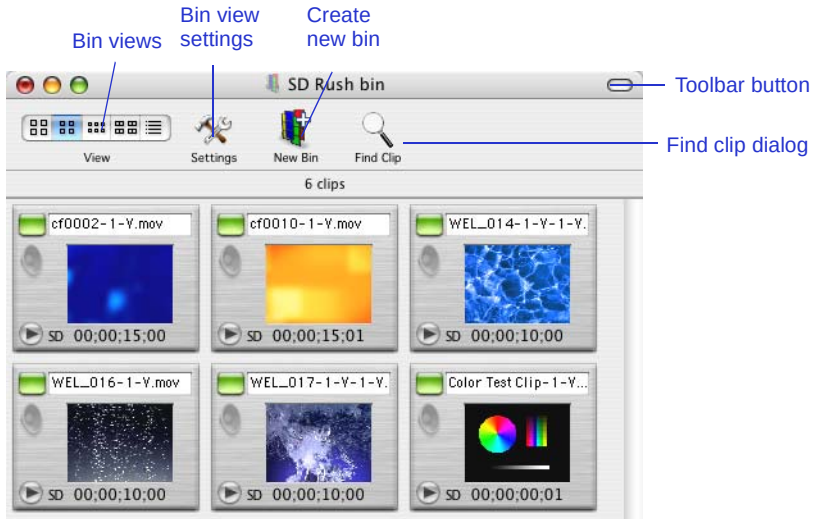
About the Bin Window

The Bin window displays the media that you acquire into the Media 100 system. The media is organized into a list with a picture icon or clips of varying sizes in rows.

A toolbar of icons at the top of the Bin window allow you to do the following tasks:

- Bin views – change the bin views
- Bin view settings – change bin settings
- Create new bin – open a new bin
- Find clip dialog – opens the Find Clip dialog

NOTE If the Toolbar is not visible in a window, click the Toolbar button to display it



Creating Bins

Media 100 automatically creates bins when you do any of the following tasks:

- Acquire media

  If you do not open a bin, Media 100 places the clips you acquire into a new bin.

- Import media

  If you do not open a bin, Media 100 prompts you for permission to create a new bin for the imported media.

- Find media

  Media 100 creates a bin entitled “Found all media.”

- Find clips

  Media 100 creates a bin entitled “Found clips.”

You can also manually create bins for a project.

To manually create a bin

➤ Press OPTION-⌘-N or choose File>New>Bin.

A new bin appears.

Saving Bins

If you close a bin or quit Media 100 without saving the current bin, a dialog box prompts you to save the bin before continuing.

To save a bin

1 Click the bin to make it the active window.

2 Press ⌘-S or choose File>Save Bin or File>Save Bin As.

The Save Document as dialog box appears.

3 Name the bin, specify a storage location, and click Save.

The application saves the bin in the selected folder.

Renaming Bins

Rename a bin from the Project window or the File menu as described in this section.

To rename a bin

1 In the Project window, OPTION-double-click the bin to rename.

Or

Select the bin in the Project window and choose File>Rename Bin.

The Rename Bin dialog box appears.



2 Type a new name in the Name field and click Rename.

The name changes in the Project window.

Opening Bins

You can open a bin from the current project or from another project.

TIP To reduce the time it takes to open a bin, deselect the “Exhaustive source file search” preference. (Media 100>Preferences>Media).

To open a bin from a current project

➤ In the Project window, double-click the bin.

The application opens the selected bin.

To open a bin from another project

1 Press ⌘-O, choose File>Open or double-click in an empty area of the Project window.

The Open: Media 100 directory dialog box appears.

2 Locate the bin and double-click it or select it and click Open.

The Media 100 application opens the bin.

NOTE You can also import a bin from another project using File>Import or drag and drop. When you import or open a bin from another project, the media folders for clips in that bin are added to the current project list of Media Locations. The imported bin is now being used in multiple projects. Therefore, when using the Find Media command and deleting media from the current project, be aware the media may be in use in another project from which you do not want it deleted.

Printing Bins

You can print bins for storyboarding or presenting ideas.

To print a bin

1 Choose File>Print Bin.

2 Select the appropriate print options and click Print.

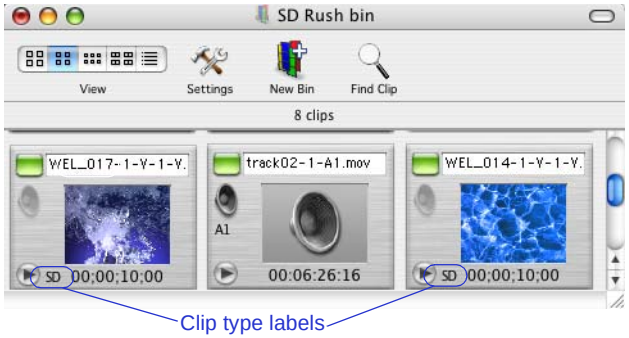
The bin is printed in the current view.

▼ Selecting Clips in a Bin

A bin provides a place where you can select clips for editing and use in a program. You can select single or multiple clips.

A bin can contain clips with a mixture of video standards and audio sample rates. However, all clips in a program must be the same standard. If you attempt to mix standards in a program, a message appears asking if you wish to conform the media to the program timeline video standard and/or aspect ratio.

As shown in the following example, clips are labeled so that you can determine their standard.



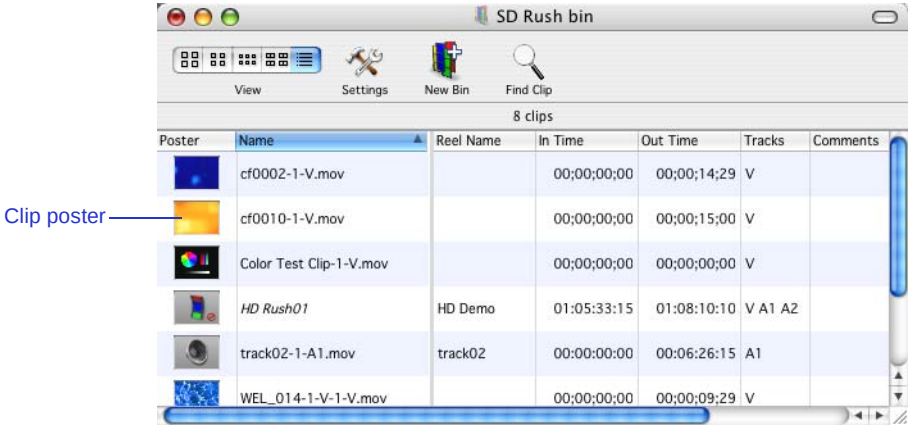
To select clips in a bin

➤ Click the clip poster.

To select multiple clips in a bin

➤ Choose one of the following methods:

- SHIFT-click each poster.
- In a poster view, drag a selection rectangle around clips to select.
- In list view, SHIFT-click each poster.



A colored border around the poster indicates that the clip is selected. In List view, the application highlights the entire row.

NOTE SHIFT-clicking multiple clips to select them in any poster view maintains the selection order. If you cut and paste clips or drag them to another window, they appear in the new window in the selection order. This method does not apply to clips selected in List view.

▼ Adding Clips to a Bin

Add clips to a bin by doing any of the following:

- Duplicating or copying clips within a bin.
- Copying clips from one bin to another, or from another window to a bin.
- Acquiring new clips.
- Importing clips.
- Applying time effects.
- Creating a new title.

TIP When you copy, paste, or drag a copy of a clip from one bin to another or from a bin to a program, clip marks are copied too.

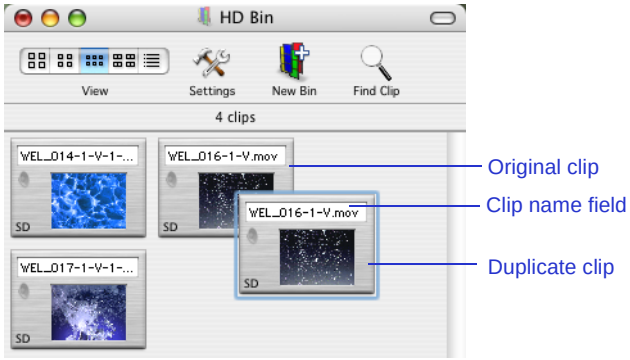
Duplicating Clips in a Bin

To change a clip while maintaining the original version, duplicate the clip in the bin.

To duplicate a clip in a bin

1. Select the clip.
2. Do one of the following to duplicate the clip:
   - Choose Edit>Duplicate Clip.
   - ⌘-click the clip.
   - Copy (⌘-C) and paste (⌘-V) the clip.

A copy of the clip appears in the bin.



3 Click the clip name field and type a new name to rename the clip.

NOTE Duplicating a clip in a bin does not duplicate the associated media file.

Copying Clips from Other Windows

You can copy clips from other windows to the active bin and from

- Another bin
- The Edit Suite
- A program

NOTE You cannot undo operations between two windows.

Copying from Another Bin

Media 100 provides several methods for copying clips from one bin to another. You can copy

- Clips between bins in the current project
- Clips between bins in different projects
- An entire bin in one project to another

NOTE When you copy clips or a bin from another project, the media folders for clips in that bin are added to the current project list of Media Locations. Use caution when using Find Media and deleting unused; media unused in the current project may be in use by another.

To copy a clip between bins in the same project

1. Open the two bins.
2. Select the poster of the clip(s) to copy.
3. Drag the clip(s) to the other bin.

   The duplicate clip appears in the bin.

NOTE You can also use the Copy and Paste commands in the Edit menu to copy a clip.

To copy a clip between bins in different projects

1 Open the project that contains the clips to copy.

2 Select the clip(s).

3 Press ⌘-C or choose Edit>Copy Clip.

4 Close the first project and open the second project.

5 Open the bin into which you want to copy the clip(s).

6 Press ⌘-V or choose Edit>Paste.

A duplicate appears in the selected bin of the second project for each copied clip.

To copy an entire bin from one project to another

1 Open the project into which you want to place the new bin.

2 Press ⌘-O or choose File>Open.

3 Locate and select the bin and click Open.

The bin with all its clips attaches itself to the open project.

NOTE You can also import the bin by using the File>Import command or by double-clicking the bin in the Finder.

Copying from the Edit Suite

You can modify a clip in the Edit Suite or the Source Monitor window and copy it to the bin as a new clip.

To copy a clip from the Edit Suite or Source Monitor window

1 Double-click the clip in the bin to activate the Edit Suite in Edit Clip mode.

The poster appears in the Source Monitor window.

NOTE Clips with a pixel aspect ratio of 16:9 appear elongated in the Source Monitor window.



16:9 aspect ratio



4:3 aspect ratio

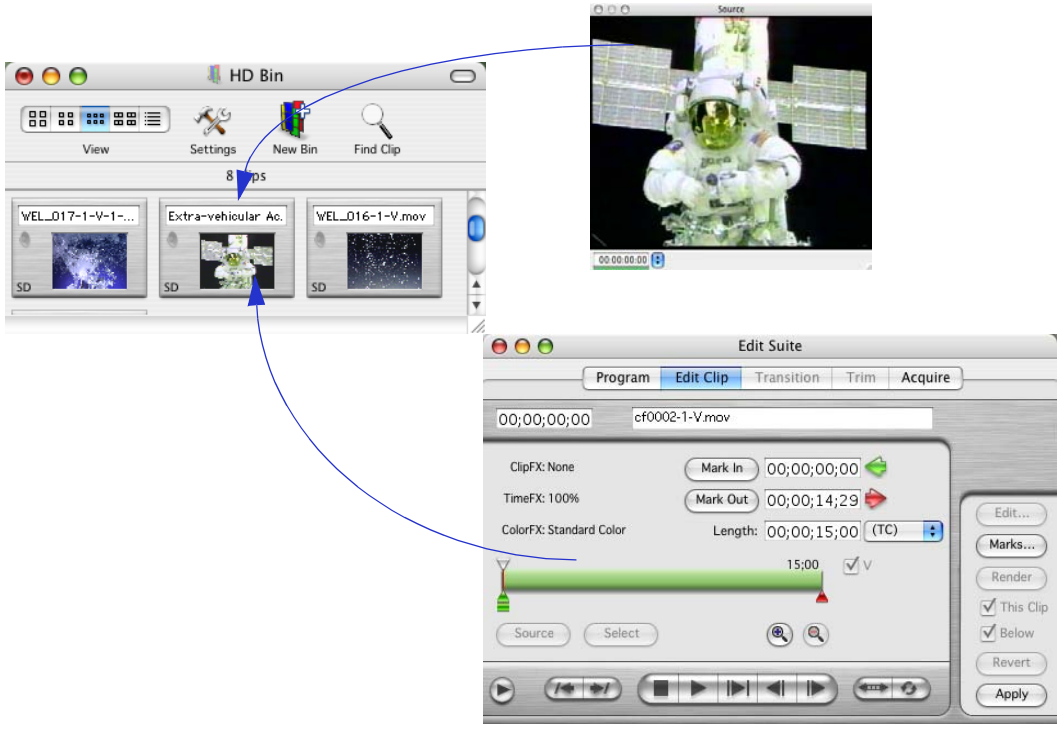


2 Make the desired changes to the clip.

3 Change the clip name in the clip name field to distinguish it from the original.

4 Drag the clip from the Source Monitor window or the Edit Suite to the bin.

To drag from the Edit Suite, click an empty area that contains no controls.



The new clip appears in the bin.

Copying from a Program

In addition to copying clips from a program to a bin, you can

- Modify a clip in a program and copy it to a bin
- Select multiple clips in a program and add them as separate clips to a bin

- Create a synced clip in a program and add it to a bin
- Create a compound clip in a program and add it to a bin
- Create a composition clip in a program and add it to a bin

To copy a single clip from a program to a bin

➤ Select and drag the clip from a program to an open bin.

The new or modified clip appears in the bin.

NOTE You can also use the standard copy and paste procedure.

To copy multiple clips from a program to a bin

1 In the program, SHIFT-click each clip or OPTION-drag a selection marquee around the clips to copy.

2 OPTION-drag the clips from the program to the open bin.

Each clip appears in the bin.

NOTE If you do not press OPTION as you drag the clips to the bin, the application creates a compound clip.

▼ Removing Clips from a Bin

This section describes how to remove clips from a bin and/or delete the media associated with clips in a bin. You can do the following:

- Remove a clip from a bin while retaining the associated media file.

TIP If you remove all the clips for a particular media file, you can create another clip by importing the original media file stored in the Project Media folder. This will not retain comments, clip name, trim points, and so on.

- Delete a clip from a bin together with its associated media.

- Delete media associated with a clip in the bin while retaining the clip as a placeholder in your program. Since the clip maintains the trim points, this option is useful for freeing disk space before reacquiring source material associated with the clip.

To remove a clip from a bin

1. Select the clip(s) to remove.
2. Use one of the following methods:
   - Press ⌘-X or choose Edit>Cut Clip to keep a copy on the Clipboard for pasting.
   - Choose Edit>Clear Clip or press DELETE to remove the clip without keeping a copy on the Clipboard.

CAUTION

Do not remove all the clips that point to a particular media file unless you intend to delete the media file as well. If you do remove all the clips, you may have difficulty relocating the media file name.

To remove a clip from a bin and delete the media file

1. Select the clip(s) to remove.
2. Choose Edit>Delete Clip and Media.

   An alert message appears and prompts you to confirm the deletion.

CAUTION

You *cannot* undo this procedure. When you delete a clip and its associated media, the application cannot retrieve it. To restore the clip, you must acquire it again from the original reel, unless you have your preferences set to move deleted files to the Trash. (Media 100>Preferences>Media).

3. Click Delete.

To delete media while saving a clip

1 Select the clip(s) in the bin.

2 Press OPTION and choose Edit>Delete Media.

An alert message appears and prompts you to confirm the deletion.

3 Click Delete.

Media 100 moves all deleted media to the Trash if you selected “Move deleted media files to Trash” in Media 100>Preferences>Media.

NOTE If you have preferences set to move deleted files to the Trash, you can recover the media from the Trash using standard Macintosh procedures.

The clip name is italicized in the program and bin to indicate that the associated media is not available.



▼ Viewing Bins

Media 100 lets you display and sort clips in a bin in a variety of ways. This section explains how to undo changes made to a bin, how to select a new poster for a clip, and how to change the bin view.

Using Multiple Undo

You can undo up to 150 commands while in Bin mode (depending on the number of undo commands set in the Preferences dialog box). The Undo (⌘-Z) and Redo commands (OPTION-⌘-Z) appear in the Edit menu.

The Undo and Redo commands act as follows in the Bin window:

- You can undo a poster view change.
- If you enter comments in Medium or Large Poster view, you can undo or redo your typing. Only one level of undo and redo is available for comments.
- If you move a clip in a bin to align or reposition it, you can undo and redo the clip dragging.
- You cannot undo a command that occurs between Bin windows, such as dragging a clip from one bin to another.

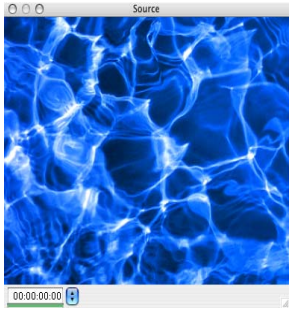
Changing the Clip Poster

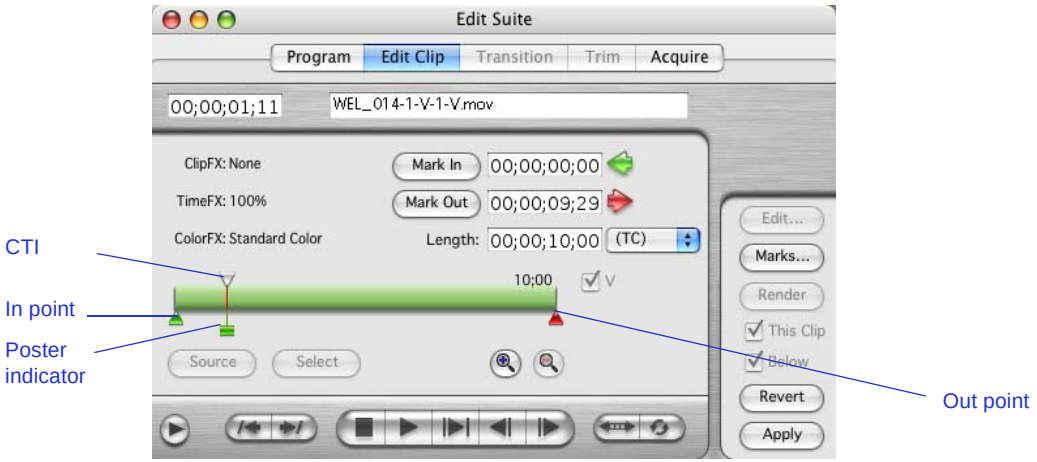
A poster is a frame that represents a clip. When you create a bin, Media 100 selects the first frame of a clip as the poster. When you select the In and Out Points view, the application selects the first frame as the In point and the last frame of the clip as the Out point. You can change the poster to better represent the associated clip.

To change the clip poster

1 In the bin, double-click the clip poster to change.

The application displays the clip in the Source Monitor window and changes the Edit Suite to Edit Clip mode.





2 Drag the Current Time Indicator (CTI) between the In and Out points in the clip timeline until the frame you want to use as the poster appears in the Source Monitor window.

3 Choose Tools>Set Poster to CTI.

4 Click Apply.

The new poster replaces the old one in the bin.

Setting the Bin View

Change how a bin appears, including the amount and type of information displayed, as described next.

To set the bin view

1 Select the bin.

2 Press one of the following shortcuts or choose a command from the View menu:

- ⌘-COMMA (,) or View>Small Poster
- ⌘-SEMICOLON (;) or View>Medium Poster
- OPTION-⌘-COMMA (,) or View>Large Poster
- OPTION-⌘-SEMICOLON (;) or View>In and Out Points
- ⌘-L or View>List

The bin changes to the selected view.

NOTE You can undo View command operations.

Setting Bin Defaults

Set default preferences for new bins in the Bin Defaults panel of the Preferences dialog box. Use the View Settings dialog box to change the current bin.

To set default clip attributes

1 Choose Media 100>Preferences>Bin Defaults.

The Bin Defaults panel of the Preferences dialog box appears.

2 Choose default settings for new bins.

3 Click OK to save the bin defaults to the current preference configuration.

New bins use the default set of attributes.

You can change the clip attributes of a current bin to match the default settings specified in the Bin Defaults panel.

To apply bin defaults to a selected bin

➤ Choose View>Use Bin Defaults.

The bin displays the default clip attributes.

Change the settings for an individual bin in the View Settings dialog box as described in the next section.

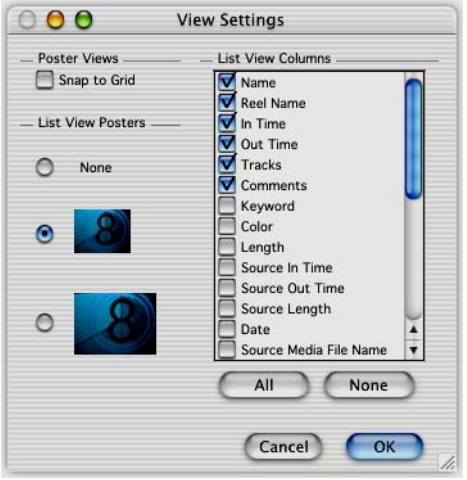
Using the View Settings Dialog Box

Set how clip attributes appear in the currently selected bin in the View Settings dialog box

To access View Settings

1 Use one of the following methods:

- Press OPTION-⌘-M
- Choose View>View Settings
- Click Settings in the Bin Toolbar



The following table describes the elements in the View Settings dialog box.

View Settings Dialog Box Elements

Name	Description
Snap to Grid check box	In poster views, maintains alignment to an invisible grid when you move or add clips to a bin.
List View Posters radio buttons	In List view, determines the size of the posters that appear in a bin, if any.
List View Columns	In List view, determines the clip attributes that appear in a bin.

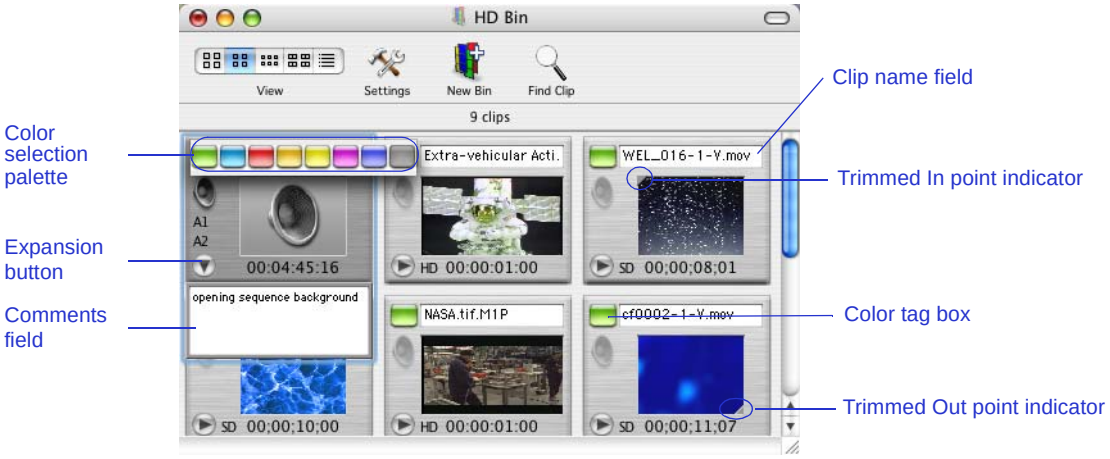
Each element in the View Settings dialog box is also in the Bin Defaults panel of the Preferences dialog box (Media 100>Preferences>Bin Defaults).

▼ Working in Poster View

You can edit and rearrange the four poster views: Small Poster, Medium Poster, Large Poster, and In and Out points.

Editing Clip Information

You can edit the basic clip information in the poster views. The following illustration shows clip parts.



You can change the following information for each clip:

Color selection palette	Select one of eight colors to quickly identify types of clips (not available in Small Poster view).
Color tag box	Click to access the color palette.
Clip name field	Change the name assigned to a clip.
Expansion button	Click to open the Comments field.
Comments field	Add comments about your clip (not available in Small Poster view).

Trimmed In and Out point indicators appear after you trim a clip.

To change the tag color

1 Click the Color tag box to display the color palette.

2 Click a color to select it.

To change the name of a clip

➤ Select the name to change and type the new name.

To add comments to a clip

1 Click the Expansion button on the clip.

2 Type your comment in the comments field.

3 Click the Expansion button to close the comments field.

Moving Clips

You can move any or all of your clips in a bin.

To move clips

➤ Select the clips to move and drag them to a new location.

TIP To automatically align clips when you drag them to a new position in the bin, select Snap to Grid in the View Preferences dialog box (View>View Settings) or in the Bin Defaults panel of the Preferences dialog box (Media 100>Preferences>Bin Defaults).

Aligning Clips

Align clips in a bin to an invisible grid as described next.

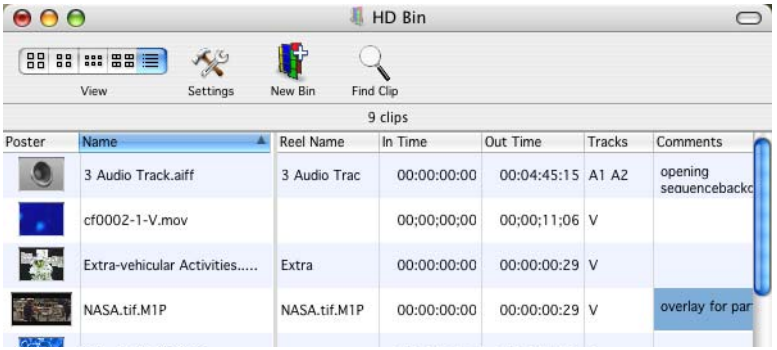
To align clips in a bin

➤ Select the bin and choose View>Align.

The clips shift to aligned positions.

▼ Working in List View

List view presents comprehensive clip information in column format. Like the poster views, List view includes the clip name, reel name, assigned audio tracks, in and out times, and a comments area. List view also lets you add fields through the View Settings dialog box and include more descriptive information for each clip.



Setting Poster Size

This section details how to set the size of the poster that appears in List view.

To set the poster size for the current bin

1 Press OPTION-⌘-M or choose View>View Settings or click Settings in the Bin Toolbar.

The View Settings dialog box appears.

2 Click a poster radio button.

If you choose No poster, one of three icons that represent the type of clip appears in the bin.


Standard clip


Compound clip


Synced clip

To set the poster size for all new bins, use the Bin Defaults panel in the Preferences dialog box. (Media 100>Preferences>Bin Defaults).

Setting Clip Attributes

Clip attributes provide useful information and serve as a powerful sorting mechanism, letting you sort by any attribute.

The following clip attributes appear by default until you change the default in the Preferences dialog box or change the attributes to appear for the current bin in the View Settings dialog box:

- Clip Name
- Reel Name
- Comments
- In and Out Timecode
- Tracks

To select clip attributes for the current bin

1. Press OPTION-⌘-M or choose View>View Settings or click Settings in the Bin Toolbar.

   The View Settings dialog box appears.

2. Select clip attributes using the following methods:

   - Click the clip attribute check box.
   - Press + on the numeric keypad to toggle a selected attribute on and off.
   - Click All to enable all attributes.
   - Click None to deselect all attributes.

3. Click OK to affect the current bin.

To set the clip attributes for all new bins, use the Bin Defaults panel in the Preferences dialog box. (Media 100>Preferences>Bin Defaults)

Rearranging Attribute Columns

The clip name is always listed in the first column of List view. You can set the order that all other attributes appear. The order of the listed attributes in the View Settings dialog box determines the order of the columns in the bin.

To change clip attribute positions for the current bin

1 Press OPTION-⌘-M or choose View>View Settings or click Settings in the Bin Toolbar.

The View Settings dialog box appears.

2 Drag the attribute name from one position to another.

The attribute appears in the appropriate column in List view.

To rearrange the clip attributes for all new bins, use the Bin Defaults panel in the Preferences dialog box. (Media 100>Preferences>Bin Defaults).

Navigating in Bins

Media 100 lets you navigate through the columns, rows, and cells in List view.

To navigate through bin columns while in List view

➤ Use one of the following methods.

Press...	To move...
TAB	Forward through each cell in a row.
SHIFT-TAB	Backward through each cell in a row.
arrow keys	From cell to cell in the direction indicated by the arrow.
OPTION-drag	The entire list up or down, or the scrollable attributes left and right.

Use the List view search feature described next to move directly to a cell that contains specific information.

To use the List view search feature

1 Click a cell in the column where you want to locate specific information. For example, click a Reel Name column cell to find a cell with a specific reel name.

The application highlights the cell and activates the entire column for search purposes.

2 Type the first letter(s) or number(s) of the item for which you are searching. For example, to find clips on a reel named “Fruit Bowl,” type the letter “F” or “Fr.”

The application highlights the first cell in the Reel Name column that begins with those letters or numbers.

TIP If the highlighted item is not the item for which you were searching, sort the bin by clicking the column heading of the highlighted item, then scroll up or down to find the item.

Editing Clip Information

You can edit information for many clip attributes. However, you cannot change the data in the following: Source in Time, Source Out Time, Source Length, Date, Tracks, Interlacing, Draft, Aspect Ratio, Data Rate Quality, Standard, TimeFX, Audio Frequency, Rendered Media File Name, Source Media File Size, Audio in Channel, Media Online, Compressor, Frame Rate, Frame Size, Bit Depth, and Alpha.

Using Text Fields

List view provides numerous fields that you can edit, including clip name, reel name, comments, keyword, and quality (for logged media).

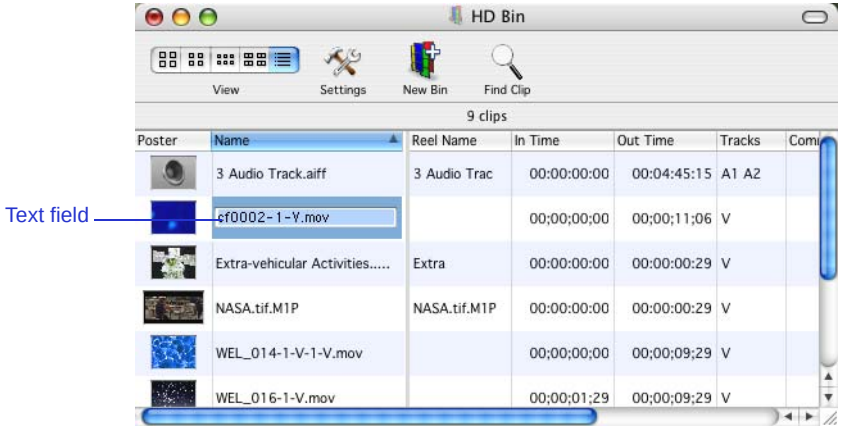
NOTE Standard fields accept up to 32 characters. The comments field accepts up to 255 characters. Use the arrow keys to display characters that extend beyond the edge of the field.

To modify clip information in a field

1 Do one of the following:

- Double-click the cell to change.
- Select multiple cells in a column and press RETURN. Changes you make will be applied to all selected clips. For example, if you select the name cell for four clips and change the name to “Polar,” selected clips are renamed “Polar.”

The text field opens in the cell.



2 Type the appropriate information.

3 Press RETURN or click another cell to apply the change and exit the field.

The change is applied to the selected clip(s).

Using Menus

List view also provides menus that allow you to modify clip information for Clip Name, Reel Name, Comments, Keyword, Color Tag, In Time, Out Time, Length, ColorFX, Audio EQ and Audio Dynamics.

To modify clip information in a menu

1 Do one of the following:

- Double-click a single cell to change.
- Select multiple cells in a column and press RETURN.

NOTE You cannot change the color for multiple selected clips.

A menu appears in the cell.

2 Select a menu item.

3 Press RETURN to apply the change and exit the menu.

▼ Sorting Clips

The clip attributes selected in the Bin Defaults panel (Media 100>Preferences>Bin Defaults) or the View Settings dialog box provide the sort criteria. For example, if you select all the clip attributes, Media 100 creates a column for each attribute. You can then select any column to use as a sort criteria.

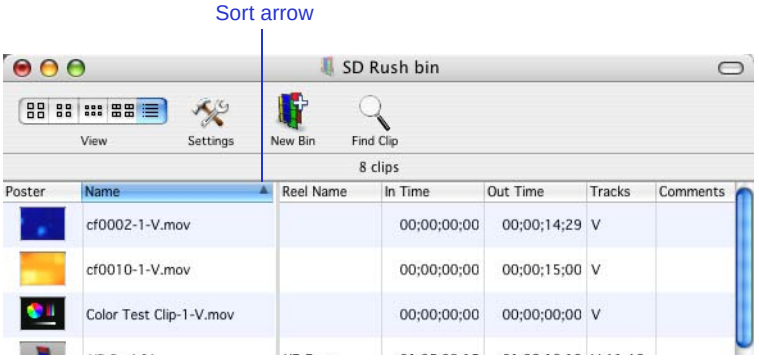
Select your sort criteria by

- Using the View menu
- Selecting a column in the bin in List view
- Specifying a selection order manually

NOTE When you select sort criteria, the application applies it to any view. If your bin is in one of the poster views, the clips appear in the order created by the sort criteria, even though you cannot see the criteria displayed.

Bin List View Sort Arrow

The sort arrow to sort the column appears in the column heading when you select the column. Click the sort arrow to change the sort order.



To sort clips using the View menu

➤ In the View menu, choose a sort option.



A check mark appears next to the chosen criteria in the View menu, and the clips are sorted.

To sort clips by selecting a column in the bin

1 Choose View>List.

2 Click the column heading sort arrow.

The column name is underlined in the active bin, and the clips are sorted by the chosen criteria.

In addition to sorting clips using view preference column names, you can sort them by the order in which you select them.

To sort clips by manual selection order

1 Select the clips in the order in which you want them to appear.

2 Choose View>Sort by Selection Order.

The application sorts the clips in the order in which you selected them. It places clips you did not select for sorting first, maintaining their current order and places clips you selected at the end of the list in the selection order.

8

Using the Program Window

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▼ Introduction

This chapter describes how to use the program features to create your video presentation. It explains how to create and work with the Program window.

▼ Planning the Program

A project can contain any number of programs, each with a different video standard and audio sample rate. Each program, however, must contain clips with a *single* video standard and a *single* audio sample rate. Before creating a program, determine which video standard and audio sample rate to use.

Determining factors include

- The video standard (NTSC or PAL)
- The frame size
- The aspect ratio of the source media
- The sample rate of the source audio
- The format of the final output

Although only one video standard and one audio standard may be used in a single timeline, Media 100 offers the flexibility to conform media to meet the program standard in which you are working. For example, if you are working in a NTSC, 1920 x 1080i, 16:9 program and you attempt to place a NTSC, 720 x 486, 4:3 clip, Media 100 will display a dialog box giving you the option to conform your media to the program standard. At this point you may elect to conform on-the-fly through scaling, or conform later through re-acquisition. If you choose the latter, the media will be offline until it is reacquired.

Conform Video

Any time you attempt to place a clip in a program where the program media standard or aspect ratio is different from the actual clip, Media 100 will prompt you with a Conform dialog box. This is because all clips in a program must use the same video standard. You can not mix NTSC and PAL video clips, clips with different aspect ratios or clips with different media standards.

If the program has a different aspect ratio than the clip you are trying to place, the system will offer to change the aspect ratio to match the timeline. For example, placing a 4:3 clip in a 16:9 timeline or vice versa. Keep in mind this may distort your media.

If the program media standard is different than the clip you are trying to place, the system will offer you the ability to conform your media. This enables you to reacquire or create a new clip conformed to the program standard setting. By selecting the checkbox Make re-acquirable media offline (to re-acquire later), the content will be offline until it is actually acquired. If you do not select to reacquire the media later, the new media will be created immediately by scaling. The Conform dialog box also offers access to all of the conversion options available in addition to scaling. These include 4:3 to 14:9, 16:9 to 14:9, Crop, Pillarbox and Scale to Fit with custom options. These conversion settings are found in the Video Input Preferences.

NOTE Media 100 systems allow for one conversion. Therefore, if you convert the source content to a different standard during acquisition or import, that is the standard the content must be output to. However, if the source content is acquired in it's native form it can be converted on output. Again, only one conversion is allowed. (Media 100 HDx enables multiple conversions.) Also note, the conversion options that are available are dependent upon the Media 100 system being used.

NOTE QuickTime imported media and still image media (media that does not have timecode and reel name attributes) can not be reacquired later, therefore it will always be converted now.

Media may be conformed on a clip-by clip basis or you can conform an entire timeline to a new standard.

To conform clip-by-clip in timeline

1. Drag and drop a clip into the program timeline .
2. The Conform Dialog box appears if the clip is a different standard than the program timeline.

To conform clip-by-clip in bin

1. Select clip(s) in bin to be conformed.
2. Choose Media>Conform Selected Clips
3. The Conform Dialog box appears.

To conform an entire timeline

1. Select the program window to make it the active window.
2. Choose Media>Conform Program.
3. The Conform Dialog box appears.

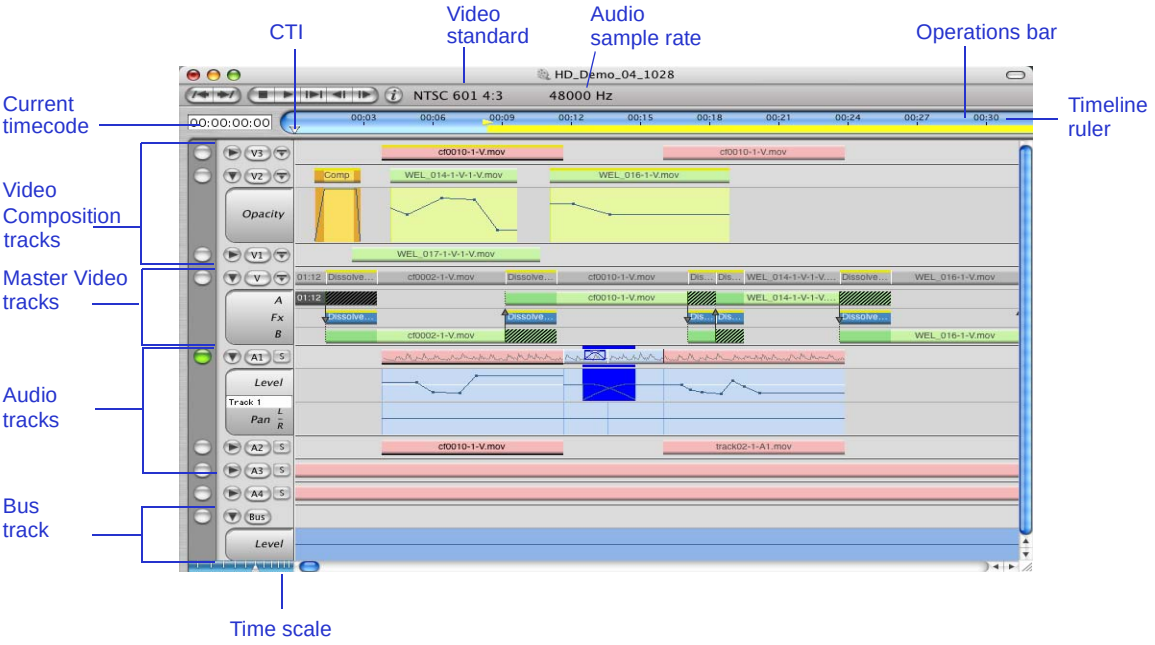


NOTE There is no conform option for audio sample rates once they've been acquired. Audio must be acquired at the sample rate that will be used in the program. However, you can convert the audio during the import process. Specify the audio sample rate in the Audio Input Preferences as well as in the Import Dialog box.

TIP When working in the timeline, you can undo an operation or a number of operations by pressing the ⌘-z or selecting Edit>Undo. Set the number of undo commands for your project in Preferences. (Media 100>Preferences>General.)

▼ About the Program Window

The Program window provides a work area for creating programs. To build your program, add and arrange clips in the timeline. Reorganize your program by dragging clips from place to place under the timeline ruler, editing, experimenting, and re-editing.



You can have many programs open concurrently, and can copy and paste between programs that have the same video and audio standard.

Program Window Elements

The following table describes the Program window elements.

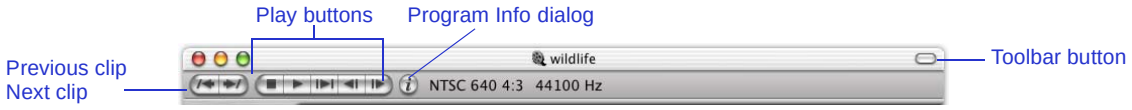
Program Window Elements

Name	Description
ProgramToolbar button	Toggles the Program Window toolbar display on and off. The toolbar displays
Video standard	Shows the standard (NTSC or PAL) and the aspect ratio (4:3 or 16:9) selected in the Video Input Preferences panel. (Media 100>Preferences>Video Input).
Audio sample rate	Shows the rate set in the Audio Input Preferences panel (Media 100>Preferences>Audio Input).
CTI	Current Time Indicator. Indicates the current frame that appears in the Record Monitor window and on the external monitor.
Operations bar	Shows tasks, time ranges, and clip messages.
Current timecode	Shows the current timecode position of the CTI. This editable field lets you specify a timecode.
Timeline ruler	Displays division markings specified by the current time scale. A program timecode appears above each marking. The hour field does not appear if the value is 00.
Master Video (**V**) track	Provides a location for video clips and transitions.
Video Composition tracks(**V1-V99**) track	Provides a location for video clips, titles, and graphics. The timeline supports 99 video composition tracks.
Audio (**A**) tracks	Provides a location for audio clips. The timeline supports 24 audio tracks.
Bus track	Provides a control for making universal changes to all audio tracks, including volume and effects like reverb.
Time scale	Sets the scale for the timeline ruler.

Program Toolbar

The program toolbar displays button controls for moving through the program as well as informative content such as the video standard, aspect ratio and audio sample rate. The program info dialog button displays a Program Info dialog box to specify Program Metadata such as Title, Author, Copyright etc.

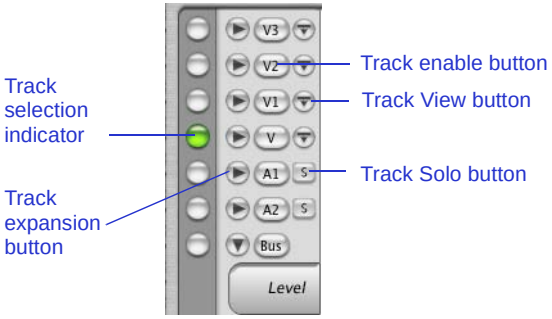
NOTE If the Toolbar is not visible in a window, click the Toolbar button to display it



Program Window Toolbar

Track Buttons

This section describes track controls and indicators.



The following table describes the track buttons.

Track Buttons

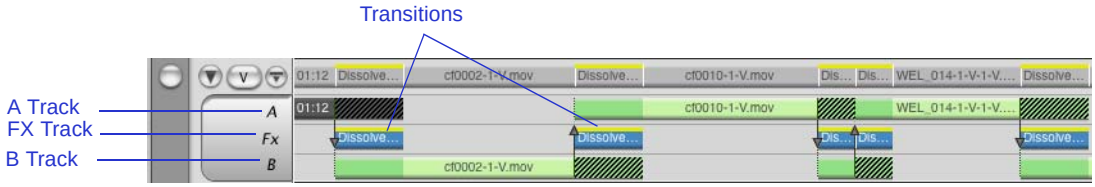
Name	Description
Track View button	Shows content on tracks from the selected Track View button and below.
Track selection indicator	Shows which track is currently active

Track Buttons

Name	Description
Track enable button	Activates or deactivates a track
Track expansion button	Opens additional video tracks or audio control tracks
Track Solo button	Solos the audio track for playback.

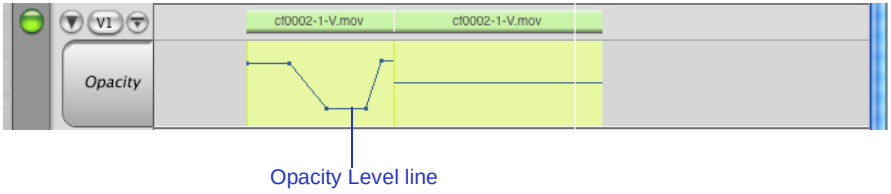
Expanded Master Video Track

The Master Video track when expanded displays an **A** track, **B** track and **FX** track. When a clip in track **A** overlaps a clip in track **B** (or the reverse), the overlap creates an automatic cut transition between the two clips. The arrow across the **FX** track marks the location and direction of the cut.



Expanded Video Composition Tracks

The additional video tracks when expanded display an Opacity Control Line. This enables manipulation of the opacity levels of a clip. Keyframes may be added to the Opacity line to alter the values over time.



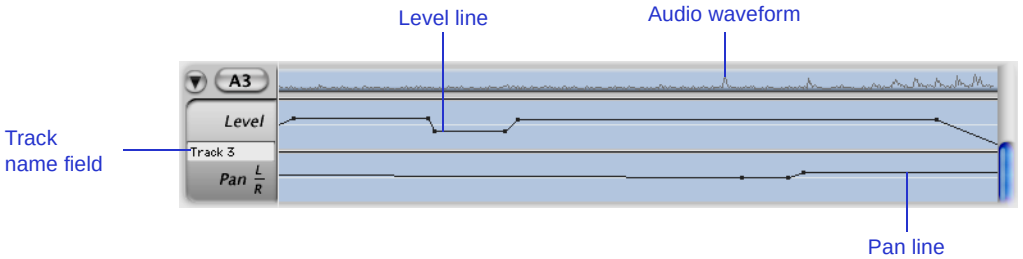
Expanded Audio Track

The gain level and pan distribution appear in the expanded audio tracks. These tracks let you adjust the audio clip gain level or pan distribution at frame-specific points.

To expand a track

➤ Click the track expansion button.

The track expands. The Video Composition tracks display the Opacity level line. The Master Video track displays an **a** track, **b** track and **fx** track. And the Audio Track displays the level and pan lines.



The following table describes the elements of expanded tracks..

Expanded Track Elements

Name	Description
Opacity line	Shown in the expanded Video Composition track. Adjusts the opacity level in the selected track.
A track, **B** track and **FX** track	Shown in the Master Video track. Enables staggered clip placement of clips on the **A**, **B** tracks with transitions created on the **FX** track.
Level line	Shown in the expanded Audio track. Adjusts the volume in the selected track
Audio waveform	Shown in the expanded Audio track. Represents the mathematically derived value for the audio power of each frame of an audio clip

Expanded Track Elements *(Continued)*

Name	Description
Track name field	Shown in the expanded Audio track. Lets you type a name for the audio track
Pan line	Shown in the expanded Audio track. Indicates the signal distribution between the left and right channels

▼ Using the Program Window

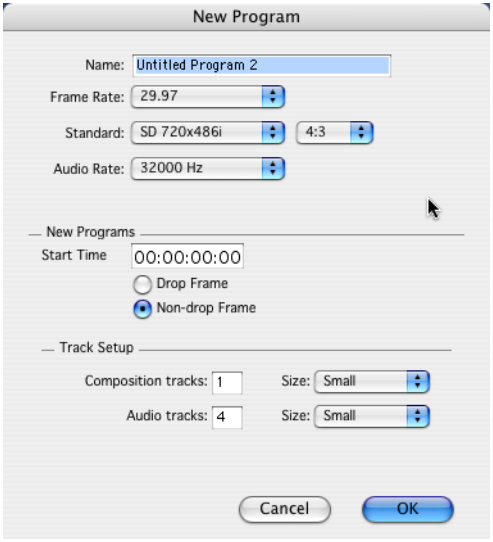
When you launch the application for the first time, you open a new project. Within the project you create a new program. You can create or open additional programs during the same editing session. Subsequent launches of your project display the last program you saved (set in Preferences) and any programs that you left open when you last saved the project.

Creating and Opening Programs

This section explains how to create a new program and open an existing program in Media 100. When creating a new program you can choose to launch a new program window based on the settings of the current Media 100 Preferences. Or, you can choose to launch the “Create New Program” dialog box to alter the Program Preferences prior to opening a new program window.

To launch the Create New Program dialog box

1 Press SHIFT-⌘-N or choose File>New>Program
The Create New Program dialog box appears.



2 Type a Program Name and specify the Audio Rate, Video Standard, Start Time, Aspect Ratio, Timecode Mode, and Track Setup information.

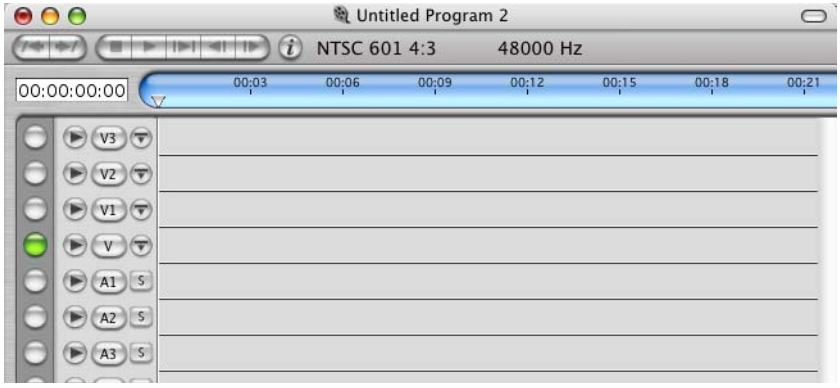
3 Click Create.
An untitled program appears.

To create a new program

1 Set your video standard, aspect ratio, and audio sample rate in the Media 100 Preferences (Media 100>Preferences.)

2 Press ⌘-N or choose File>New>Program.

An untitled program appears.



The system assigns a default name of “Untitled Program x,” incrementing the number for each subsequent program you create.

TIP Although not required, it is a good idea to assign a name to a new program when you first create it.

To save new program

1 Press ⌘-S or choose File>Save Program.

A directory dialog box appears.

2 Select a location and name for the program and click Save.

The directory dialog box closes and the program displays the assigned name.

To open an existing program

➤ Double-click the program icon in the Project window.

Or

1 Press ⌘-O, choose File>Open or double-click in an empty area of the Project window.

A directory dialog box appears.

2 Navigate to the drive and folder where the program is located.

3 Select the program and click Open.

Renaming Programs

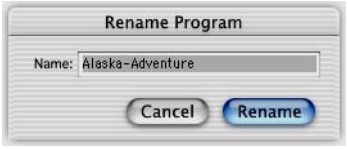
Change the name of a program as described in this section.

To rename a program

1 Choose one of the following:

- Select the program to rename in the Project window and OPTION-double-click.
- Select the Program window and choose File>Rename Program.

The Rename Program dialog box appears.



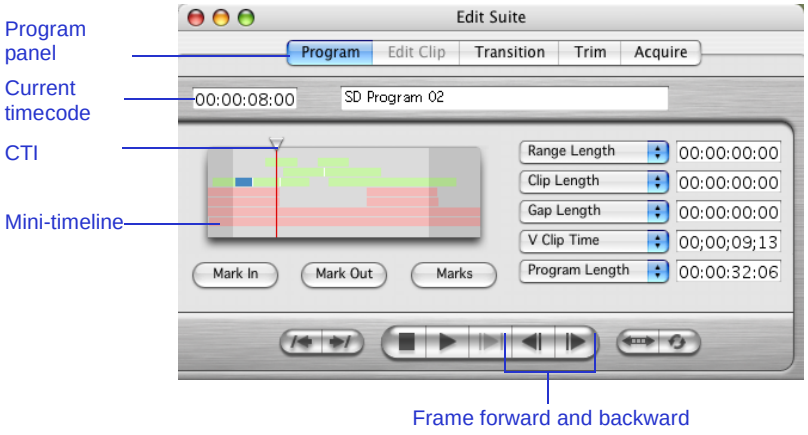
2 Type the new program name and click Rename.

Navigating Through the Timeline

There are many ways to move the CTI or scroll the timeline. The timeline and Edit Suite in Program mode operate together. The Record Monitor window and an external monitor connected to the video output channel display the video frame at the CTI.

Use the program timeline or the mini-timeline in the Edit Suite to move to the area of interest.

The following illustration shows the Edit Suite in Program mode.



To navigate through the timeline

➤ Use any of the following methods:

To move the...	Do this...
CTI to a specific position	Click the Program timeline ruler or Edit Suite mini-timeline.
CTI by one frame	Press the LEFT ARROW or RIGHT ARROW, or click the Edit Suite Frame Forward or Frame Backward play control buttons.
CTI by 10 frames	Press CONTROL-LEFT ARROW or CONTROL-RIGHT ARROW.
CTI to a timecode position	Type a specific timecode in the Program current timeline field or an Edit Suite timecode field.
Timeline back to the CTI	Press ENTER or choose Program>Scroll to Current Time while in the Program timeline.
Timeline dynamically	Drag the CTI in the Program timeline or Edit Suite mini-timeline.

TIP To keep the CTI in its original position while pasting, overlaying, or adding clips to the timeline, press CAPS LOCK.

To move the CTI through a program

➤ Use the following shortcuts to navigate through a program.

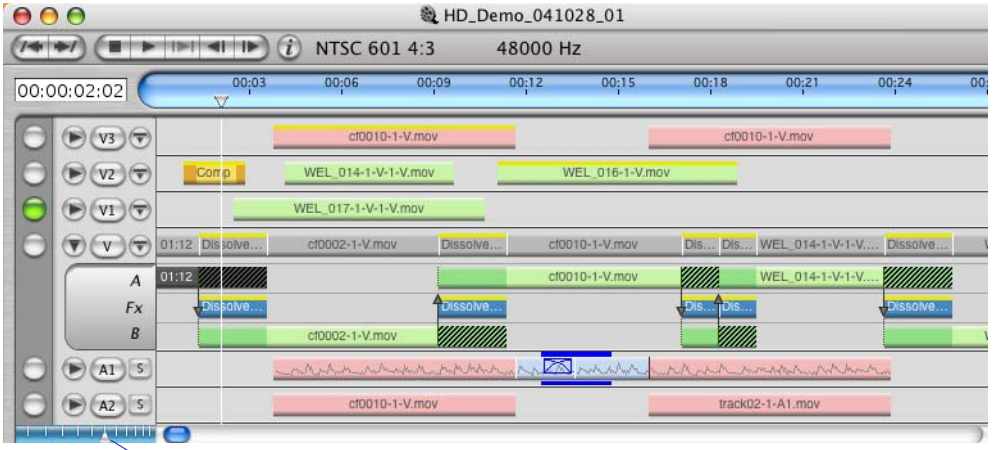
Press...	To...
ENTER (on the numeric keypad)	Scroll the timeline to the CTI.
LEFT ARROW RIGHT ARROW	Move the CTI one frame left or right.
CONTROL-LEFT ARROW CONTROL-RIGHT ARROW	Move the CTI 10 frames left or right.

Press...	To...
⌘-LEFT ARROW ⌘-RIGHT ARROW	Move the CTI field by field left or right.
F3	Move the CTI to the In point.
F4	Move the CTI to the Out point.
OPTION-TAB	Move the CTI to the next User mark in the program.
CONTROL-OPTION-TAB	Move the CTI to the previous User mark.
–, *value*, ENTER +, *value*, ENTER	Move the CTI left or right by the timecode in the timeline ruler.
PAGE UP PAGE DOWN	Move the CTI left or right by a full screen.
HOME	Move the CTI to the first frame of the program.
END	Move the CTI to the last frame of the program in the selected track.
TAB	Move the CTI to the first frame of the next adjoining clip in the selected track.
CONTROL-TAB	Move the CTI to the first frame of the previous adjoining clip in the selected track.
CONTROL-L	Move the entire timeline to the left by a full screen. The CTI remains in its original position.
ENTER	Scroll the timeline to the CTI.

Adjusting the Time Scale

Adjust the time scale using the time-scale control in the lower-left corner of the Program window. Move the white time-scale control arrow to set the scale to a different time increment.

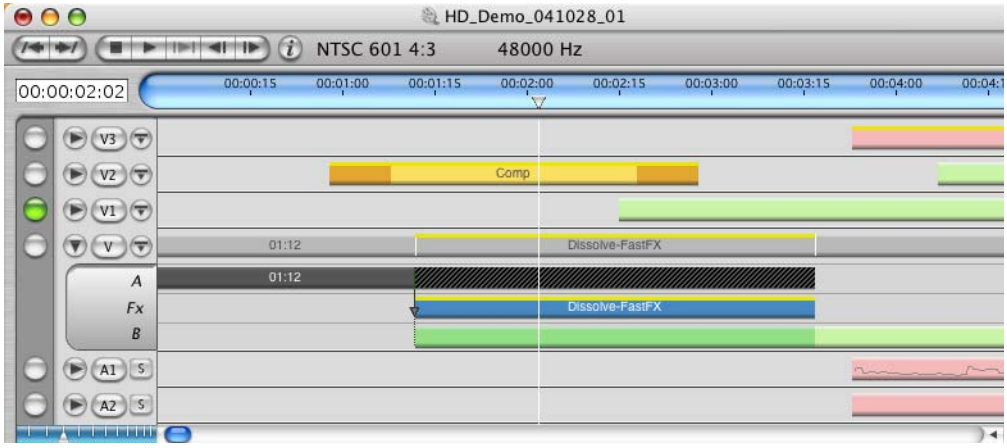
The following example illustrates the original display of a program.



To zoom in

➤ Drag the time-scale control to the left.

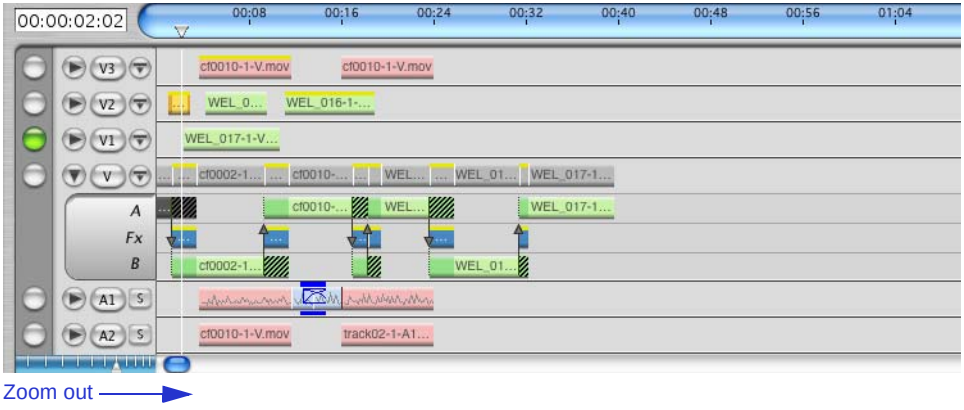
Zoom in to fine tune a transition, view individual frame times, or locate a particular clip in a long program.



To zoom out

➤ Drag the time-scale control to the right.

Zoom out to reveal more of a program and view the program layout.



To adjust the time scale using shortcuts

➤ Choose one of the following:

To...	Do this...
Toggle the timeline between seconds and frames	Press F9.
Set the time scale to the default	Press ⌘-RIGHT BRACKET (]) or choose Program>Time Scale>Normal.
Increase the time scale by one mark	Press ⌘-PLUS SIGN (+) on the numeric keyboard or choose Program>Time Scale>Zoom In.
Decrease the time scale by one mark	Press ⌘-MINUS SIGN (–) on the numeric keyboard or choose Program>Time Scale>Zoom Out.
Zoom a selected clip	Press ⌘-[or choose Program>Timescale>Zoom Selection.
Zoom in at the CTI location	Click the timeline ruler and press ⌘-LEFT BRACKET ([) or choose Program>Time Scale>Zoom Current Time.
View a program section	Create a time range and press ⌘-LEFT BRACKET ([) or choose Program>Time Scale>Zoom Current Time.
View the entire program	Press ⌘-EQUAL SIGN (=) or choose Program>Time Scale>Fit Program.

NOTE When you choose Fit Program, the time-scale control turns yellow to indicate that the Zoom In and Zoom Out commands are disabled. To return to normal view and enable the Zoom commands, choose Program>Time Scale>Normal or click the time-scale control.

Setting Program Defaults

The Program Defaults panel (Media 100>Preferences>Program Defaults) sets timecode mode, starting timecode, and the number of tracks for new programs.

Setting the Starting Timecode

Set the starting timecode for an individual program as described in this section.

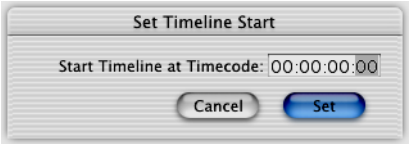
TIP For NTSC programs, choose the timecode mode (drop frame or non-drop frame) before setting the starting timecode value.

To set the starting timecode value

1 Select the program.

2 Choose Program>Set Timeline Start.

The Set Timeline Start dialog box appears.



3 Type the new starting timecode value in the field and click Set.

The timeline in the Program window reflects the new starting timecode. All subsequent timecode increments are updated as well.

NOTE Use this feature when editing an existing time-coded sound track to accommodate a specific leader you intend to use for mastering to tape.

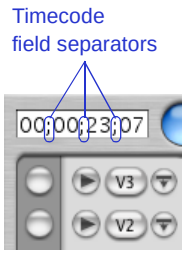
Setting the Timecode Mode

For NTSC programs, you can use drop frame or non-drop frame timecode. Match the timecode for your program to the source tape.

To set drop-frame timecode mode

➤ Choose Program>Show in Drop Frame.

The timecode field separators become semicolons for all timecodes shown in the Program and Monitor windows.



To set non-drop frame timecode mode

➤ Choose Program>Show in Non-Drop Frame.

The timecode field separators change to colons.

Setting Up Tracks

A *track* is an area within the timeline designated for the placement of video, graphics, titles or audio clips. You can place clips on tracks, move them, and position transitions and overlays. Tracks are where your programs are built.

Media 100 programs provide a master video track (expandable to include **A**, **FX**, and **B** tracks), with up to 99 additional video composition tracks and twenty- four audio tracks (expandable to include gain level and pan distribution tracks).

You control the various tracks in the program timeline. Use the mouse, keyboard shortcuts, or menu commands to

- Add or remove tracks
- Select or deselect tracks
- Disable or enable tracks
- Lock or unlock tracks
- Expand or collapse tracks
- Enlarge tracks
- Name audio tracks

Adding or Removing Tracks

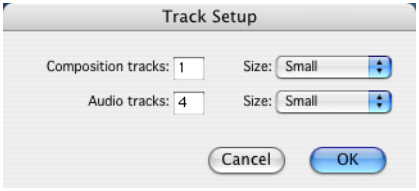
New programs automatically include a master video track, a video composition track, four audio tracks, and a Bus track. All programs must contain a master video track; however, you can remove the video composition and audio tracks or add additional tracks as needed.

To add or remove audio and video tracks

1 Press OPTION-⌘-R or choose Track>Track Setup to display the Track Setup dialog box.

The Track Setup dialog box lets you specify up to 99 video composition tracks and 24 Audio tracks to appear in the timeline.

The master video track is not included because it always appears in the timeline.



2 Type the number of tracks to appear in the field and click OK.

The selected tracks appear in the timeline.

Selecting or Deselecting Tracks

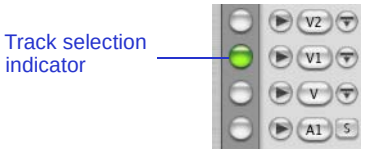
Functions such as locking or expanding a track require that a track be selected.

To select a track

➤ Use one of the following methods:

- Click anywhere within the track or click the track selection indicator.
- Press OPTION-UP ARROW or OPTION-DOWN ARROW to move the track selection indicator to the desired track.

The indicator to the left of the track turns green when the track is selected.



To deselect a track

➤ Click another track.

The indicator turns gray when the track is no longer selected.

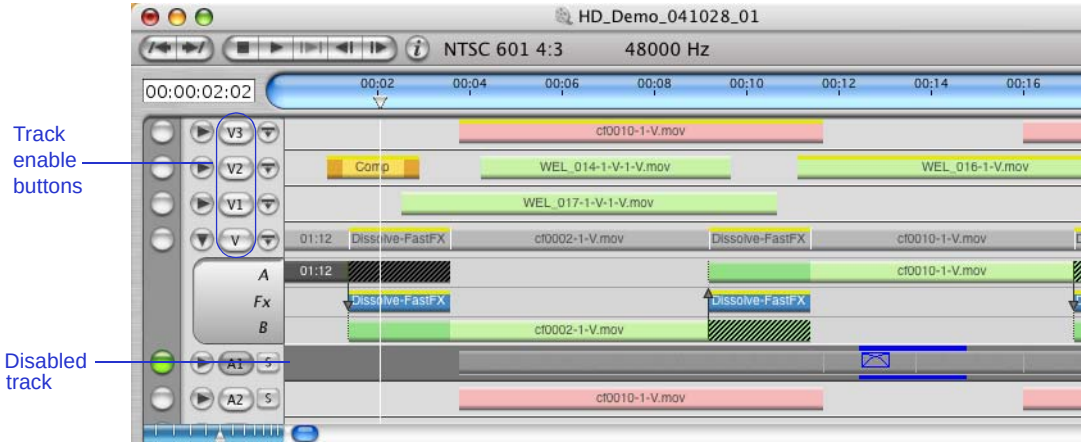
Disabling or Enabling Tracks

All program tracks are enabled by default. You can disable a track to prevent the clips in that track from playing when you play the program.

For example, if you enable the master video track and disable the audio track, you can see video in the record Monitor window and on the external monitor, but you cannot hear sound. If you disable the master video track and enable the audio track, no video appears on the video monitor, but you can hear the audio when the program plays. All other operations on the track continue to work normally.

To enable or disable a track

➤ Click the track enable button next to the track.



Or

1 Click the track.

2 Choose Track>Enable Track or Disable Track.

The entire track is light gray when enabled and dark gray when disabled.

Locking or Unlocking Tracks

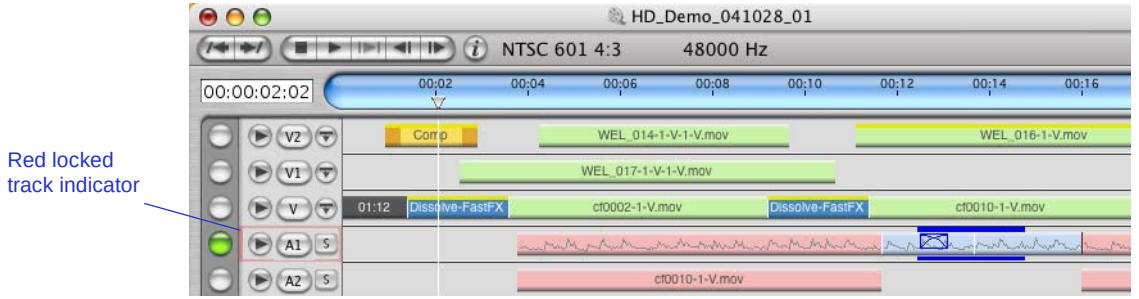
You can lock a track to prevent any changes to its contents. When a track is locked, you cannot add, delete, or move clips in it. Nor can you add, delete, or move clips in other tracks that are synchronized with a clip in a locked track. However, you can play and hear audio on a locked track. When you lock a number of tracks, you can unlock them all at once.

To lock or unlock a track

1 Select the track to lock.

2 Press ⌘-L or choose Track>Lock Track or Unlock Track.

A red outline around the track indicator section appears when a track is locked.



To unlock all tracks at once

➤ Press OPTION-⌘-L or press the OPTION key and choose Track>Unlock All Tracks.

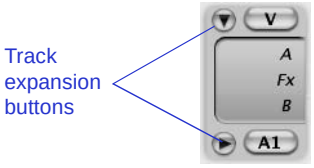
Expanding or Collapsing Tracks

The **V** (master video) track, all **V1 - V99** (video composition) tracks and all audio tracks are expandable.

- An expanded **V** (master video) track includes **a**, **fx**, and **b** tracks to adjust clip placement, overlap, and transitions.
- An expanded **V1 - V99** (video composition) tracks includes an opacity adjustment level.
- An expanded audio track includes a track name field, pan and level tracks to adjust volume and balance.

To expand/collapse a track

➤ Click the track expansion button to expand/collapse the track.



Or

1 Select the track.

2 Choose Track>Expand/Collapse Track.

The track expands or collapses.

Enlarging Tracks

You can also enlarge tracks by selecting one of three track sizes from the Track>Track Setup dialog. You can also set the track size by changing the Program Defaults panel in the Preferences (Media 100>Preferences>Program Defaults).

To change the track size for one track

➤ press HELP and click the mouse on the track area of the Program window.



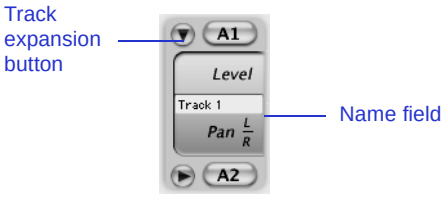
Naming an Audio Track

Naming your audio tracks lets you identify audio that is dedicated to specific purpose.

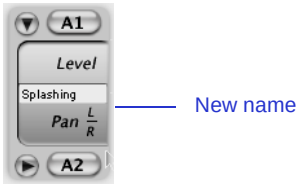
To name an audio track

1 Click the track expansion button to expand the audio track.

2 Click the name field and highlight the current track name.



3 Type a new name for the audio track.



Solo Audio Tracks

Use the solo track functionality to hear playback of selected audio tracks. Select the audio tracks to hear during playback by soloing the track.

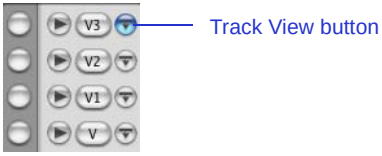
To solo an audio track

➤ Click the solo track button next to the audio track.



Track View button

Use the Track View button to display content in the program from the selected Track View and below. All tracks above the selected Track View button are disabled and therefore the content is not visible.



Working with a Time Range

Some functions, such as playing only a section of a program or closing gaps within a range, require that you create a time range within the program. There are several ways to create a time range.

- Click and SHIFT-click in the Operations bar.
- SHIFT-drag the pointer in the Operations bar.
- Specify the first and last clips in the range.
- Set In and Out points.
- Press shortcuts while playing a program.

The time range appears as a bright yellow bar in the Operations bar.

When no longer needed, you can remove a time range.

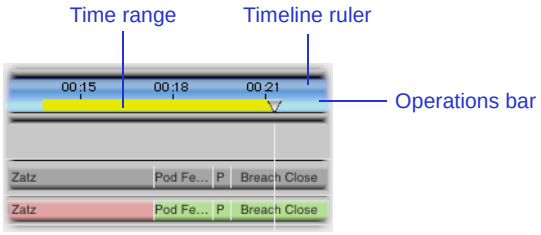
Creating a Time Range

Use one of the procedures that follow to create a time range.

To create a time range in the Operations bar

1 Click the Operations bar at the spot where you want the range to begin.

2 SHIFT-click the Operations bar where you want the range to end.



To create a time range by dragging the pointer

➤ SHIFT-drag the pointer through the Operations bar for the location and duration of the time range.

To create a time range by specifying the first and last clips

1 Click a clip in the timeline to define the start of the range.

2 SHIFT-click another clip to define the end of the time range.

NOTE Choose the start and end clips in any order. The application creates the range based on the two clips selected.

3 Choose Program>Create Range from Selection.

This method creates a time range from the In point of the first selected clip to the Out point of the last selected clip.

In and Out points in the program create a defined start and end point. The defined time range lets you work with a specific range of clips. You can place only one In and Out point at a time in the timeline.

To create a time range using In and Out points

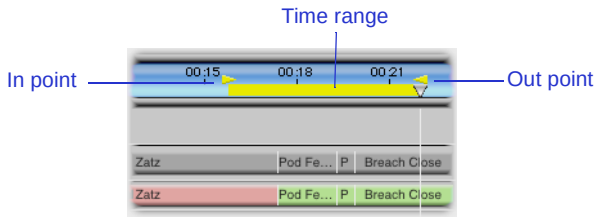
1 Click the point in the timeline where you want the In point and press F1.

2 Click the point in the timeline where you want the Out point and press F2.

The In and Out points appear in the Operations bar.

TIP You can also create In and Out points with the Edit Suite Mark In and Mark Out buttons in Program mode.

The time range appears as a bright yellow bar in the Operations bar and indicates the area between the In and Out points.



Change the location of the time range by pressing F1 and F2 at different points in the Operations bar.

NOTE Only one time range appears in the timeline.

To create a time range while playing a program

1 Press F5, ⌘-P, or the SPACEBAR to play the program.

TIP If the program does not start playing, you may have pressed the SPACEBAR while the pointer was located in a field. Click outside the field and try again.

2 Press F1 at the start point for the time range.

An In point appears in the timeline ruler.

3 Press F2 at the end point for the range.

An Out point appears in the timeline ruler and a time range is created between the In and Out points.

Press F1 and F2 while the program plays to change the time range.

NOTE You can also set a time range by marking In and Out points without playing the program.

After the In and Out points serve their purpose, you can remove them.

To remove In and Out points from a program

➤ Click the In point or Out point in the timeline and drag it off the timeline.

Removing a Time Range

When a time range is no longer needed, remove it as follows.

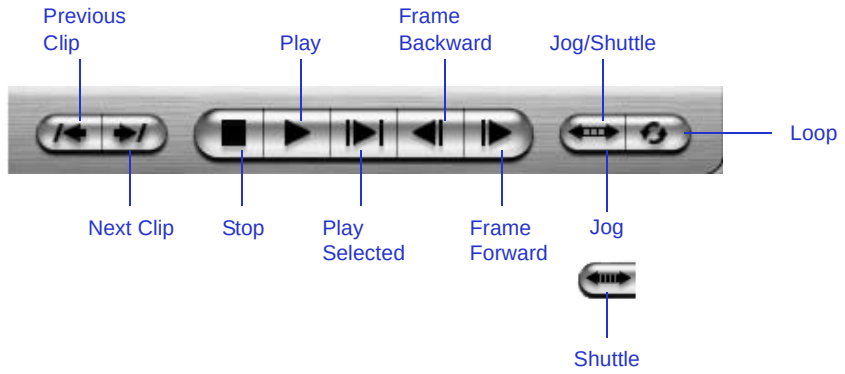
To remove a time range

➤ SHIFT-double-click the time range.

▼ Playing Programs

When the Edit Suite is in Program mode, you can use its play controls to play a program. You can play an entire program or just a selected portion, move forward or backward through a program one frame at a time, or loop a section so it plays repeatedly. You can also play your program directly from the Program window using keyboard shortcuts.

TIP The SPACEBAR starts and stops playback in all Edit Suite modes. The only exception is in a text field, where the SPACEBAR adds spaces.



The following table describes the Program mode Play controls.

Play Controls

Name	Description
Previous Clip	Moves the CTI to the beginning of the previous clip in the program
Play	Plays from the current CTI position
Frame Backward	Plays one frame backward

Play Controls *(Continued)*

Name	Description
Jog/Shuttle	Toggles from Jog to Shuttle ■ Move the Jog control left or right to move the program backward or forward by a single frame ■ Move the Shuttle control left or right to move the program backward or forward by a variable number of frames
Loop	Plays the program or program range repeatedly
Next Clip	Moves the CTI to the beginning of the next clip in the program
Stop	Stops playing the program
Play Selected	Plays a time range
Frame Forward	Plays one frame forward

The following table describes the shortcuts available for playing programs.

Play Control Keyboard Shortcuts

Key Sequence	Function
HOME	Go to the beginning of a program
⌘-APOSTROPHE (‘)	Play the program from the beginning
SPACEBAR, ⌘-P, F5	Play the program from the current time
⌘-BACKSLASH (\)	Play a selected time range
RIGHT ARROW	Play a single frame forward
LEFT ARROW	Play a single frame backward
SPACEBAR, ESC, PLUS SIGN (+), ⌘-PERIOD (.)	Stop play

To play at variable speeds using the Jog control

1 Click Jog/Shuttle to select Jog mode.

2 Drag the control left or right over the desktop to step through the program by single frames.

Move the control slowly to play slowly; move it faster to speed up play.

To play at variable speeds using the Shuttle control

1 Click Jog/Shuttle to select Shuttle mode.

2 Drag the control left or right over the desktop to play the program.

As you drag farther to the left or right, the length of the Shuttle arrow changes to indicate that the program is playing faster.

To play a program or a section of a program repeatedly

1 Click Loop.

2 Play the program using Play or Play Selected.

The selection plays repeatedly until you click Stop. Click Loop again to disable this function.

NOTE When you press the SPACEBAR to stop playing a program, there is a 1-second delay before pressing the SPACEBAR restarts play.

Selecting Stop Mode

A video image consists of two fields, where each field contains either the odd or the even scan lines for the image. When you stop playing moving video, the image that appears depends on which field you are viewing.

Use Stop mode to determine how images appear on your external monitor when they stop.

To select Stop mode

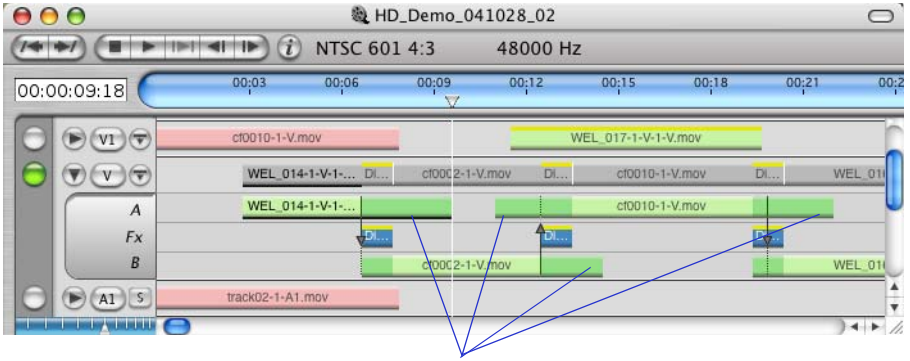
1 Choose Tools>Stop mode.

2 Select one of the following options.

Choose...	To...
Display Both Fields	Display the first and second fields. Selecting this option may cause the video on your external monitor to jitter due to differences between the two fields.
Display First Field	Double the first field for display.
Display Second Field	Double the second field for display.

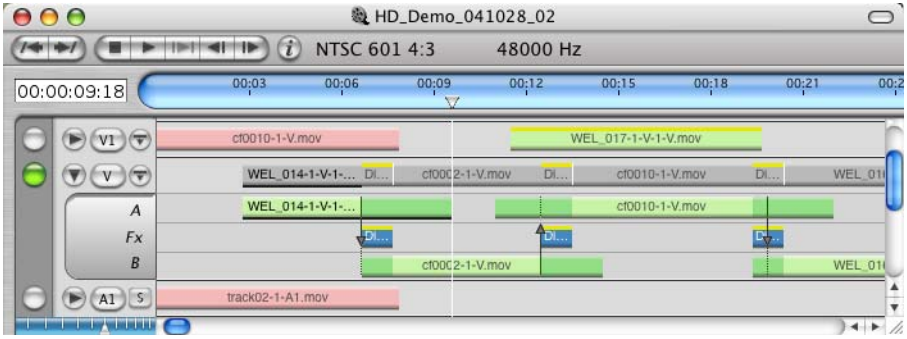
▼ Cleaning Programs

Video programs can become quite long and encompass a large number of clips, transitions, and effects. The Clean Program command removes extraneous trimmed frames from the clip representation in the Program window. This reduces clutter and lets you focus on the media that you actually use in your program.



To clean a program

➤ Choose Tools>Clean Program.



▼ Saving Programs

If you close a program or quit Media 100 without saving the current contents, a dialog box asks you to save the program before continuing.

To save a program

1 Select the program and press ⌘-S or choose File>Save Program.

2 Choose a location and name for the program and click Save.

TIP To save a program with a new name, choose Save Program As and type the new name.

If you change a program and then decide you do not want to save your changes, revert to the saved version of the program as follows.To revert to a saved program

1 Choose File>Revert Program to Saved.

A dialog box appears, prompting you for confirmation to erase all changes to the program since it was last saved.

2 Click Revert.

Any changes to the program are erased and the program returns to its originally saved format.

9

Editing in the Timeline

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▼ Introduction

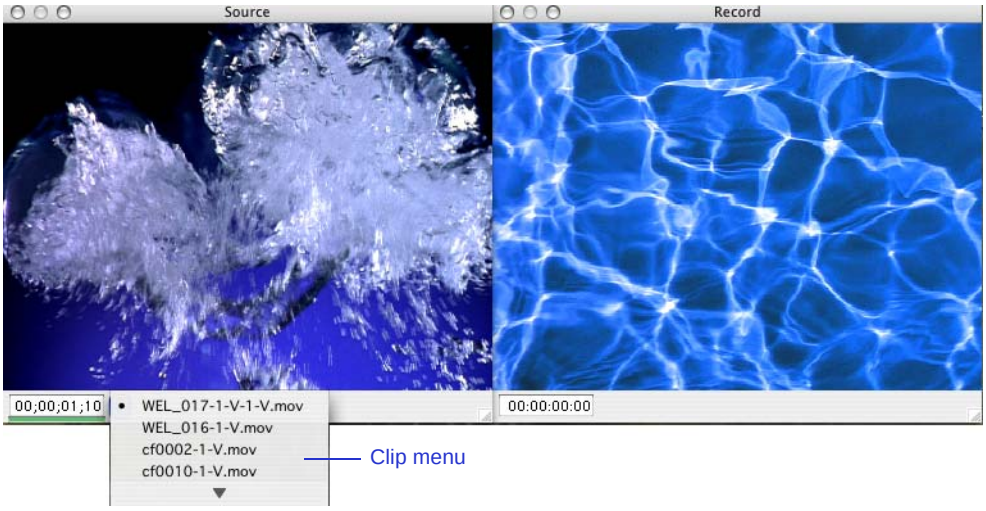
A Media 100 program or timeline lets you assemble and integrate video, audio, and graphics media from many sources to create a complete presentation. You can master a program to videotape, play it through Media 100 as input to a video system, prepare for streaming or DVD output, or include it in a variety of multimedia presentations.

This chapter describes how to add and edit clips on the timeline. It explains how to

- Use the Source Record monitors for editing
- Add clips and differentiate between clip types
- Add User, Clip, and Sync marks
- Work with clips

▼ About the Source Record Monitors

Use the Media 100 monitor as a dual monitor called Source and Record, or as a single monitor that displays all the editing functions in one window. Clips appear in the Source monitor when the Edit Suite is in Edit Clip mode. Clips from the timeline appear in the Record monitor at the CTI. Double-click or drag clips from the bin into the Source monitor. You can stack up to 25 clips and select them from the clip menu to trim before dropping them onto the timeline.



The monitors are expandable. The amount of expansion, while keeping the video in real time, depends on the capability of the CPU and the throughput of the hardware. Once you exceed the throughput capability, the system scales the video.

The Source/Record monitors are also dockable. Move the left monitor and the right monitor moves also. You can also dock the monitors vertically, so if you move the top monitor, the bottom monitor moves to reconnect with the top monitor. To move the monitors separately, move the right or bottom monitor.

Editing with the Source Monitor

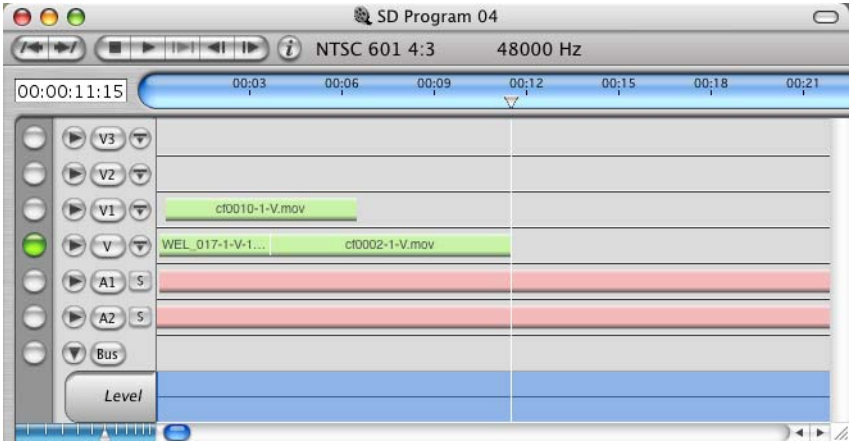
The dual monitors provide a new editing workflow. Drag clips from the bin, trim them in the Source monitor in Edit Clip mode, then drag them to the Record monitor where they are dropped into the timeline at the CTI. ⌘-dragging a clip creates a copy of the clip that does not apply back to the bin or timeline.

NOTE Dragging or double-clicking a clip into the Source monitor affects the original clip in the bin or timeline. ⌘-dragging or ⌘-double-clicking creates a copy of the clip that does not affect the original clip.

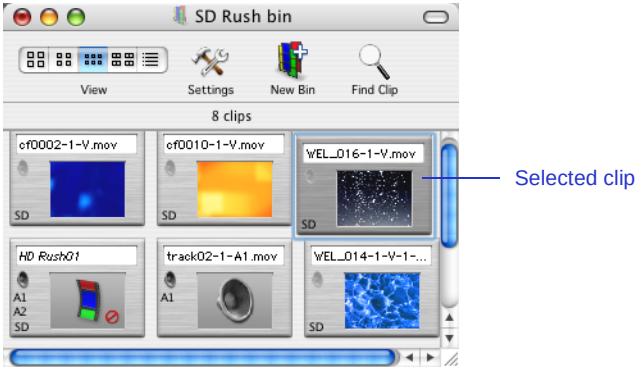
Add up to 25 clips in the Source monitor clip menu. Choosing a clip from the menu, opens a copy of the clip in the Source monitor. To save that clip drag it into the bin or timeline.

To edit and add clips to the timeline

1 Position the CTI in the timeline where you intend to drop the clip.



2 Drag or double-click a clip in the bin to access Edit Clip mode.



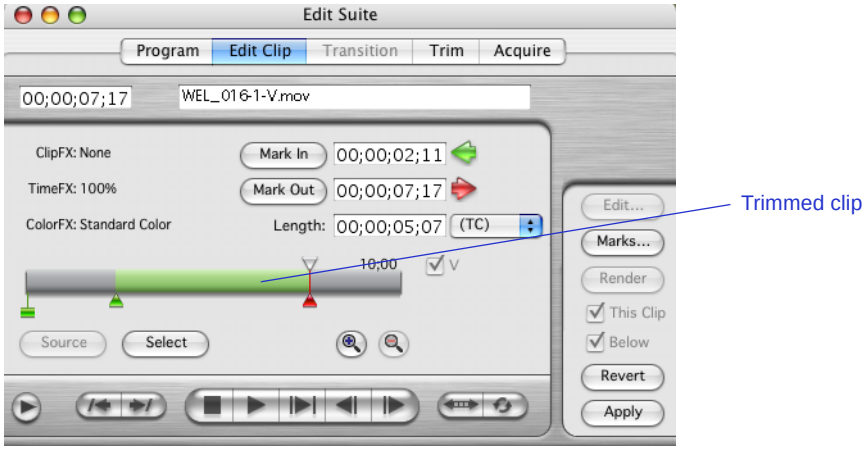
Or

Drag or double-click a series of clips into the Source monitor clip menu.

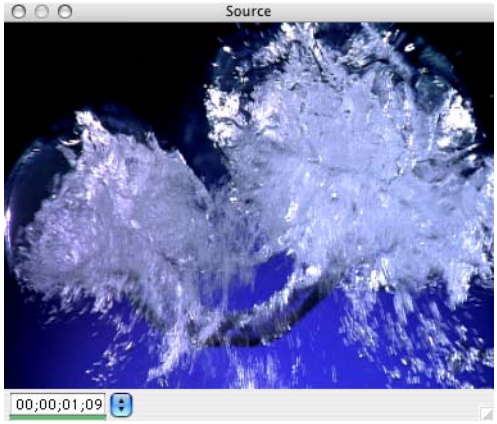
You can add up to 25 clips to the menu.

TIP Press OPTION-⌘-E to enter Edit Clip mode with the last edited clip selected.

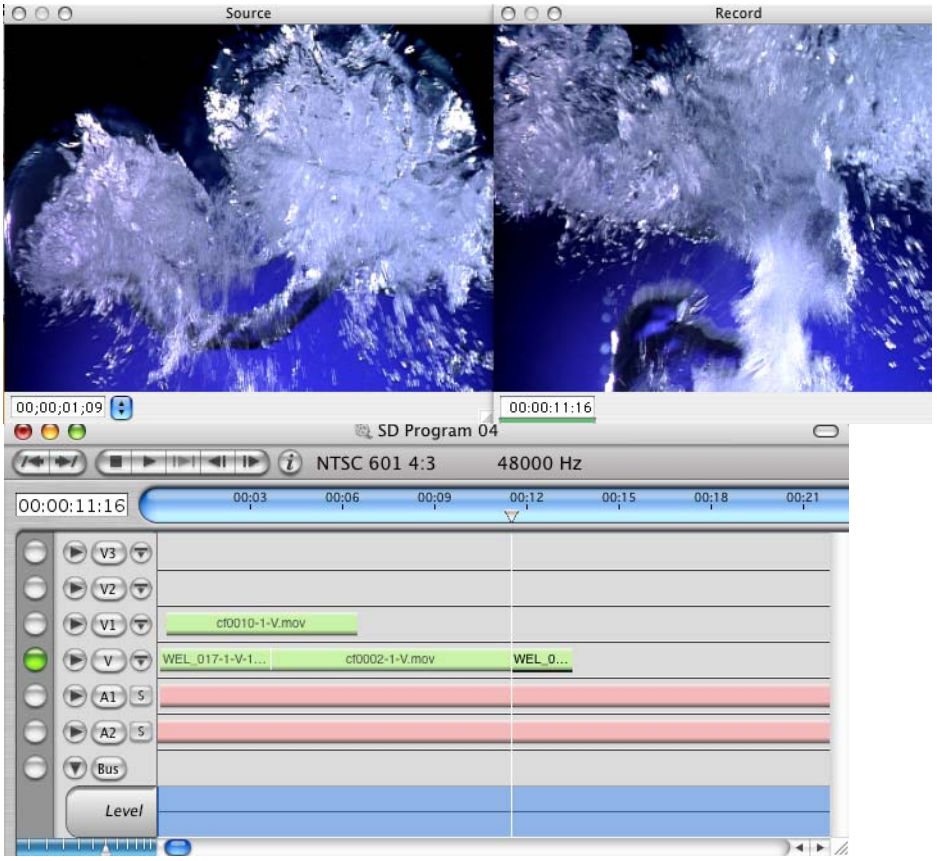
3 Trim the clips in the Edit Suite.



4 Drag the clip in the Source monitor to the Record monitor.



The clip appears in the timeline at the CTI and in the Record monitor.



To drag a clip from the Source monitor to the timeline

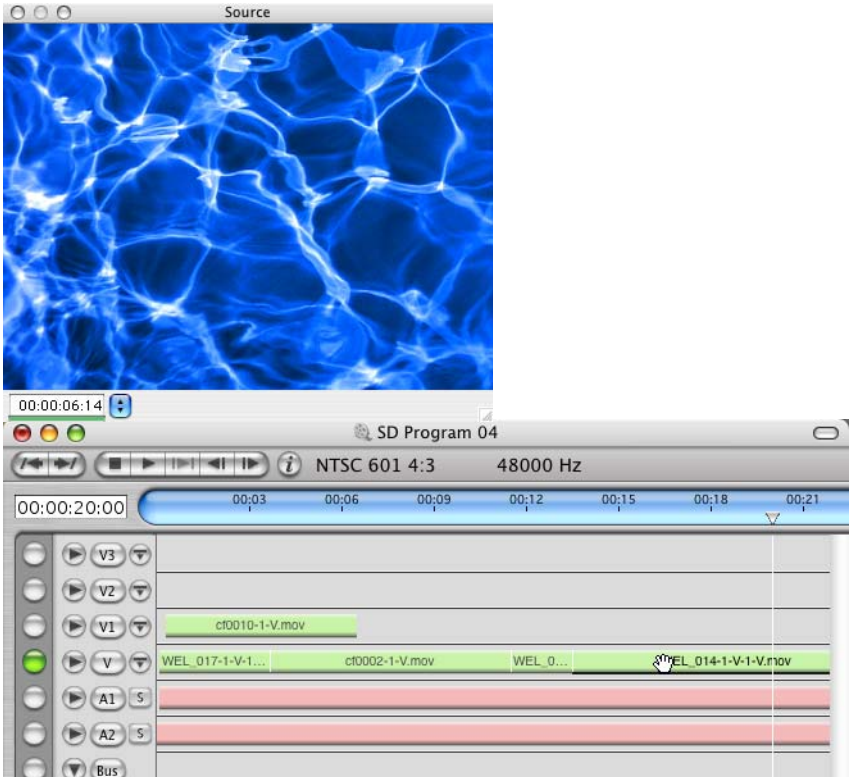
1 Double-click a clip in the bin to access Edit Clip mode.

2 Trim the clip.

3 Drag the clip from the Source monitor to the timeline.

Or

Press F12 to overlay the clip on the Master Video track in the timeline.



The clip remains in the Source monitor and can be dropped into other locations in the program.

To insert clips using OPTION-F12 from Source monitor

1 Move the CTI to where you intend to insert the clip.

2 Double-click a clip from the bin into the Source monitor.

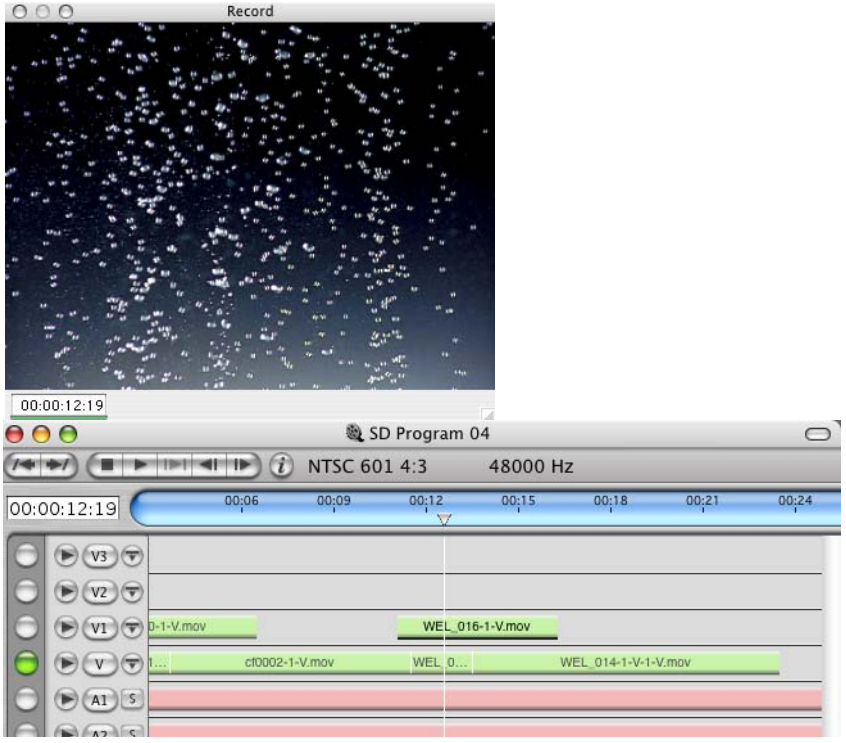
3 Trim the clip if necessary.

4 From the Source monitor, press OPTION-F12 to insert the clip.

NOTE When using the F12 key to add, insert or overlay clips, they are always placed on the Master Video track.

Using the Record Monitor

The timeline plays through the Record monitor. Any clips you add to the timeline appear in the Record monitor. When the Edit Suite is in Program mode, the Record monitor is active.



TIP Press CONTROL-⌘-E to enter Edit Clip mode with a copy of the selected clip in the timeline or bin. Any changes made to the clip do not apply back to the original clip.

▼ About the Program Mode

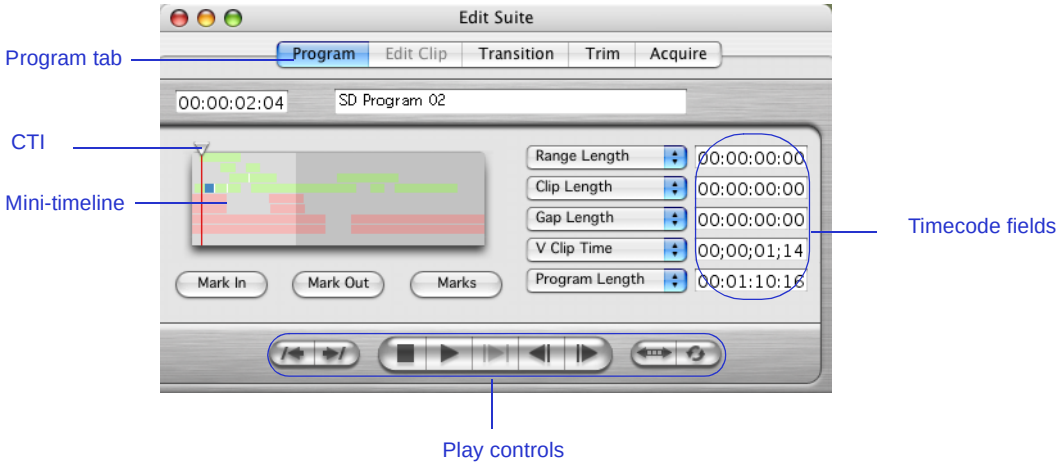
In addition to working in the timeline, you can manipulate programs using the Edit Suite Program mode. The Program mode panel lets you play a program and provides information on clips, tracks, ranges, gaps, and CTI location. Actions performed in the Edit Suite are reflected immediately in the program.

The Edit Suite defaults to the Program panel when you launch the application.

To access Program mode

➤ Choose the Program tab.

The Edit Suite displays the Program panel.



The following tables describe the elements in the Edit Suite in Program panel.

Program Panel Elements

Name	Description
Program tab	Displays the Program panel in the Edit Suite window.
CTI	Indicates the frame currently appearing in the Record Monitor window. The CTI corresponds to the CTI location in the program.
Mini-timeline	Represents a miniature version of the Program window. The white box indicates the portion of the program visible in the Program window.
Mark In button	Places an In point on the timeline.
Marks button	Opens the EventStream window, where you can assign events to a mark. See “Creating Streaming Media” for more information.
Mark Out button	Places an Out point on the timeline.
Timecode fields	Appear in the Edit Suite in Program mode. The associated menus list a variety of timecode information.
Play control buttons	Control navigation through the program timeline.

The following table describes the timecode field attributes.

Timecode Field Attributes

Menu	Attributes
Program Length	Displays the total duration of the program through the end of the last clip in any track.
Range Length	Displays the duration of a selected range.
Clip Length	Displays the duration of a selected clip or clips.

Timecode Field Attributes *(Continued)*

Menu	Attributes
Gap Length	Displays the duration of a gap over which the CTI is located in a selected track. If the CTI is not over a gap, the field displays 00:00:00:00.
Mark In Time	Displays the timecode location of the In point.
Mark Out Time	Displays the timecode location of the Out point.
V1 to **V99** Clip Time	Displays the clip timecode at the CTI in the **V1-V99** (video composition) track. This timecode is embedded into the clip while acquiring. This timecode does not apply to PICT clips.
V Clip Time	Displays the frame timecode of a clip in the **V** (video master) track at the CTI. This timecode is embedded into the clip while acquiring.
V-a/b Clip Time	Displays the frame timecode of a clip in the **A** or **B** track at the CTI. This timecode is embedded into the clip while acquiring.
A1-A24 Clip Time	Displays the frame timecode of a clip in the specified audio track at the CTI. This timecode is embedded into the clip while acquiring.

▼ Adding Clips to a Program

Build a program by adding clips to the video or audio tracks and editing them. Media 100 offers many ways to add clips when you are creating your video program. You can add clips to a program, overlay existing clips, or insert clips between clips already in the timeline.

This section describes how to add clips from

- A bin
- The Source Record monitors and Edit Suite

- Another program

Although a bin can contain clips of varying types, all clips in a program must share the same audio sample rate, aspect ratio, and NTSC or PAL standard.

If you try to mix audio clips of different sample rates in a program, a warning message appears. Audio must be imported at the desired sample rate or converted to the desired sample rate during the import process. If you try to mix video clips of different video standards in a program, a Conform dialog box appears. You may elect to conform the video now or you may elect to re-acquire the video later. In addition you may select from an array of conversion options.

NOTE QuickTime imported media and still image media (media that does not have timecode and reel name attributes) can not be reacquired later, therefore it will always be converted now.

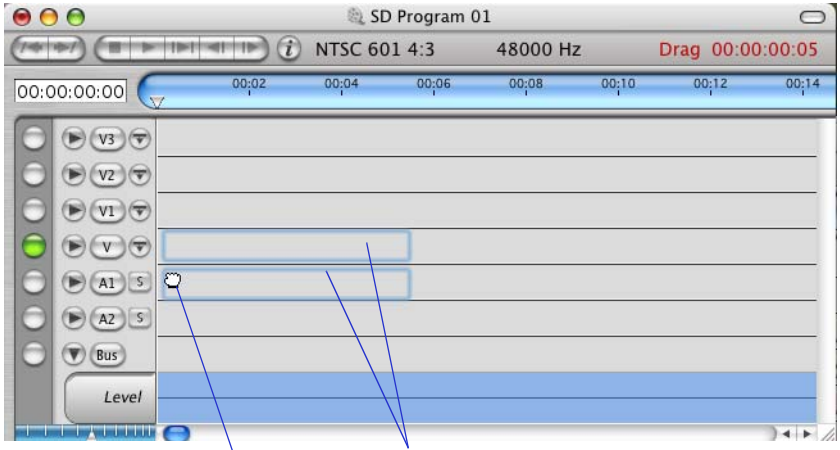
Adding a Single Clip

You can place and fit clips in a variety of ways to suit your editing needs. As you drag a clip into a program, the system creates a copy of the clip that you can edit independently of the original clip.

To add a single clip

1 Drag a clip from a bin, another program, the Edit Suite, or the Source monitor onto a track in the Program window.

As you drag a clip into the timeline, its representation changes to a clip outline and the pointer changes to a can-drop pointer.

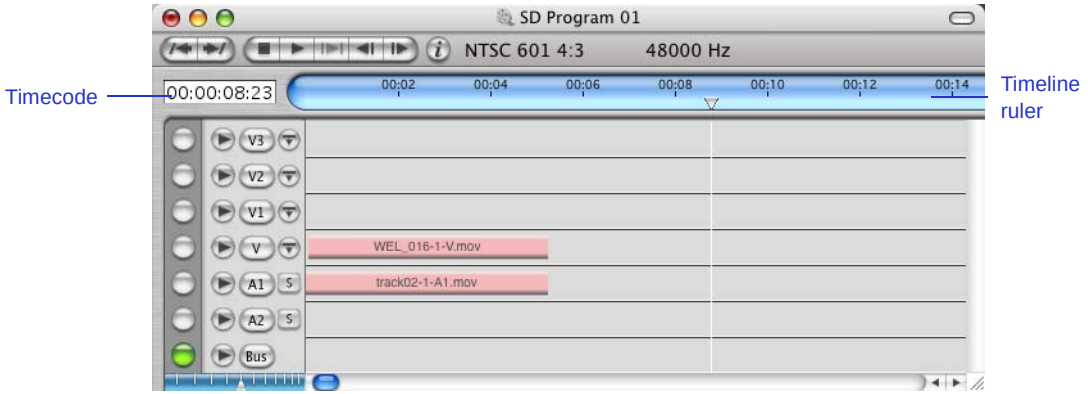


If you place the clip incorrectly, the can-drop pointer changes to a red cannot-drop pointer. If the cannot-drop pointer appears, you cannot place the clip at that point in the program.


Cannot-drop pointer

2 Release the mouse when the clip is located in the appropriate position.

To set the clip at a particular timecode, place the In point of the clip at that location on the timeline ruler and release the mouse.



Adding Multiple Clips

Add multiple clips to a program using the following methods:

- Press F12.
- Drag multiple clips from a bin.
- Drag multiple clips from another program.

NOTE When using the F12 key to add, insert or overlay clips, the clips are always placed on the Master Video track.

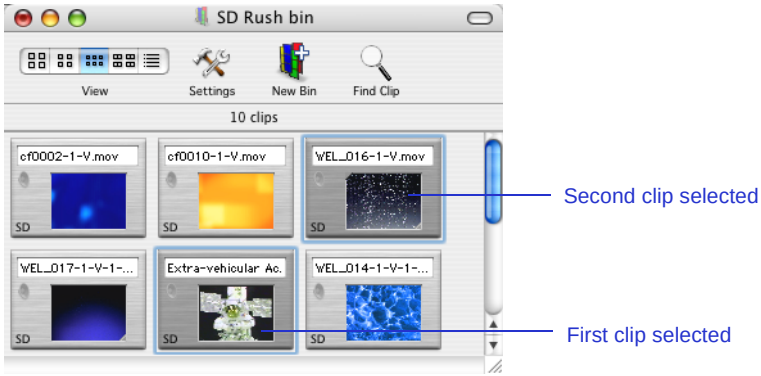
To add multiple clips from a bin using F12

1 Place the CTI in the timeline where you want to add the clips.

2 SHIFT-click the clips in a bin.

To add clips...	Put the bin in...
In the order of selection	Poster view.
In the current bin sort order	List view.

The clips in the bin are outlined.



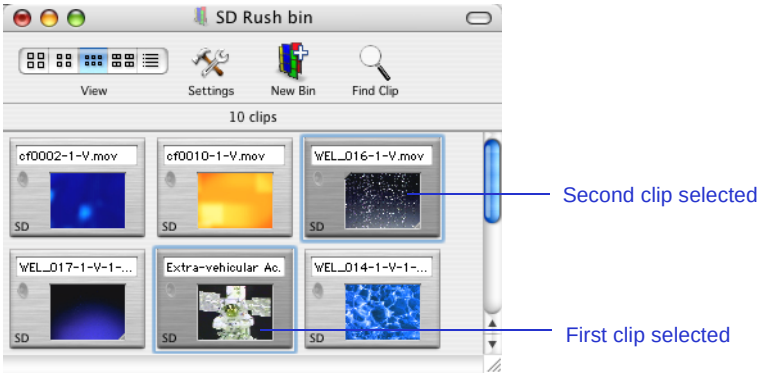
To add multiple clips from a bin using F12

1 Place the CTI in the timeline where you want to add the clips.

2 SHIFT-click the clips in a bin.

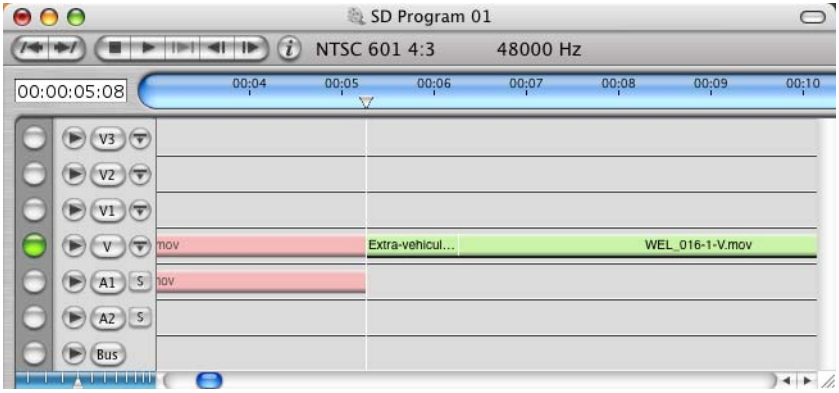
To add clips...	Put the bin in...
In the order of selection	Poster view.
In the current bin sort order	List view.

The clips in the bin are outlined.



3 Press F12.

The clips appear in the timeline in the bin order you selected.

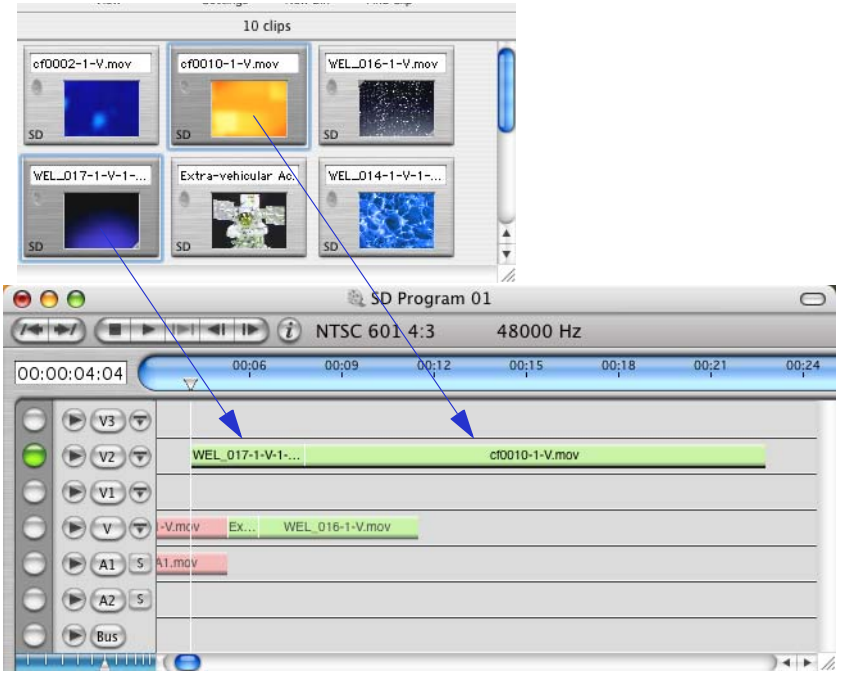


NOTE When using the F12 key to add, insert or overlay clips, the clips are always placed on the Master Video track.

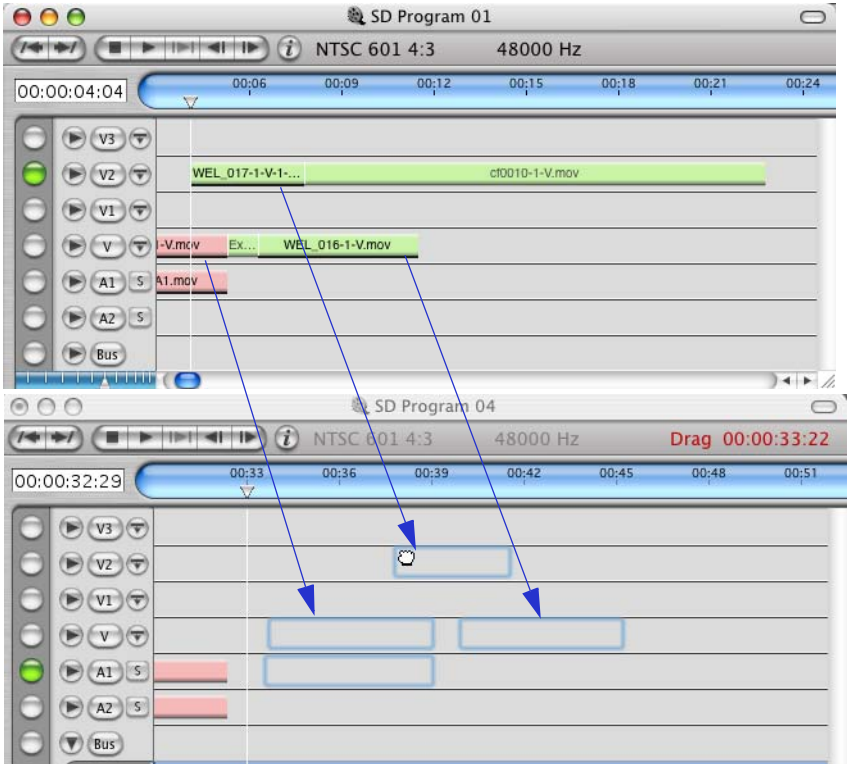
To add multiple clips by dragging

➤ SHIFT-click the clips in a bin or in another program.

- If you drag the clips from a bin in a poster view, they appear in the timeline in the order of selection.



- If you drag the clips from another program, you preserve the spatial relationship between the clips.



Adding Synchronized Clips

When you acquire video and audio simultaneously, Media 100 creates *synchronized* (synced) clips. Synced clips are linked so that any adjustments or movements to one of the synced clips affects all of the clips. Add synced clips to a program as you would single or multiple clips.

The following list explains synced clip characteristics. Synced clips

- Play together even when moved
- Can be any number or combination of video, audio, and graphics clips
- Occupy different tracks and are synced vertically

- Are selected as a group; trimming or dragging one clip affects all linked clips equally

Adding Black Clips

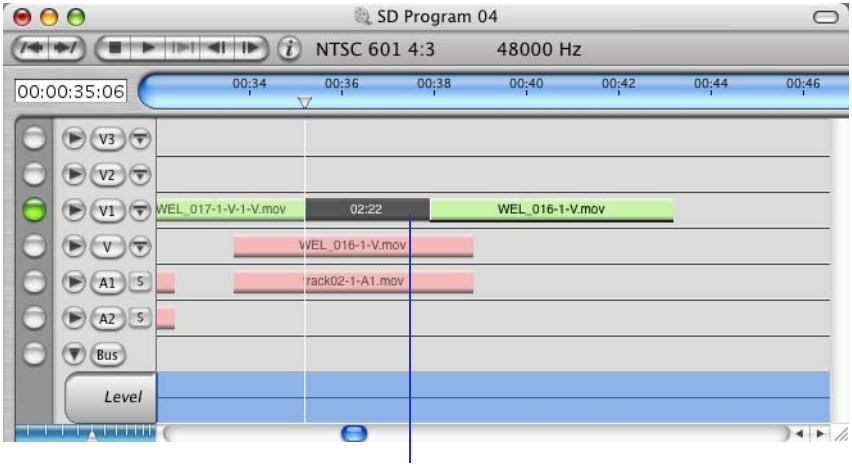
Use black clips as placeholders or to add video black to a program (for example, to fade in or out to black). Black clips are the same as any other clip, except they do not have associated media files. To add a black clip

1 Position the CTI where you want to insert the black clip.

2 Press ⌘-B or choose Program>New Black Clip.

A black clip appears in the selected **V** track at the insertion point. The duration of the clip becomes the clip name. If you trim the black clip, the name changes to show the new duration.

- If you place the clip where no gap exists, the black clip defaults to a 2-second duration.
- If you add the clip in a gap between two clips, the black clip fills the gap.



Adding Color Clips

Use color clips as placeholders, a compositing element or a background to a program. Color clips are the same as any other clip, except they do not have associated media files. To add a color clip

1 Position the CTI where you want to insert the color clip.

2 Press OPTION-⌘-B or choose Program>New Color Clip.
The Create New Color Clip dialog box appears.

3 Click the color chip to open the color palette dialog box.

4 Select the desired color.

5 Click OK.

A color clip appears in the selected **V** track at the insertion point. The duration of the clip becomes the clip name. If you trim the color clip, the name changes to show the new duration.

- If you place the clip where no gap exists, the color clip defaults to a 2-second duration.
- If you add the clip in a gap between two clips, the color clip fills the gap.



Adding Title Clips

The application lets you add title clips to the any Video Composition **(V1-V99)** track in the timeline.

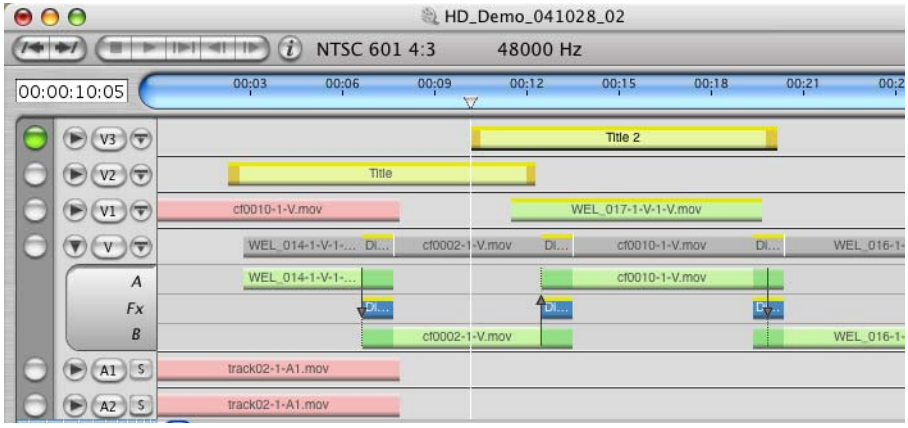
To add a title clip

1 Select a Video Composition **(V1 - V99)** track.

2 Position the CTI where you want to place the title clip.

3 Use one of the following methods to place a 2-second title clip in the track at the insertion point:

- Press SHIFT-⌘-G or choose Tools>New Title.
- ⌘-click in the Video Composition track.
- ⌘-drag in the Video Composition track. Drag the clip to the desired length.



▼ Differentiating Clip Types

To facilitate program authoring, the system assigns clip colors to distinguish between clip types in the video, video composition and audio tracks as follows.

Clip Colors

Color	Clip Type
Blue – Dark with yellow bar	Real-time transition effects
Blue – Light (in **A** tracks)	Audio, unsynchronized
Blue – Light with pink bar	Audio with applied EQ
Gray – Dark	Black clip
Gray – Dark - with color square	Color clip - the color square represents the color of the clip
Gray – Light	Clips on the **V** track, when expanded
Green – Dark	Non-active video, unsynchronized
Green - Dark with red bar	Transition effects, unrendered
Green – Light	Active video, unsynchronized
Green – Light with green bar	Transition effects, rendered
Green with yellow bar	Video clip with real-time ClipFX or ColorFX
Green with red bar	Video clip with unrendered ClipFX or ColorFX
Green with green bar	Video clip with rendered ClipFX or ColorFX
Orange	Composition clip
Orange with red bar	Composition clip, unrendered
Orange with green bar	Composition clip, rendered
Pink	Synchronized clip
Pink with yellow bar	Synchronized clip with ClipFX or ColorFX

Clip Colors *(Continued)*

Color	Clip Type
Pink with red bar	Synchronized clip with unrendered ClipFX or ColorFX
Pink with green bar	Synchronized clip with rendered ClipFX or ColorFX
Pink with pink bar	Synchronized audio with applied EQ
Purple – Dark with red bar	TimeFX, unrendered
Purple – Light with green bar	TimeFX, rendered
Yellow	Overlay
Yellow with yellow bar	Real-time Titles
Yellow with red bar	Unrendered Titles
Yellow with green bar	Rendered Titles

▼ Using Marks

The application offers a number of ways to mark points of interest or alignment in the timeline or in clips.The marks provided include the following:

- Green User marks let you specify points in the program.
- Black Clip marks let you specify points within a clip, up to one mark per frame.
- A blue Sync mark lets you specify a point in the clip to sync to a point in the timeline.

User marks are placed in the timeline. Clip marks and the Sync mark are placed within clips.

With User marks, you can add navigation, ancillary text events, and embed hotspots with layers of interactivity while you edit your program. For information about adding events to User marks for streaming media formats, see “Creating Streaming Media.”

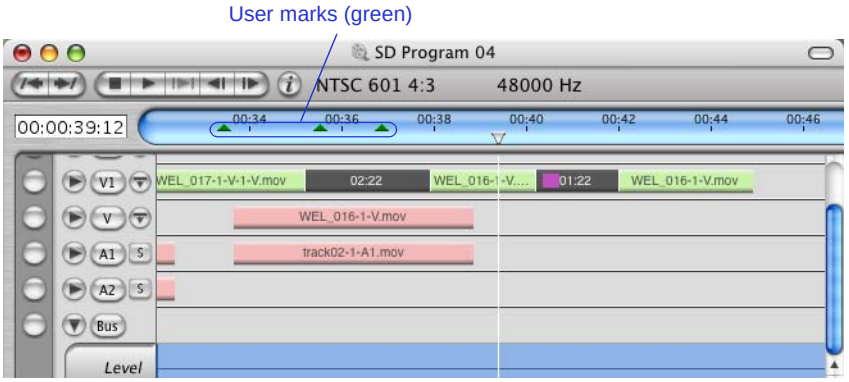
Adding and Removing User Marks

Place User marks in the Operations bar to indicate important points in time. User marks can be used for marking repetitive events in a program, such as music beats in the audio track. You can place an unlimited number of User marks in a program. You can move from one User mark to the next or back in the timeline.

To add User marks

➤ Press F6 when the CTI is at the point of interest.

The green User mark appears in the Operations bar. Repeat as necessary to add additional User marks.



Add User marks while a program is playing or by moving the CTI manually to a specific location.

To move the CTI to a User mark

➤ Use one of the following methods:

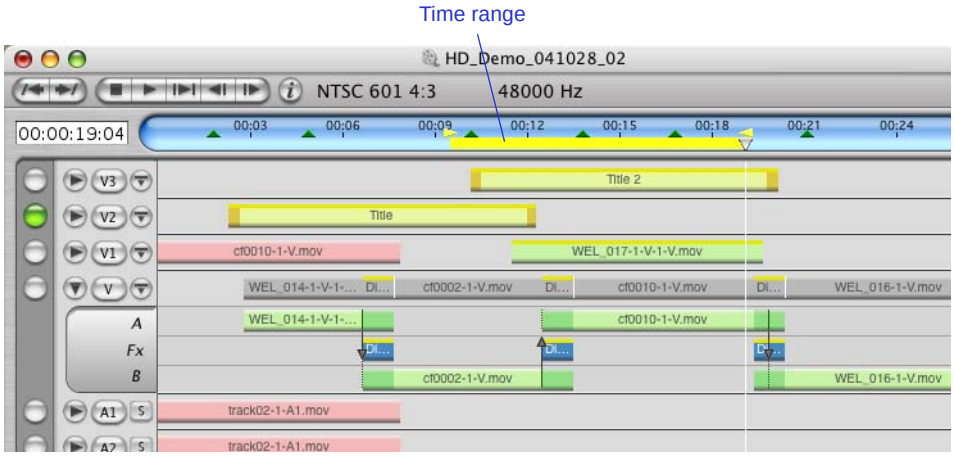
- Press OPTION-TAB to move to the next User mark.
- Press CONTROL-OPTION-TAB to move to the previous User mark.

To delete a User mark

➤ Drag the User mark up or down until the mark turns red and release the mouse button.

To delete all User marks in a range

1 Create a time range that includes the User marks to delete.



2 Choose Tools>Remove User Marks from Range.

3 SHIFT-double-click the range to delete it.

Adding Clip Marks

Clip marks let you identify frames that contain points of interest within a clip. Clip marks remain associated with the frame even when you move a clip to another location on the timeline. If you delete the clip from the timeline, or re-import the clip, it does not keep the Clip marks. Save a copy of the clip with Clip marks to a bin to preserve the marks.

If you trim a clip containing Clip marks, the Clip marks remain, although they may not be visible. You can have only one Clip mark per frame.

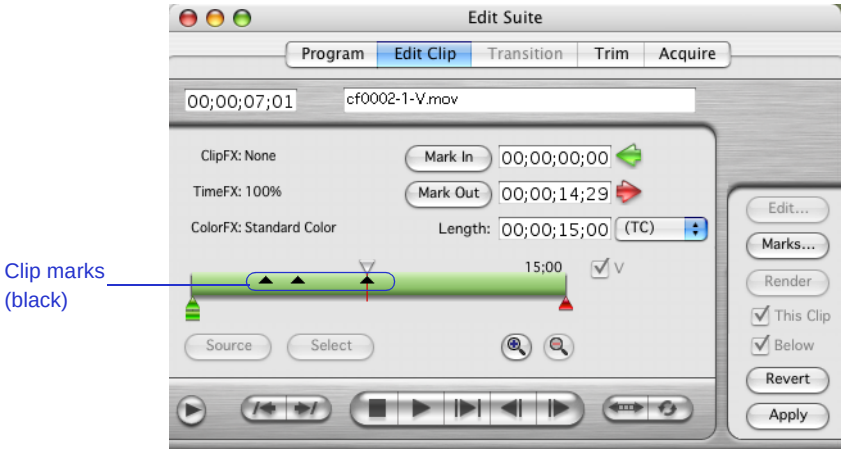
To add Clip marks in the Edit Suite

1 Double-click a clip to activate the Edit Suite.

2 Position the CTI in the Edit Suite timeline at the point where you want to put the Clip mark.

3 Press F6.

A black Clip mark appears in the Edit Suite timeline.



TIP You can add Clip marks on-the-fly while playing the clip.

4 Click Apply.

TIP Press OPTION-TAB or CONTROL-OPTION-TAB to move from one Clip mark to another.

To remove a Clip mark in the Edit Suite

1 Click the Clip mark and drag it up or down about an inch.

2 When a red x appears on the clip release the mouse button.

The clip mark disappears.

3 Click Apply.

To add Clip marks to a clip in the timeline

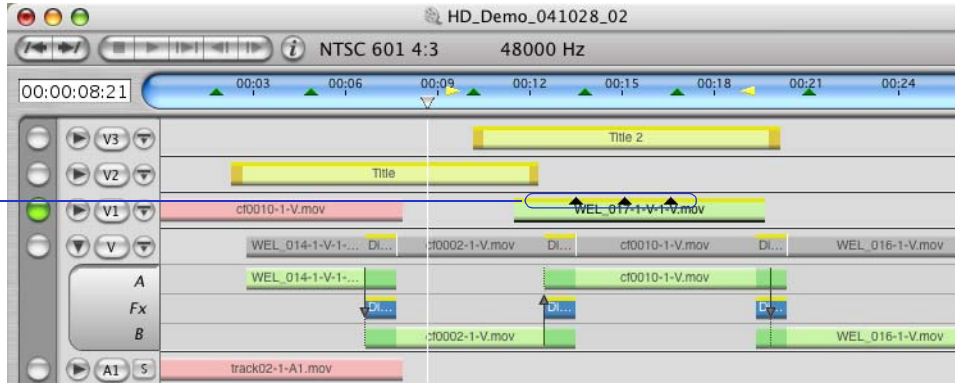
1 Select the video track.

2 Position the CTI in the timeline where you want to set the Clip mark.

3 Press OPTION-F6.

NOTE If an Apple dialog box appears offering to let you set special function key features, click the check box for Don't show again. Click Cancel. The OPTION-F6 shortcut should work properly after clicking OK.

The black Clip mark appears in the clip in the timeline.



To remove all Clip marks from a clip in the timeline

1 Select the clip containing the Clip marks.

2 Press OPTION and choose Tools>Remove User Marks in Clips.

Using a Sync Mark

Like Clip marks, a Sync mark is set within a clip. A Sync mark in a clip lets you align that point in the clip to a specific point in the program timeline.

Place a Sync mark in a clip where a specific action occurs. You can then place a User mark in the timeline where you want to align the Sync point. For example, place a User mark over a musical beat that matches the action to be synched.

Only one Sync mark is allowed per clip. If you try to add another Sync mark, the original Sync mark changes to a Clip mark. If you delete a Sync mark, the clip Sync point reverts to the clip In point.

To add a Sync mark to a clip in the Edit Suite

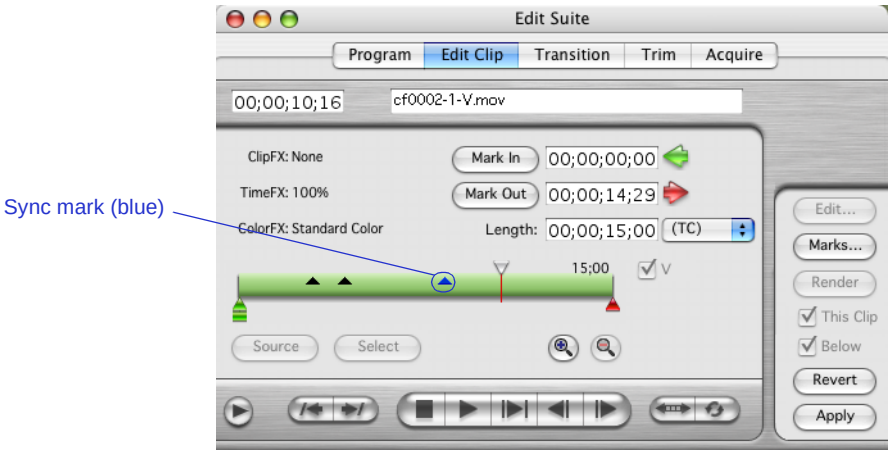
1 Double-click a clip to activate the Edit Suite.

2 Position the CTI in the Edit Suite timeline where you want the Sync mark.

3 Press CONTROL-F6 or choose Tools>User Marks>Set Sync Mark.

NOTE In the Mac OS by default CONTROL-F6 is mapped to Focus on Utility window. To disable this default setting from the Apple menu choose System Preferences. Open the Keyboard & Mouse preferences. Click the Keyboard Shortcuts tab. Scroll the list to find Focus on Utility Window (palette) and deselect the checkbox.

A blue Sync mark appears in the Edit Suite timeline.



4 Click Apply.

To add a Sync mark in the timeline

1 Position the CTI in the timeline where you want the Sync mark.

2 Select the track that contains the clip to mark.

- If one track of a synchronized clip is selected, the Sync mark appears only in the selected track.
- If no track is selected, the Sync mark appears at the specified point in all clips.

3 Press CONTROL-OPTION-F6.

A blue Sync mark appears in the clip.

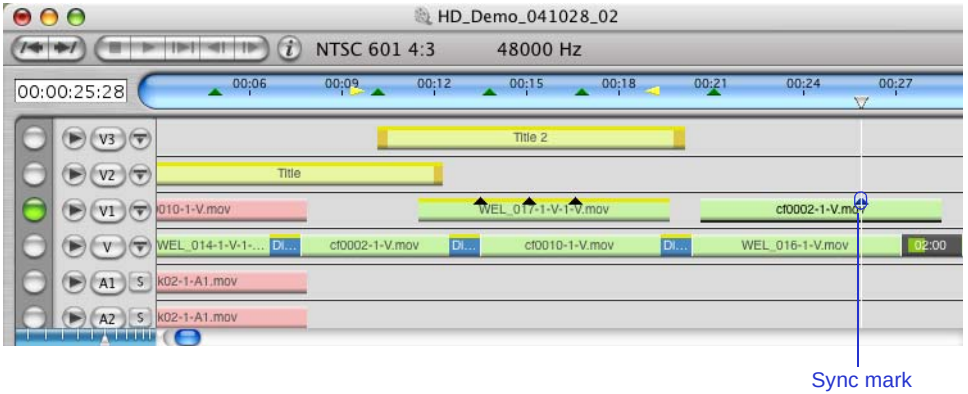
To align a Sync mark to the CTI in the timeline

1 Select a track and place the CTI at a point in the timeline where you want the Sync mark to align.

2 Press CONTROL-F6 to add a Sync mark to a clip in the Edit Suite.

3 Press CONTROL-F12.

The clip appears in the timeline with the Sync mark aligned to the CTI, overlaying any existing clips. The CTI jumps to the end of the overlaying clip.



To align a Sync mark with a User mark

1 CONTROL-drag the clip with the Sync mark onto the User mark.

2 When the User mark turns red, release the mouse button.

The Sync mark in the clip aligns with the User mark.

To trim from the Sync mark

1 In the Edit Suite, add a Sync mark.

2 Press F1 to place an In point in the timeline or F2 to place an Out point in the timeline.

To trim frames...	Do the following...
Before the Sync mark	CONTROL-drag the clip over the In point until the In point turns red. The Sync mark becomes the first frame of the clip.
After the Sync mark	CONTROL-drag the clip over the Out point until the Out point turns red. The Sync mark becomes the last frame of the clip.

To remove a Sync mark from a clip

1 Double-click the clip.

2 In the Edit Suite, drag the Sync mark up or down until a red **X** appears.

3 Release the mouse button.

The Sync mark disappears.

4 Click Apply.

To remove all marks from a clip

1 Select the clip.

2 Press OPTION and choose Tools>Remove User Marks from Clips.

▼ Selecting and Deselecting Clips

Most editing operations are performed on one or more selected clips. Some editing operations, such as trimming or dragging a single clip, automatically select the clip. Other operations, such as multiple clip edits and menu commands, require that you select the clips first. An underline appears beneath selected clips in the timeline.

Selecting Clips

This section explains how to select clips.

NOTE If the selected clip is synchronized with another clip, the associated synchronized clips are also selected.

To select a single clip

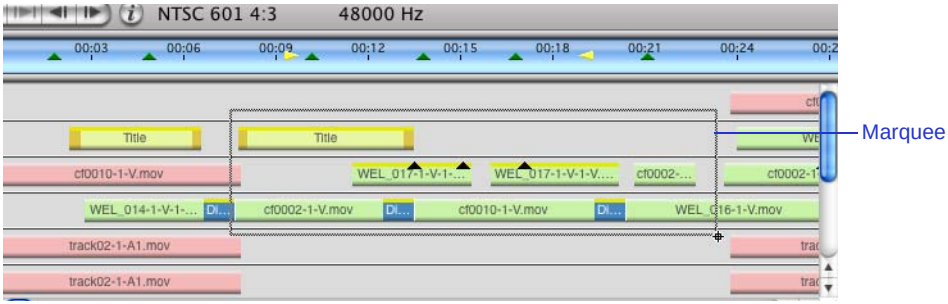
➤ Click the clip in the timeline.

The selected clip is underlined.

To select multiple clips

➤ OPTION-drag a rectangle over the clips to select.

The marquee selects all clips partially or wholly enclosed by the rectangle.



TIP Pressing the SHIFT key while selecting additional clips adds them to an existing selection.

Or

➤ Select a track and OPTION-drag the CTI in the Operations bar.

All the clips in the active track over which the CTI passes are selected.

Selecting All Clips

This section provides procedures on selecting all clips.

To select all the clips in a program

➤ Press ⌘-A or choose Edit>Select All.

All video, audio, and graphics clips in the program are selected.

To select all the clips after the CTI

➤ Press OPTION-⌘-H or press OPTION and choose Program>Select from Here.

This selects all clips in all tracks from the current CTI position to the end of the program. The original clip over which the CTI is located is not selected.



To select all clips in a time range

1 Create a time range over the clips to select.

2 Press OPTION and choose Program>Select in Range.

This selects all the clips contained entirely within the time range.



Selecting Clips in a Track

This section explains how to select clips within a selected track.

To select adjacent clips in a single track

1 Select a track.

2 OPTION-drag the CTI in the Operations bar.

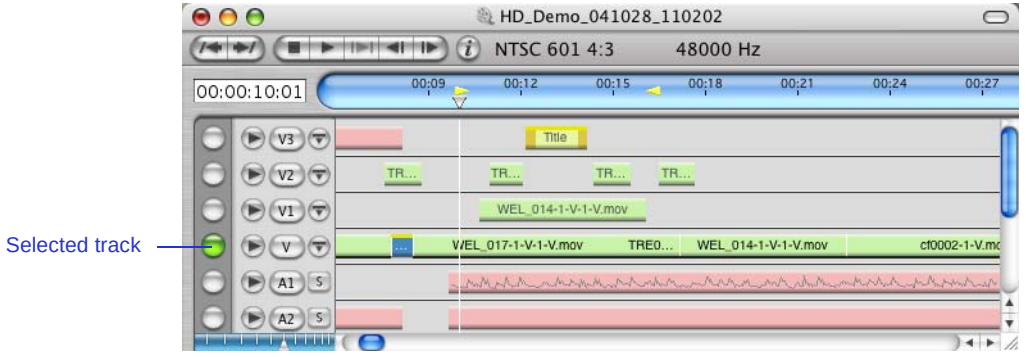
This selects all the clips in the track over which the CTI passes.

To select all the clips in a track

1 Select the track.

2 Press OPTION-⌘-A or press OPTION and choose Edit>Select All in Track.

This selects all clips in the active track, including synchronized clips.

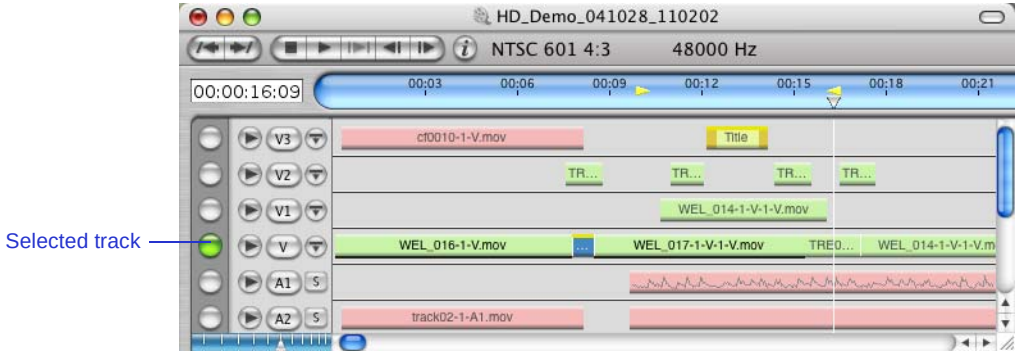


To select all the clips in a track before the CTI

1 Select the track.

2 Press CONTROL-OPTION-⌘-H or press CONTROL and choose Program>Select Before Here in Track.

This selects all clips between the current CTI position and the beginning of the track. The clip directly under the CTI is not selected.



To select all the clips in a track after the CTI

1 Select the track.

2 Press ⌘-OPTION-H or choose Program>Select from Here in Track.

All clips between the CTI and the end of the track are selected except the clip over which the CTI is placed.

To select all clips in a track within a designated time range

1 Select the track.

2 Create a time range over the clips to select.

3 Choose Program>Select in Range in Track.

All clips in the track that are entirely contained in the time range are selected. Clips outside the range are not selected.

Deselecting Clips

This section provides information on deselecting clips.

To deselect clips

➤ Choose one of the following:

To deselect...	Do this...
A single clip or all clips	Do one of the following: ■ Click an empty spot in the timeline. ■ Press SHIFT-⌘-A. ■ Press SHIFT and choose Edit>Deselect All. This deselects all selected clips.
One of multiple selected clips	SHIFT-click the clip to deselect. This deselects the clip and leaves the others selected.

▼ Editing Clips

You can overlay and insert a clip over existing clips in your program at the position of the CTI or at an In or Out point.

The application also lets you specify which media attributes, such as Clip marks or audio level, to replace or keep when overlaying clips.

NOTE The Edit Clip and Transition modes no longer require that you click Apply after making changes. Instead, once you leave a mode, the changes take effect.

Using Multiple Undo

The Undo and Redo commands let you undo changes, additions, and deletions that you make in the program timeline. Press ⌘-Z to Undo or OPTION-⌘-Z to Redo. Each action, whether Undo or Redo, is listed next to the task in the Edit menu.

Undo and Redo commands behave as follows when working with more than one Program window:

- If you execute commands in more than one open Program window, Undo/Redo logs each command as it is executed. Although all the Program window commands are stacked in the same queue, you can only undo/redo those commands issued in the active program.
- If you use all the available levels in the Undo/Redo queue, other Program windows have no Undo/Redo capability. If you continue to execute commands, the system uses the Undo/Redo levels previously occupied by other open Program window commands.
- The number of Undo levels may be fewer than what is set in the Preferences dialog box if the computer system does not have enough memory.

NOTE Set the number of Undo and Redo commands in the Preferences dialog box General panel. The default setting is 5.

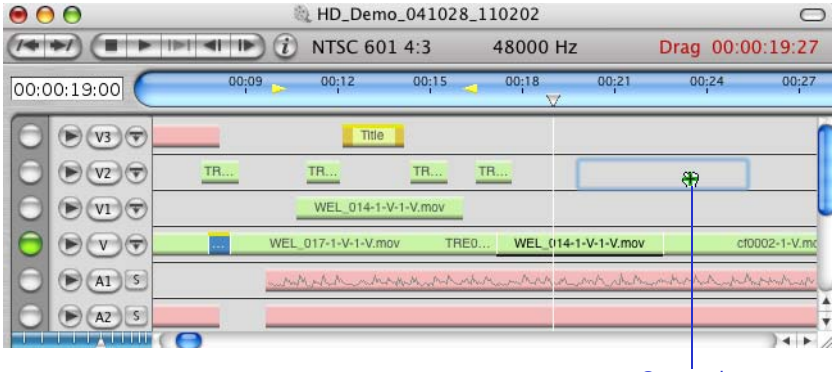
Copying Clips

Dragging a clip from the Edit Clip panel to the timeline makes a copy of the clip. The original clip stays in Edit Clip mode for further editing. Using ⌘-double-click in the bin or timeline makes a copy of a clip and loads the copy into the Source monitor.

To copy clips in the timeline

1. Select a clip on the timeline.
2. ⌘-drag the clip to a new location.

The green Copy pointer indicates the copy was successful.



To copy a clip by dragging

1 Double-click a clip into the Edit Suite.

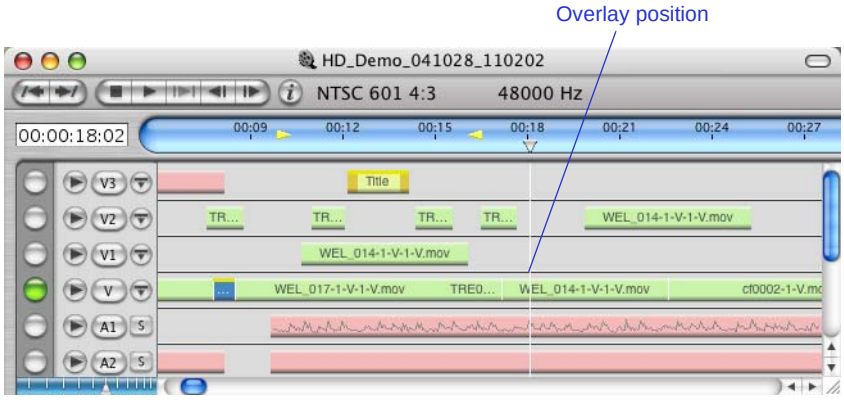
2 Press ⌘ and drag the clip from the Source Monitor into the timeline.

Overlaying Clips

When you overlay clips, the underlying video splits at the CTI position and overlays the clips to the right of the CTI.

To overlay clips using F12

3 Place the CTI at the overlay position within the timeline.



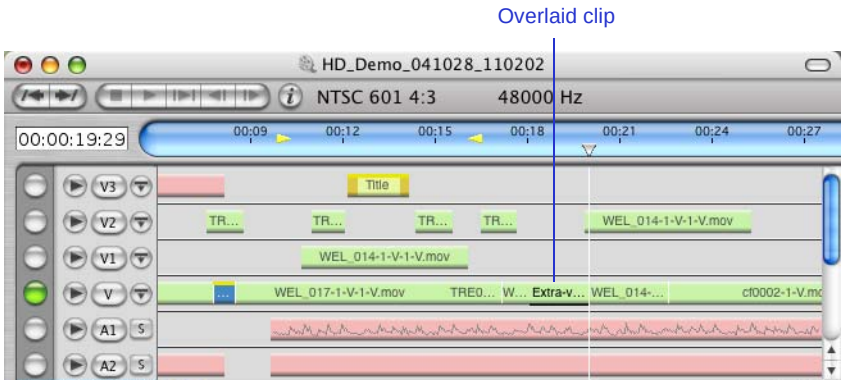
4 Choose one of the following:

To overlay...	Do the following...
Clip(s) from a bin or program	SHIFT-click to select the clip(s) to insert.
A clip from the Edit Suite	Double-click the clip to access the Edit Suite. Edit the clip as desired in the Edit Suite.

5 Press F12.

NOTE When using the F12 key to add, insert or overlay clips, the clips are always placed on the Master Video track.

The selected clip(s) overlay the existing clips to the right of the CTI. Edits applied to a clip in the Edit Suite are applied to the clip in the bin.



To overlay a clip by dragging

1 Drag a clip from the current program, a bin, or another program to the Operations bar.

The clip operations message reads “Overlay.”

2 At the desired point in the timeline ruler, release the mouse button.

Any existing clips in the program are overlaid for the duration of the new clip.

To overlay a clip using paste overlay

1 Select the clip to overlay from a bin or program.

2 Press ⌘-C or choose Edit>Copy.

3 Position the CTI at the frame where you want to paste the copied clip(s).

Press TAB to move the CTI to the juncture of two clips.

4 Press ⌘-V or choose Edit>Paste Overlay.

Inserting Clips

When you insert a clip into a program, all clips on the selected track after the insertion point ripple down the timeline to accommodate the new clip(s).

If you insert a clip over a clip in the timeline, the clip in the timeline splits at the insertion point. If you delete the inserted clip, the gap remains between the two parts of the split clip.

NOTE When you insert a clip into a program to the left of a rendered clip, the shifting of the clips to allow room for the new clip unrenders the rendered clip. An alert message appears.

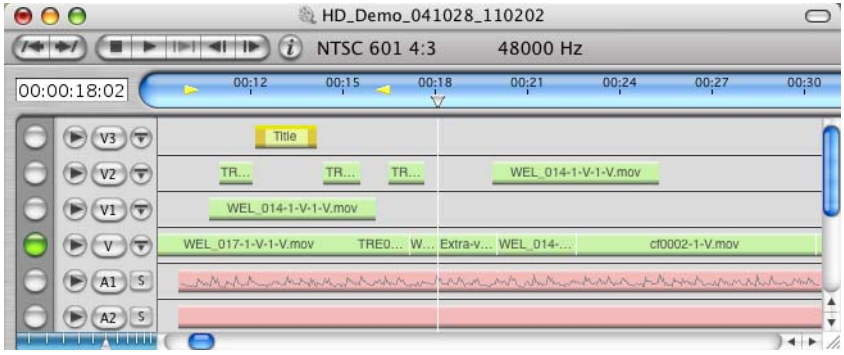
CAUTION

When inserting clips be aware you are only affecting the clip(s) and track on which you are working. Therefore, the clip(s) alignment to the other elements in the program will be altered.

NOTE When using the F12 key to add, insert or overlay clips, the clips are always placed on the Master Video track.

To insert a clip using OPTION-F12

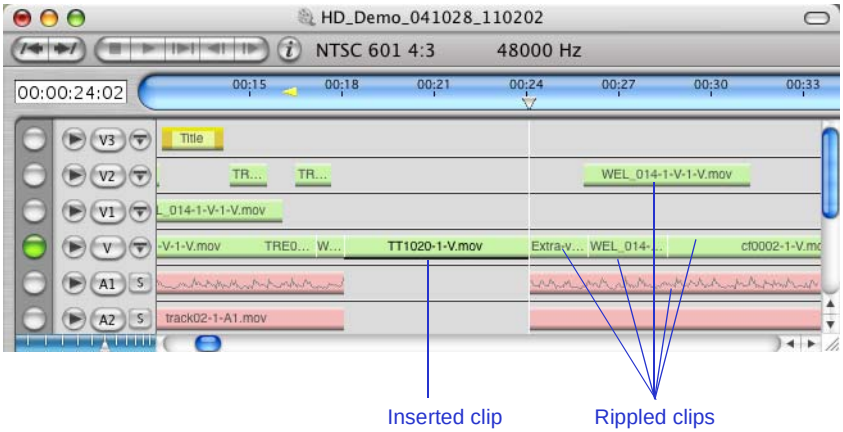
1 Position the CTI in the timeline where you want to insert the clip(s).



2 SHIFT-click the clip(s) in a bin, program, or Edit Suite, that you want to insert.

3 Press OPTION-F12.

All existing clips after the insertion point ripple to the right to accommodate the new clip(s).



To insert a clip at the In or Out points

1 Press F1 to create an In point or press F2 to create an Out point.

2 SHIFT-click the clips from a bin or the Edit Suite to insert into the timeline.

To insert a clip at the...	Press...
In point	OPTION-F11.
Out point	OPTION-CONTROL-F11.

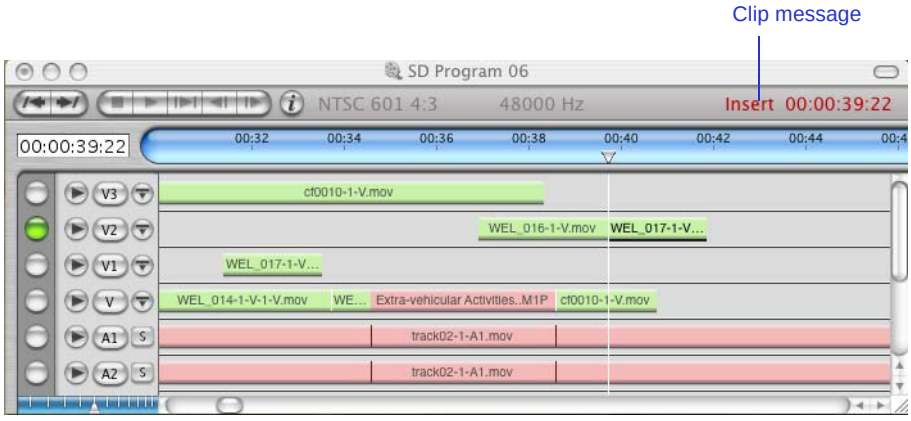
The selected clips are inserted at the In or Out point, and the clips to the right of the CTI ripple down the timeline.

NOTE When using the F11 key to insert clips, they are always placed on the Master Video track.

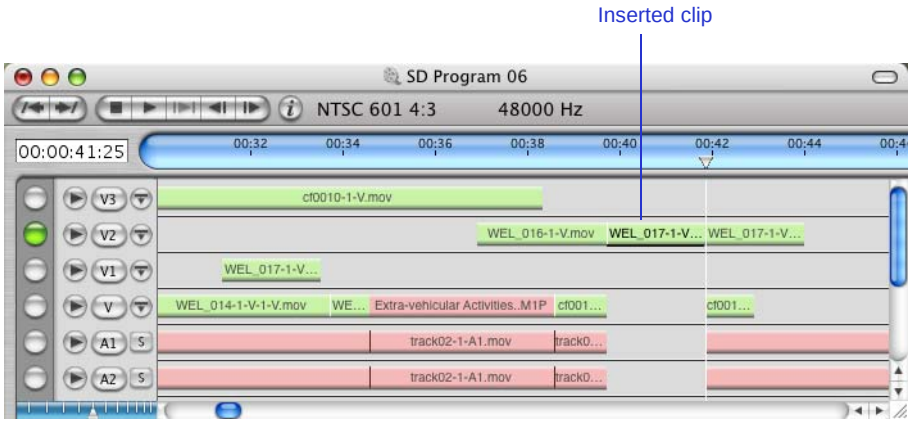
To insert a clip by dragging

1 OPTION-drag a clip from a program, bin, or the Edit Suite to the Operations bar.

The clip operations message in the timeline ruler reads “Insert.”



2 Drop the clip at the desired point in the timeline ruler.



To insert a clip using Paste-Insert

1 Select the clip(s) to add from a bin or program.

2 Press ⌘-C or choose Edit>Copy.

3 Position the CTI where you want to add the copied clip(s).

TIP Tab through the active track to place the CTI at the junction of two clips.

4 Press OPTION-⌘-V or press OPTION and choose Edit>Paste-Insert.

Trimming within a Time Range

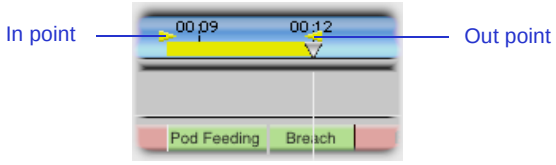
You can insert a clip to occupy a specific time interval. For example, you may need a clip to play for exactly 3 seconds before another clip begins. Do this by creating a time range using In and Out points. Trim the tail frames using F11, which drops the clip on the In point. Backtime the clip with CONTROL-F11, which drops the clip on the Out point.

To trim a clip within a time range

1 Press F1 to create an In point.

2 Press F2 to create an Out point.

A time range appears between the In and Out points.



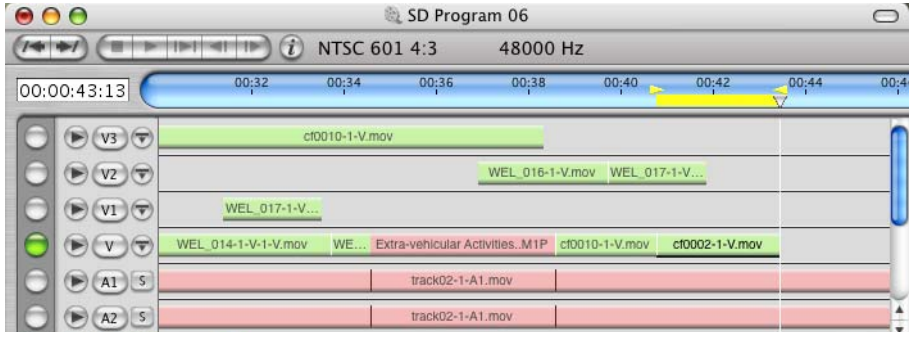
TIP Reposition the time range by pressing F1 and F2 while the program plays. Only one range is created at a time.

3 Press F3 or F4 to tab to the In or Out point, respectively.

4 SHIFT-click clip(s) in a bin, program, or the Edit Suite to select them.

5 Overlay the selected clip at the In or Out point as follows:

To overlay the clip at the...	Press...
In point	F11. The first frame of the clip overlays at the In point. The tail frames are automatically trimmed at the Out point. **NOTE** F11 is the default Mac OSX setting to display the desktop. To override this, turn off Expose in the Mac System Preferences.
Out point	CONTROL-F11. The last frame of the clip overlays at the Out point. The head frames are automatically trimmed at the In point, effectively “backtiming” the clips.

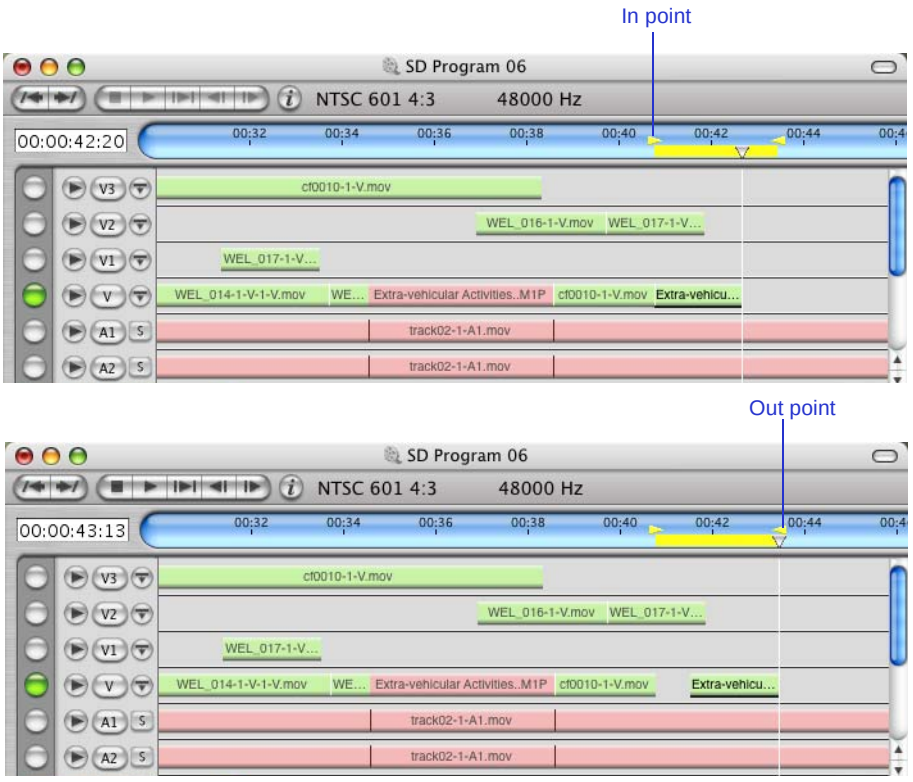


NOTE When using the F11 key to overlay or insert clips, they are always placed on the Master Video track.

To drag a clip to the In or Out point

1 Press F1 to set an In point and F2 to set an Out point.

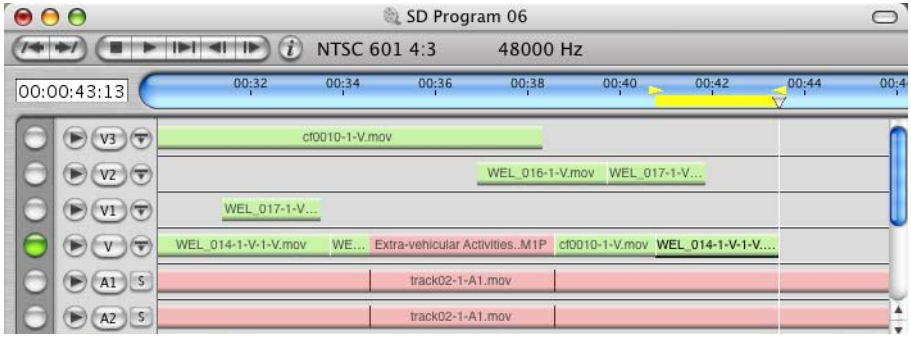
2 Drag a clip from a bin, program, or the Edit Suite over the In or Out point until the marker turns red.



3 Press OPTION to insert the clip and ripple the other clips to the right. Otherwise, the clip overlays the underlying clip.

4 Release the mouse button.

- If you place the clip over the In point, the clip In point aligns with the In point in the program. The end of the clip is trimmed from the end of the time range.
- If you place the clip over the Out point, the clip Out point aligns with the Out point in the program. The beginning of the clip is trimmed from the start of the time range.



Replacing Media

After applying effects to a clip in the timeline, you may want to

- Replace the clip but keep the effects
- Keep or replace just the video or just the audio portion of a clip
- Replace a black clip with video

NOTE Normal restrictions apply when replacing clips. You cannot mix audio sampling rates in a program. You can mix video standards or aspect ratios, using the Conform dialog box. You must also have sufficient media in the replacement clip to successfully complete the operation.

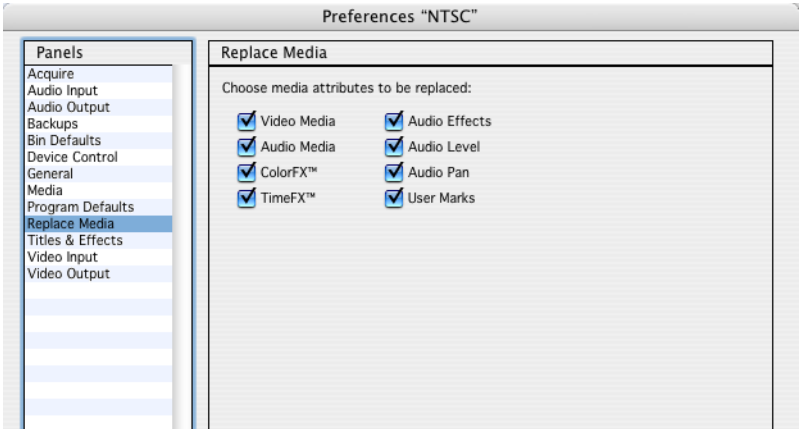
The replace media process functions in the following manner:

- Replacing rendered clips, non-real-time transitions, titles, audio EQ, or Time FX unrenders them.
- Replacing attributes like audio crossfades, and audio sampling rates is not supported, because the attributes apply to the timeline itself.

- Replacing a synced clip with a clip that has more audio tracks than are available on the timeline transfers only the audio assigned to the available tracks.
- Replacing a synced video and audio clip with a video-only clip replaces just the video portion of the clip. The original audio remains. The same is true when replacing a synced clip with an audio-only clip; only the audio is replaced.
- Replacing a clip that uses a different audio track than the current one places the new audio on the existing assigned track.

To replace clip attributes

1 Choose Media 100>Preferences>Replace Media.



2 Select the attributes to replace and click OK.

A selected check box specifies that the new media will replace the attribute.

3 Do one of the following:

To replace media...	Do the following...
Starting at the In point	⌘-drag the clip over the old clip.
Ending at the Out point	OPTION-⌘-drag the clip over the old clip.

To change attributes while replacing media

1 Press CONTROL while ⌘-dragging or OPTION-⌘-dragging the clip.

The Replace Media dialog box appears when you release the mouse button.



2 Select the attributes to replace and click OK.

▼ Editing Gaps

As you organize and arrange clips, you may want to delete, create, or fill gaps in the program. The following sections describe how to edit gaps using these methods:

- Remove gaps between clips
- Create gaps of a specific duration in the timeline
- Fill gaps between clips

Removing Gaps

When you create a program, spaces often occur between clips that you moved, deleted, or trimmed. You can remove spaces by closing

- A gap between two clips
- All gaps in a track
- All gaps from the CTI to the end of the program
- All gaps within a time range

This section describes each method.

To close a gap between two clips

1. Select the track.
2. Click the gap.
3. Press ⌘-G or choose Program>Close Gap in Track.

   The gap closes, and the two clips adjoin.

To close all gaps in a track

1. Select the track.
2. Press ⌘-K or choose Program>Remove All Gaps.

   The gaps close and all clips in the track adjoin one another.

To close all gaps in a track from the CTI to the end of the program

1. Place the CTI at the point where you want to start removing gaps.
2. Select the track.
3. Press ⌘-J or choose Program>Remove Gaps to End.

   All gaps in the track close from the specified point to the end of the program.

To close all gaps within a time range

1. Create a time range in the Operations bar.
2. Select the track.
3. Press ⌘-R or choose Program>Remove Gaps In Range.

   All gaps close within the time range in the selected track.

Creating Gaps

Create gaps between existing clips in your program as described next.

To create a gap

1. Select the track in which to create a gap.
2. Position the CTI where you want to create the gap.
3. Press ⌘-H or choose Program>Select from Here in Track.

   All clips in the track between the current CTI position and the end of the program are selected. The clip over which the CTI is placed is not selected.

   If you have multiple tracks of content you wish to move to create a gap, select the first track's content, click the track selection button for the next track. Press SHIFT and choose Program>Select from here in Track. The selected track's content will be added to the already selected content.

   SHIFT-click any additional individual clips to select them.
4. Drag the selected clips to the right to create a gap of the desired size.

   Synchronized clips associated with the dragged clips move as well.

Filling Gaps

This section describes how to insert a clip to fill a gap in a program. The inserted clip can start from its original In point, or end at its original Out point.

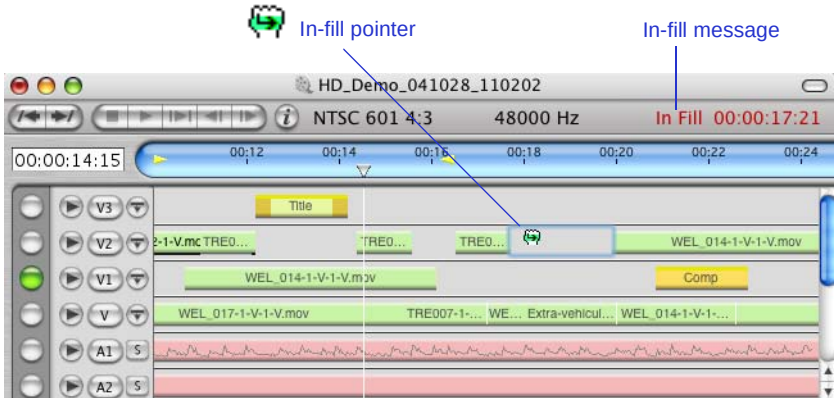
Filling a Gap in a Single Track

You can fill a gap in a single video or audio track with a clip. The clip to be inserted must be longer than the gap in the program track. The following instructions explain how to in fill or out fill a gap.

To fill a gap so the clip starts at the clip In point

1 Select a clip from a bin, program, or the Edit Suite.

2 Drag the clip to the gap in the track until the pointer becomes an in-fill pointer, and the message in the Operations bar reads “In Fill.”



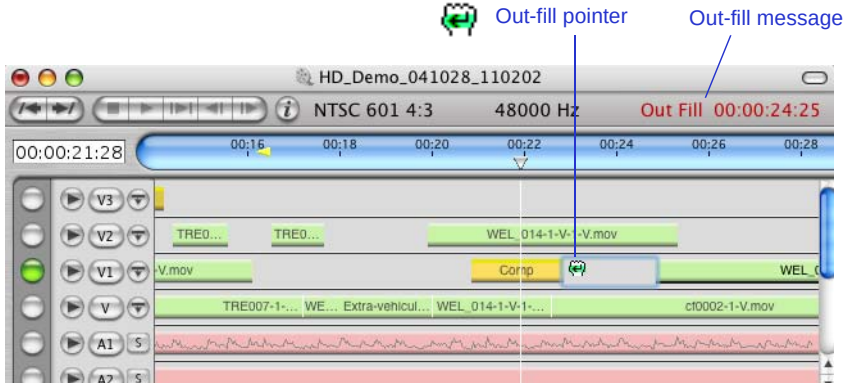
The arrow on the in-fill pointer points to the right, showing that the gap is filled from left to right, starting with the clip In point. Extra frames are trimmed from the end of the clip.

3 Release the mouse button to drop the clip in the gap.

To fill a gap so the clip ends at the clip Out point

1 Select a clip.

2 OPTION-drag the clip to the gap until the pointer changes to the out-fill pointer.



The arrow on the Out Fill pointer points to the left to indicate that the gap is filled from right to left, ending with the Out point of the clip. Extra frames are trimmed from the beginning of the clip.

3 Release the mouse button to drop the clip in the gap.

Filling Gaps Between Synced Clips

You can drag synced video and audio clips to fill overlapping gaps in multiple tracks in the timeline. Each synced clip must be longer than the gaps in the corresponding tracks.

For synced clips to successfully in fill or out fill an overlapped gap in multiple tracks, the following conditions must exist:

- A gap exists in each track that corresponds to the synced clips

  For example, if the synced clip includes a video clip and an audio clip on track **A1**, there must be a gap between two video clips and between two audio clips on the **A1** track.

- The gaps partially overlap one another
- Each of the synced clips is longer than the corresponding gap

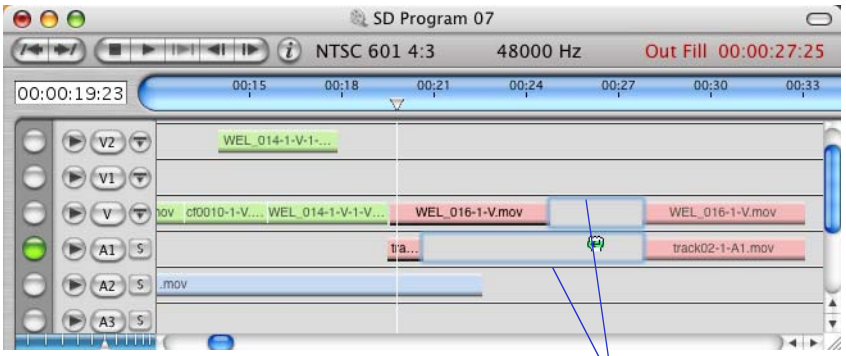
To fill a gap with a synced clip

1 Select a clip from a bin, program, or the Edit Suite.

2 Choose a gap that corresponds to the synced clip.

3 Use one of the following methods to fill the gap:

- Drag the synced clip to the gap until the pointer changes to an in-fill pointer.
- OPTION-drag the synced clip to the gap until the pointer changes to an out-fill pointer.



▼ Arranging Clips

Arrange and manipulate clips within a program using keyboard shortcuts or drag-and-drop techniques. Menu commands provide additional operations for you to use.

Arrange clips in a program in any of the following ways:

- Cut and paste clips to new locations
- Drag clips within their tracks
- Drag clips between video tracks
- Drag synchronized clips
- Split clips and rearrange them

- Combine clips
- Share clips with other applications

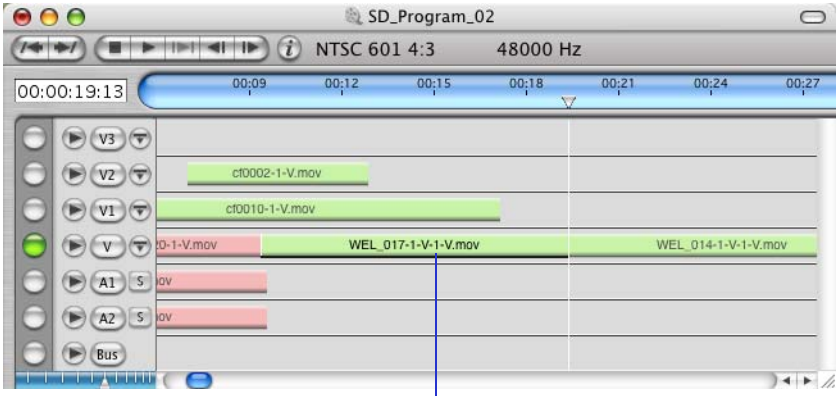
Moving Clips

To move clips, you can

- Cut and paste
- Drag to a new location
- Use motion keys

To cut and paste clips to a different location in the timeline

1 Select the clip to move.



2 Use one of the following operations:

Do the following...	To cut the clip and...
Press ⌘-X or choose Edit>Cut-Remove	Leave a gap.
Press OPTION-⌘-X or choose Edit>Cut-Delete	Move all clips after the cut to the left to close the gap.

3 Click the Track Selection button to select the track where you want the clip.

4 Click the timeline ruler to move the CTI to the point where you want the clip.

5 Press ⌘-V or choose Edit>Paste-Overlay.

The clip appears at the new location with its In point at the insertion point. If the insertion point is over another clip, the pasted clip overlays the underlying clip. If the underlying clip is longer than the pasted clip, it creates a cut transition.



To move clips to a different location in the timeline

➤ Drag the clips to the new location and release the mouse button.

The can-drop pointer appears as the clips are dragged. In addition, the message “Drag” and the current timecode appear in the Operations bar. If the cannot-drop pointer appears, the location is not valid. Select another location.

As you drag clips near to the left or right edge of the timeline, the Program window automatically scrolls.

To move clips using navigation keys

➤ Select a clip, hold down the mouse button, and press the following keys on the numeric keypad:

Press...	To move the clip...
PLUS SIGN (+)	One frame to the right.
MINUS SIGN (–)	One frame to the left.
ASTERISK (*)	Five frames to the right.
SLASH (/)	Five frames to the left.

Moving Clips on the Master Video Track

In addition to moving clips through cut/copy/paste and dragging, when working on the expanded Master Video track, you can add video clips to the **A** and **B** tracks.



When a clip in track **A** overlaps a clip in track **B** (or the reverse), the overlap creates an automatic cut transition between the two clips. The arrow across the **FX** track marks the location and direction of the cut.

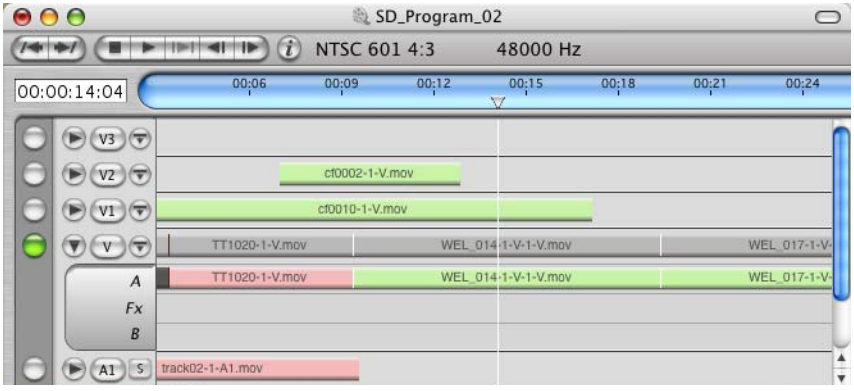
The application provides two commands that allow you to quickly set up video clips with transition cut points in the appropriate **A** or **B** (video) track.

- Swap a/b — Moves the selected clip and all clips following it to the opposite **A** or **B** video track, preserving transition effects.
- Stagger a/b Selected — Moves the selected clip to the opposite **A** or **B** track or staggers a range of clips between the **A** and **B** video tracks, removing transition effects.

The following procedures explain how to use the Swap and Stagger commands.

To use Swap a/b

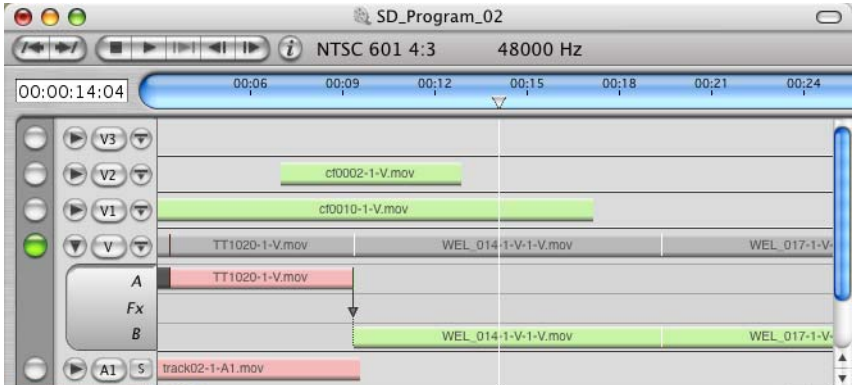
1 Place the CTI over the video clip to swap.



2 Choose Track>Swap a/b.

The video clip at the CTI and all clips following it in the program move to the opposite video track.

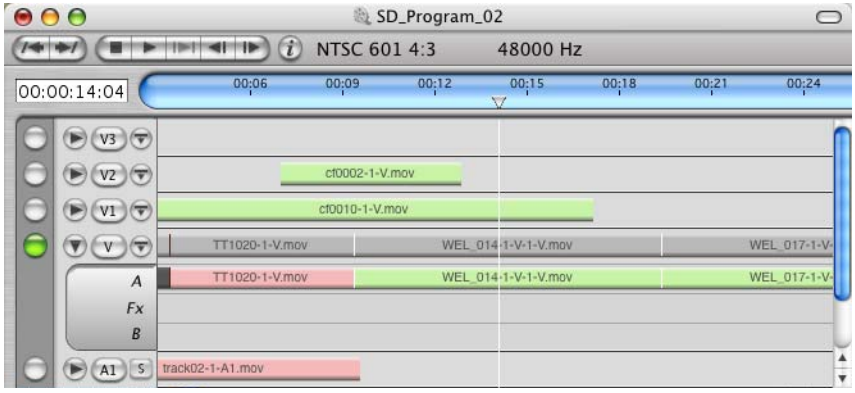
Existing transition effects are preserved.



To use Stagger a/b Selected

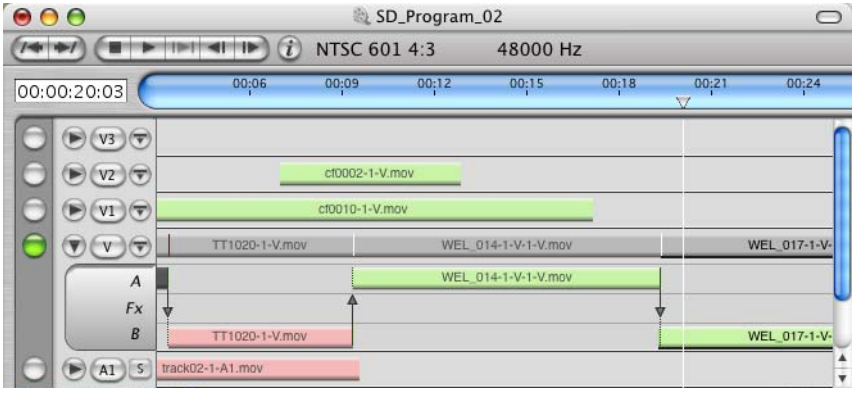
1 Choose one of the following options:

To...	Do the following...
Stagger a single video clip	Select the clip.
Stagger a range of video clips	Shift-click the first and last video clips to create a range of clips to stagger.



2 Choose Track>Stagger a/b Selected, which will remove existing transition effects.

- A single selected clip moves to the opposite track. All other clips remain in their respective video tracks.
- All clips between the first and last selected video clips are staggered between the **A** and **B** video tracks.



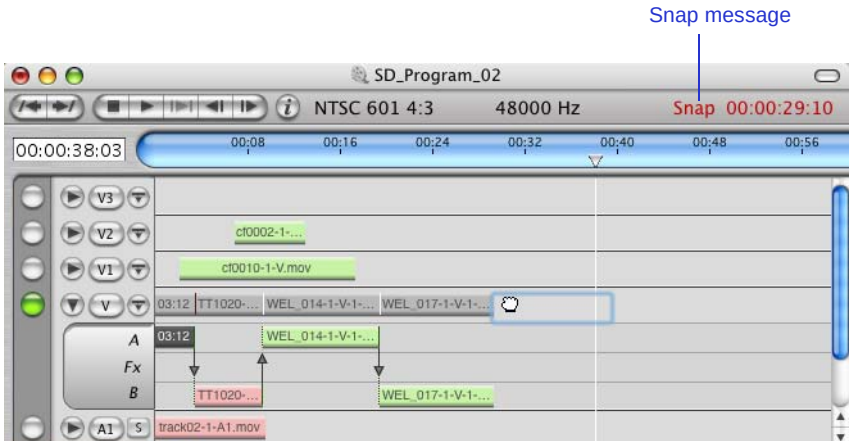
Snap Mode

Snap mode abuts the In and Out points of video clips when the clips are in opposite tracks (one clip is in the **A** track, and the other is in **B**).

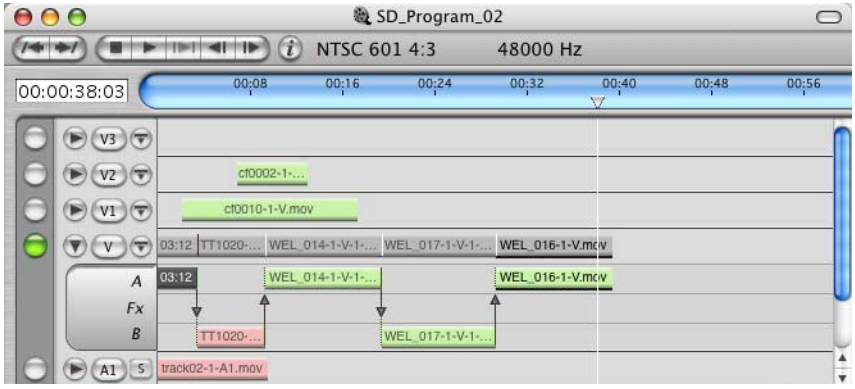
To enable snap mode

➤ Press SHIFT-⌘-1 or choose Tools>Snap To Other Clips.

When you drag a clip near an existing clip, the Operations bar reads Snap.



When you release the mouse, the clip abuts the adjoining clip.



Using Synced Clips

Treat synchronized (synced) clips as any other clip. You can

- Unsync them
- Resync them to other clips
- Move them to a different track
- Delete one of the synced clips

Syncing and Unsyncing Clips

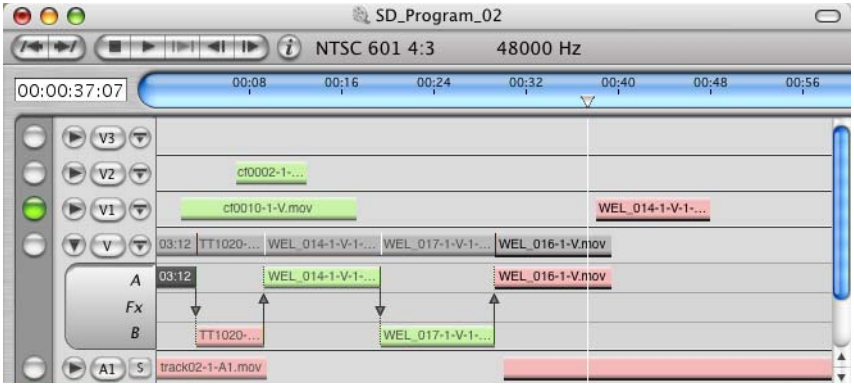
You can manually sync clips. For example, if you position an audio clip in your program to play with a video clip, you can sync the two clips to ensure that they always play together.

To sync clips

1 Select clips in different tracks.

2 Press ⌘-Y or choose Program>Sync Clips.

The synced clips turn pink.



You can also unsync clips so you can edit them individually. For example, you may want to trim back the start of one of the clips and replace it with a different clip.

To unsync clips

1 Select a synced clip.

2 Press ⌘-U or choose Program>Unsync Clips.

The clips are unsynced and can be adjusted or moved separately.

NOTE Click the timeline to deselect the clips. Then click the unsynced clip to edit.

To resync the clips

1 SHIFT-click the clips to select them.

2 Press ⌘-Y or choose Program>Sync Clips to resync the clips.

3 Drag the resynced clip to the bin.

The bin will contain both the original and the new clip.

4 Double-click the Clip Name field and type a name for the new clip.

Moving and Removing Audio Clips

You can move synced audio clips to a different track while maintaining their relationship. You can also move stereo audio clips to another track.

To move a synced audio clip to a different audio track

1 Select the synchronized clip.

2 CONTROL-drag the audio clip to another audio track.

The pointer changes from cannot-drop to can-drop when you place the clip over a valid audio track.

3 Release the mouse button.

The audio clip appears in the new track.

Move a stereo audio clip to different audio tracks using the copy and paste functions as described next.

To copy unsynced stereo audio clips to different tracks

1. Select the stereo audio clip.
2. Press ⌘-C or choose Edit>Copy to copy the clip.
3. Click the audio track into which you want to paste the clip.

   The track indicator turns green.

TIP Unless you want to insert or overlay the existing clip, place the CTI at the end of the existing clip.

4. Paste the clip using one of the following methods.
   - Press ⌘-OPTION and drag the clip.
   - Press SHIFT and choose Edit>Paste.

   The audio clip appears in the new track.

To remove audio from a synced clip

1. Click the synced clip in the timeline to select it.
2. Press ⌘-U or choose Program>Unsync Clips.

   The audio clip(s) turns blue.
3. Click an empty area of the timeline to deselect the clips.
4. Click the audio clip to remove and press ⌘-X, or choose Edit>Cut Remove.

   The original synced clip in the bin remains unchanged.

Unsyncing Video Clips

Acquiring video with audio media creates clips with video and audio synced together. Editing in the timeline sometimes requires unsyncing the clips. When you use the Unsync Clips command, all the clips linked together are unlinked. Often, leaving the audio clips linked together while unsyncing only the video is useful. Use the Unsync Video Only command to unsync the video clip.

To access the Unsync Video Only command

➤ Press OPTION-⌘-U or choose Program>Unsync Video Only.

Splitting Clips

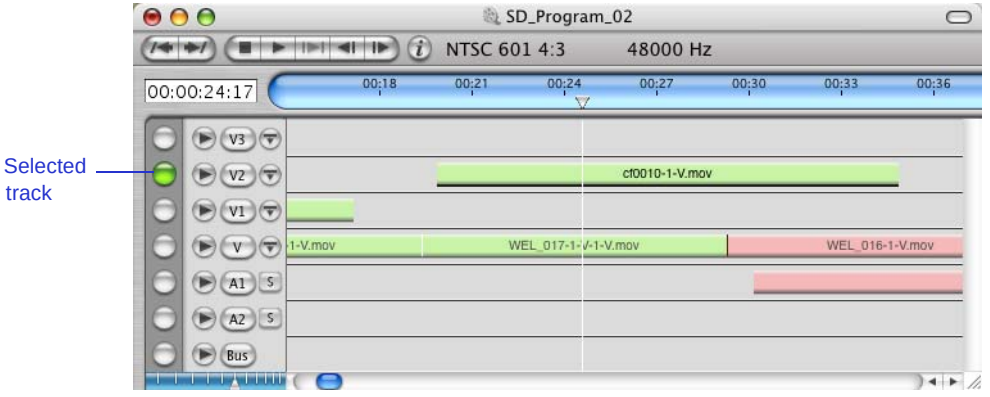
You can split any clip in your program into separate clips that you can then arrange independently. You can also split all clips located at the CTI.

TIP Use the split clip feature to quickly trim excess media.

To split a single clip

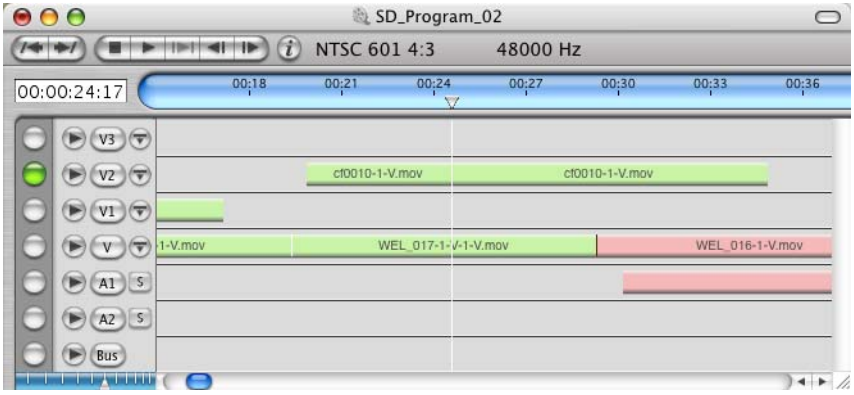
1 Select a track.

2 Drag the CTI to the frame where you want the split to occur.



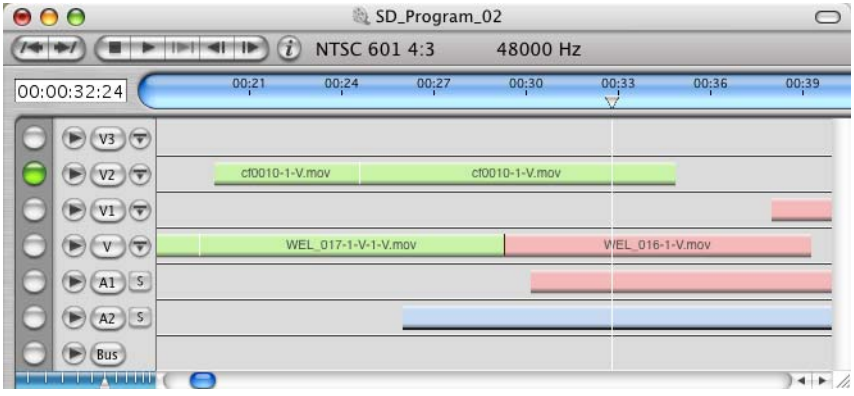
3 Press ⌘-SLASH (/) or choose Program>Split Clip.

The clip in the selected track splits at the CTI. Both clips have the same name.



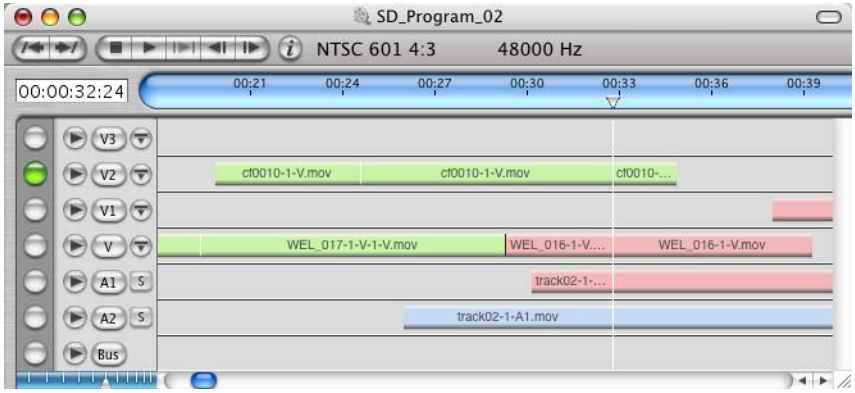
To split multiple clips

1 Drag the CTI to the frame where you want the split to occur.



2 Press OPTION-⌘-SLASH (/) or press OPTION and choose Program>Split Clips.

All clips split at the CTI.



NOTE If the audio clip that you split has audio EQ applied, each audio clip retains the EQ and remains rendered.

Creating Compound Clips

A compound clip is a series of clips that were dragged or copied from a program to a bin and saved as a single clip. Use compound clips for repetitive introductory or closing segments that require the same clip combination. Creating compound clips saves you the effort of assembling the clips repeatedly.

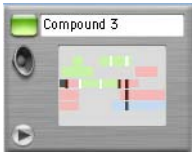
NOTE Creating Compound clips does not create any new media files, rather it generates pointers to the original media files, thus saving drive space. Therefore, use caution when choosing to delete compound clips. If you choose to Delete Clip and Media know that it will be deleting the original source media files to which the Compound clip points. In most instances you will only want to choose Delete Clip to remove the Compound clip yet retain all of the original media files that comprised the Compound clip.

To create a compound clip

1 Select two or more clips in the timeline.

2 Drag the clips from the timeline to a bin.

Media 100 creates the compound clip and assigns the name “Compound x.” For each subsequent compound clip you create, the system increments the number in the title. A representation of the clip appears in poster view. Rename the clip as you would other clip(s).



TIP To copy multiple clips from a program to a bin as individual clips, OPTION-drag the selected clips from the timeline to the bin.

Creating Composition Clips

Media 100 lets you create composition clips. A composition clip lets you share acquired media between Media 100 and tools like Title Suite, Effect Suite, or Composite Suite.

Working together, Media 100 and Title Suite, Effect Suite, or Composite Suite tools let you add a wide range of visual effects to your program. For example, create a composition clip in Media 100. Add media, effects, and animation in Title Suite, Effect Suite, or Composite Suite. Then add real-time transitions to lead into and out of the composition clip in Media 100.

This section provides procedures for creating composition clips and accessing the tools directly from Media 100. See the relevant documentation for details about features and functions available in the Title Suite, Effect Suite, or Composite Suite tools.

To create a composition clip

➤ Select a Video track and press OPTION-⌘-drag.

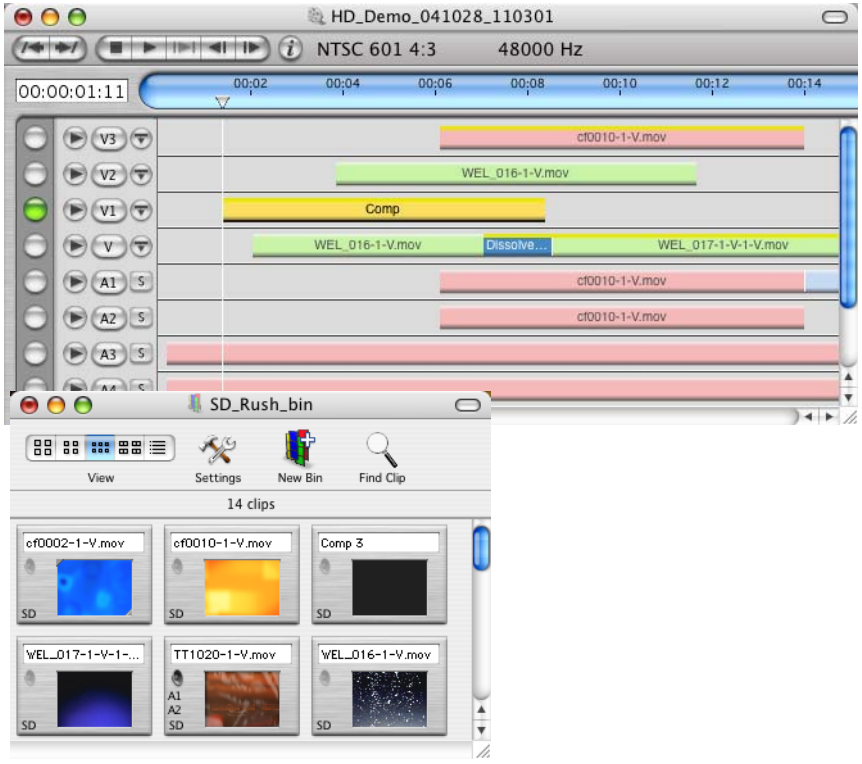
Or

1 Select one of the following options:

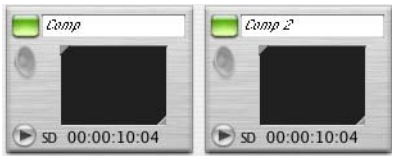
To create a composition clip...	Do the following...
In a bin	Click the bin where you want to create the clip.
In a program	Select a video track and position the CTI over an empty area of the program.

2 Press SHIFT-⌘-C or choose Tools>New Composition.

The new composition clip appears in the active bin or program.



When you create a composition clip, Media 100 assigns the default name "Comp," and adds an incrementing number to the title for each subsequent clip you create. Rename the clip as you would rename other clips. Clip names appear in italics until rendered.



NOTE For information about working with composition clips and accessing the tools to add effects and media, see "Working with Composition Clips" in the "Creating Video Effects" chapter.

▼ Rendering Clips

Programs can include a variety of effects, from keys, motion alphas, and titles to audio equalization. The Media 100 product determines how and when certain effects are played.

To see the effects when you play a program, some effects require rendering and some play back as full frame real-time.

The determing factors for real-time playback are based on

- The video standard of the clip
- The type of clip
- The effects applied
- The host computer

▼ Vertical Render Up

When working in a program timeline, you can preview all the video clips, titles or graphics with alpha channel in one of two modes:

- Press SHIFT and choose Tools>Vertical Render Now or press SHIFT-⌘-* to view one frame at the CTI.
- Choose Tools>Vertical Render Mode or press ⌘-* to view clips while scrubbing, with a one- or two-second delay.

The vertical render capability is a temporary preview and does not create stored media.

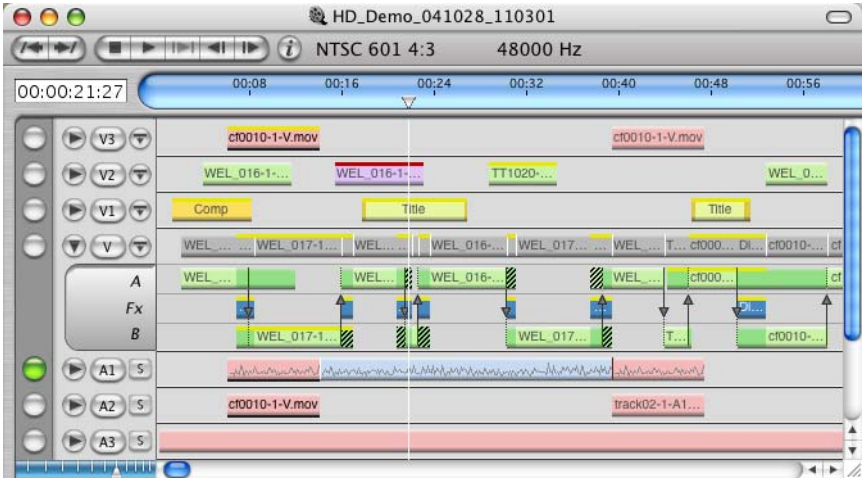
The Vertical Render Now command is useful with static titles or to preview one frame of the titles. The Vertical Render Mode works well with moving titles or to preview the entire effect before rendering.

NOTE You cannot preview objects created using the Motion Path editor. These must be previewed within the Motion Path Editor itself.

To use the Vertical Render Now tool

1. Create and edit video clips, titles and graphics on the tracks.
2. Overlap any number of clips as required.

3 Move the CTI to a location to preview.



4 Press SHIFT and choose Tools>Vertical Render Now.

Almost instantaneously, the elements appear in the Record Monitor.



To use the Vertical Render Mode

1 Create and edit video clips, titles and graphics.

2 Overlap the clips.

3 Choose Tools> Vertical Render Mode.

4 Scrub the CTI slowly through the clips.

5 The visible clips appear in the Record Monitor.

This command is useful for Title Suite-created animated titles. As you scrub the CTI, the titles move. There is a one- or two-second delay as you scrub.

▼ Deleting Clips

This section describes how to remove clips from a program while retaining or deleting the associated source media file.

Retaining the Media

You can remove a clip without losing the associated source media while closing or leaving a gap.

To remove a clip

1 Select a clip.

2 Use one of the following methods.

To remove a clip and...	Do one the following...
Leave a gap	Press DELETE. Press ⌘-X. Choose Edit>Cut-Remove.
Close the gap	Press OPTION-DELETE.

Deleting the Media

You can remove clips from a program and delete the associated media. Use the Delete Clip and Media command to delete the clip and its media source file. This lets you recover disk space by removing the media for clips that you no longer need.

In the Media panel (Media 100>Preferences>Media), specify whether to place deleted media in the Trash or remove it from your system. The default setting places media in the Trash, allowing you to recover a file.

CAUTION

If you change the Preferences from the default setting and choose not to place deleted media in the Trash, exercise extreme caution when using the Delete Clip and Media command. Once you delete the source media file for a clip, you cannot recover it. Use caution when deleting media that may be shared among projects.

To delete a clip and its media

1. Select the clip from a bin or program.
2. Choose Edit>Delete Clip and Media.

   Media 100 prompts you with an alert.
3. Click Delete to delete the clip and media.

CAUTION

If you choose to Delete Clip and Media on a compound clip it will delete the compound clip along with the original source media for all clips that make up the compound clip.

Use the following procedure to delete the media associated with a clip and retain the clip as a placeholder in your program. The system preserves the clip trim points in the bin and in the program. This frees disk space before reacquiring source material.

To delete media while retaining a clip

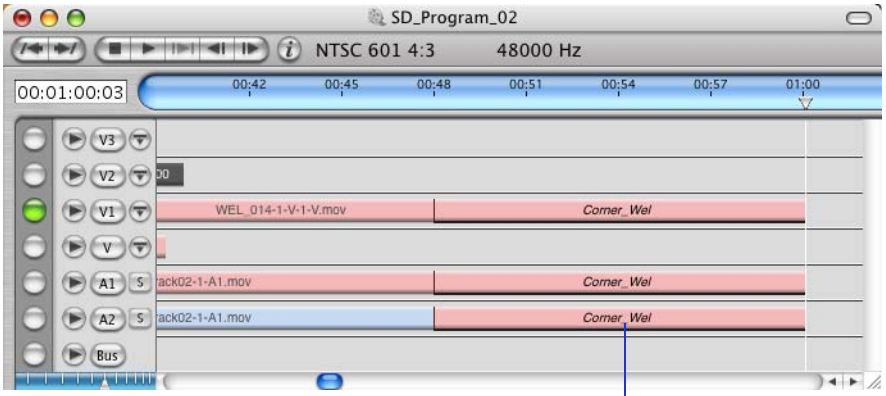
1 Select the clip(s) from a bin.

2 Press OPTION and choose Edit>Delete Media.

The application alerts you that deleting the media cannot be undone.

3 Click Delete to delete the media.

The clip name becomes italicized in the program and bin to indicate that the associated media is not available.



10

Trimming Clips

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▼ Introduction

Trimming a clip is the process of adjusting clip In and Out points. You can trim clips in bins or programs.

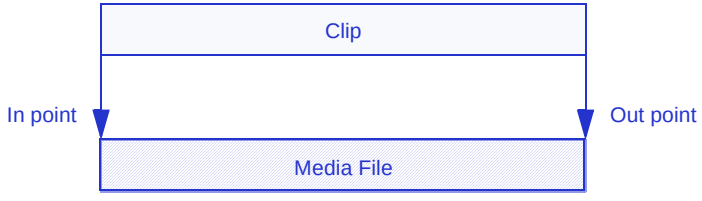
To understand the process of trimming clips in the Media 100 system, it is helpful to understand the relationship between clips and media files. A *media file* consists of frame-oriented video and audio material created when you acquire. A *clip* points to its related media file.

This chapter describes how to trim clips as follows:

- Using the Edit Clip panel in the Edit Suite
- Drag-trimming clips in the program
- Using Slip and Slide modes
- Using the Trim Mode panel in the Edit Suite

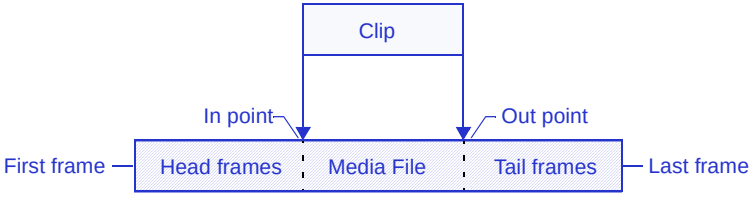
▼ About Trimming Clips

A clip includes pointers that define the beginning frame (In point) and the ending frame (Out point). As you trim a clip, you adjust the positions of these pointers. When the In point or Out point is positioned at its respective end of the media file, you can trim the clip, but you cannot extend the clip beyond the first or last frame.



Untrimmed Clip

By changing In and Out points, you trim the clip. You do not delete source material; the associated media is still available in the source file.



Trimmed Clip

The Media 100 system provides four modes for trimming clips:

- Edit Clip
- Program
- Slip and Slide
- Trim

Each mode is described in the following sections.

▼ Trimming in Edit Clip Mode

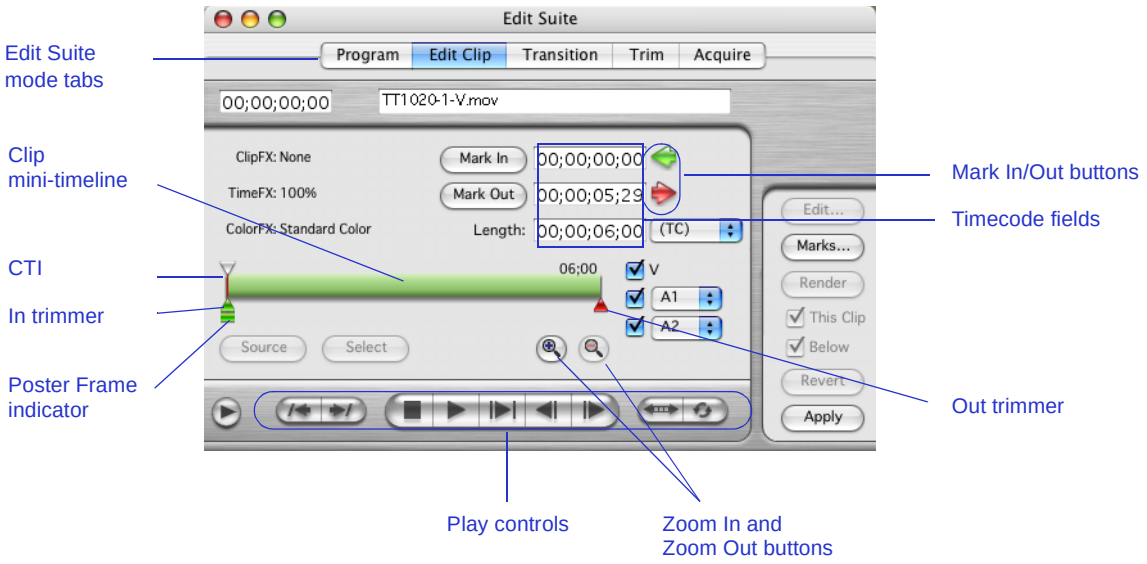
Edit Clip mode provides controls for trimming clips that you select from a bin or a program. In Edit Clip mode, you can trim clips manually while viewing or listening to them, or trim them by editing timecode fields.

TIP To hear audio while trimming engage the Scan Audio Tool. (Tools>Scan Audio).

To access Edit Clip mode

➤ Double-click a clip in a bin or program.

The Edit Suite opens with the Edit Clip panel in the forefront.



The following table describes Edit Clip panel elements.

Edit Clip Panel Elements

Name	Description
Edit Suite mode tab	Determine the function (mode) of the Edit Suite.
Clip mini-timeline	Displays the entire source media clip or that portion of the clip selected by positioning the In/Out trimmers.
CTI	Indicates the frame currently displayed in the Source Monitor window.
In trimmer	Sets the In point for selected clip.
Poster Frame indicator	Points to the frame currently referenced as the Poster that appears in the bin. It can be any frame in the source media.
Source button	Changes the view of a trimmed clip in the clip mini-timeline to show the full length of the clip plus the trim points.
Select button	Changes the view of a trimmed clip in the clip mini-timeline to show only the trimmed clip.
Marks button	Opens the clip EventStream window. See Appendix B, “Creating Streaming Media” for information.
In and Out Mark buttons	Move the CTI to the In point (green) or Out point (red) of the clip.
Timecode fields	Let you type specific timecodes to set the In and Out points and duration of a clip. The timecode fields are updated as you change the position of the In and Out trimmers.
Out trimmer	Sets the Out point for selected clip.
Play controls	Let you preview a trimmed clip before applying the changes.
Zoom In and Out buttons	Let you focus in or out on the current position of the CTI. Zoom In halves the duration of the timeline; Zoom Out doubles the duration.
Mark In and Mark Out buttons	Set the In point or Out point of a clip.

Edit Clip Panel Elements *(Continued)*

Name	Description
Edit button	Lets you edit a Boris composition clip.
Marks button	Opens the clip EventStream window. See Appendix B, “Creating Streaming Media” for information.
Render button	Renders the title clip. The following options are available: **This clip**. Enable this check box to render only the current clip. **Below**. Enable this check box to render all clips below the current clip in the timeline. The current clip and clips that appear above the current clip are not rendered.
Revert button	Changes the trim settings back to the original points.
Apply button	Accepts changes made to the clip and applies them.

Trimming Clips Manually

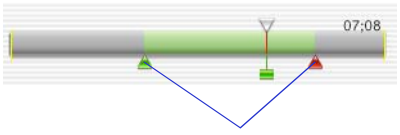
This section describes how to trim a clip in Edit Clip mode. As you make changes, the In, Out, and Length timecode fields change automatically. The timeline representation and associated trim indicators and CTI change as well.

To trim a clip in Edit Clip mode

1 Double-click a clip in the bin or program.

The Edit Suite opens to the Edit Clip panel.

2 Drag the In and Out trimmers in the clip mini-timeline to adjust the In and Out points as you view the clip.



In and Out trimmers

3 Display the clip as follows:

Click...	To view...
Source	The entire trimmed clip with trim points.
Select	Only the trimmed portion of the clip.

As you click between Source and Select, the clip length changes.

4 Click Play Selected to preview the trim adjustments before applying a change to a clip; click Loop then Play Selected to preview the clip repeatedly.

5 Click Apply to trim the clip in the bin or program.

To trim on-the-fly while a clip is playing

1 Double-click a clip in the bin or in the program.

The Edit Suite opens to the Edit Clip panel.

2 Click Play.

3 Press F1 when the appropriate In point appears.

4 Press F2 when the appropriate Out point appears.

5 Click Play Selected to preview the trim adjustments before applying a change to a clip; click Loop then Play Selected to preview the clip repeatedly.

6 Click Apply to trim the clip in the bin or program.

To trim using the Jog/Shuttle control

1 Double-click a clip in the bin or program.

The Edit Suite opens to the Edit Clip panel.

2 Drag the Jog/Shuttle control to the desired In point and click Mark In.



3 Drag the Jog/Shuttle to the desired Out point and click Mark Out.

4 Click Play Selected to preview the trim adjustments before applying a change to a clip; click Loop then Play Selected to preview the clip repeatedly.

5 Click Apply to trim the clip in the bin or program.

Creating a Copy of a Trimmed Clip

After trimming a clip, instead of replacing the original clip, you can create a copy of the clip with the new In and Out points.

To create a new clip without overwriting the previous clip

➤ Drag the clip from the Source Monitor window to the timeline or bin. Do not click Apply.

Undoing a Trim

You can revert the In and Out points of a clip before you apply the trim, or you can undo trims that you have applied.

To revert the In and Out points of an unapplied trim

➤ Click Revert in the Edit Suite to return to the original In and Out points.

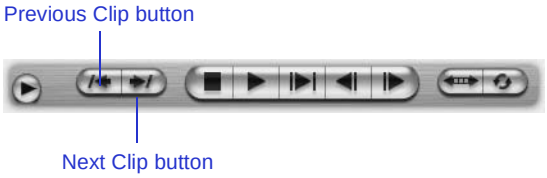
To undo/redo an applied trim

➤ Select the trimmed clip in the timeline and do one of the following:

- Press ⌘-Z or choose Edit>Undo.
- Press OPTION-⌘-Z or choose Edit>Redo.

Moving to the Next or Previous Clip

You can move through clips in your bin or through trim points in your program without exiting the Edit Clip panel. The Next Clip and Previous Clip buttons move the CTI forward or backward to the next appropriate clip.



To move through clips in a program or bin

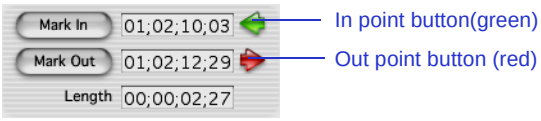
➤ Move through clips as follows:

Click the...	To move to the...
Next Clip button	Next trim point in a program, or next clip in a bin.
Previous Clip button	Previous trim point in a program, or previous clip in a bin.

The CTI moves to the corresponding trim point in the timeline, and the Record Monitor window shows the new clip.

Locating In or Out Points

The Edit Suite provides arrow buttons that let you find In or Out points.



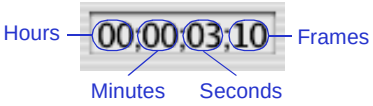
To move to the In or Out points

➤ Move to the In or Out point as follows:

Click the...	To go to the...
Green arrow (or press F3)	In point.
Red arrow (or press F4)	Out point.

Trimming Clips Using Timecode Editing

Trim clips by editing the In, Out, and Length timecode fields. Each timecode field is divided into four time registers: hours, minutes, seconds, and frames. Alter the value in any part of a timecode field (for example, the minutes) or change the entire timecode field.



TIP If you know the desired clip length, you can edit the In and Length timecodes rather than the In and Out timecodes. Changing the length automatically moves the Out point.

Edit timecode fields by dragging one timecode field over another. Cut, copy, paste, or clear timecodes by selecting a timecode field using the Edit commands or keyboard shortcuts.

To edit an individual time register

1 Place the cursor in the timecode field and click the time register to select it.

2 Change the value using either of the following methods:

- Press the UP or DOWN ARROW to increase or decrease the value.
- Type a replacement value.

Typed numbers enter the timecode field in calculator fashion, from right to left. If you type an invalid value, it is ignored.

3 Press LEFT or RIGHT ARROW to edit another time register in the same timecode field.

NOTE NUM LOCK should be enabled to use the numeric keypad to enter numbers and timecodes. NUM LOCK should be disabled to use the keypad for shortcut controls to shuttle the deck. To enable or disable NUM LOCK, choose the keypad icon in the Media 100 menu bar.

To edit an entire timecode field

1 Click any time register in the timecode field to select the field.

2 Type one of the following operators:

Press...	To...
EQUAL SIGN (=) (or double-click the time register)	Replace the entire timecode.
PLUS SIGN (+)	Add a value to the timecode.
MINUS SIGN (–)	Subtract a value from the timecode.

A timecode edit box extends to the right of the timecode field, displaying the operator you entered and the timecode 00;00;00;00.



3 Click the edit box and type a timecode value.

4 Press RETURN, ENTER, or TAB to accept the edit box contents and calculate the new value.

5 To cancel the entry before accepting it, click outside the edit box.

▼ Trimming Clips in the Timeline

Drag-trimming in the program timeline is another way to trim a clip. This method trims clips in the program to rough cut their In and Out points. If necessary, finely trim clips using the Trim Mode panel, Slip and Slide modes, the Edit Clip panel, or by using the PLUS SIGN (+) and MINUS SIGN (–) on the numeric keypad with the trim pointer.

Drag-Trimming Clips

Drag-trim to trim clips in the timeline. With drag-trim, you can

- Trim a single clip
- Trim two adjoining clips
- Use the numeric keypad to precisely trim a clip

To trim a single clip in the timeline

1 Place the pointer near the beginning or end of the clip to be trimmed.

The arrow pointer changes to the left-trim or right-trim pointer.



2 Drag the pointer to the left or right to trim the clip.

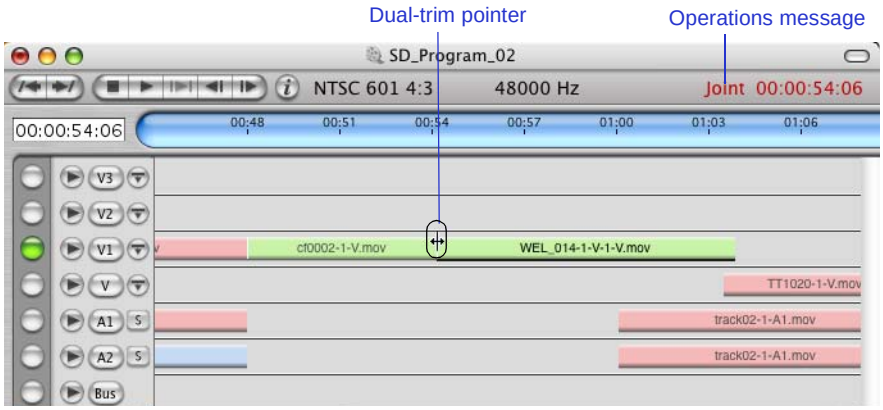
The clip length changes as you trim. The Record Monitor window and the external monitor are updated as you drag. Additionally, the CTI in the clip timeline and the appropriate timecode fields are updated.

TIP Use the external monitor to verify the correct video frame for In or Out points.

To trim two adjoining clips in the timeline

1 Place the pointer over the juncture of the clips to trim.

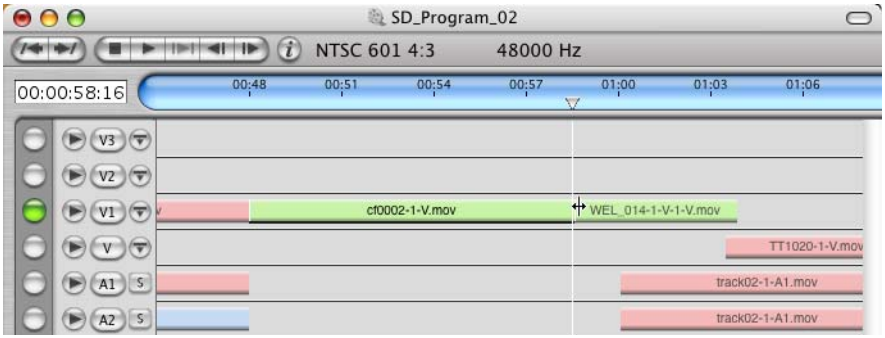
The arrow pointer changes to the dual-trim pointer with two arrows. The operations bar reads “Joint” and the timecode of the joint.



NOTE To trim two clips simultaneously, the adjoining clips must be on the same video track. If the adjoining clips are on separate video tracks, the left-trim or right-trim pointer appears, indicating that only one clip is being trimmed.

2 Drag the pointer to the left or right to trim the clips.

The Out point of the first clip and the In point of the second clip are trimmed simultaneously. The clips in the timeline reflect the trimming action.



NOTE You can only trim adjoining clips if there is additional source media available for the clips you are lengthening.

To precisely trim a clip in the timeline

1 Place the pointer near the beginning or end of the clip to be trimmed.

The arrow pointer changes to the trim pointer.

2 Hold down the mouse button and press one of the following keys on the numeric keypad to adjust the trim point.

Press...	To move the trim point...
PLUS SIGN (+)	Forward one frame.
MINUS SIGN (–)	Backward one frame.
ASTERISK (*)	Forward five frames.
SLASH (/)	Backward five frames.

Removing Frames from a Clip

You can remove frames from the middle of a video clip and either automatically close or leave the resulting gap.

To remove frames from a clip

1 Select the clip containing the unwanted frames.

2 Create a time range in the timeline that exactly defines the frames to remove.

See “Creating a Time Range” for the procedure.



3 Choose one of the following options:.

Choose...	To delete the frames in the range and...
Program>Remove Frames	Close the gap between the first and last sections of the clip. Any clips to the right of the edited clip move left the appropriate number of frames.
OPTION-Program>Remove Frames Leaving Gap	Leave the gap between the first and last sections of the clip. Clips positioned to the right of the edited clip remain in their original positions.

CAUTION

When trimming clips and closing gaps be aware you are only affecting the clip(s) and track on which you are working. Therefore, the clip(s) alignment to the other elements in the program will be altered.

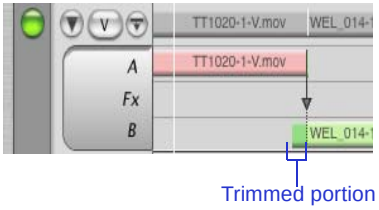
Trimming Clips with a Transition

You can trim clips in the expanded Master Video track with one video clip in the **A** track and the other clip in the **B** track. The cut transition between the two clips at the point where they overlap trims the overlapping section from one of the clips.

To change the location of the initial cut transition

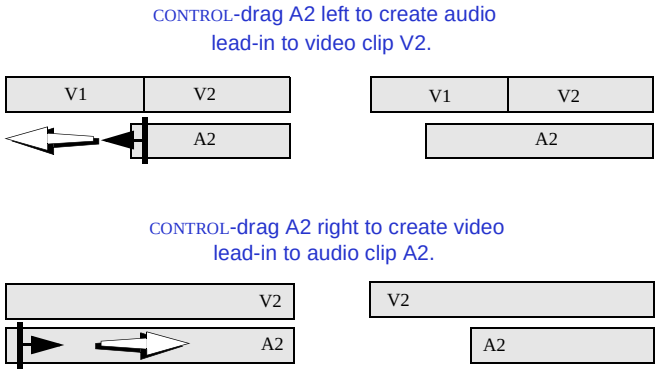
➤ Use one of the following methods:

- Trim the first clip
- Drag one of the clips to a different location
- Drag the cut arrow to a different location



Creating Split Edits (L-Cuts)

A *split edit*, also known as an L-cut or lap cut, is a trimming technique where synced video and audio have different In points. The audio sequence can lead in the video sequence or the reverse.



The clips you use for a split edit must have adequately trimmed head and tail frames. If the clips have timecode, check the accuracy before creating the L-cut to prevent loss of sync.

Verifying Timecode for Synced Clips

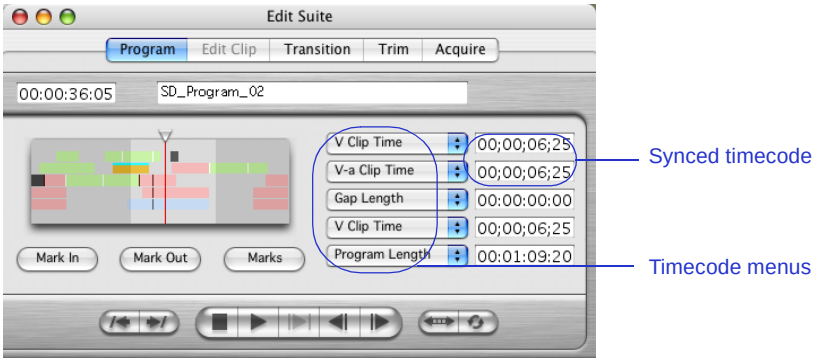
The clip you trim to create a split edit requires proper synchronization when you acquire or import the media.

To verify the timecode for the synced clips

1 Drag the synced clip from the bin to the program timeline.

2 Position the CTI over the synced clip.

3 In the Edit Suite Program panel, choose the video Clip Time and the Clip Time for each of the synced audio clips from the timecode menus.



4 The timecodes for each track of the synced clip should match. If they do not match, unsync the clip, realign the individual clips so that the timecodes match and then resync the clips.

TIP Use a Sync mark to line up a point in a clip to the CTI in the timeline.

Creating a Split Edit

The following procedures describe how to create a split edit for stereo audio synced with video and for video synced with multiple audio tracks.

To create a split edit

1 Position the pointer over the clip where you want to trim as follows.

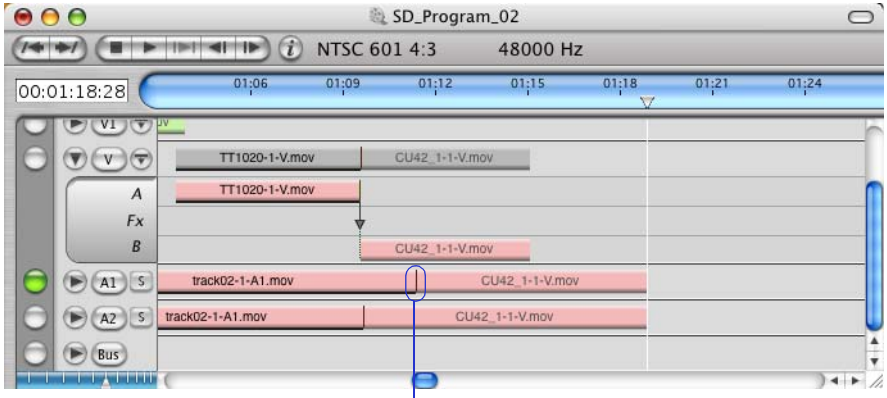
To trim...	Place the pointer...
The In point	Near the beginning of the clip.
The Out point	Near the end of the clip.
Two adjoining clips simultaneously	At the joint of the clips.

The arrow pointer changes to a trim pointer.

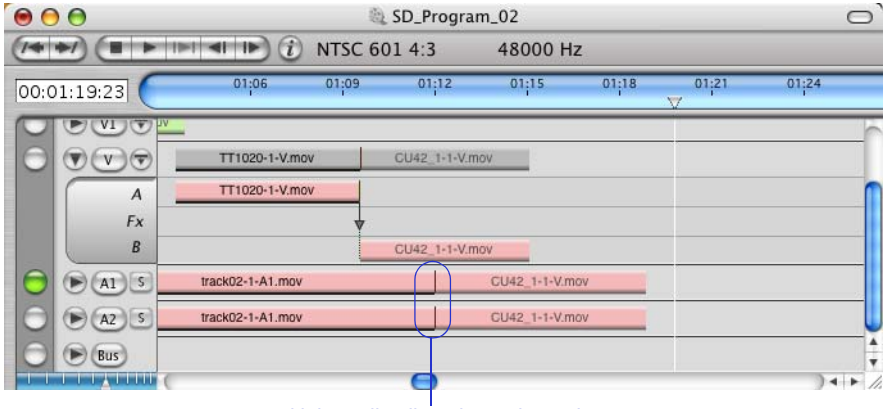
2 Trim the clip(s) as follows:

To trim...	Do this...
One of the synced clips	CONTROL-drag the pointer to the left or right.
Multiple audio clips	CONTROL-OPTION-drag the pointer to the left or right.

The following illustrations demonstrate the two types of split edits.



One of the synced clips is trimmed



Multiple audio clips trimmed together

NOTE Do not use the CONTROL and OPTION keys to dual trim adjoining clips. To undo a clip trim, press ⌘-Z.

▼ Trimming Clips in Slip and Slide Modes

Slip and Slide modes provide more precise trimming for the program timeline than the rough cut trimming just described. In addition, you can trim multiple consecutive clips. Each mode provides a window containing four Monitors.

Slip mode "Slips" the selected clip(s) under the adjacent clips to expose new material in the clip being moved without changing the In or Out points of the adjacent clips.

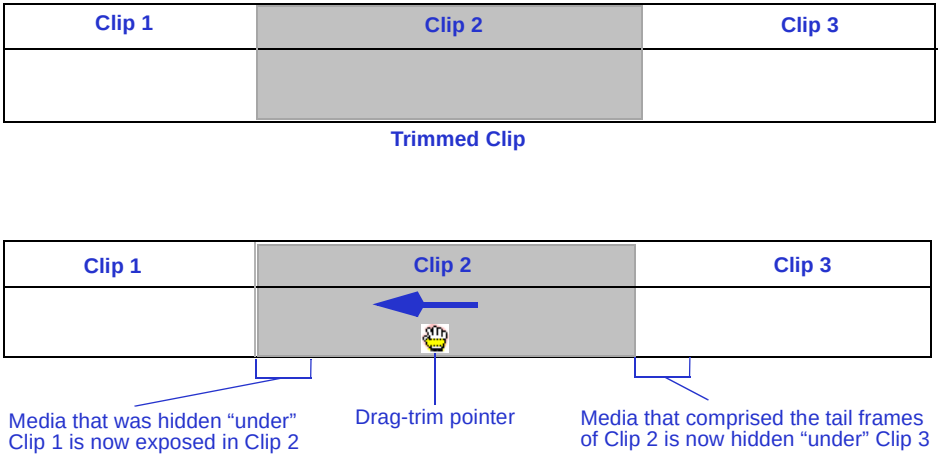
Slide mode "Slides" the selected clip(s) over the adjacent clips changing the In and Out points of the adjacent clips but not the selected clip(s).

NOTE Slip and Slide mode editing requires hidden source material.

About Slip Mode

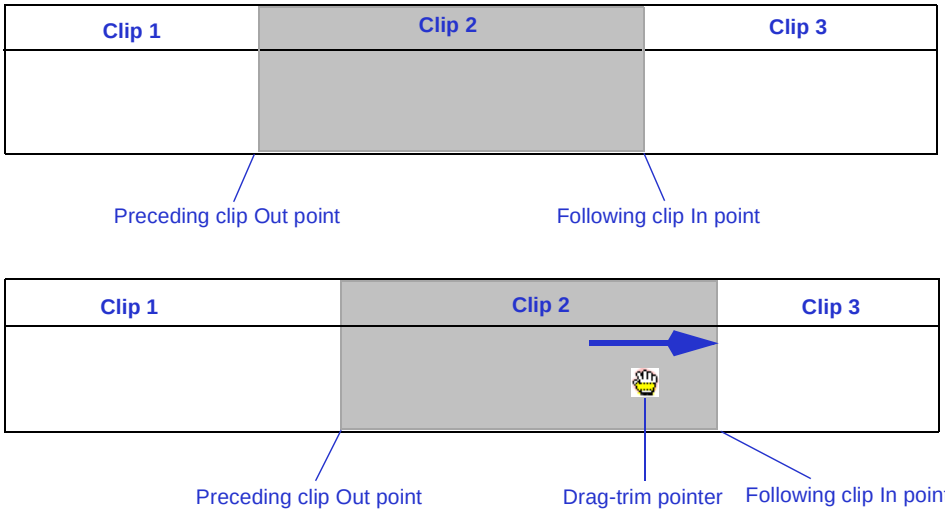
With Slip mode, you expose media in the direction you are dragging; dragging the clip to the left exposes new media at the head frames while removing media from the tail frames. Trimming in Slip mode affects only the clip you are dragging; the In and Out points of the adjacent clips remain constant.

In the following illustration, the drag-trim pointer is dragged to the left, exposing hidden media on the left, and hiding an equal amount of media on the right.



About Slide Mode

With Slide mode, you adjust the In and Out points of the preceding and following clips. As you drag the clip to the left or right, the Out point of the preceding clip and the In point of the following clip are changed by the number of frames that you move the clip.



In Slide mode, you do not have to select adjacent clips as long as the selected clips are on the same track. However, the unselected clips between the selected clips may block the sliding of the selected clips.

NOTE Unselected clips abutting selected clips are trimmed at their In and Out points.

Accessing Slip or Slide Mode

When you access Slip and Slide modes, four expandable video Monitors appear. Use the Slip Mode or Slide Mode window to view the adjustments to the clips.

To access Slip mode

1 Select clip(s) in the timeline.

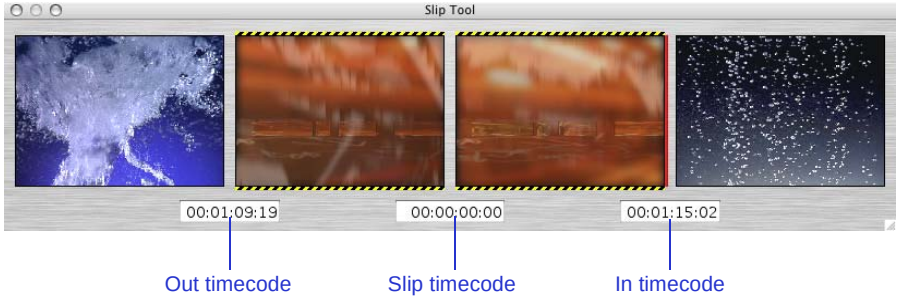
NOTE You can select multiple, consecutive clips per track in Slip mode. You can select synced or unsynced audio and video clips on different tracks.

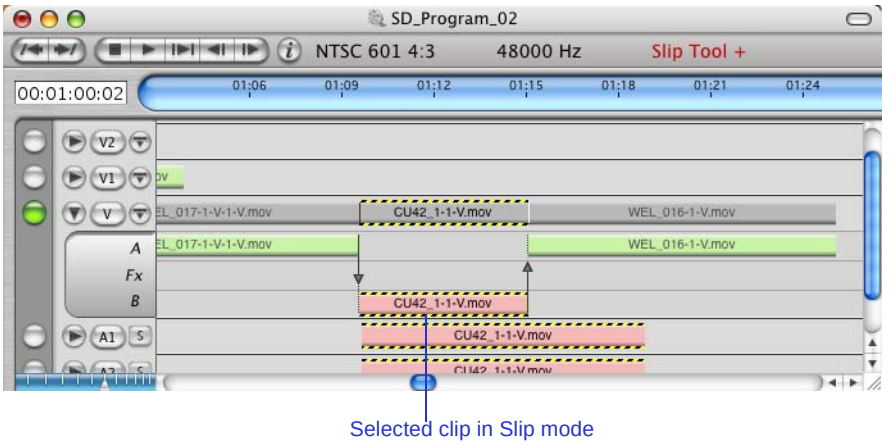
2 To access Slip mode, use one of the following methods:

- Press ⌘-7.
- Press SHIFT-F14.
- Choose Windows>Slip Mode.

Within the timeline, the selected clip displays yellow-dashed bars, and the message line in the Operation bar reads “Slip Tool.”

The Slip Mode window appears as four video Monitors, with the first frame and last frame of the selected clip highlighted by yellow-dashed bars.





The following table describes the Slip Mode window elements.

Slip Mode Window Elements

Name	Description
Monitors	Comprise the Slip Mode window. The first and last Monitors display the Out and In frames of the preceding and following clips. The center two Monitors highlighted with yellow dashed bars display the trimmed In and Out frames of the selected clip(s).
Timecode fields	Show the timecodes for the following clips: **Out**. Shows the Out point of the preceding clip. This value does not change as you trim. **Slip**. Shows the amount that the In and Out points of the selected clip have changed. **In**. Shows the In point of the following clip. This value does not change as you trim.

To access Slide mode

1 Select a clip or clips in the timeline.

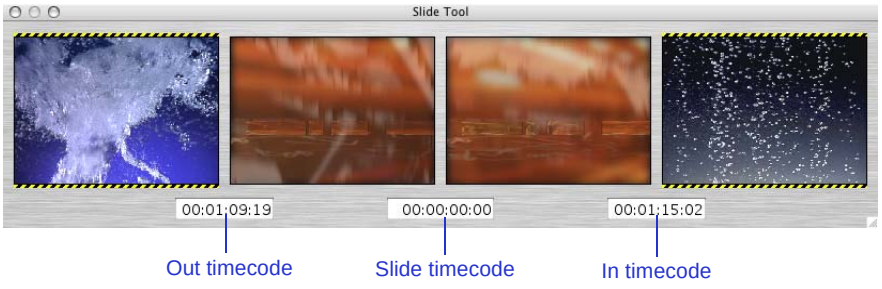
NOTE You can select multiple, non-adjacent clips per track in Slide mode. However, unselected clips may block movement.

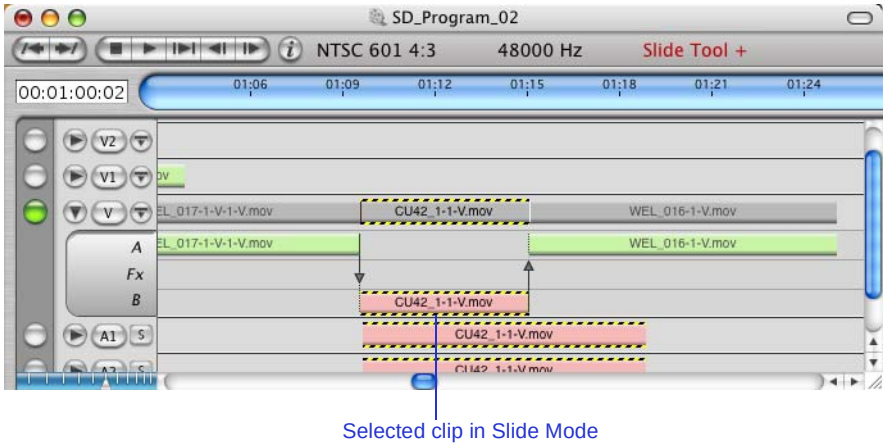
2 To access Slide mode, use one of the following methods:

- Press ⌘-8.
- Press SHIFT-F15.
- Choose Windows>Slide Mode.

Within the timeline, the selected clip(s) display yellow-dashed bars, and the message line in the Operation bar reads “Slide Tool.”

The Slide Mode window appears with yellow-dashed bars on the first and last Monitors.





The following table describes the Slide Mode window elements.

Slide Mode Window Elements

Name	Description
Monitors	Comprise the Slide Mode window. The first and last Monitors, highlighted with yellow dashed bars, display the Out and In frames of the preceding and following trimmed clips. The center two Monitors display the In and Out frames of the selected clip(s).
Timecode fields	Show the timecodes for the following clips: **Out**. Shows the Out point of the preceding clip. Changes as you trim. **Slide**. Shows the amount that the Out point of the preceding clip and the In point of the following clip have changed. **In**. Shows the In point of the following clip. Changes as you trim.

Editing in Slip and Slide Modes

Slip and Slide modes let you use the mouse and keyboard shortcuts to edit clips in the timeline.

You can click the bin, move windows, go to the Finder, and import media without leaving Slip and Slide modes. To exit Slip and Slide modes, deselect clips, change the Edit Suite mode, move the CTI, or select a menu item that changes the clip selection.

Before you begin editing a clip, be sure you have available media. If you do not, red bars appear on the Monitors.

To edit a clip in Slip or Slide mode

1 Set preferences by choosing Media 100>Preferences>General.

Preview Duration — Determines the number of frames that play back when you click the Play Selected button. The default is 2 frames. Select from 0 to 999 frames.

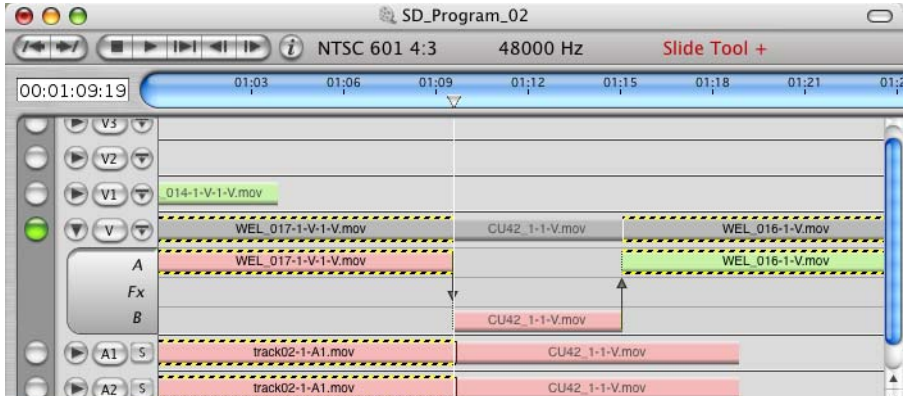
Multi-Frame Trim Button — Sets the number of frames the trim point moves when you click the Multiple-frame forward or backward buttons. The default is 5 frames. Select from 0 to 99 frames.

2 Edit using any of the following methods:

- Enter the timecode amount by pressing PLUS SIGN (+) for right trim or MINUS SIGN (–) for left trim.
- Drag the drag-trim pointer right or left on the clip. The timecodes change to show the amount being trimmed.
- Use the Edit Suite controls.
- Use keyboard shortcuts.

To trim multiple clips in Slide mode

1 Select two or more non-consecutive clips.



2 Trim the clips.

For example, slide the second clip to the left. All selected clips trim the same amount to the left, and unselected clips abutting non-adjacent selected clips in Slide mode are trimmed at In and Out points up to available media.

Trimming with Navigation Aids

You can use keyboard shortcuts to trim clips in Slip and Slide modes.

To trim clips in Slip and Slide modes using keyboard shortcuts

➤ Use the following keyboard shortcuts:

Press...	To...
LEFT ARROW	Trim one frame left.
RIGHT ARROW	Trim one frame right.
OPTION-LEFT ARROW	Trim *X* frames left (set in Media 100>Preferences>General).
OPTION-RIGHT ARROW	Trim *X* frames right (set in Media 100>Preferences>General).
PLUS SIGN (+)	Type the number of frames to right-trim in a timecode field.
MINUS SIGN (–)	Type the number of frames to left-trim in a timecode field.

▼ Trimming in the Trim Mode Panel

Trim mode is designed for trimming a clip in relation to its adjoining clips in the timeline. It provides dual Edit Suite Monitors and versatile editing controls for precise adjustments of In and Out points. Use Trim mode to trim the In and Out points of individual clips or proportionately trim the In and Out points of two adjoining clips.

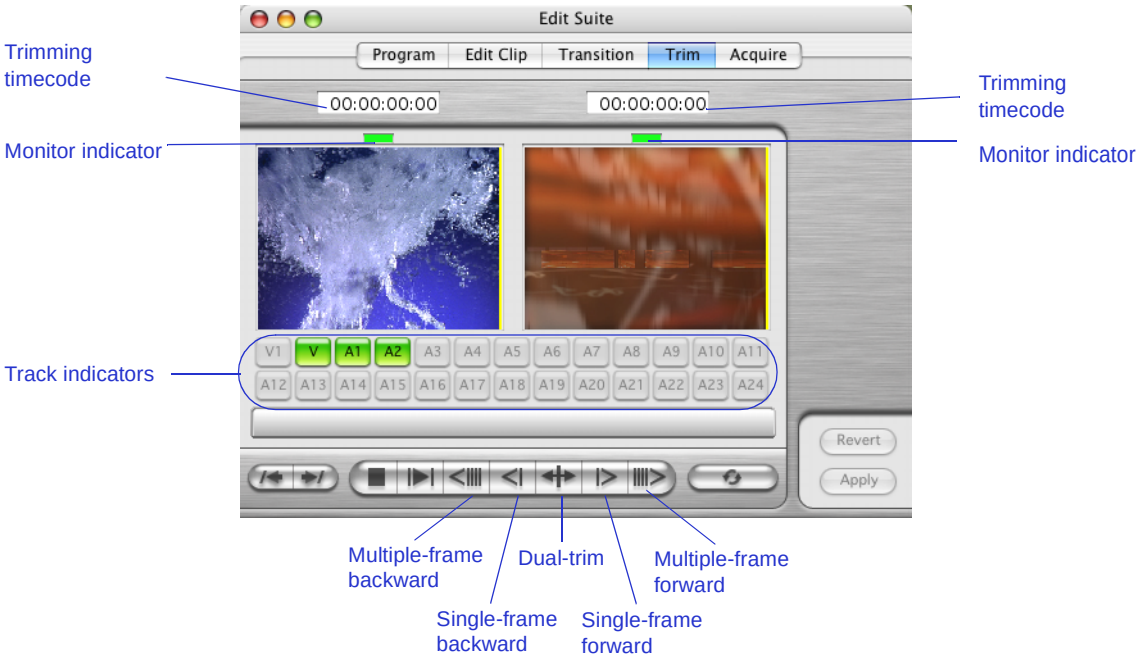
To access the Trim Mode panel

1 Place the CTI over a clip in the timeline.

2 Press F7 or SHIFT-⌘-T.

The Edit Suite opens to the Trim Mode panel.

A green indicator light above the Edit Suite Monitors signifies that the corresponding clip is active for trimming. You can activate one or both Edit Suite Monitors by clicking the appropriate indicator light. The indicator light denotes which trim mode is available — dual, left, or right.



The following table describes Trim Mode panel elements.

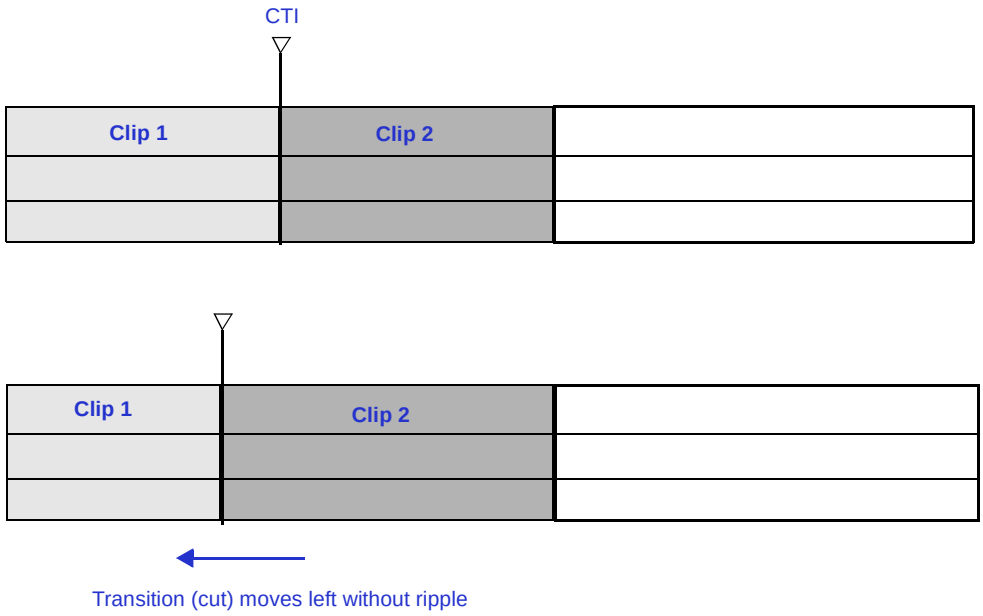
Trim Mode Panel Elements

Name	Description
Trimming timecodes	Show the timecode for each of the active clips. As you trim, the timecode fields indicate the amount trimmed.
Monitor indicators	Indicate when each of the Edit Suite Monitors are activated. Clicking a Monitor toggles the corresponding indicator light, and activates or deactivates the Monitor.
Track indicators	Indicate the active tracks. Clicking a track indicator box activates or deactivates its respective track.
Multiple-frame backward button	Moves the trim point a preset number of frames to the left.
Dual-trim button	Moves to the right or left to move the trim point forward or backward in the timeline.
Multiple-frame forward button	Moves the trim point a preset number of frames to the right.
Single-frame backward button	Moves the trim point one frame to the left.
Single-frame forward button	Moves the trim point one frame to the right.

Before you use Trim mode, trim the clips so that you have head and tail frames available. The following sections explain how Trim mode trims clips and what happens if there is not enough available media.

Dual Trimming

As you trim clips, the Out point of the clip to the left of the CTI and the In point of the clip to the right of the CTI move together to the left or right. Clips in the active track to the left or right of the CTI do not ripple, since any decrease in frames as one clip is trimmed back is compensated for by the other clip being extended.



Dual Trim – Left Clip Trimmed

Using any of the trim controls, you can simultaneously trim the Out point of the first clip and the In point of the second clip. Using this technique, the trim is proportional for both clips; for example, trimming the Out point of the first clip for 5 seconds trims the In point of the second clip for 5 seconds.

Left or Right Trimming

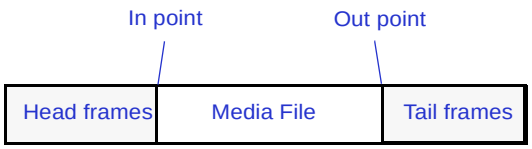
Left trim mode is active if the left indicator light is lit, and right trim mode is active if the right indicator light is lit. As you trim the left clip, the Out point trims left or right; the In point of the clip to the right of the CTI (if any) remains unchanged. Clips to the right of the CTI ripple left to compensate for the decrease in frames as the previous clip is trimmed.

As you trim the right clip, the In point trims left or right; the Out point of the clip to the left of the CTI (if any) remains unchanged. Clips in the active track to the left of the CTI ripple right to compensate for the decrease in frames as the clip is trimmed.

Blocked Trimming Conditions

If there is no available media beyond the In or Out points of a clip, you cannot trim the clip beyond that frame. The Media 100 system considers this an “out of media” condition and alerts you by displaying a red bar at the appropriate side of the corresponding Monitor. Should you attempt to edit past this point, the Media 100 system also flashes the message “Out of Media” beneath the Monitor.

The “out of media” condition commonly occurs when you drag a sequence of clips from a bin directly to the timeline and attempt to edit the transitions (cuts) without first trimming the clips to have head and tail frames. To recover, trim back the clips using left-clip or right-clip trimming (see the following illustration), and proceed with Trim mode.



Trimmed Clip

If clips at the trim point lack head and tail frames, the Media 100 system considers this a “blocked” condition and alerts you with a yellow bar at the appropriate side of the corresponding Monitor. Should you attempt to edit past this point, the Media 100 system also flashes the message “Blocked” beneath the Monitor.

If synced clips in disabled tracks are positioned beneath the clip you are trimming, and you try to trim clips in the active tracks beyond the boundaries of the synced clips, the trimming is “blocked,” and a yellow bar appears at the appropriate side of the Monitor. If you attempt to edit past this point, the Media 100 system flashes the message “Blocked by synced” in the Monitor.

Trimming in Trim Mode

Trim using the trim controls or the trimming timecode fields. When trimming with timecode fields, use the PLUS SIGN (+), MINUS SIGN (–), or EQUAL SIGN(=) to enter a timecode designation. Pressing any of the three keys displays the appropriate trimming timecode field in Trim mode.

To trim in Trim mode

1 Set preferences by choosing Media 100>Preferences>General.

Preview Duration Determines the number of frames that play back when you click the Play Selected button. The default is 2 frames. Select from 0 to 999 frames.

Multi-Frame Trim Button Sets the number of frames the trim point moves when you click the Multiple-frame forward or backward buttons. The default is 5 frames. Select from 0 to 99 frames.

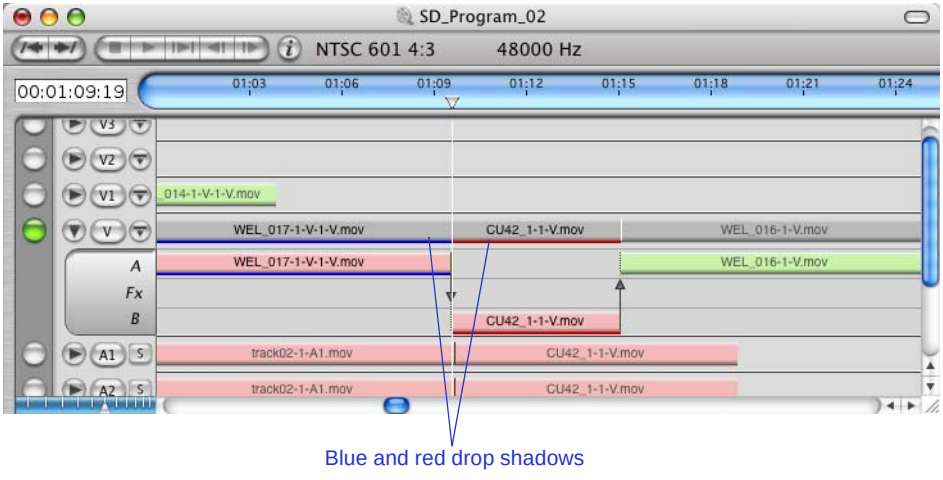
2 Place the CTI over the clip to trim in the program.

3 Press F7 or SHIFT-⌘-T to initiate Trim mode.

Trim mode includes two Edit Suite Monitors to display adjoining clips.

- The left Monitor initially displays the Out point of the first clip. Trim the Out point only for this clip.
- The right Monitor initially displays the In point of the second clip. Trim only the In point for this clip.
- Play the Monitors individually or in conjunction with each other.

The timeline displays red and blue drop shadows beneath the two selected clips, and the CTI moves to the transition point between the two clips.



4 If you are trimming a single clip, click the indicator light to deactivate the Monitor containing the clip you do not want to trim. If you are dual-trimming two adjoining clips, activate both Monitors.

5 To make changes only to certain tracks of the clip(s), click the appropriate active track indicators to toggle them on or off.

Green track indicators show that the track is active for trimming; red track indicators show that the track is not active for trimming. Tracks that do not contain either of the clips shown in Trim mode are dimmed.



6 Use one of the following to trim the clip(s):

- Trim controls.
- Timecode fields.
- The following keyboard shortcuts:

Press...	To move the trim point...
PLUS SIGN (+)	Forward in the timeline by a timecode amount. For example, to move the trim point forward 10 seconds, type 1000 and press RETURN.
MINUS SIGN (–)	Backward in the timeline by a timecode amount. For example, to move the trim point backward 15 frames, type 15 and press RETURN.
EQUAL SIGN (=)	To a specific timecode position in the timeline. For example, to move the trim point from 00:00:01:00 to 00:01:00:30, type 00010030 and press RETURN.

The Edit Suite Monitors, timecode fields, and timeline are updated as you trim. The Edit Suite Monitors display the new trim point, the timecode fields display the In and Out points, and the clip in the timeline lengthens or shortens accordingly.

7 Click Play Selected to preview the overall adjustment to the clip.

8 Click Apply to save the changes.

9 To return to the original trim points, click Revert.

To continue trimming with new clips

➤ Click the Next or Previous Trim Point button to move to the next pair of adjoining clips.

11

Creating Transitions

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▼ Introduction

The switch from one clip to another is called a transition. The end of one clip (Out point) immediately followed by the beginning of the next clip (In point) is referred to as a cuts transition. In addition to cuts, the Media 100 system uses preset, third-party, and customized transition effects.

This chapter describes how to create, edit, play, and render transition effects.

▼ Preparing for Transition Effects

This section explains how to configure your Project Settings and arrange the clips in your program before you create transition effects.

Selecting Project Settings

A transition is a unique combination of two video clips and the Media 100 system creates a new media file when it renders a transition effect. Before creating transition effects, configure the following items in the Project Settings dialog box to determine the quality and location of these new media files:

- The Media Settings for controlling the quality of the new media files
- The Media Destinations (Fx)for storing the new media files on your system

NOTE Before rendering, importing, or exporting from the Media 100 system, make sure you have adequate disk space to hold the new media files.

Trimming Clips

Clips require hidden media to create a transition effect. Trim clips in the Edit Suite Edit Clip panel or the program to create the hidden media.

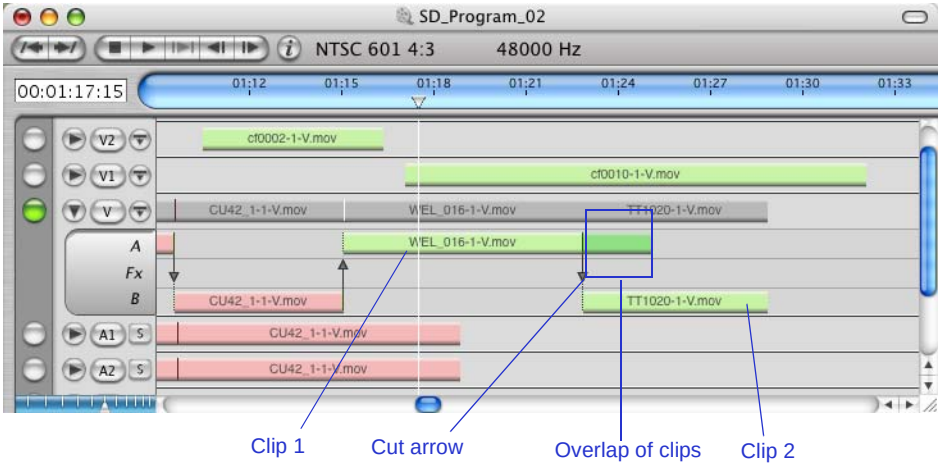
Arranging Clips on the Timeline

Conventional transitions can be created on the Master Video track only. With the Master Video track expanded an **A, B** and **Fx** track are displayed. A transition requires that two adjoining clips (with at least one trimmed), in opposite **A, B** tracks, overlap in the timeline with cut arrows between the two clips. You create the transition in the overlapping area between the two clips.

To arrange clips to create transition effects

1 Place your trimmed clips so they overlap on the **A** and **B** tracks.

A cut arrow appears on the **Fx** track, marking the location and direction of the cut.



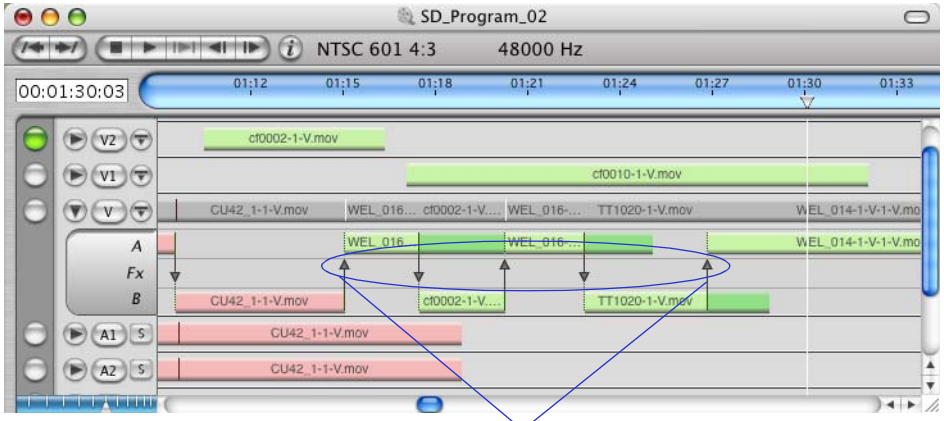
TIP You can also use the Swap A/B and Stagger A/B Selected commands in the Track menu to automatically arrange your video clips.

The shading of the clip indicates the section that is trimmed by the cut. Light green (or light pink, for synced clips) is playable video. Dark green (or dark pink) is trimmed, inactive video.

2 To set up additional transitions between the two clips, click and drag between the clips in the **Fx** track.

A pair of transition cut arrows appears, indicating the range where you dragged between the clips.

3 Repeat for each transition you want to create between the clips.



4 Adjust a cut location by dragging the arrow back and forth in the **Fx** track.

To remove cut arrows

1 Drag the arrow vertically up or down out of the **Fx** track. To delete a pair of cut arrows, drag either arrow in the pair.

2 When a red **X** appears over the arrow, release the mouse button.

NOTE You cannot always remove an arrow at a cut transition since the Media 100 system automatically creates cut arrows to enforce its rules of play.

▼ Creating Transition Effects

Once you arrange your video clips in the timeline, you can create transition effects in the timeline or the Edit Suite Transition panel. You can also create batch transition effects by applying a transition to a program range.

Creating Transitions in the Timeline

By pressing various keys while dragging cut arrows in the **Fx** track, you can determine the position of the transition effect in relation to the cut arrow. You can create transitions that start at the cut, end at the cut, or are centered over the cut.

NOTE The Media 100 system automatically creates transition effects using the effect class of the most recent transition you composed. If you have not yet created a transition effect in your program, the default setting is Dissolve-FastFX.

To create a transition effect

➤ Do one of the following:

To create this transition...	Do this...
Start-at-cut	SHIFT-drag the cut arrow in the **Fx** track to the right.
End-at-cut	SHIFT-⌘-drag the cut arrow in the **Fx** track to the left.
Center-over-cut	OPTION-drag the cut arrow in the **Fx** track to the right.

NOTE If the extra media necessary for transition creation is not visible in the timeline, press the CONTROL key in addition to the above modifiers.

The transition effect clip appears in the **Fx** track with the cut arrow in the appropriate position. The following illustrates each position.



Start-at-cut



Center-over-cut



End-at-cut

Once you create a transition in the timeline, you can edit the effect.

Creating Transitions from the Transition Panel

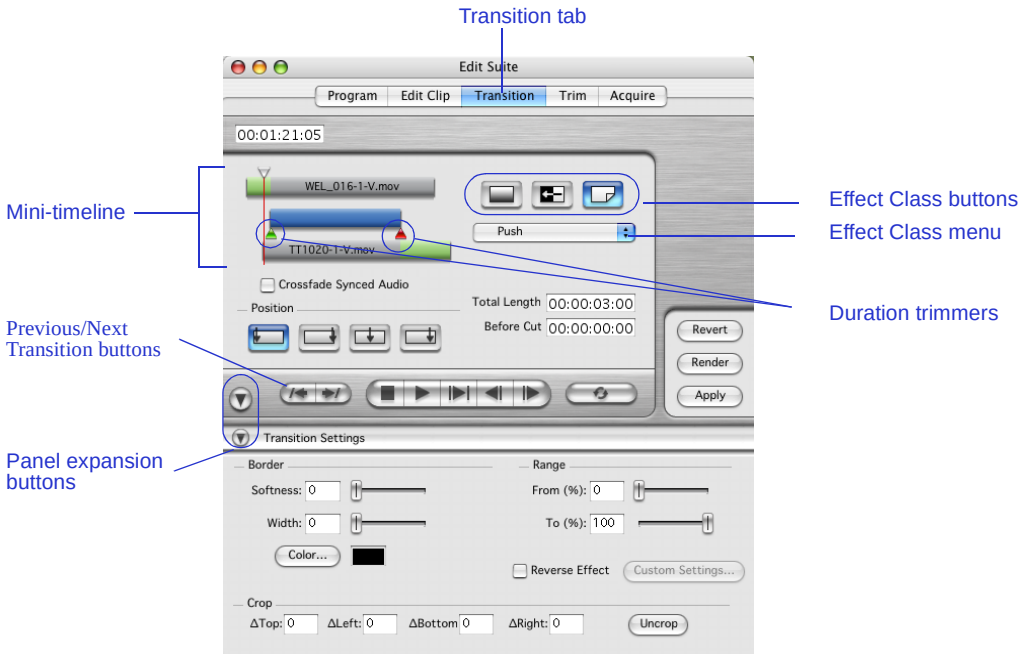
The Media 100 system provides a Transition panel in the Edit Suite that allows you to create new transition effects, edit the duration and type of existing transition effects, play transition effects, and render your final selections.

To select the Transition panel

➤ Use one of the following methods:

- Double-click a cut arrow in the **Fx** track.
- Press ⌘-T or choose Tools>Edit Suite Tool>Transition. This method moves the CTI to the next cut arrow in the program.

The Edit Suite Transition panel appears.



The following table describes the Edit Suite Transition panel elements.

Transition Panel Elements

Name	Description
Mini-timeline	Indicates the scaled, relative duration of the In clip and the Out clip, using minimized **A** and **B** track bars. The light green shaded portions of the bars indicate program-playable frames. The transition duration bar indicates the length of the transition effect.
Duration trimmers	Alter the start or end of the effect clip. Dragging a respective trimmer left or right extends or shortens the transition duration and alters the setting of the Length timecode field.

Transition Panel Elements *(Continued)*

Name	Description
Effect Class buttons	Let you choose from three classes of transition effects. **Dissolves**. The frames of one clip fade out, while the frames of another clip fade in. **Wipes**. The frames of one clip replace the frames of another clip in a selected pattern such as a checkerboard. **DVEs**. The frames of one clip replace the frames of another in a specialized effect such as a funnel or spin. Clicking an Effect Class button displays the respective list of effects in the Effect Class menu.
Effect Class menu	Displays the effects specific to the chosen class.
Crossfade Synced Audio check box	Applies audio crossfades automatically when creating transitions between clips that have synced audio on the same audio track.
Total Length timecode field	Displays the duration of the transition effect. Enter new timecode values to redefine the length of the effect.
Position buttons	Allow you to choose the location of the cut arrow within a transition effect. **Start-at-cut**. Begins the transition at the cut arrow. **End-at-cut**. Ends the transition at the cut arrow. **Center-over-cut**. Centers the transition over the cut arrow. **Custom**. Allows you to specify a timecode value in the Before Cut timecode field.
Before Cut timecode field	Displays the number of frames before the location of the cut arrow. You can only edit this field with the Custom position button selected.
Revert button	Restores the last applied transition effect. Any changes you made are lost.
Render button	Combines the two video clips to create a new video media source file for the transition effect.
Apply button	Saves the current settings for the transition effect and applies them to the effect in the program.

Transition Panel Elements *(Continued)*

Name	Description
Panel expansion buttons	Expand the window to display the Transition Settings panel.
Previous/Next Transition buttons	Move among transitions while remaining in Transition mode.
Border controls	Allow you to set borders for some transition effects.
Range controls	Allow you to specify which portions of the defining video clips appear at the beginning and end of the transition. .
Reverse Effect check box	Reverses the direction in which some effects occur.
Custom Settings button	Opens a dialog box where you can specify various effect characteristics.
Crop controls	Crops the specified portion of the image during effect processing.

To create a transition in the Transition panel

1 Click an Effect Class button.


Dissolves


Wipes


DVEs

2 Select a transition effect from the Effect Class menu.

TIP Choose QuickTime Effects (DVE) from the Effect Class menu and click Custom Settings in the Transition Settings panel to access additional effects.

3 Click a Position button to configure the transition to start at, end, or center over the cut arrow. Click Custom to designate custom start and end points.


Start-at-Cut


End-at-Cut


Center-over-Cut


Custom

The default selection is start-at-cut. As you select different Position buttons, the location of the transition duration bar shifts in the Edit Suite.

NOTE Click Play in the Edit Suite to preview the effect at any time.

4 Click Apply to add the transition to the program, or Revert to clear the settings.

Creating Batch Transitions

Use the Apply Transition to Range command to apply specific settings to all transition effects in a selected range of your program. You can also copy an individual effect clip to another location.

To create batch transition effects

1 Create a time range over the clips to which you plan to apply particular settings.

2 Press ⌘-T to switch to the Transition panel.

3 Choose the transition settings in the Edit Suite.

4 Choose Tools>Apply Transition to Range to apply the settings to all the transitions in the selected range in your program.

NOTE If any video clips have insufficient media to create the entire transition effect, the effect is truncated to the length of the available media for those clips.

You can edit the effect settings in the Transition panel and reapply the new settings to the selected clips.

To copy a transition in a program

➤ ⌘-drag a transition to another clip or position in the program timeline.

▼ Editing Transition Effects

Once you create transition effects in the program timeline or in the Transition panel, you can move to each one in the timeline or Transition panel to edit them. You can change the following:

- Type and position
- Duration
- Direction
- Location
- Synced audio crossfades
- Customized settings with the Transition Settings panel

As you change transitions in the Transition panel, preview the changes before you apply them to the program, and revert to the previous settings, if necessary.

To preview a transition effect

➤ Use the play controls in the Edit Suite to preview a transition effect.

Click...	To...
Frame Forward	Step the selected transition effect forward by one frame.
Frame Backward	Step the selected transition effect backward by one frame.
Play	Play the entire transition effect from start to finish.
Loop-Play	Play the transition effect repeatedly. You can select different effect types while the Monitor window continues to play.

NOTE The Play control plays the effect over stationary frames of the In and Out clips. To preview real-time transition effects over moving video clips, play the effects from the program.

If you do not want to apply the changes, you can revert to the previous settings.

To revert to the previous settings

➤ Press ESC or click Revert in the Edit Suite.

The changes are lost, and the most recently applied settings are restored.

Moving through Transition Effects

You can move through transition effects in your program while remaining in Transition mode in the Edit Suite. You can also move through transitions directly in the program.

To move from transition to transition in the Edit Suite

➤ Do one of the following:

To move to the...	Do this...
Next transition	Click Next or press OPTION-RIGHT ARROW.
Previous transition	Click Previous or press OPTION-LEFT ARROW.

To move from transition to transition in the program

➤ Click the video track to select it and do one of the following:

To move to the...	Press...
Next transition	TAB.
Previous transition	CONTROL-TAB.

Changing Type and Position

Change the transition effect type and position in Transition mode in the Edit Suite.

To change the effect type and position

1. Double-click the effect clip in the **Fx** track of the program.
2. To change the type, click an Effect Class button and choose an effect from the Effect Class menu.
3. To change the position, click a Position button.
4. Click Apply in the Edit Suite to apply the changes.

Adjusting Duration

Change the duration of a transition effect in the Transition panel or in the program.

NOTE You cannot extend a transition effect beyond the limits of the available source media for the adjoining video clips.

To adjust the length of a transition in the Transition panel

1. Use one of the following methods:
   - Type the desired transition length in the Total Length timecode field.
   - Drag the In and Out duration trimmers to the desired locations.
   - Click the Custom Position button and type the desired transition length in the Before Cut timecode field.
2. Click Apply.

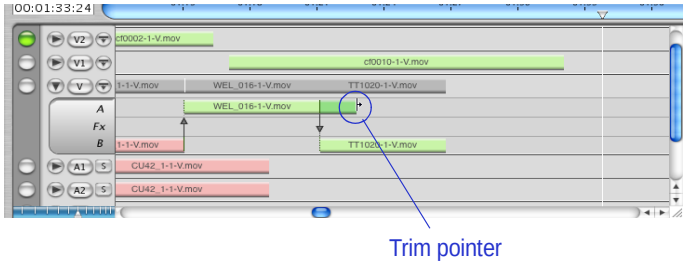
   The length of the effect changes according to the cut arrow position.
   - The length of an end-at-cut transition is adjusted at the start of the transition.
   - The length of a start-at-cut transition is adjusted at the end of the transition.

- The length of a center-over-cut transition is adjusted equally at both ends.

TIP To include the hidden source media beyond the trimmed in and out points of the clips when trimming in the Edit Suite in Transition mode, CONTROL-double-click the transition in the timeline to switch the Edit Suite to Transition mode. The video track bars and transition duration are now set to allow the inclusion of hidden source media.

To adjust the length of a transition in a program

1 Move the arrow pointer over either end of the transition effect clip in the **Fx** track until the trim pointer appears.



2 Drag the trim pointer to lengthen or shorten the effect.

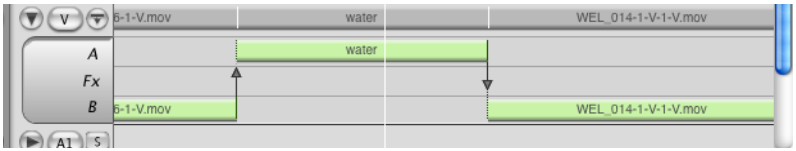
The duration of the transition effect changes, but the location of the original cut arrow is preserved. If you trim either end of an existing transition effect clip in the **Fx** track, you create a custom transition effect that leaves the cut arrow at its current location and extends the transition effect to one side.

NOTE The Media 100 system preserves the location of the original cut point. You cannot move a cut arrow within a transition effect clip in the program. To change the cut location, move the entire transition effect clip within the **Fx** track.

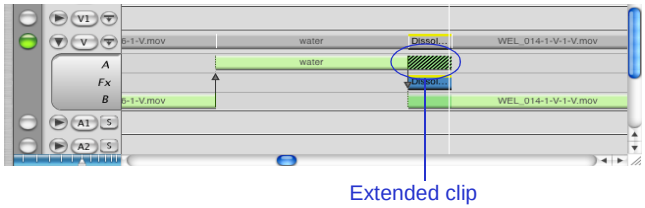
3 To extend a transition effect to use available source media in the adjoining video clips beyond the trimmed In and Out points of a clip, do one of the following:

Do this...	To create a...
SHIFT-CONTROL-drag	Start-at-cut transition that uses all available media.
OPTION-CONTROL-drag	Center-over-cut transition that uses all available media.

For example, the “Water” clip in the following illustration appears to have no available media beyond the cut arrow.



SHIFT-CONTROL-dragging extends the transition to use hidden source media at the tail of the clip. The extended portion of the video clip appears with a diagonal line pattern over it.



NOTE You cannot create or extend a transition effect beyond the source media. If you try to create a transition effect where there is no additional source media for the clip, nothing happens.

Changing Direction

Some transition effects allow you to choose the edge or corner from which the effect originates. The available origination points are shown in the border surrounding the Record Monitor as a series of small boxes or directional pins. Clicking any of the pins alters the direction of the effect.

Some transition effects (for example, Iris Heart) originate from within the Record Monitor and allow you to choose the starting point. Move the indicator pin in the Record monitor to alter the starting point.

To change the direction of a transition

1 Click the appropriate directional pin for the desired effect.

The selected pin turns green to indicate that it is active. The effect originates at this point and proceeds in the opposite direction.



2 Click Apply in the Edit Suite to apply the change.

To adjust the origination point of a transition

1 Drag the indicator pin to a location within the Record Monitor window.

The effect originates at this point within the Record Monitor window.



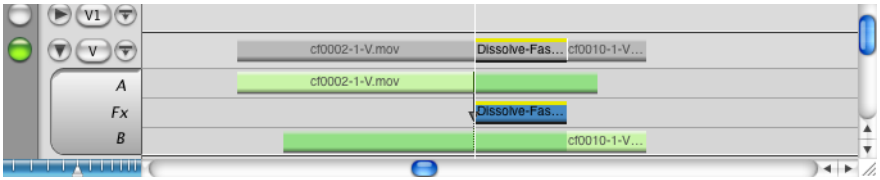
2 Click Apply in the Edit Suite to apply the change.

Changing Location

You can move transition effects along the **Fx** track beneath their defining video clips.

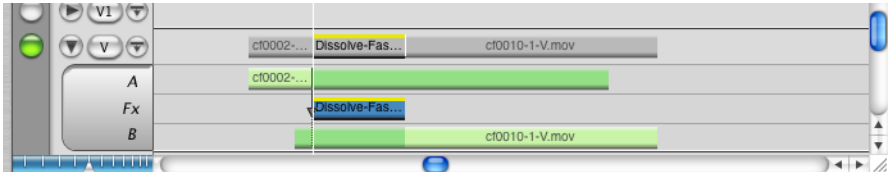
To move transitions in a program

1 Select the transition effect clip in the **Fx** track.



2 Drag the clip to a new location and release the mouse button.

The transition effect clip moves to the new location in the program. The cut location changes in relation to the video clips above and below the effect.



NOTE You cannot move a transition effect clip beyond the end of the available source media for its defining video clips in the **A** and **B** tracks.

Adding Audio Crossfades

You can apply audio crossfades to transitions between video clips that have synced audio on the same audio track.

NOTE You cannot create an audio crossfade with no additional source media beyond the junction of the audio clips. The junction of the audio clips must fall beneath the duration of the transition effect to create an audio crossfade.

To add an audio crossfade to a transition

1 Create a transition between two clips with synced audio.

The clips must have overlapping video and adjacent hidden audio.

2 Choose Program>Crossfade Type and select a crossfade.

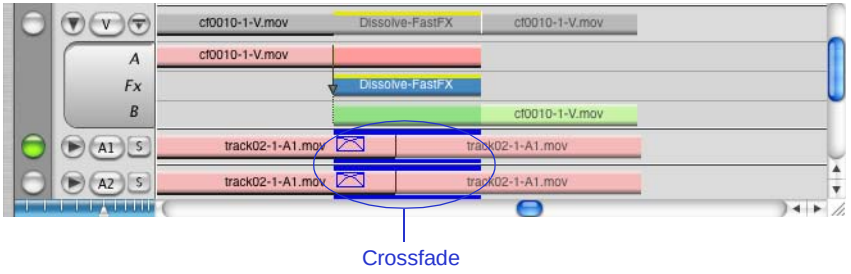
3 Double-click the transition to switch to Transition mode in the Edit Suite.

4 Press ⌘-A or click the Crossfade Synced Audio check box.

When the Crossfade Synced Audio check box is selected, it remains enabled for subsequent transition effects until you deselect it.

5 Click Apply.

The audio crossfade appears in the audio track beneath the transition.

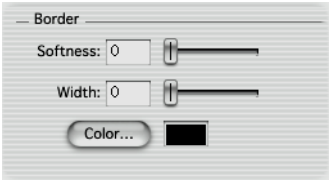


Using the Transition Settings Panel

The Transition Settings panel allows you to customize an effect. Add borders, adjust the range, reverse the direction of the effect, apply custom settings, and crop an effect in the Transition Settings panel.

Adding Borders

You can set borders for effects that support borders. The border controls specify the softness, width, and color of the border edges.



Real-time playback with edge softness and border width settings is limited by the capability of the hardware to handle the settings. If you specify a value greater than your hardware capability, a “Not R/T” (Not Real-Time) message appears in the Transition Settings panel. To view transitions with these settings, you may need to render them.

NOTE The Media 100 software renders the effects. For FastFX transitions, high softness values require longer render times. For other transitions, the rendering time increases exponentially depending on the softness value.

To add a transition border

1 Type a number from 0 to 255 in the Softness field or use the slider to adjust how soft or hard the leading edge of the transition appears.

- Low numbers create sharp border lines.
- High numbers create soft border lines.
- A value of 0 specifies no edge softness.

NOTE Values from 0 to 15 are real-time softness settings that do not need rendering.

2 Type a number from 0 to 255 in the Width field or use the slider to adjust the line thickness at the leading edge of the transition.

- Low numbers create thin border lines.
- High numbers create wide border lines.
- A value of 0 specifies no border.

NOTE Values from 0 to 31 are real-time width settings that do not need rendering.

3 The color of the border is indicated in the Color Preview box to the right of the Color button. To change the color of the border, click the Color button.

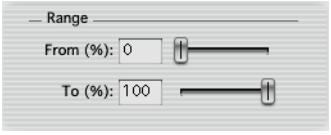
4 From the list of color pickers, select one that is appropriate for your final output.

5 Select a new color and click OK.

6 Click Apply in the Edit Suite to apply the changes.

Adjusting the Range

Use the Range settings to force a transition effect to begin farther into its normal sequence or to finish sooner.



To adjust the transition range

1 To adjust how much of the second video clip appears at the beginning of the transition, type a number from 1 to 100 in the From (%) field or use the slider.

2 To adjust how much of the first video clip appears at the end of the transition, type a number from 1 to 100 in the To (%) field or use the slider.

TIP Typing 50% in both the From (%) and To (%) fields freezes the transition at its middle frame for the duration of the transition effect.

3 Click Apply in the Edit Suite to apply the change.

Reversing the Direction

Click the Reverse Effect check box to reverse the direction in which an effect occurs. For example, the horizontal wipe transition is set by default to wipe from left to right, but wipes from right to left when reversed.

To reverse the direction of a transition effect

1 Click the Reverse Effect check box.

Any actions associated with the transition are reversed.

2 Click Apply in the Edit Suite to apply the change.

Applying Custom Settings

You can customize some transition effects. Clicking Custom Settings in the Transition Settings panel opens a dialog box where you can specify effect characteristics. The Custom Settings button is not available if the selected transition does not support custom settings.

To apply custom settings to a transition

1 Click Custom Settings.

A customize dialog box appears. The dialog box settings depend upon the transition, but generally apply to the number of vertical or horizontal slices associated with a blind, wipe, or box-type transition.

2 Choose the custom settings and click OK.

The settings apply to the transition clip.

3 Click Apply in the Edit Suite to apply the settings.

Adding QuickTime Effects

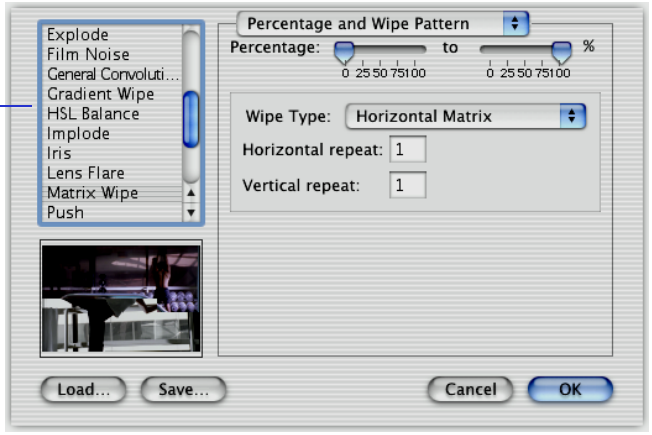
Choose QuickTime Effects from the Edit Suite Effect Class menu to access additional, customized effects that you can save.

To use QuickTime effects

1 Click the DVE button and choose QuickTime Effects from the Effect Class menu.

2 Click Custom Settings in the Transition Settings panel.

The QuickTime Effects dialog box appears.



3 Select an effect from the QuickTime Effects list and customize the settings.

4 To save your customized settings, click Save and choose a name and location. Click Load to retrieve a saved setting.

5 Click OK.

6 Click Apply in the Edit Suite to apply your changes.

Adding a ColorPass Filter

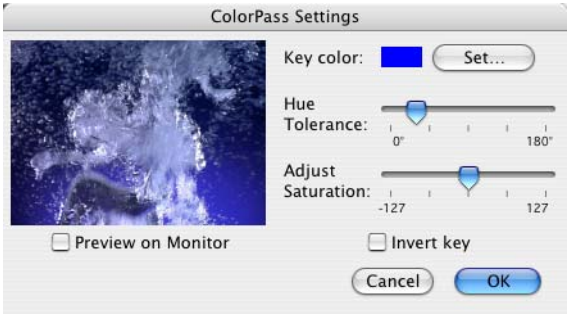
The ColorPass filter changes the video to black and white except for a key color that you select. Choose the ColorPass Filter from the DVE Effect Class menu.

To add a ColorPass filter

1 Click the DVE button and choose ColorPass Filter from the Effect Class menu.

2 Click Custom Settings in the Transition Settings panel.

The ColorPass Filter dialog box appears.



3 Click the Set button to select a Key color from the Color Picker.

4 Click OK to close the Color Picker.

5 Adjust the Hue Tolerance and Adjust Saturation ranges to the best effect.

6 Click OK.

7 Click Apply in the Edit Suite.

Adding Page Turn Effect

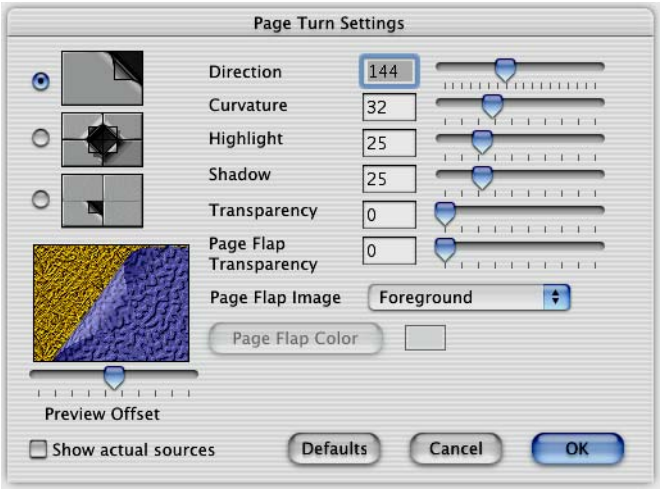
The Page Turn effect creates a transition where the outgoing clip peels off to reveal the incoming clip. Choose the Page Turn Effect from the DVE Effect Class menu.

To add a Page Turn effect

1 Click the DVE button and choose Page Turn from the Effect Class menu.

2 Click Custom Settings in the Transition Settings panel.

The Page Turn dialog box appears.



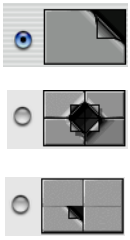
3 Select settings.

4 Click OK to close the Page Turn Settings dialog box.

5 Click Apply in the Edit Suite.

The following table explains the Page Turn Settings dialog box elements.

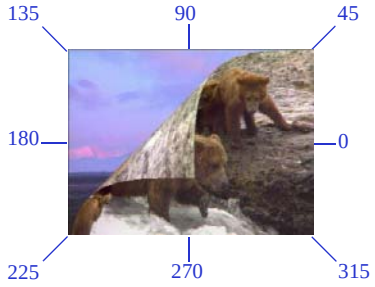
Page Turn Settings Dialog Box Elements

Name	Description
Style buttons 	The three radio buttons at the upper-left of the dialog box determine the style of the page turn. Peels back the In clip as a single page turn. This is the default setting. Peels back the four quadrants of the In clip simultaneously from the center. Peels back the four quadrants of the In clip sequentially, starting with the upper-left quadrant.
Direction	Sets the angle for the page turn. The value set in the text field directs the In clip from where to peel back. The default value is 144 (upper-left corner); the range is 0 to 359.
Curvature	Sets the size of the curled edge as the page is peeled. Low values create large curled edges; high values create small curled edges. The default value is 32; the range is 0 to 100.
Highlight	Sets the intensity of the lighting applied to the curled edge. Low values apply less lighting; high values apply more lighting. The default value is 25; the range is 0 to 100.
Shadow	Sets the intensity of the shadow beneath the curled edge. Low values apply a lighter shadow; high values apply a darker shadow. The default value is 25; the range is 0 to 100.
Transparency	Sets the transparency of the In clip (the foreground image). Low values are more opaque; high values are more transparent. The default value is 0 (completely opaque); the range is 0 to 100.
Page Flap Transparency	Sets the transparency of the curled edge. Low values apply less transparency; high values apply more transparency. The default value is 0 (completely opaque); the range is 0 to 100.

Page Turn Settings Dialog Box Elements *(Continued)*

Name	Description
Page Flap Image menu	Determines the image that appears on the curled edge. **Foreground**. Shows the In clip video on the curled edge (default). **Background.** Shows the Out clip video on the curled edge. **Color.** Shows any selected color on the curled edge.
Page Flap Color	Determines the color of the curled edge. Click the color box to select a color from the Apple color picker. The Page Flap Color button is available only when you choose Color from the Page Flap Image menu.
Preview Offset	Displays the effect in the preview window. You can adjust the slider to see the effect at various points.
Show Actual Sources check box	Displays the effect in the preview window using the actual In and Out clips. When unchecked, previews the effect using an animated representation of the clips.
Default button	Returns to the default settings.
Cancel button	Exits the dialog box without saving the changes.
OK button	Accepts the settings and returns to the Edit Suite window.

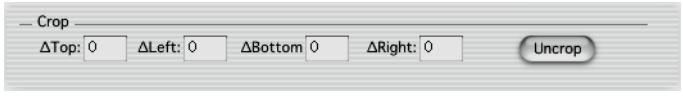
The following illustration shows how various angle values set the starting location of the page turn.



NOTE The Direction control is available only when the single page turn style is selected.

Cropping an Image

Acquired media sometimes has black lines at the edges and on the top and bottom of each frame. The black bands become visible during creation of any effect that reveals an edge of a frame (for example push, slide, page turn, or any DVE effect). With the exception of the page turn, you can crop these black bands or lines from the image during effect processing.



To crop an image

1 Specify a crop value for the Top, Left, Bottom, and/or Right edges of the image.

The default for each crop setting is 0 pixels (no cropping). Each value can range from 0 to almost the full width or height of the frame, depending on whether you are cropping horizontally or vertically. Combined crop values cannot exceed the width or height of the frame.

NOTE Click Uncrop to reset crop values to zero.

2 Click Apply in the Edit Suite to apply the crop settings.

▼ About Real-Time Transition Effects

Real-time transition effects are determined by two factors: first, the type of media that is being manipulated; second the type of transition being applied. Any HD media used in a transition will need to be rendered regardless of the type of transition being applied. For SD media, most of the FastFX transitions are real-time. You do not need to render real-time effects to see them as you play the program.

Real-Time Transition Effects

The Media 100 system provides over 20 real-time effects in the wipes class that do not need rendering until you export them. Most of the FastFX and any grandient wipe incorporated through the QuickTime Wipe Designer are available as real-time, dual-stream finished quality effects. These clips are always dark blue in the Program window because they do not have to be rendered to achieve online, finished quality. This lets you continue to layer other video and graphic elements over the transitions.

Third-Party Product Effects

In addition to the Media 100 system effects, the following are available for use with your system:

- QuickTime transition effects can be accessed through the Media 100 Edit Suite in Transition mode. This feature gives you access to a wide range of effects, many of which you can customize.
- QuickTime graphic import is available and supports the WipeDesigner plug in, and file formats including TIFF, GIF, and JPEG. It also supports the import of third-party graphics files, such as those created in Pixelan Software Video SpiceRack™.
- You can also add many effects from third-party products that adhere to the Adobe Premiere® or QuickTime plug-in standard. Install the effects as directed in the product installation guide.

▼ Playing Transition Effects

Your ability to play transition effects in real time depends on the type of media being manipulated and the nature of the effect. All transitions created using HD media must be rendered.

When working with SD media, if the effect is not one of the FastFX or Wipe Designer transitions that offers real-time playback, it must be rendered before you can play it back. All unrendered effects appear in the **Fx** track in dark green with italicized text, indicating that they are not candidates for real-time playback.

If titles or effects are placed too close together in your program, you may need to render them before you can play them. The Real-Time Titles and Effects to Render dialog box appears, indicating which clips need to be rendered. You can select and individually render any clip listed, select all the clips to render, or cancel rendering.

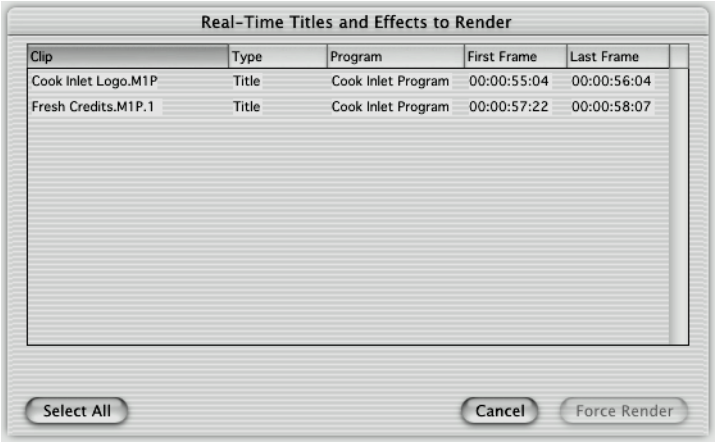
TIP To save rendering time and disk space, selectively render clips rather than rendering them all.

To verify whether your effects need rendering

1. Move the CTI to the portion of the program to play.
2. Press F5 or the SPACEBAR to play the program.

   If your transition effects or title clips are too close together, the system may not play them.

If you selected the Show Need to Render during Playback check box in the Preferences Titles and Effects panel (Media 100>Preferences>Titles and Effects), a Real-Time Titles and Effects to Render dialog box appears, listing the titles and effects that must be rendered before you can play them.



TIP If you render a clip, consider rendering clips immediately adjacent to it to ensure consistency of playback quality.

3 Select the titles and effects to render using any of the following methods:

To select...	Do this...
One clip	Click anywhere in the clip line.
Multiple clips	⌘-click each clip line.
A range of clips	SHIFT-click the first and last clip lines in the range.
All listed clips	Click Select All.

4 Click Render.

TIP Rendering alternate clips in the list may be sufficient.

▼ Rendering Transition Effects

Rendering reduces source images into a single new image by intermingling the images on a pixel-by-pixel basis. Media 100 creates new media when you render a transition effect. Before rendering or exporting, make sure you have adequate disk space to hold the new media files. .

CAUTION

Media 100 must remain the active application while rendering. Switching to another application or the Finder may cause visual errors in the transitions and cause a timeout error, forcing you to restart your computer.

NOTE To cancel rendering, click Cancel in the progress dialog box or press ⌘- **.** (PERIOD).

Rendering Individual Effects

When you create transition effects, you can render them individually.

To render an individual transition effect

1 Double-click the transition effect to access Transition mode.

2 Click Render.

When you render a transition effect, it is light green with with a green bar and non-italicized text in the program. If you later modify a rendered transition effect, the Media 100 system unrenders the clip and changes the clip to dark green with a red bar and italicized text. Real-time transitions are dark blue with a yellow bar, and do not require rendering.

Rendering All Effects

Use Media>Render All to sequentially render all the time effects, transitions, and titles in your program.

NOTE The Render All command does not render static titles. To render static titles, thus ensuring the highest playback quality, use Force Render.

To render an entire program

➤ Select the Program window and choose Media>Render All.

Using the Render Options Dialog Box

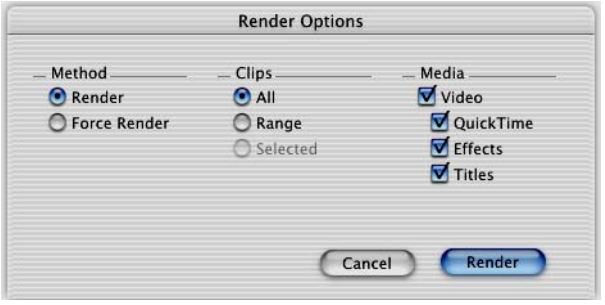
Use the Render Options dialog box to render or force render a program, range, or selection, and to choose the type of clip to render.

To render using the Render Options dialog box

1 Select the program, range, or clip(s) to render.

2 Choose Media>Render.

The Render Options dialog box appears.



3 From the Method section, choose one of the following radio buttons:

Choose...	To render...
Render	Items specified in the Clips and Media sections that require rendering. If this option is unavailable, the items specified in the Clips and Media sections do not require rendering.
Force Render	Items specified in the Clips and Media sections, whether or not they require rendering, for example, real-time titles and effects.

4 From the Clips section, click one of the following radio buttons to choose which clips to render:

Choose...	To render or force render...
All	All items specified in the Media section for the entire program.
Range	All items specified in the Media section within a defined program range. This option is unavailable if no program range is defined.
Selected	All items specified in the Media section that are selected in the program. This option is unavailable if no clips are selected in the program or if the Render radio button is selected.

5 From the Media section, select the appropriate check box(es) to choose which type of media to render:

Choose...	To render or force render...
Video and QuickTime	Imported QuickTime movies.
Video and Effects	Transitions and motion effects.
Video and Titles	Titles and graphic images.
Audio	Audio EQ.

6 Click Render.

▼ Deleting Transition Effects

Delete old effects with their media to free up disk space. You can delete existing transition effects from your program. You can also delete both transition effects and their corresponding media.

To delete existing transition effects

1 In the **Fx** track of the program, click the transition effect clip to select it.

2 Press DELETE or choose Edit>Clear-Remove.

The transition effect clip is deleted and disappears from the program. The location of the original cut point is preserved.

NOTE To delete a cut arrow, drag it above or below the video track until a red **X** appears over the arrow and release the mouse button.

Deleting a transition effect clip does not delete the source material produced when the effect was rendered. This material remains on disk until you delete it.

To delete all transitions within a selected range

➤ Choose Tools>Remove Transitions From Range.

The transition effect clips are removed from the selected range in the program. The locations of the original cut points are preserved. This does not delete the associated media.

To delete the transition clip and its associated media

1 In the **Fx** track of the program, click the desired transition effect clip to select it.

2 Choose Edit>Delete Clip and Media.

The transition effect clip and its media file are deleted.

To make a video clip from a deleted transition clip

1. Choose Media 100>Preferences>Media and select Move Deleted Media Files to Trash.

2. Delete the transition effect clip.

3. Open the Trash and drag the deleted clip over the Media 100 icon or use the Put away command to return the file to the media folder.

   The clip appears in the open bin as a video clip that you can use in your program as long as the file is still located in the Trash. Once you empty the Trash, the clip is no longer available.

12

Creating Video Effects

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▼ Introduction

This chapter describes how to apply Opacity adjustments, ClipFX, TimeFX and ColorFX feature sets to create a variety of effects. Add special video effects, color adjustments, composites, time effects, composition clips, and chroma or luma keying to your programs. Use the Levels and Curves color correction tools to provide precise control over brightness, contrast, color saturation, and color variations in your image.

▼ Opacity Controls

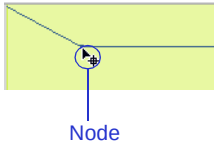
Any clip that resides on a Video Composition track has direct program timeline manipulation of Opacity levels. Opacity levels control the degree of transparency of a clip. The Opacity line in the program window can be adjusted using nodes to alter the opacity levels of a clip over the clip's duration.

NOTE Opacity levels are only available for clips residing on a Video Composition track.

To adjust the opacity level of a clip

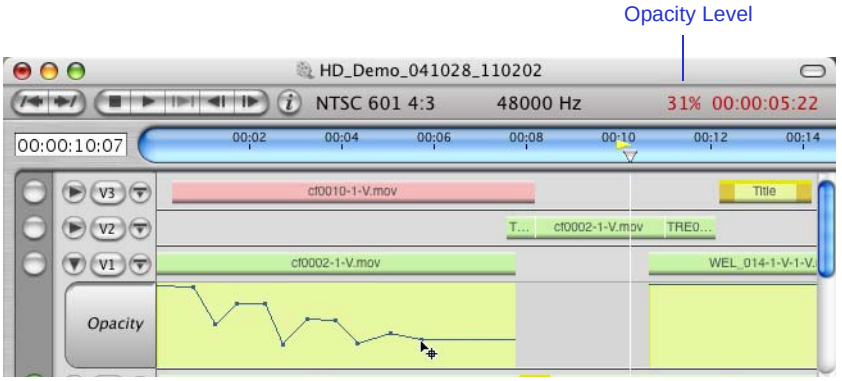
1 Select and expand the appropriate Video Composition track.

2 Click the Opacity level line.
The pointer changes to a node-adjust pointer, and a node appears on the line.



3 Move the node to the desired position. The Opacity level value is displayed in the upper right corner of the Program window.

NOTE You can readjust existing nodes at any time.



4 Click the Opacity level line to add as many nodes as you need and adjust them to achieve the opacity levels you want.

- Drag a node up and down or to the left and right. The line adjusts to accommodate the new position set by the node.
- ⌘-drag a node to constrain it to a straight vertical or horizontal path
  - OPTION-drag the line itself to move the entire opacity level uniformly.
  - SHIFT-drag a line segment to uniformly move it between two nodes.

NOTE Delete a node by dragging it off the timeline. To delete all the level nodes in the clip, select the clip and choose Edit>Clear Video Opacity Nodes.

Adjusting Opacity

Create a time range over a clip to change the opacity levels for all nodes in the range at one time.

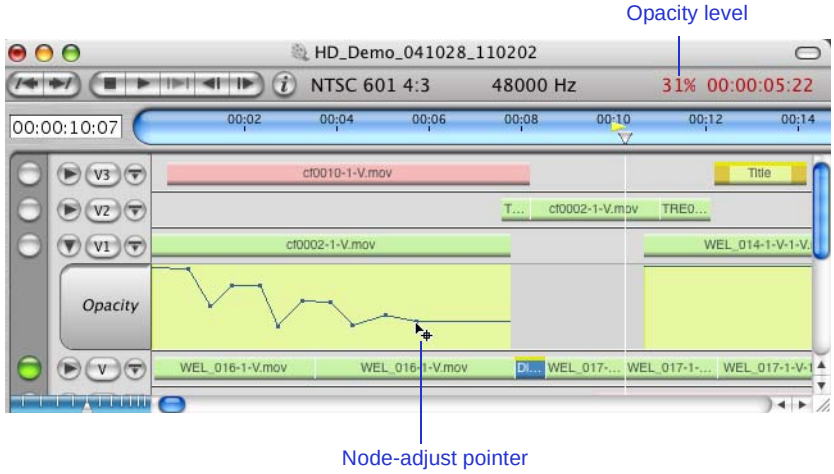
To increase or decrease opacity over a section of a clip

1 Create a time range over the video clip to adjust.

2 Select and expand the Video Composition track.

3 To change the opacity level, do the following:

Press...	To...
OPTION	Move all the nodes in the range up or down by dragging one node with the mouse.
SHIFT-ARROW UP SHIFT-ARROW DOWN	Move all the nodes in the range up or down in incremental steps by the keyboard.



4 Press ⌘-\ to play the range over the adjusted nodes to verify the changes.

To remove a range of nodes on a single clip

1 Create a time range.

2 Select and expand the Video Composition track.

3 OPTION-dragging a node out of the Video Compositoin track until a red pointer appears, removes all nodes within the time range.

NOTE If you drag a node more than 14 pixels past its nearest node neighbor, the cursor will change indicating you'll be replacing the adagcent node. If there is only node, when you drag past 14 pixels, it replaces the implied node.

▼ Accessing the Effects Panels

Access ClipFX, TimeFX and ColorFX panels from the Edit Suite.

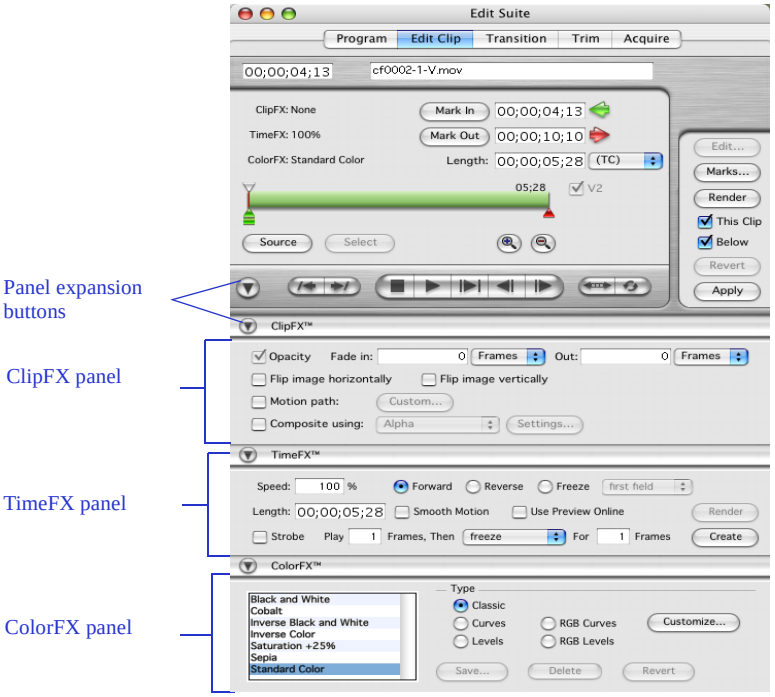
To open the effects panels

1 Double-click a clip in a bin or program.

The Edit Suite becomes active.

2 Click the panel expansion button.

The ClipFX, TimeFX and ColorFX panels appear. If necessary, click the additional panel expansion buttons to display them.



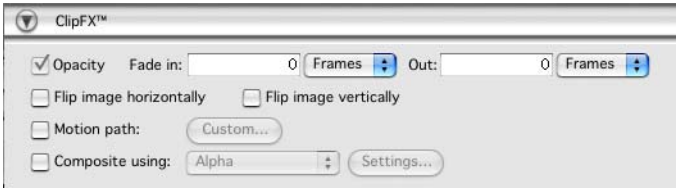
▼ Using Clip Effects

Clip effects alter the appearance of a video clip by flipping, compositing, applying fade-in and fade-out as well as motion paths. Compositing is the process of combining two or more image layers together by keying or using the alpha channel. You can alter the clip by

- Applying a fade-in and fade-out
- Flipping horizontally
- Flipping vertically
- Applying a motion path
- Compositing using alpha
- Compositing using keyer

▼ About the ClipFX Panel

The ClipFX panel provides controls for fade-in and fade-out, flipping the image, applying motion paths and compositing.



The following table describes the ClipFX panel elements.

ClipFX Panel Elements

Name	Description
Opacity	**Fade-in**. Specify in frames or timecode the duration of the fade-in. **Fade-out.** Specify in frames or timecode the duration of the fade-out.
Flip Image Horizontally	Reverses the left and right sides of the image
Flip Image Vertically	Reverses the top and bottom of the image
Motion Path	Opens the Motion Path editor.
Composite Using	Specify how to composite the image either using the alpha or keyer. The menu options are: **Alpha**. Composites the clip using the embedded alpha information. **Keyer**. Keys using RGB, YUV, HSL or Luma/Component options.

Opacity Fade-In and Fade-Out

To set the fade-in and fade-out on any clip on a Video Composition track, select the Opacity checkbox and specify the number of frames or the timecode duration for the respective fade-in and fade-out.

Flipping Images

To flip the appearance of an image along its X axis, select the Flip Image Horizontally checkbox. This reverses the left and right sides of the image. To flip the appearance of an image along it’s Y axis, select the Flip Image Vertically check box. This reverses the top and bottom of the image. These controls may be used simultaneously.

Motion Paths

Using the Motion Path editor you can create automatic or custom keyframable motion paths ajdusting position, size, opacity and cropping controls to manipulate the clip. Automatic rolls, crawls and static paths can also quickly be created. Motion paths can be applied to any video clip or graphic on a Video Composition track. In addition, motion paths can be applied to Picture-in-Picture transitions which also provides access to borders and shadows.

For more information on working with motion paths, see the “Creating Motion Path” chapter.

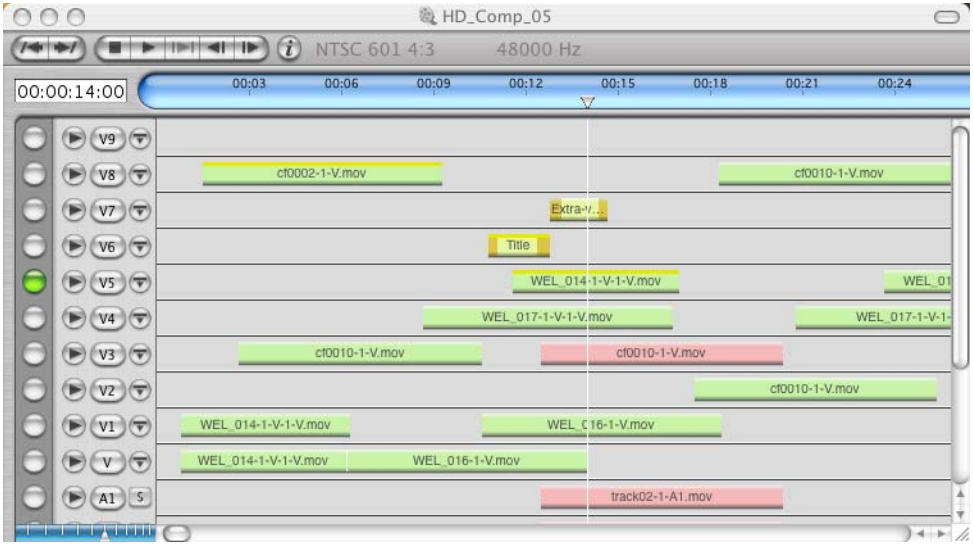
Compositing Images

Images may be composited (combined with another image) by using the embedded alpha of a clip or by keying. Compositing an image enables the intermingling of two images in vertical alignment on different tracks. Therefore compositing of an image occurs on a Video Composition track where another image can be placed beneath it on a separate track.

NOTE Keying may be performed in the Master Video track by using the Chroma Key or Luma Key DVE transition or the Effect Suite or Composite Suite. See “Keying in the Master Video track.”

The clips to be composited must be in vertical alignment (one on top of the other) but they do not have to reside on contiguous tracks. For example you can composite a clip on track V8 that is in vertical alignment with a clip on track V3 providing there are no clips in the same vertical alignment on tracks V4 through V7.

The following illustrates a composite of a clip on track V8 with another clip on track V3. Notice, there is no content in vertical alignment on the tracks in between the clips being composited.



Composite Using Alpha

Two images can be composited using the embedded alpha channel of a clip. The alpha channel is a fourth channel of information.. The first three channels carry the color information red, green, and blue. The alpha channel carries grayscale and user-defined selections of an image. These selections based on their monochrome values determine whether that portion of the image will be opaque, transparent or somewhere in between. Typically white represents opaque, black represents transparent and gray values fall in between. The darker the gray, the more transparent. The lighter the gray, the less transparent or more opaque. Alpha channels may be inverted where white is transparent and black is opaque but this is not the norm. Therefore, when compositing using alpha, the white areas of alpha will retain the clip information and the black areas of alpha will be transparent to expose the underlying clip.

Video Composition tracks automatically support media with alpha channels. If a static clip with an alpha channel, such as a PICT or TIFF image is placed on a Video Composition track the alpha channel is automatically used. Therefore, the opaque areas of alpha will display the image and the transparent areas of alpha will display through to the underlying image. Motion alphas generated on video clips using a supported codec (Media 100 HD or Animation) are also automatically detected. When a video clip with a supported motion alpha is placed on a Video Composition track the “Composite Using Alpha” checkbox in the ClipFX panel is automatically engaged.

Upon selecting the “Composite Using” checkbox and choosing “Alpha” from the menu options, the embedded alpha channel information will be used to display opaque and transparent areas of the image.

To Composite Using Alpha

1. Double-click a clip on a Video Composition track.
   The Edit Suite becomes active.
2. Open the ClipFX panel.
3. Click the Composite Using check box.
4. From the Composite menu select Alpha.

NOTE If a clip has a supported motion alpha channel and is placed on a Video Composition track, the Composite Using Alpha in the ClipFX panel is automatically engaged.

Composite Using Keyer

Two images can be composited by keying. Keying enables the masking out of specific areas of a clip based on attributes like dark and light (Luma Key) or color (Chroma Key). This is also known as “pulling a key.” The key determines where and how much background video will appear through the foreground clip.

Upon selecting the “Composite Using” checkbox and choosing “Keyer” from the menu options, the Settings button becomes active. Click on the Settings button to activate the Keyer dialog box.

NOTE Keying may be performed in the Master Video track by using the Chroma Key or Luma Key DVE or the Effect Suite or Composite Suite. See Keying in the Master Video track.

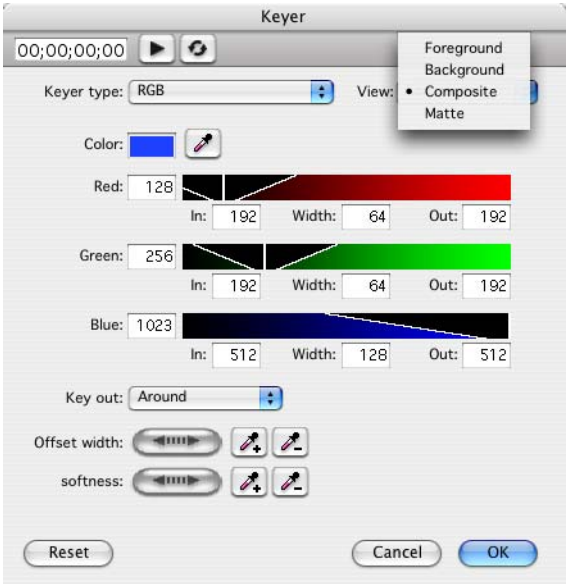
To Composite Using Keyer

1. Double-click a clip on a Video Composition track.
   The Edit Suite becomes active.

2. Open the ClipFX panel.

3. Click the Composite Using check box.

4. From the Composite menu select Keyer and click the Settings button.
   The Keyer dialog box appears.



The following table explains elements of the Keyer dialog box.

Keyer Dialog Box Elements

Name	Description
Timecode	Timecode of the clip
Play button	Plays the clip from In to Out
Loop play button	Loop plays the clip from In to Out
Keyer Type	Sets the working color space to pull the key. The menu options are: **RGB**. Activates keyer controls of the red, green and blue color channels **YUV**. Activates keyer controls of the luminance (Y) and color difference signals (Cb and Cr) **HSL.** Activates keyer controls of Hue, Saturation and Lightness **Luma/Component.** Activates keyer controls of Luminance or individual color channels
View menu	Choose to display the view in the Source Monitor: **Foreground**. Displays the untouched source image **Background**. Displays the background image **Composite**. Displays the composite of the foreground and background image **Matte**. Displays the matte
Color	The color chip displays the selected color to be keyed. Click on the color chip to display the Color dialog box. In the color dialog box select the desired color palette and choose the color. Displays for all keyer types except Luma/Component.
Eyedropper	Click the eyedropper and scrub in the Source window to specify the desired color to be keyed. Displays for all keyer types except Luma/Component.

Keyer Dialog Box Elements *(Continued)*

Name	Description
Channel	Sets the channel in which to pull the key for a Luma/Component key. The menu options are: **Luma.** Displays the luma range to key dark or light areas **Red.** Displays the red color range to key values within the red color channel only **Green.** Displays the green color range to key values within the green color channel only **Blue.** Displays the blue color range to key values within the blue color channel only Displays only for the Luma/Component keyer type.
Color Input Fields	Dependent upon the Keyer type selected, the input key color values (chosen via the color palette or eyedropper) are displayed in the respective fields. The options are: Red, Green, Blue if the RGB Keyer Type is selected. Y, B-Y, R-Y if the YUV Keyer Type is selected. Hue, Saturation, Lightness if the HSL Keyer Type is selected. Luma or the respective RGB channel if the Luma/Component Keyer Type is selected.

Keyer Dialog Box Elements *(Continued)*

Name	Description
Range Settings	Dependent upon the Keyer type selected, specified ranges are engaged to indicate the range values to be keyed. The RGB range options are Red, Green, Blue. The YUV range options are Y, B-Y, R-Y. The HSL range options are Hue, Saturation and Lightness. The Luma/Component Keyer offers an individual range setting based on the channel selection of Luma, Red, Green, or Blue. All ranges offer value settings for In, Width and Out.. **In.** Specifies the minimum color value to be keyed. Minimum value is 0. **Width.** The tolerance angle which specifies the amount of expansion or contraction allowed within the color value. The higher the number, the more of that color value is keyed. The lower the number, the less of that color value is keyed. Width values can be between 0 and 2046. **Out.** Specifies the maximum color value to be keyed. Maximum value is 1023. **NOTE** The Keyer always works in 10-bit color space regardless of the Keyer type selected or the source content.
Key Out	Set to key out Around or Away From the specified values. **Around.** Keys out the specified values. **Away from.** Keys out the inverse of the specified values.
Offset Width	Globally controls the Width (tolerance angle) value for all ranges by click/dragging the button to the right or left.
Softness	Globally controls the In and Out values adjusting the saturation of the key to provide edge softness by click/ dragging the button to the right or left.

▼ Using Time Effects

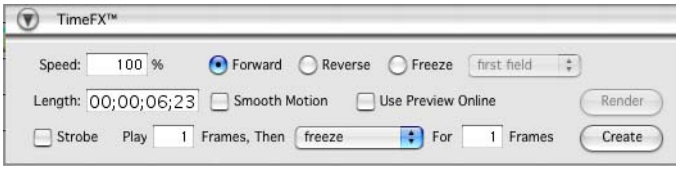
Time effects alter the normal play characteristics of a video clip. You can alter the clip by adding and adjusting

- Speed
- Length
- Direction — forward or backward
- Real-time Strobe effect

Altered clips are purple in the timeline, indicating that they contain time effects. The real-time Strobe effect uses the existing media file of a clip without rendering. Other time effects require rendering to provide smooth motion. Rendering produces a new clip that is placed in the active bin, and a new media file, stored in the Project Media folder.

▼ About the TimeFX Panel

The TimeFX panel provides the controls for creating specialized time effects for your video.



The following table describes the TimeFX panel elements.

TimeFX Panel Elements

Name	Description
Speed % field	Adjusts the time the clip takes to play.
Forward/Reverse radio buttons	Sets the direction in which the video plays.
Freeze radio button	Displays a full frame or field of a frame for the entire time a clip plays.
Freeze menu	Sets the display options for the frame. The menu options are: **Full frame**. Provides the best quality image. For frames with motion, appearance may be jittery. **First field**. Displays an interpolated field. **Second field**. Displays an interpolated field.
Length field	Sets the duration of the clip.
Smooth Motion check box	Ensures that motion from frame to frame appears smooth but less sharp.
Use Preview Online check box	Previews a clip or delays rendering a motion effect.
Render button	Starts the render process and on completion puts the new time effected media clip in the active bin.
Create button	Puts the time effected media clip in the active bin.
Strobe check box	Activates Strobe effect controls. Requires Forward or Reverse radio buttons selected.
Play field	Determines the number of frames that play before an action occurs.

TimeFX Panel Elements *(Continued)*

Name	Description
Strobe menu	Selects the effect. **Freeze**. Freezes the frame for a staccato effect. **Black**. Plays black for the duration for a flicker effect.
Frames field	Determines the duration the effect lasts.

Changing Clip Speed, Length, and Direction

The speed and length of a video clip are inversely proportional to each other. Changing one setting automatically affects the other.

- Increasing the speed at which a clip plays shortens the length.
- Increasing the length of a clip decreases the speed.

Using the TimeFX panel, you can specify speeds from –1200% (reverse) to 1200% (forward). When you enter a speed, the system updates the duration of the new clip by dividing the original duration by the new speed setting.

To alter the speed of your clip

1 Type a value from –1200 to 1200 in the Speed % field.

A value of...	Plays as...
0	A freeze frame.
Less than 100	Slow motion (50 plays at half speed).
100 (default setting)	Normal speed.
Greater than 100	Fast motion (200 plays at double speed).

2 Click Play in the Edit Suite to preview the result in the Video window.

3 Click Apply to create the new time clip.

The clip is placed in the bin, named to match the time applied.

4 Click Render.

5 Use the Replace Media feature to replace the original clip in the timeline with the new time effect clip.

To adjust the length of a clip

1 Type a new timecode in the Length field.

2 Click Apply.

To alter the direction of a clip

1 Click Reverse.

Clicking Reverse automatically changes the Speed field to a negative value.

2 Click Apply to create the reverse time clip.

3 Click Render.

Smoothing Time Effects

The Smooth Motion function ensures that motion from frame to frame appears smooth, but less sharp. When Smooth Motion is not selected, frames are sharper, but appear jumpy or jerky at slower speeds.

To smooth a motion effect

➤ Click the Smooth Motion check box.

TIP Although you can use the Smooth Motion function for any speed setting, it is most effective for settings of 50% or less.

Freeze-Framing a Clip

The Freeze radio button allows you to display a single frame or field of a frame for the entire duration of the clip.

To add a freeze-frame effect

1. Select a frame by scrubbing the CTI to the left or right.
2. Click Freeze.

   The clip speed changes to 0%.
3. Select first field, second field, or full frame from the menu.
4. Preview the result.
5. Set the duration of the clip.
6. Click Render to produce the freeze-frame clip.

Adding Strobe Effects

The Strobe function is accomplished in real time, providing the speed is retained at 100%. Strobe applies a “flicker” or “staccato” effect to the selected clip, depending upon the parameters set. You can

- Specify the number of frames that play
- Determine the action that occurs next (freeze or play black)
- Select the number of frames the action affects

Once set, these parameters continue in a loop through the entire length of the clip. Varying these three factors can greatly change the appearance and effect of the clip.

To add a strobe effect

1. Click the Strobe check box.
2. Type in the Play field the number of frames you want the clip to play before an action occurs.
3. From the Strobe menu, select the action.
4. Type in the Frames field the number of frames for which you want the action to occur.
5. Preview the result.

Previewing Time Effects

Preview a time effect in real time before you apply or render it. Try different effects and see them as they actually appear when rendered. By selecting the Use Preview Online check box on the TimeFX panel, you can delay final rendering of clips with time effects.

To preview a clip or delay rendering of time effects

➤ Click the Use Preview Online check box in the TimeFX panel.

Selecting this check box instructs the system not to render clips with time effects when mastering or when the Render All command is used.

TIP The Use Preview Online check box provides time effects that are acceptable for most final output. However, if you desire the highest quality time effects, render them.

Applying and Rendering Time Effects

Applying a time effect (except for the Strobe effect) creates a new video clip in the active bin. The new clip uses the same keyframe as the original, but the title is appended in one of the following ways:

- If you alter the speed setting of the new clip, the title includes the original name and the new speed setting (for example, "title 200%").
- If you add the freeze-frame function, the title includes the original name plus the FF designation (for example, "title FF").
- If you are applying time effects to a clip with synchronized audio, the audio is not attached to the rendered time effect clip. Reattach the audio to the video clip by syncing the clips together in the program.

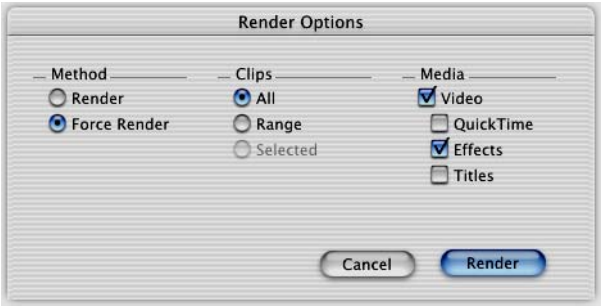
Rendering time is affected by the use of the Smooth Motion function and depends on the percent of speed. Non-smoothed time effects require approximately 5 times the duration of the clip to render, while smoothed time effects take approximately 11 times the duration of the clip.

NOTE All rendered time effects, regardless of smoothing, are field interpolated.

To batch render all time effects in the program

1. Apply the time effects to selected clips.
2. Choose Media>Render.

   The Render Options dialog box appears.



3 Click the Force Render and Selected radio buttons.

4 From the Media check boxes, deselect any that do not apply.

5 Click Render.

▼ Using Color Effects

The Media 100 system provides real-time color effects that allow you to adjust color parameters for each clip. When you apply color effects to a clip in the bin, the clip's keyframe color changes to reflect the applied color effect.

Color effects may be applied through the use of Preset effects, Classic controls or Curves and Levels with the ability to choose between working in YUV or RGB color space.

The Preset effects include Black and White, Cobalt, Inverse Black and White, Inverse Color, Saturation +25%, Sepia and Standard Color.

The Classic controls consist of Luminance adjustments using Brightness and Contrast controls; Chrominance adjustments using Tint, Saturation and Colorize manipulations; and Style adjustments with the ability to Posterize or Solarize the image.

The Curves control adjustments can be performed in either YUV color space or RGB color space by selecting the Curves or RGB Curves radio buttons respectively. The Curves controls deliver precise, robust color and tonal correction by adjusting points along a scale.

The Levels control adjustments can also be performed in either YUV color space or RGB color space by selecting the Levels or RGB Levels radio buttons respectively. The Levels controls enable color and tone adjustments by remapping the minimum, maximum and mid-range values while using a histogram.

When working with Curve and Level control adjustments you can choose to work in YUV or RGB colorspace. The determining factor of which color space to correct in depends upon what needs to be corrected in the image. For example, if a luminance adjustment is required, it is best to accomplish the task in YUV colorspace where

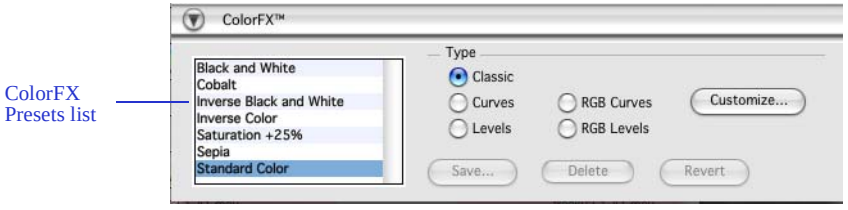
there is absolute control over the luminance in the image without affecting the chrominance. If there is an issue with the green channel and an adjustment is needed it is best to accomplish the task in RGB colorspace where there is absolute control over the green channel.

NOTE The color space for an 8-bit image is 0-255 with the legal range being 16-235. The color space for a 10-bit image is 0-1023 with the legal range being 64-940. Media 100 will always work with 8-bit values even when handling a 10-bit image as the color space adjustments are automatically calculated internally by the system.

NOTE Any ColorFX applied to HD media requires rendering.

▼ About the ColorFX Panel

The ColorFX panel provides the controls for creating custom color effects and to correct problems with color saturation, brightness or contrast.



The following table describes the ColorFX panel elements.

ColorFX Panel Elements

Name	Description
ColorFX presets list	Shows custom color effects provided as well as any created color effects that have been saved in the active project. The presets include: Black and White Cobalt Inverse Black and White Inverse Color Saturation +25% Sepia Standard Color
Type section	Provides access to the ColorFX dialog boxes. Click one of the following radio buttons: **Classic**. Lets you set the Luminance, Chrominance, and Style color effects. **Curves**. Lets you adjust in YUV color space, specific areas of an image and fine tune color or lighting in any area of the video. **Levels**. Lets you adjust in YUV color space, the basic quality of the overall image and modify the mid-level gray tones. **RGB Curves.** Lets you adjust in RGB color space, specific areas of an image and fine tune color or lighting in any area of the video. **RGB Levels**. Lets you adjust in RGB color space, the basic quality of the overall image and modify the mid-level gray tones. **Customize button**. Displays the dialog box associated with the selected radio button.

ColorFX Panel Elements *(Continued)*

Name	Description
Current Usage section	Shows the current number of different color effects or color corrections in use by the application. **Classic**. Maximum of 1000 color effects per program. **Curves/Levels**. Maximum of 50 color corrections per program.
Save	Saves a custom color effect.
Delete	Deletes a selected color effect. You cannot delete any preset effects.
Revert	Restores previous ColorFX settings.

Setting Classic ColorFX

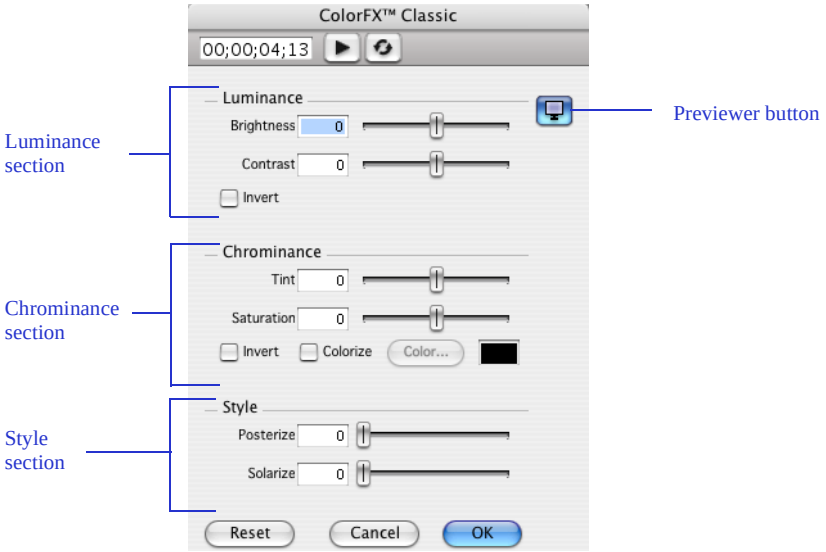
Apply up to 1,000 different color effects in a single program using effects created in the Classic dialog box. From the ColorFX Classic dialog box, you can adjust and save settings for

- Brightness or contrast
- Tint and saturation
- Color effects

To access the Classic dialog box

➤ Click the Classic radio button and click Customize.

The Classic dialog box appears.



The following table explains elements of the Classic dialog box.

Classic Dialog Box Elements

Name	Description
Timecode	Timecode of the clip
Play button	Plays the clip from In to Out
Loop play button	Loop plays the clip from In to Out
Luminance section	Adjusts the brightness and contrast of the video image.
Previewer button	Shows color effects on the video monitor and Video window in real time. Click to see previous video image for comparison.
Chrominance section	Adjusts the hue and saturation of the video image.

Classic Dialog Box Elements *(Continued)*

Name	Description
Style section	Changes the video image by applying posterizing effect or solarizing effect.
Reset button	Changes the clip back to original settings.
Cancel button	Closes the dialog box without applying any changes.
OK button	Sets the color effect and closes the dialog box.

The following sections explain the Classic dialog box elements:

- Luminance
- Chrominance
- Style

About Luminance

Use Luminance to change the brightness and contrast of a video clip. The following table describes the Luminance elements.

Luminance Section Elements

Name	Description
Brightness controls	Adjust the brightness by the amount entered or by dragging the slider.
Contrast controls	Adjust light and dark shades by the amount entered or by dragging the slider.
Invert check box	Reverses the setting values so light shades become dark and dark shades become light.

About Chrominance

Use Chrominance to change the actual color of a clip. You can adjust both the tint and saturation of a color. The following table describes the Chrominance elements.

Chrominance Section Elements

Name	Description
Tint controls	Adjust the chroma (color) shift or hue of a clip by the amount entered or by dragging the slider.
Saturation controls	Adjust the color intensity of a clip by the amount entered or by dragging the slider.
Invert check box	Changes the color of the clip to its opposite color. For example, red pixels change to cyan, blue pixels change to yellow, and green pixels change to magenta.
Colorize check box	Applies a selected color to all pixels in a clip while maintaining luminance.
Color button	Opens the Color dialog box. Click Colorize check box to activate Color button.
Color chip	Shows the selected color effect.

About Style

Style applies posterization and solarization to a video clip. The following table describes the Style elements.

Style Section Elements

Name	Description
Posterize controls	Adjust the tonal values for a clip by the amount entered or by dragging the slider.
Solarize controls	Blend a negative and positive image of each frame in a clip by the amount entered or by dragging the slider.

Using Color Correction Tools

Often video footage contains lighting or color problems that affect the quality of the video image. Since it is not always possible to reshoot the scene, the ability to correct imperfections while you are editing saves time and effort.

The Levels and Curves tools correct video imperfections in real time. You can also use these tools to create video effects.

The Levels/Curves tools add controls to

- Increase or decrease the dynamic range of a frame
- Change from one color range to another
- Substitute a color for creative effect
- Adjust color hue and saturation levels

The Curves and Levels tools work independently of each other. If you adjust an image using the Curves tool and then open the Levels tool, the changes are lost.

If you require additional adjustments to a clip that already has color correction applied, export the clip and reimport it. The application creates new media upon export. Import the new clip; you can then apply final color corrections.

The Media 100 color correction tools work in either YUV or RGB color space.

When working in RGB color space, the image is adjusted by modifying the overall luminance, red, green and blue color channels.

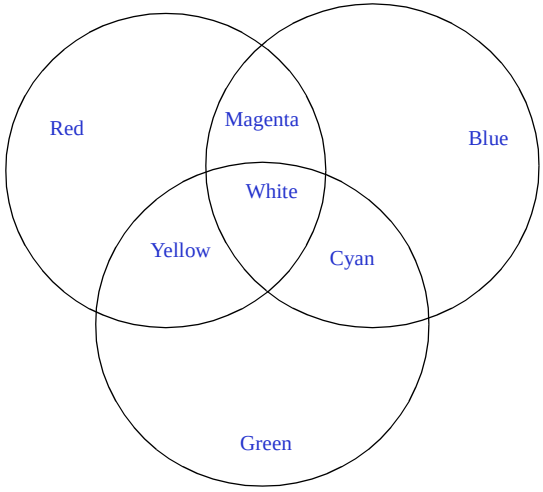
- Adjusting the RGB value changes the overall luminance
- Adjusting the R value modifies the red color channel
- Adjusting the G value modifies the green color channel
- Adjusting the B value modifies the blue color channel

When working in YUV color space the image is adjusted by modifying the luminance, blue and red signals.

- Adjusting the Y value primarily changes the luminance
- Adjusting the U value modifies the blue signal
- Adjusting the V value modifies the red signal

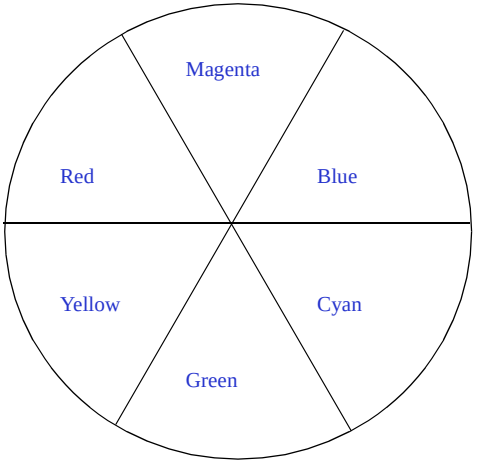
The YUV channels are actually mathematical mixes of the RGB channels. The Y channel is luminance only and what you would see if you completely desaturated an RGB image. The U and V channels are where the color information or chrominance is stored. One channel carries the hue and saturation of the orange-cyan colors and the other channel carries the hue and saturation of the yellow-green-purple colors.

Correcting color involves changing the mixture of light used in the image. Mixing the right proportions of red, green, and blue light produces white light, as shown in the following figure.



The following video color wheel shows the primary colors opposite their complements.

NOTE The video color wheel differs from that used in traditional art.



Adjusting the color or hue in an image often involves removing the color complement. For example:

- Removing blue from an image results in a yellow tint; blue is the complement of yellow.
- Removing red from an image results in a cyan tint; red is the complement of cyan.

In YUV color space, Y primarily adjusts luminance, adjusting green and magenta requires that you add light to achieve the desired effect. Changing the Y value makes the image darker or lighter, not more or less green.

To create magenta tints

➤ Add red and blue at the same time to give the image a magenta tint.

To create green tints

➤ Remove red and blue to give the image a green tint.

In RGB color space, RGB adjusts the overall luminance, while R adjusts the red channel, G adjusts the green channel and B adjusts the blue channel.

To create magenta tints

➤ Decrease the green channel as magenta is the complement color of green.

To create green tints

➤ Increase the green channel.

The following sections describe the Levels and Curves tools in more detail.

About Curves

The Curves tool allows you to correct problems with color shift or gamma for each clip. You can make color adjustments anywhere along the tonal range of an image by setting points and dragging the points to create a curve. Adjusting the curve can change an overexposed video with very little detail in the highlights to an image with a wider range of tones to the highlights, such as shadows and improved contrast.

To access the Curves dialog box

1 Double-click a clip in the timeline or bin.

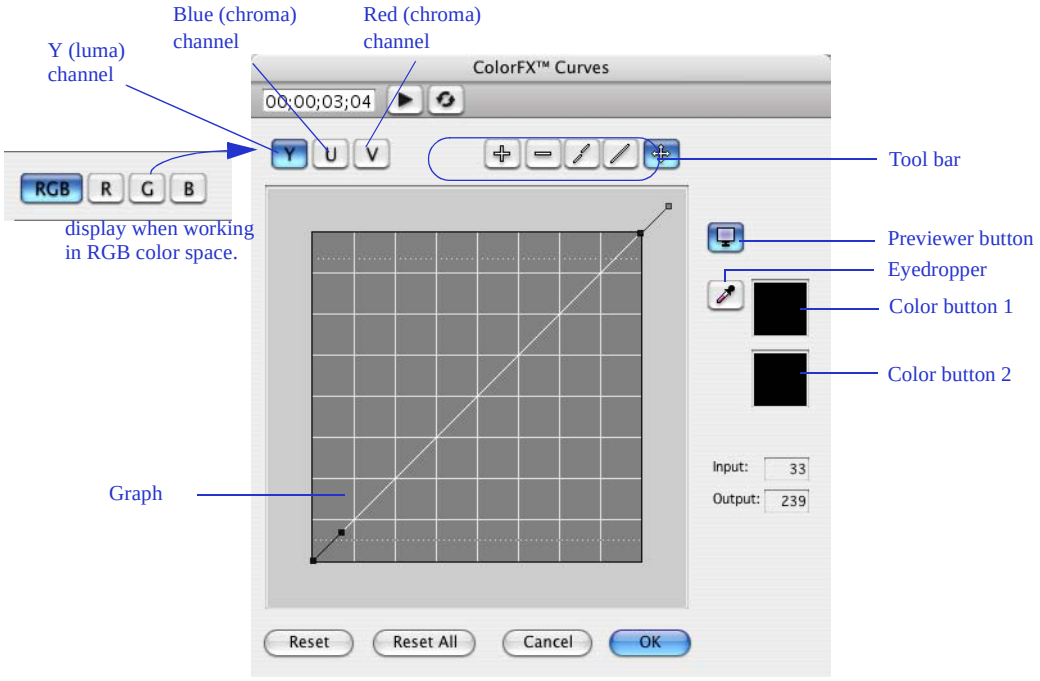
The Edit Suite becomes active.

2 Open the ColorFX panel.

3 Click the Curves radio button to work in YUV color space
or
Click the RGB Curves radio button to work in RGB color space

4 Click the Customize button.

The Curves dialog box appears. If working in YUV color space, the respective Y, U and V buttons will display in the upper left corner of the dialog box. If working in RGB color space, the respective RGB, R, G and B buttons will display in the upper left corner of the dialog box.



The following table describes the Curves dialog box elements.

Curves Dialog Box Elements

Name	Description
Timecode	Timecode of the clip
Play button	Plays the clip from In to Out
Loop play button	Loop plays the clip from In to Out

Curves Dialog Box Elements *(Continued)*

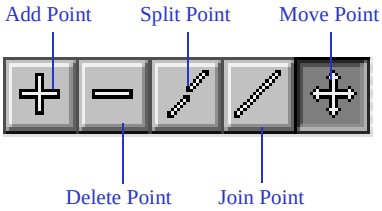
Name	Description
Y channel button	Adjusts brightness and contrast values in the image. Provides a curve that changes tonal values of an image. **NOTE** Available when working in YUV color space. SHIFT-clicking a channel button copies curve points already set to the newly selected channel. SHIFT-click to select more than one channel to control simultaneously
U channel button	Adjusts the blue values of the video signal. **NOTE** Available when working in YUV color space. SHIFT-clicking a channel button copies curve points already set to the newly selected channel.
V channel button	Adjusts the red values of the video signal. **NOTE** Available when working in YUV color space. SHIFT-clicking a channel button copies curve points already set to the newly selected channel.
RGB channel button	Adjusts the overall luminance of the image. **NOTE** Available when working in RGB color space. SHIFT-clicking a channel button copies curve points already set to the newly selected channel.
R channel button	Adjusts the red color channel of the image. **NOTE** Available when working in RGB color space.
G channel button	Adjusts the green color channel of the image. **NOTE** Available when working in RGB color space.
B channel button	Adjusts the blue color channel of the image. **NOTE** Available when working in RGB color space.
Toolbar	Provides the tools to add, delete, split, and join points on the line to affect the line for image correction.

Curves Dialog Box Elements *(Continued)*

Name	Description
Previewer button	Displays the image on the monitor and previews changes made in the dialog box in real time. Click to temporarily show the original uncorrected image.
Eyedropper	Allows you to select a color while watching the monitor.
Color button 1	Shows the color and color value for the area of the video image selected with the eyedropper. Click the button to activate.
Color button 2	Shows the color and color value for the area of the video image selected with the eyedropper. Click the button to activate.
Input field	Shows the color pixel value of the selected channel of the input video. (read-only).
Output field	Shows the color pixel value of the selected channel after correcting for the output video. (read-only).
Graph	Displays the elements used for correcting color. The diagonal control line is the video image at its present setting.
Reset button	Changes one channel back to the original. Press SHIFT-Reset to compress the colorspace range to legal 16 and 235 Press CONTROL-Reset to expand the channel to the full-color range.
Reset All button	Changes all channels back to the original. Press SHIFT-Reset All to compress the colorspace range to legal 16 and 235 Press CONTROL-Reset All to expand the channels to full-color range.
Cancel button	Closes the dialog box without applying any changes.
OK button	Accepts the changes and closes the dialog box.

Curves Toolbar

The following illustration shows the Curves toolbar.



The following table describes the Curves toolbar elements.

Curves Toolbar Elements

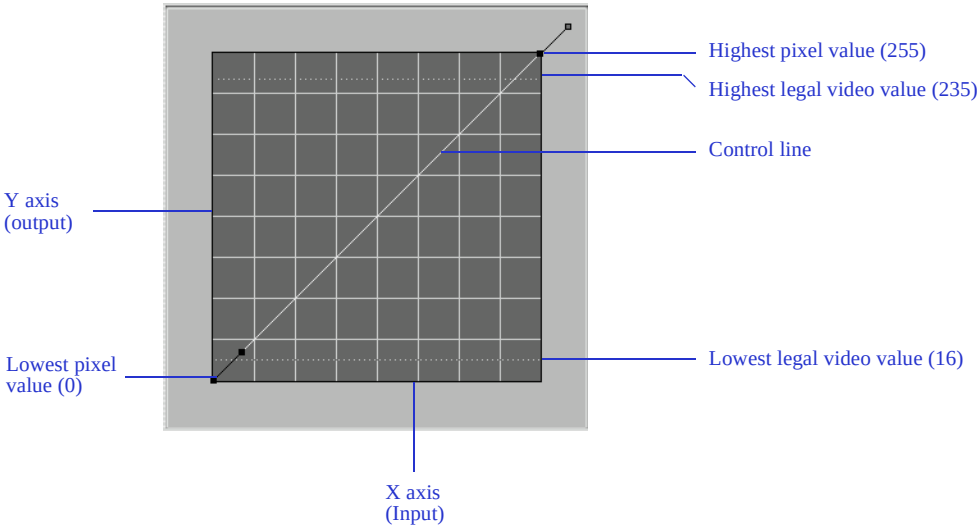
Name	Description
Add Point button	Adds a point to the selected channel . To change the image in YUV color space: ■ Drag the point to move the line to the left of the control line to brighten the image using the Y channel or saturate the image using the U or V channels. ■ Drag the point to move the line to the right of the control line to darken the image using the Y channel or change to the opposite color using the U or V channels. To change the image in RGB color space: ■ Drag the point to move the line to the left of the control line to increase the overall luminance of the image using the RGB channel or increase the red, green and blue color channels using the R, G or B channel buttons. ■ Drag the point to move the line to the right of the control line to decrease the overall luminance of the image using the RGB channel or decrease the red, green and blue color channels using the R, B or B channel buttons. Decreasing a color channel, increases it's complement color. CONTROL-click the button to lock it for adding multiple points. Click the button again to unlock it.
Split Point button	Splits a point into right and left bezier control handles. The right control handle moves the upper segment of the line. The left control handle moves the lower segment of the line. Each segment of the line is independent of the other segment. CONTROL-click the button to lock it for splitting multiple points. Click the button again to unlock it.
Move Point button	Drags the point to affect the video image.

Curves Toolbar Elements

Name	Description
Delete Point button	Deletes a point from the selected channel. CONTROL-click the button to lock it for deleting multiple points. Click the button again to unlock it.
Join Point button	Joins the control handles. The right handle controls the left and right side of the point. Moving the handle moves the entire curve. CONTROL-click the button to lock it for joining multiple points. Click the button again to unlock it.

Curves Graph

The following illustration shows the graph that is part of the Curves dialog box.



The following table describes the graph elements.

Curves Graph Elements

Name	Description
Highest pixel value	Changes the saturation level of the video image. **Y settings**. 255 = white **U settings**. 255 =100% blue **V settings**. 255 = 100% red **RGB settings**. 255 = white **R settings**. 255 = 100% red **G settings**. 255 = 100% green **B settings**. 255 = 100% blue
Highest legal video value	Shows the safe video high pixel value of 235.
Control line	Shows the norm. Adjustments are made to the left or right of the control line.
Lowest legal video value	Shows the safe video low pixel value of 16.
Y axis	Controls the image output.
Lowest pixel value	Adds shadows to the video image. Zero (0) = black.
X axis	Controls the image input.

About Levels

The Levels dialog box lets you adjust the image quality (highlights, shadows, and gamma) of the video. Gamma measures the contrast that affects the midlevel grays (midtones) of an image. Adjust the gamma level without altering the highlights and shadows. As you make the changes in the image, the program modifies the color look up table (LUT) for the monitor in real time.

To access the Levels dialog box

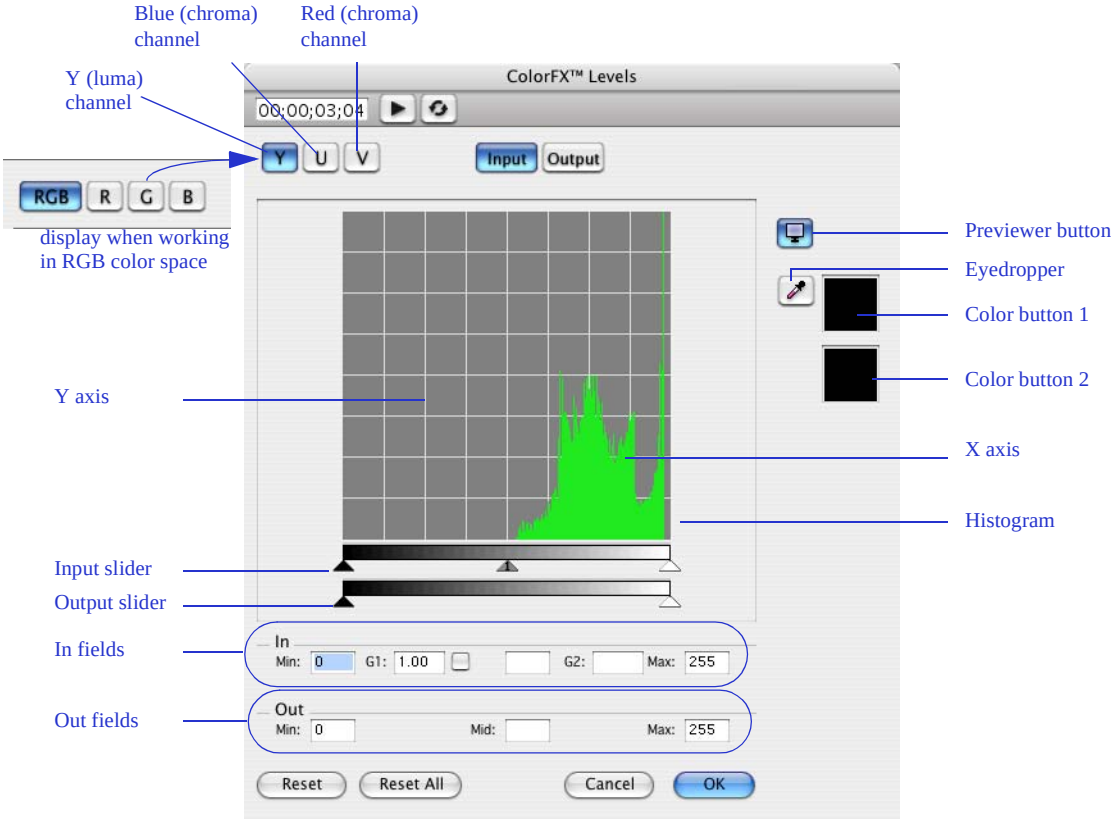
1 Double-click a clip in the timeline or bin.

The Edit Suite becomes active.

2 Open the ColorFX panel.

3 Click the Levels radio button to work in YUV color space
or
Click the RGB Levels radio button to work in RGB color space.

The Levels dialog box appears. If working in YUV color space, the respective Y, U and V buttons will display in the upper left corner of the dialog box. If working in RGB color space, the respective RGB, R, G and B buttons will display in the upper left corner of the dialog box.



The following table describes the Levels dialog box elements.

Levels Dialog Box Elements

Name	Description
Timecode	Timecode of the clip
Play button	Plays the clip from In to Out
Loop play button	Loop plays the clip from In to Out

Levels Dialog Box Elements *(Continued)*

Name	Description
Y channel button	Adjusts brightness and contrast values in the image. Provides a histogram of the brightness and contrast of an image. Zero (0) = black; 255 = white. **NOTE** Available when working in YUV color space.
U channel button	Adjusts the blue color difference of the video signal. Provides a histogram of the blue color values of the image. For U settings, 255 = 100% blue. **NOTE** Available when working in YUV color space.
V channel button	Adjusts the red color difference of the video signal. Provides a histogram of the red color values of the image. For V settings, 255 =100% red. **NOTE** Available when working in YUV color space.
RGB channel button	Adjusts the overall luminance in an image. Zero (0) = black; 255 = white. **NOTE** Available when working in RGB color space.
R channel button	Adjusts the red color channel in an image. For R settings, 255 = 100% red. **NOTE** Available when working in RGB color space.
G channel button	Adjusts the green color channel in an image. For G settings, 255 = 100% green. **NOTE** Available when working in RGB color space.
B channel button	Adjusts the blue color channel in an image. For B settings, 255 = 100% blue. **NOTE** Available when working in RGB color space.
Input button	Sets the color value of the selected channel of the input video.
Output button	Sets the color value of the selected channel after correcting for the output video.
Timecode field	Matches the timecode of the frame displayed on the monitor.

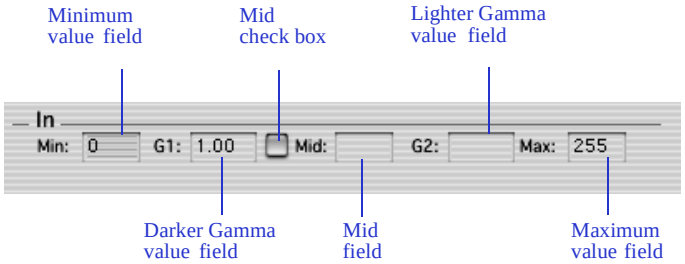
Levels Dialog Box Elements *(Continued)*

Name	Description
Previewer button	Displays the image on the monitor and previews changes made in the dialog box in real time. Click to temporarily show the original uncorrected image.
Eyedropper	Allows you to select a color while watching the monitor.
Color button 1	Shows the color and color value for the area of the video image selected with the eyedropper. Click the button to activate.
Color button 2	Shows the color and color value for the area of the video image selected with the eyedropper. Click the button to activate.
Histogram	Shows a graphic representation of pixel distribution in an image based on brightness.
X axis	Represents the luminance of the pixels with the darkest pixels to the left and the brightest pixels to the right.
Y axis	Represents the number of pixels at each luminance level.
Input slider	Remaps the pixels in the image to fit the range specified by the output values. Adjust the sliders as follows: ■ Move the right-most slider to the left to remap the lower input values to higher values and brighten the image. Highlights become brighter. ■ Move the middle (gamma) slider to the right to darken the image midtones; or, to the left to brighten the image midtones. ■ Move the left-most slider to the right to remap the input to a lower value giving the image more contrast. Shadows become darker.
Output slider	Sets the minimum (darkest) and maximum (lightest) pixel values for the image. Adjust the sliders as follows: ■ Move the left slider to the right to remap the input levels to a higher value and decrease the contrast in the image. Shadows become lighter. ■ Move the right slider to the left to remap the input to a lower value and darken the highlights, thereby increasing contrast to bring out the details of the highlighted or bright areas.

Levels Dialog Box Elements *(Continued)*

Name	Description
In fields	Adjusts the image by the values entered. Type values to decrease the contrast of the image.
Out fields	Adjusts the image by the values entered. Type values to increase the contrast of the image.
Reset button	Changes one channel back to the original settings.
Reset All button	Changes all channels back to the original settings.
Cancel button	Closes the dialog box without saving the changes.
OK button	Accepts the changes and closes the dialog box.

In Fields

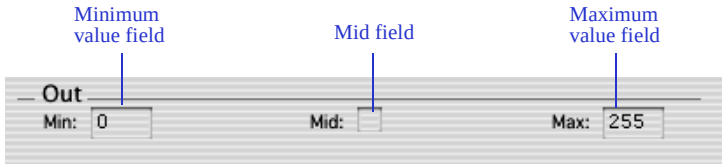


The following table describes the Levels In fields.

Levels In Fields Elements

Name	Description
Minimum value field	Adjusts the shadows by the value entered. Type the minimum value or CONTROL-click Reset or Reset All to set to the minimum video values for darkness.
Mid check box	Click to activate 5-point correction. Adds G1 and G2 Input sliders. Also activates midlevel field G1 and G2 adjustments. Provides greater control over the midtones in the lower and upper ranges.
G2: (lighter gamma value)	Adjusts the lighter gray tones by the value entered. Only activated when Midlevel is checked.
G1: (darker gamma value)	Adjusts the darker gray tones by the value entered. Only activated when Midlevel is checked.
Mid field	Adjusts the gamma levels by the value entered.
Maximum value field	Adjusts the highlights by the value entered. Type the maximum value or CONTROL-click Reset or Reset All to set to the maximum video values for brightness.

Out Fields



The following table describes the Levels Out fields.

Levels Out Fields Elements

Name	Description
Minimum value field	Adjusts the shadows by the value entered. Type the minimum legal value of 16 to set to the minimum video values for darkness.
Mid field	Type the midlevel value for gray tones.
Maximum value field	Adjusts the highlights by the value entered. Type the maximum legal value of 235 to set the maximum video values for brightness.

▼ Applying Color Effects and Correction

Use the ColorFX panel to apply various color effects to your video or to correct image quality or saturation. You can

- Add preset color effects
- Create your own color effect
- Invert a color effect to its color complement
- Apply posterizing or solarizing styles

- Adjust for shadows and glare using the Curves tool
- Adjust color saturation using the Levels tool

Adding Preset Color Effects

Adding a color setting to a clip adjusts all applicable settings. In addition to selecting color effects that you created, you can also apply several preset effects.

To apply a color effect to a single clip

1 Double-click a clip in the bin or program timeline.

The Edit Suite becomes active.

2 If the ColorFX panel is not open, click the panel expansion button.

The ColorFX panel appears.

3 Select a color effect from the ColorFX list.

The clip changes to the new color settings and appears in the Source Monitor window.

TIP To play the new color effect, click in the Edit Suite to deselect the preset before pressing Play or the Spacebar.

4 Click Apply in the Edit Suite to permanently apply the effect to the clip.

To apply a color effect to multiple clips

1 In the timeline, SHIFT-click the clips to which you are applying a color effect.

2 Double-click one of the selected clips to activate the Edit Suite.

3 Select a color effect from the ColorFX presets list.

4 Choose Tools>Apply Color Effects to Selected Clips.

All the clips you selected now have the new color effect applied.

NOTE The maximum number of different color effects per timeline is 1,000. However, an effect that you apply to multiple clips counts as a single effect.

Creating a Color Effect

Color effects are useful for adding interest to a video image. Use the Classic dialog box to create a color effect. Add up to 1000 different color effects to your program.

To add a color effect

1 Double-click a clip in the bin or timeline.

2 Open the Classic dialog box.

3 Click the Colorize check box in the Chrominance section.

4 Click the Color button.

The Apple Color Picker appears. Use any of the tools shown in the dialog box to make adjustments.



5 Click OK when done.

The new color appears in the Color chip in the ColorFX panel. The Video window also reflects the selected color.

6 Change the tint and saturation levels of the colorized clip.

To...	Move the slider...
Increase the tint	To the right or type a value up to 128 into the Tint field.
Decrease the tint	To the left or type a value to –128 into the Tint field.
Increase the saturation	To the right or type a value up to 128 in the Saturation field. A positive value increases the intensity of the color.
Decrease the saturation	To the left or type a value to –128 into the Saturation field. A negative value decreases the intensity of the color.

7 Change the brightness setting in the clip.

To...	Move the slider...
Increase the brightness	To the right or type a value up to 128 into the Brightness field.
Decrease the brightness	To the left or type a value to –128 into the Brightness field.
Increase the contrast	To the right or type a value up to 128 in the Contrast field.
Decrease the contrast	To the left or type a value to –128 into the Contrast field. A negative value creates a flat look.

8 Click OK to close the Classic dialog box.

9 To add the color effect to the video image, click Apply in the Edit Suite.

Adding Invert Effects

Use the Invert check box to change the chrominance or luminance setting to its opposite color.

To invert settings

1 Double-click a clip in the bin or timeline.

2 Open the Classic dialog box.

3 Click the Invert check box.

The effect changes in the Source Monitor window.

4 Click OK to close the Classic dialog box.

5 To add the effect to the video image, click Apply in the Edit Suite.

Adding Posterize or Solarize Effects

Use Posterize to adjust the number of tonal values for a clip. Increasing or decreasing the number of available tones can create different effects, depending upon the other color effects used.

Use Solarize to blend a negative and positive image of each frame in a clip. This feature can create a variety of effects, depending upon the other color effects used.

To posterize a clip

1 Double-click a clip in the bin or timeline.

2 Open the Classic dialog box.

3 Adjust the number of tonal values in the clip from the Style section using any of the following methods:

- Type a value from 1 to 32 in the Posterize field.
- Move the slider to the right.
- Click the Posterize field and use the UP and DOWN ARROWS to adjust the effect in single steps.

TIP A smaller slider value has a greater posterizing effect.

4 Click OK to close the Classic dialog box.

5 To add the effect to the video image, click Apply in the Edit Suite.

To solarize a clip

1 Double-click a clip in the bin or timeline.

2 Open the Classic dialog box.

3 Adjust the number of tonal values in the clip from the Style section using any of the following methods:

- Type a value from 1 to 100 in the Solarize field.

  A value of 100 creates a negative of the video image.
- Move the slider to the right.
- Click in the Solarize field and use the UP and DOWN ARROWS to adjust the effect in single steps.

4 Click OK to close the Classic dialog box.

5 To add the effect to the video image, click Apply in the Edit Suite.

Brightening Shadows or Softening Glare

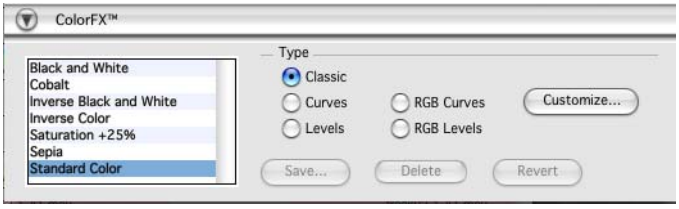
The Curves tool allows you to make very fine color or lighting adjustments in any area of the video image. Add points to the graph, split the points to have finer adjustment control, or copy points from one channel to another to adjust the image values. As you make each adjustment on the graph, see the effect on the video monitor in real time.

To fix shadows or glare

1 Double-click the clip to adjust.

The Edit Suite becomes active.

2 Click the expansion button to display the ColorFX panel.



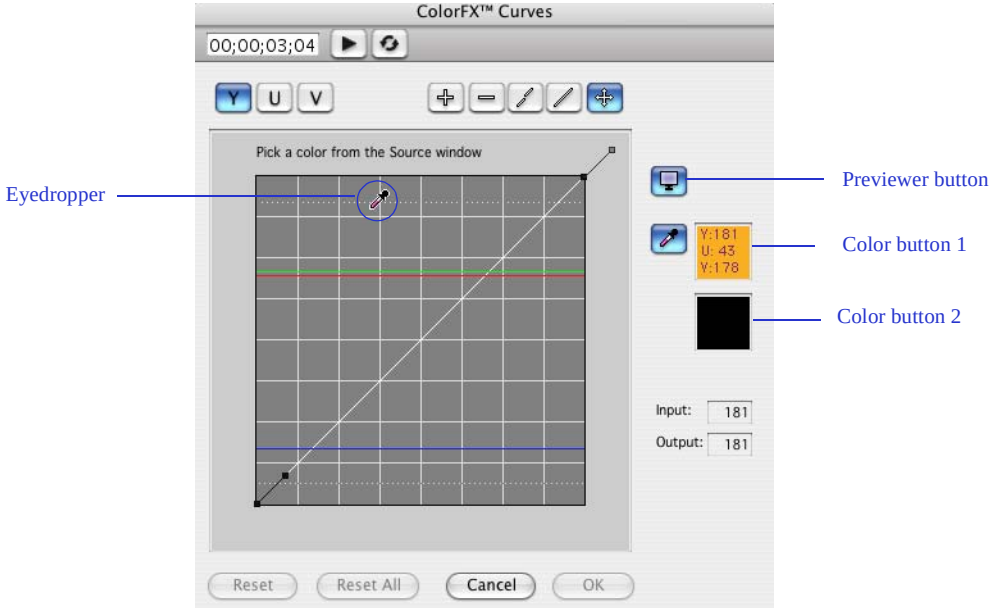
3 Click the Curves radio button and click Customize to work in YUV color space.

4 Select a tonal range for your video image. Select the lightest color as follows:

a Click Color button 1.

b Click the eyedropper and move it around the graph.

As you watch the video monitor, notice that cross-hairs move around the monitor as you move the eyedropper on the graph. Color button 1 dynamically updates as you move the eyedropper on the graph.



c Click the lightest shade in the video image.

5 Select the darkest tone using Color button 2.

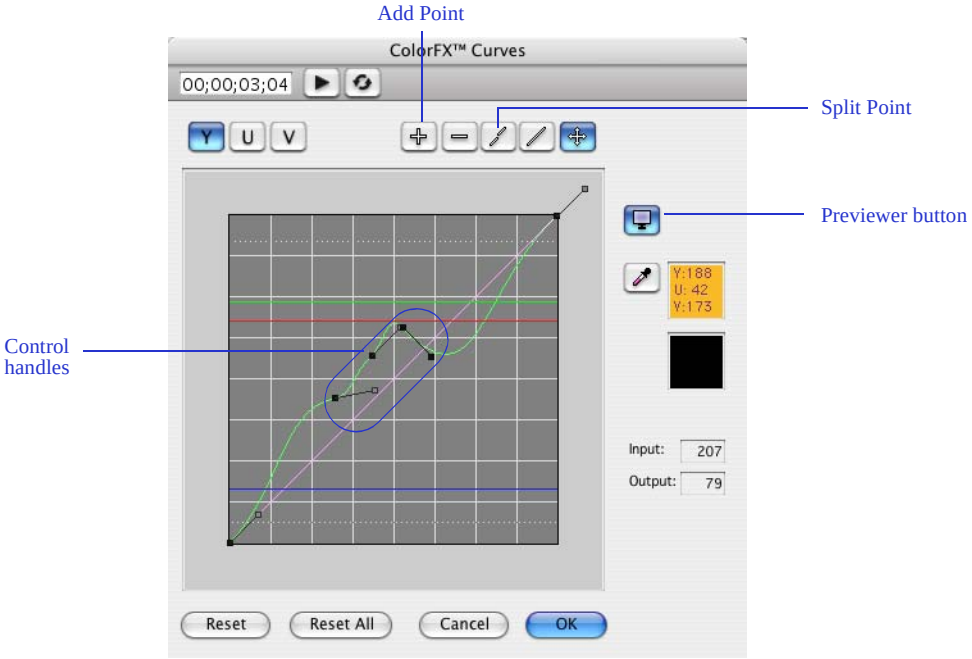
6 SHIFT-click Reset to switch the curve from the default minimum/maximum color values of 0 and 255 to the legal video color values of 16 and 235.

7 Press A or click Add Point to add a point to the green (Y) diagonal line.

To...	Click...
Darken the image	Y and drag a point on the line to the right.
Lighten the image	Y and drag a point on the line to the left.
Increase blue saturation	U and drag a point on the line to the left.
Decrease blue and create a yellow tint	U and drag a point on the line to the right.
Increase red saturation	V and drag a point on the line to the left.
Decrease red and create a cyan tint	V and drag a point on the line to the right.
Add a magenta tint	U and SHIFT-click V. Drag a point on the line to the left.
Add a green tint	U and SHIFT-click V. Drag a point on the line to the right.
Change from a color image to black and white	U and SHIFT-click V. Drag a point at 0 straight up to 128 (midpoint of the y axis). Drag a point at 255 straight down to 128 (midpoint of the y axis). Adjust the control handle until the line is completely straight along the x axis.

TIP CONTROL-click Add Point to add multiple points. Click again to deselect the button.

8 Click Split Point and click the point on the line to display control handles for creating the curve.



Moving the right control handle, adjusts the top segment of the curve. Moving the left control handle adjusts the bottom segment of the curve.

To...	Move...
Increase the brightness of the upper section video image	The right control handle to the left side of the control line.
Increase the contrast of the upper section of the video image	The right control handle to the right side of the control line.

To...	Move...
Brighten the shadows of the lower section of the video image	The left control handle to the left side of the control line.
Deepen the shadows of the lower section of the video image	Move the left control handle to the right side of the control line.

For adjustment to a scene that requires not only sharper contrast but a balancing of color tones, SHIFT-click the U or V channel to make changes using the color channels.

TIP Click the Previewer button to check the source image. Click again to return to the adjusted image.

9 When you are satisfied with the image as it appears on your video monitor, click OK to save the curve and close the dialog box.

10 Click Apply in the Edit Suite window to apply the correction to the clip.

11 To save the settings, click Save.

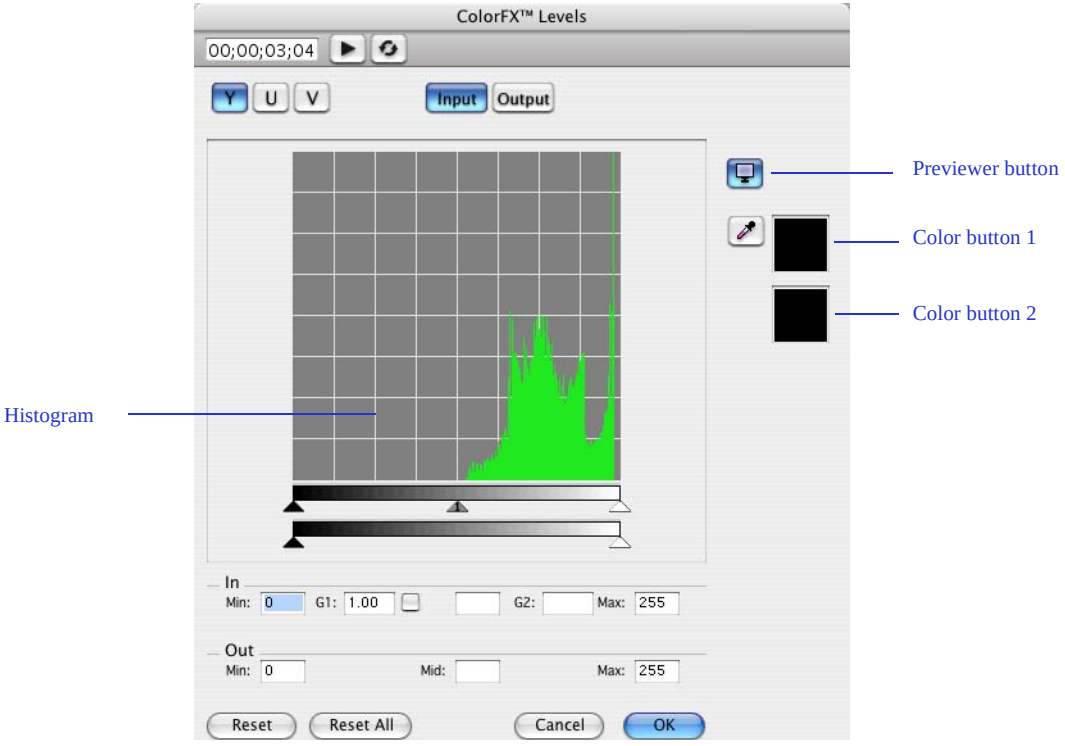
Adjusting Color Saturation

Use the Levels dialog box to alter color and contrast within the overall image. The Levels dialog box provides a visual image, the histogram, to convey the levels of brightness and saturation. Selecting the Mid check box provides 5-point correction of the midlevel gamma values. You can adjust the light and dark gray tones without affecting the highlights and shadows.

To adjust the image saturation

1 Click the Levels radio button and click Customize to work in YUV color space.

The Levels dialog box appears.



The dialog box displays a histogram of the video image. The x-axis of the Levels histogram plots the pixel values. The y-axis represents the total number of pixels with that value.

2 Select a tonal range for your video image. Select the lightest color as follows:

a Click Color button 1.

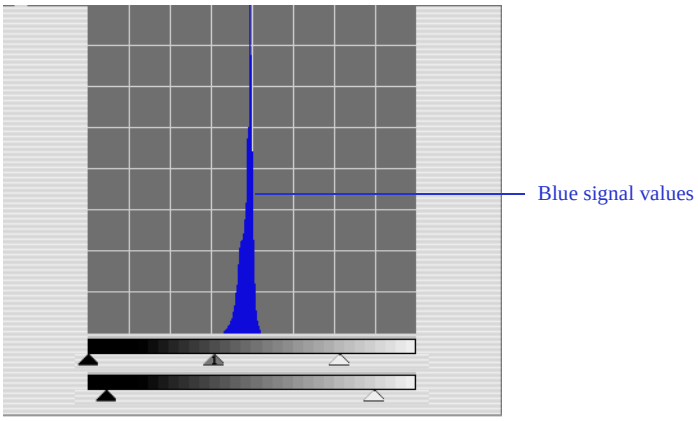
b Click the eyedropper and move it around the graph.

As you watch the video monitor, notice that cross-hairs move around the monitor as you move the eyedropper on the graph. Color button 1 dynamically updates as you move the eyedropper on the graph.

c Click the lightest shade in the video image.

3 Select the darkest tone using Color button 2.

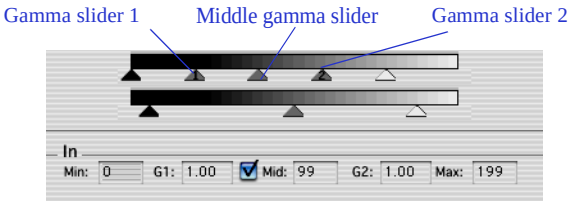
4 Click U, or V to select the blue or red signal values.



5 To adjust the Input tint and saturation level of the image, do the following:

To...	Move...
Add tint to the image	The left Input slider to the right.
Increase the contrast	The right Input slider to the left.
Increase the color saturation	The middle input slider to the left.
Increase the tint	The middle input slider to the right.

6 Adjust the gamma values in the video image by clicking the Mid check box to add two Input sliders.



To...	Adjust gamma slider...
Adjust the midlevel grays	In the middle to the left to increase grays and to the right to decrease grays.
Adjust the color saturation	2 to the left to increase the saturation and to the right to decrease the saturation.
Adjust the tint	1 to the right to increase the tint and to the left to decrease the tint.

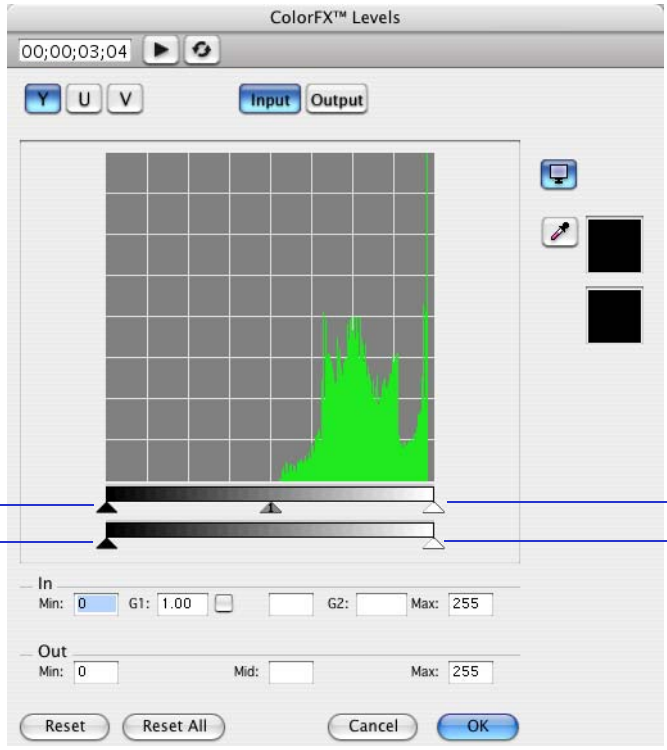
To adjust the output saturation

1 Click the Output button.

2 To adjust the Output tint and saturation level of the image, do the following:

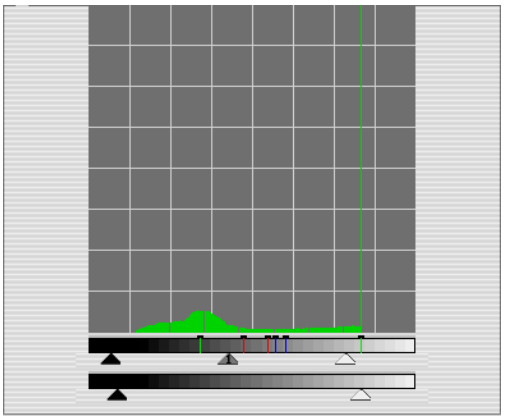
To...	Move...
Increase the color saturation	The left Output slider to the right.
Increase the tint	The right Output slider to the left.

3 To adjust the contrast of the image, click the Y channel.



To...	Move...
Increase the contrast	The left Input slider to the right to a Min value such as 23. All pixels with the value of 23 are remapped to 0.
Decrease the contrast	The right Input slider to the left to a Max value such as 231. All pixel values of 255 are mapped to 231 and any values less than 231 are lowered accordingly.

4 Click Output at the top of the dialog box. The Output shows a histogram with increased contrast and darker highlights.



TIP Click the Previewer button to see the video image as it was before color correction was applied. Click again to return to the color-corrected image.

5 When you are satisfied with the changes, click OK to close the dialog box.

6 Click Apply in the Edit Suite to apply the effect.

7 To save the settings, click Save.

Saving or Deleting Color Effects

You can create and save different color effects for each project, as well as use them in other projects. You can also adjust and re-save previously saved settings.

You cannot change the preset color effects (bold text in the list) and then save them. If you change one of the preset color effects, save the newly created effect with a different name.

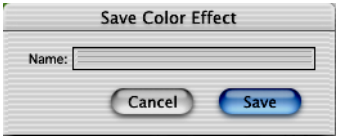
Delete color effects through the ColorFX panel. Deleting a color effect removes it from the ColorFX list and from the Preferences file located in the Media 100 Preferences folder.

To save color effects

1 Change one or more color effect settings in the ColorFX panel.

2 Click Save.

The Save Color Effect dialog box appears.



3 Enter a name for the effect in the Name field.

4 Click Save.

If the color effect was previously saved, you are prompted for confirmation.

5 Click OK to confirm or click Cancel to revert to the original settings.

NOTE Changing a previously created color effect changes all the clips to which the color effect was applied.

A new color effect is saved to the current program, and its name appears in the ColorFX preset scroll list. Color effects that you create appear in regular text, while the preset color effects appear in bold text.

If you import clips from other programs or bins, any applied custom color effects are added to the current program and appear in the scroll list.

To delete a color effect

1 Select the effect from the ColorFX list.

2 Click Delete in the ColorFX panel.

The color effect is deleted from the current program.

NOTE Although the effect is deleted from the ColorFX list and program, the effect settings remain with the clips.

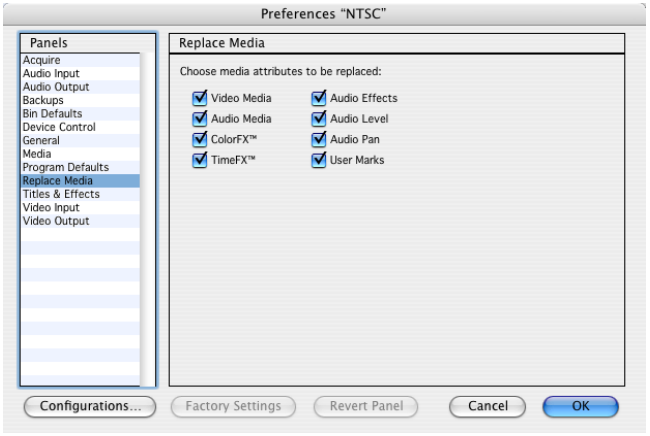
▼ Replacing Effect Attributes

Color and time effects are two media attributes that you can retain or replace. Use the Replace Media function to add previously created motion or color effects to new clips.

How to replace media attributes

1 Choose Media 100>Preferences>Replace Media.

The Replace Media panel appears.



2 To replace clip attributes with the color effects of another clip, click the Color FX check box.

3 To replace clip attributes with the motion effects of another clip, click the TimeFX check box.

4 Click OK.

5 ⌘-drag the new clip over the old clip.

The new clip must be the same size or larger than the old clip. If the clip has sufficient media, the pointer shows a blue arrow.

6 Release the mouse and drop the new clip onto the old one. The old clip now contains the media attributes of the new clip.

7 To verify the new attributes, double-click the updated clip and check the attributes in the Edit Suite.

NOTE You can Undo and Redo the steps in this operation.

▼ Working with Composition Clips

Creating a composition clip allows you to directly share media between Media 100 and Composite Suite or Effect Suite. Your project bins are accessible in Composite Suite and Effect Suite; you can select clips from your project bins and place them on the Composite Suite or Effect Suite timeline. Add more tracks and additional clips to create composited effects.

Once you apply the composition clip in Effect Suite or Composite Suite and render it in Media 100, you can add transitions or other effects to the clip as you would any other clip in Media 100.

TIP Consider creating a separate bin for your composition clips and use final-quality, trimmed media.

To create a composition clip in a bin

➤ Click the bin and press SHIFT-⌘-C or choose Tools>New Composition.

The new composition clip appears in the active bin.

To create a composition clip in the timeline

1 Select a video track.

2 Position the CTI over an empty area of the program.

3 Do one of the following:

- Press SHIFT-⌘-C
- OPTION-⌘-drag in the timeline
- Choose Tools>New Composition.

The new composition clip appears in the active program on the selected track.

Editing the Composition Clip

After creating your composition clip, you need to add media to it. Depending on the Media 100 system you have either Effect Suite or Composite Suite to create special video effects.

CAUTION

Create your composition clips with final quality media. If you reacquire composition clips, you lose the media files associated with the clips.

To edit the composition clip

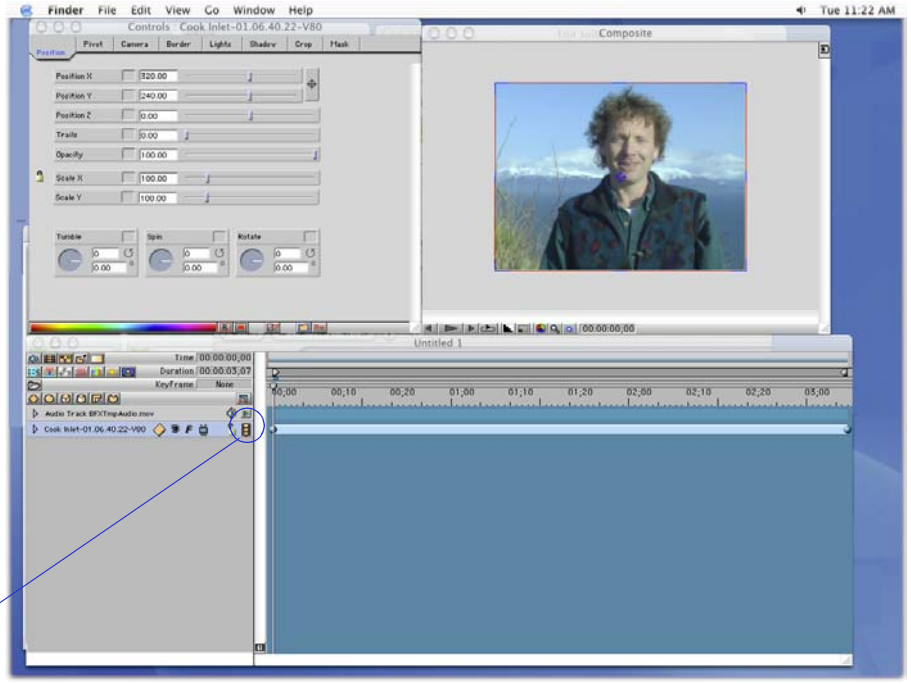
1 Select the composition clip in the timeline or bin.

2 Press ⌘-SHIFT-E or choose Tools>Edit Composition.

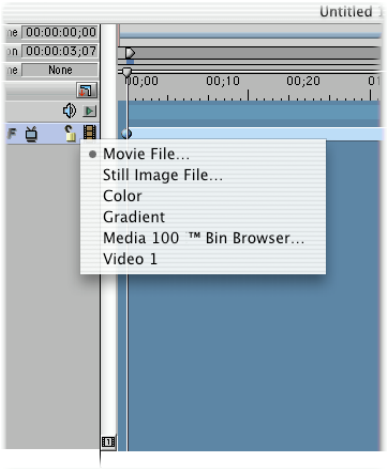
Or

Double-click the composition clip and click Edit in the Edit Suite.

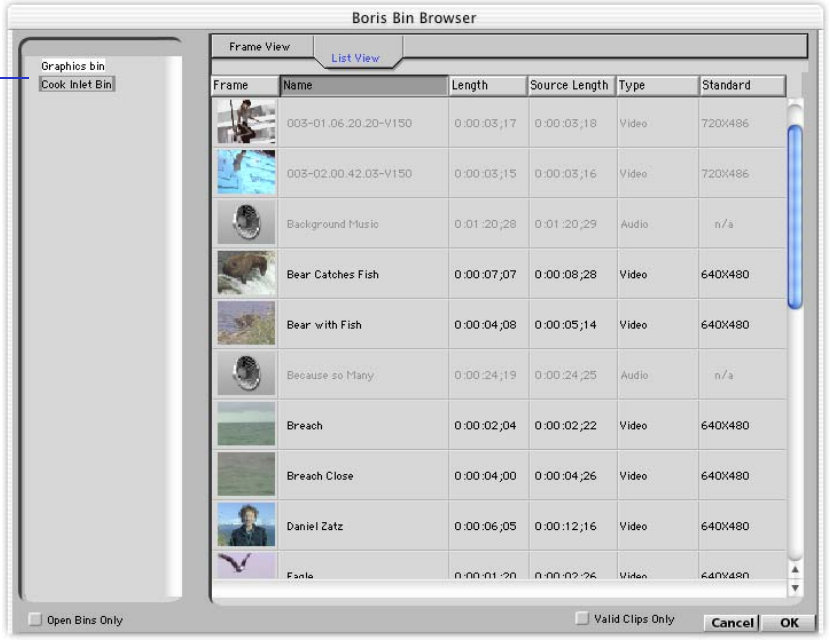
The Effect Suite or Composite Suite interface appears.



3 Click the Media icon V1 to open a source menu and select Media 100™ Bin Browser.



Your active project bin opens in the Bin Browser.



All your open bins are listed on the left side of the Bin Browser. You can click a different bin name to change bins.

NOTE To open closed bins in a project, deselect the Open Bins Only check box.

4 Select a clip from the bin.

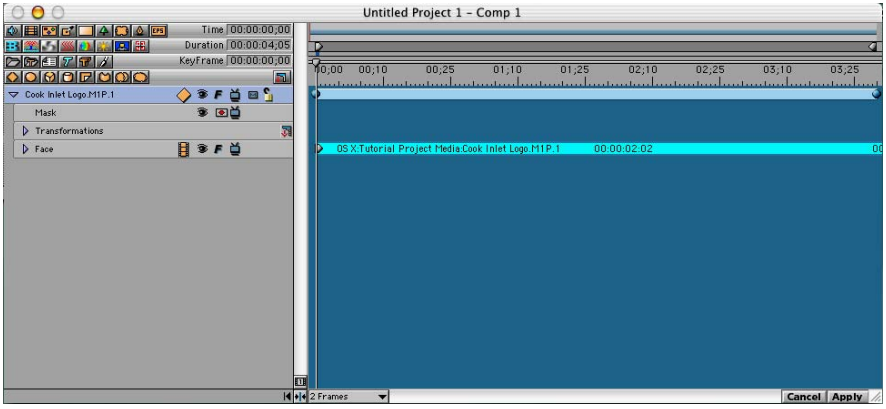
5 Click OK to place the clip on the timeline.

The V1 icon changes to a movie file icon, and the clip appears in the Composite window.



6 Add more tracks.

7 For each track you can change the media icon to a gradient, import a PICT, or a color background.



For further information, refer to the *Composite Suite or Effect Suite* manual that shipped with your Media 100 system.

8 Preview your effect by choosing Preview>Preview Media.

9 When you have completed your effect, click Apply in the timeline to close the Composite suite or Effect Suite and return to Media 100.

10 Click Render in the Edit Suite.

Adding Audio to the Composition Clip

Create a composition clip using a synced audio and video clip. The audio portion can have EQ applied before using Effect Suite or Composite Suite to edit the clip.

To add audio

1 Place a synced or audio-only clip in the timeline.

2 Create a composition clip.

3 Drag the composition clip onto a Video track directly over the synced audio clip.



4 Double-click the composition clip and click Edit in the Edit Suite.

The interface opens.

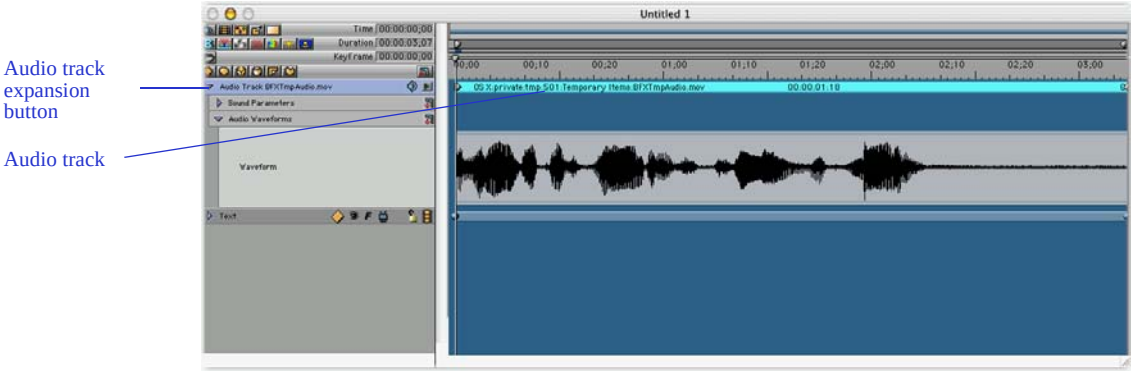
5 Choose Track>New Audio Track.

6 From the Audio dialog box, click M100 Audio.

A separate audio track appears.

7 Click the Audio Track expansion button to reveal Sound Parameters and Audio Waveform controls.

The Sound Parameters control audio volume and pan. The Audio Waveform control opens to reveal the audio waveform. Changes you make in Composite Suite or Effect Suite to preview the audio are not applied when you return to Media 100.



8 Choose Preview>Preview Audio to hear the audio track play.

Editing the Audio

You can adjust the volume and pan of the audio clip in Composite Suite or Effect Suite. Expand the Audio track in the timeline to access the Sound Parameters and Audio Waveform. Add User marks on the timeline or clip in Media 100 to mark areas of interest when editing the audio.

Adjustments you make to audio in Composite Suite or Effect Suite are not applied to the clip when you return to Media 100. The adjustments are only available for previewing audio.

To play back the audio with video

1 From the Composite Suite or Effect Suite interface, choose Preview>Preview with Audio.

2 Choose Preview>Preview to RAM.

Once the media loads into RAM, the video begins playing automatically in the Composite window. Audio plays back through the computer, not through the junction box.

To edit audio

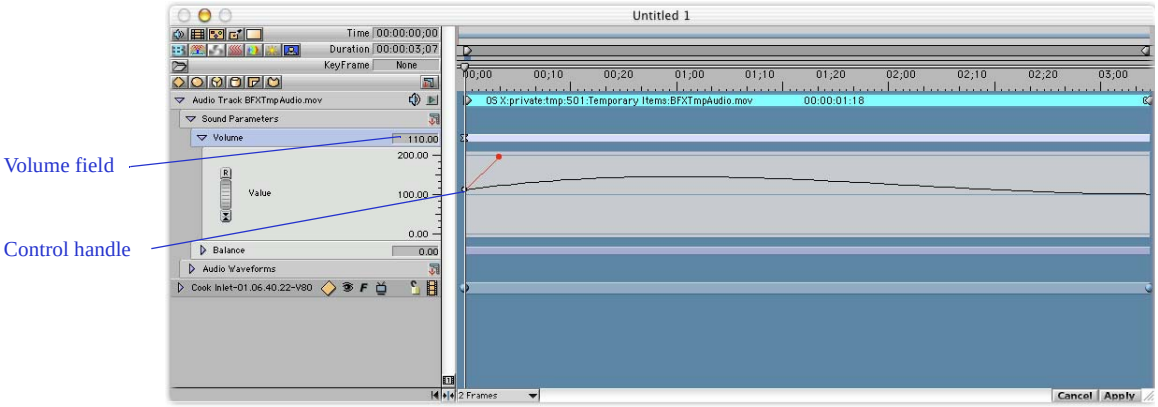
1 Expand the Audio Track.

2 Expand the Sound Parameters.

3 Expand the Volume.

4 Enter a value in the Volume field.

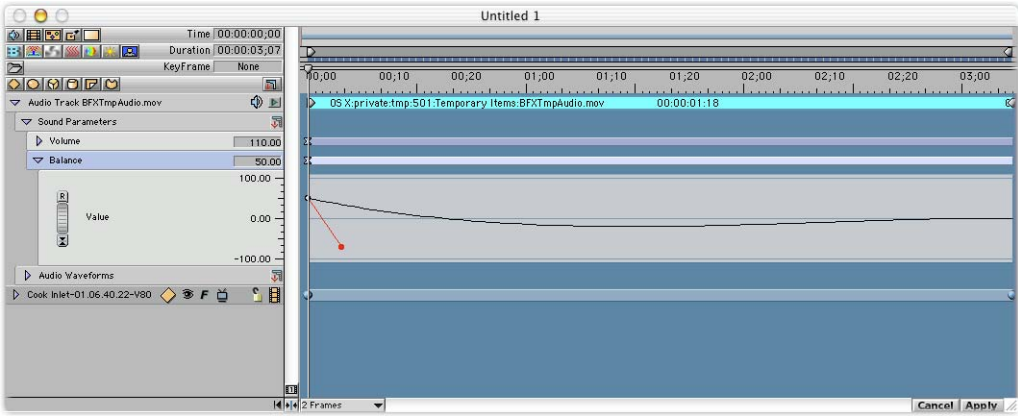
A control handle appears on the volume control line.



5 Move the control handle to adjust the volume level above or below the level set in the Volume field.

6 Expand the Balance.

7 Enter a value in the Balance field.



8 Adjust the control handle.

9 Preview the audio and make any further changes required.

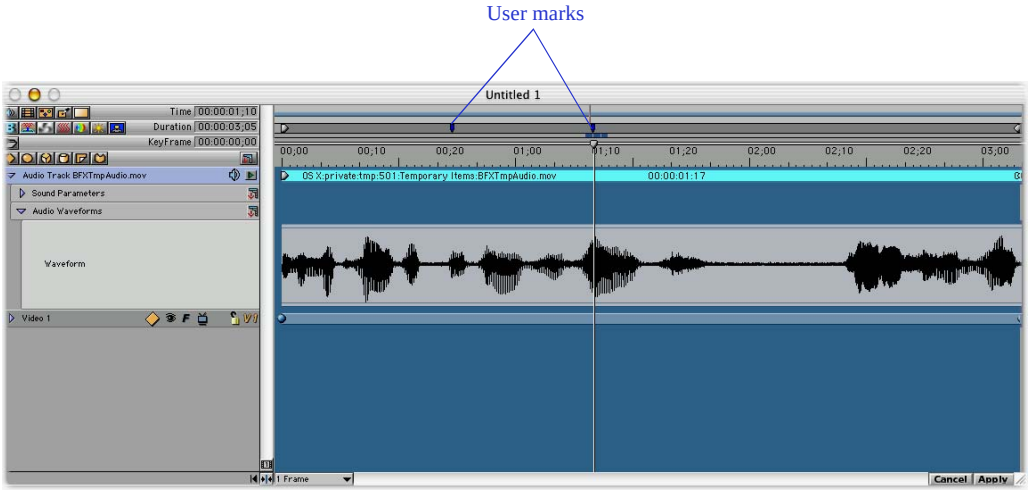
To add User marks

1 Place the CTI where you require a User mark.

2 Choose Track>User Marks>Add New Mark or press OPTION-K.

3 Repeat steps 1 and 2 to add as many marks as you need.

4 To move between User marks, choose Track>User Marks>Goto Next Mark (press OPTION-L) or Goto Previous Mark (press OPTION-J).



5 When you have completed your effect, click Apply in the timeline to return to Media 100.

6 Click Render in the Edit Suite.

▼ Keying in the Master Video Track

With the Media 100 system, there are ChromaKey and LumaKey effects that are unique types of transitions. Ordinarily, transitions overlap from one clip to another — one clip fades or wipes out as the next clip fades or wipes in. The ChromaKey and LumaKey effects are not intended for linear transition from one clip to another. Instead, the two clips overlap one another in their entirety and are composited together. The In clip is the foreground clip to which the key effect is applied. The Out clip is the background clip that is keyed into the foreground clip.

NOTE You can set up a composition clip by choosing Tools>New Composition and using the Effect Suite or Composite Suite to create your chroma or luma key in the Master Video track.

Setting Up for Keying in the Master Video Track

First arrange your foreground and background source clips.

To set up source clips for keying

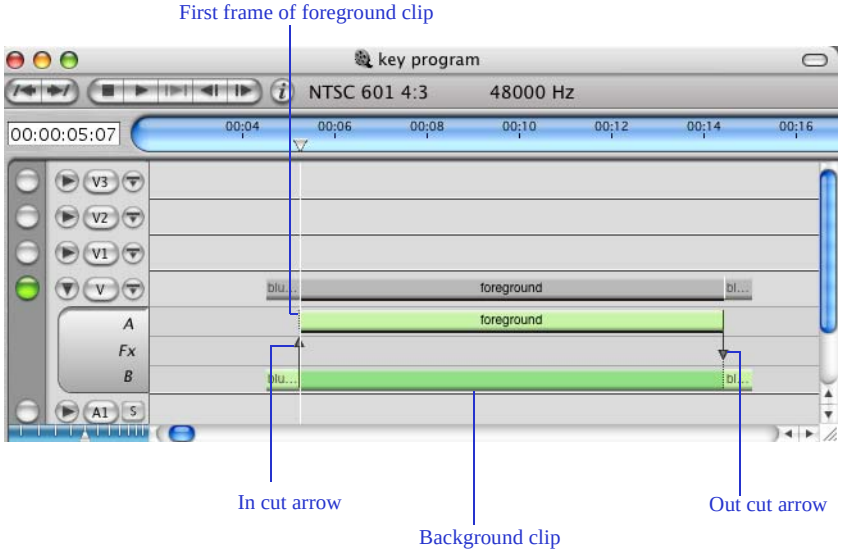
1 Drag the foreground source clip to the **A** track and trim the clip, if necessary.

2 Drag the background source clip to the **B** track directly under the clip on the **A** track.

3 Trim the clip, if necessary.

Include extra frames at the beginning and end of both the foreground and background clips to allow for later trimming or applying other transition effects.

Make sure that the beginning of the clip in the **A** track is at least one frame before the clip in the **B** track. This ensures that the In cut arrow points away from the In clip.



4 Drag the cut arrows to where you want the composite clip to begin and end.

The distance between the In and Out cut arrows determines the length of the keyed clip.

NOTE Position the cut arrows to provide enough length for final trimming in the program or to apply transitions before and after the keyed clip.

5 SHIFT-click the In cut arrow in the **Fx** track and drag to the right.

The transition effect appears in the **Fx** track, displaying the transition type last selected in the Edit Suite.

6 SHIFT-drag the transition effect to the Out cut arrow.

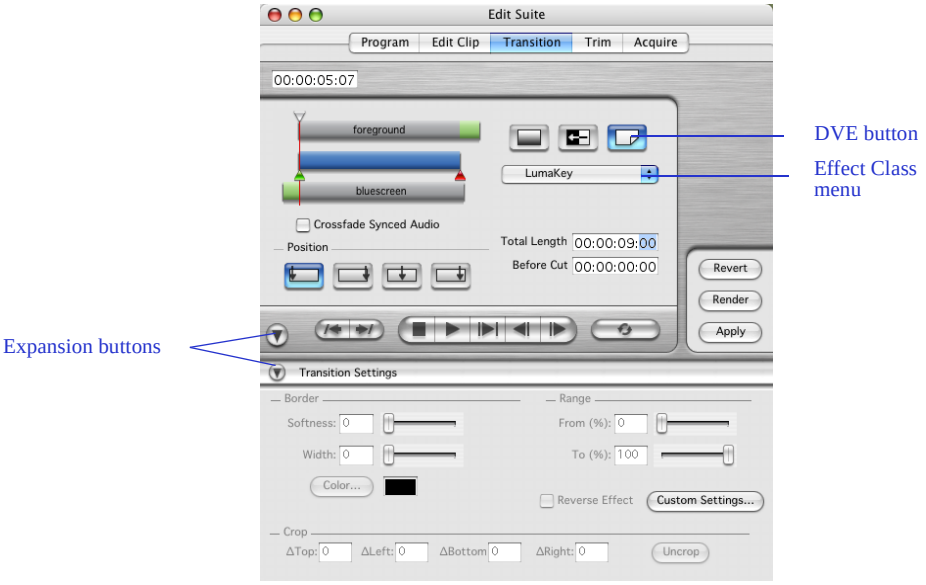
Applying a Keyed Effect in the Master Video Track

You can apply a Media 100 ChromaKey or LumaKey transition effect. If you purchase a third-party chroma key effect such as Ultimatte®, you can apply that effect instead.

To apply a keyed effect

1 Double-click the cut arrow.

The Edit Suite becomes active in Transition mode.



2 Click the DVE button.

3 Choose ChromaKey or LumaKey from the Effect Class menu.

4 Click the expansion button to open the Transition Settings panel.

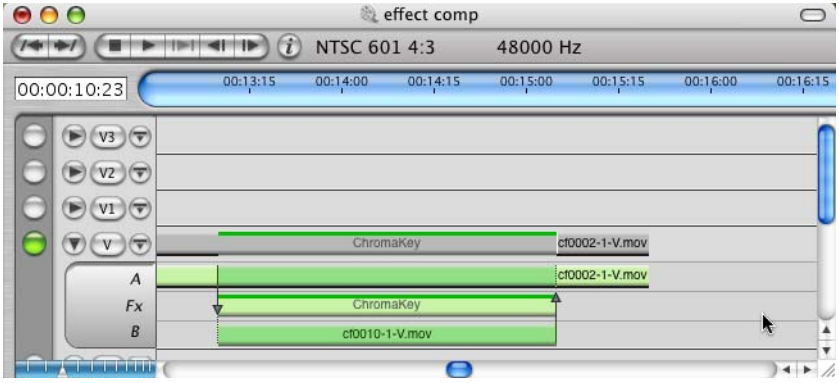
5 Click Custom Settings in the Transition Settings panel.

6 Make the appropriate adjustments to the settings in the dialog box.

7 Click OK when you are satisfied with the keyed effect.

After the keyed effect appears, the dialog box closes and returns you to the Edit Suite.

8 Click Render to apply and render the effect.



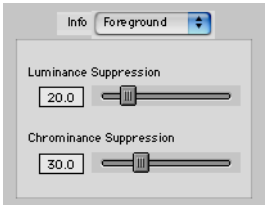
About the ChromaKey Filter Dialog Box

The ChromaKey Filter dialog box provides all the tools you need to create a matte that cleanly keys in background video based on most colors.

NOTE Extremely dark colors do not fall within the acceptable chrominance range, and you cannot use them to create a ChromaKey effect.



The following illustration shows the Foreground controls.



The following table describes the ChromaKey Filter dialog box elements.

ChromaKey Filter Dialog Box Elements

Name	Description
View menu	Provides four views of ChromaKey elements: **Foreground**. The video frames of the In clip. **Background**. The video frames of the Out clip. **Matte**. The black and white mask designating the key area. The white area is where the background video shows through. The black area keys in the foreground image. **Composite**. The completed keyed effect.
Eyedropper	Selects the color on which to base the ChromaKey matte.
Info menu	Selects the Background or Foreground Information panel.

ChromaKey Filter Dialog Box Elements *(Continued)*

Name	Description
Background Information panel	Settings for adjusting background information. Available when the Info menu is set to Background. **Key Color**. Select a color using the eyedropper or color picker. **Luminance Suppression**. Determines the amount of light for the background video. ■ A lower setting produces a brighter background. ■ A higher setting produces a darker background. **Matte Gain**. Determines the density separating the foreground and background. ■ A lower setting is less dense. ■ A higher setting is denser.
Foreground Information panel	Settings for adjusting foreground information. Available when the Info menu is set to Foreground. **Luminance Suppression**. Determines the amount of light in the foreground video. ■ A lower setting produces a lighter foreground. ■ A higher setting produces a darker foreground. **Chrominance Suppression**. Determines the amount of color in the foreground video. ■ A lower setting produces a brighter foreground. ■ A higher setting produces a duller foreground.
Use Foreground Suppression check box	Helps eliminate reflective color spill on the foreground.
Color Tolerance control	Determines the range of color set by the key color. Foreground values below the setting are keyed out to allow the background video to show through. Foreground values above the setting are keyed in to retain the foreground image. ■ The lowest value shows the narrowest range of allowable color. ■ The highest value shows the widest range of allowable color.

ChromaKey Filter Dialog Box Elements *(Continued)*

Name	Description
Color Threshold control	Determines the level of color saturation. Foreground values below the setting are keyed in to retain the foreground image. Foreground values above the setting are keyed out to allow the background to show through.
Preview to Monitor check box	Displays the video frame shown in the view area on your external video monitor. The image on the external monitor shows the effect in YUV color space.
Soften Edges check box	Smooths the matte edges between the foreground and background.
Matte Noise Reduction check box	Adjusts color deviations in the matte for a cleaner look. This setting becomes more effective as the range of allowable key color is decreased with the Color Tolerance control.
Play controls	Play and stop the video frames.
View Area	Shows the current frame of the effect in the view selected in the View menu.
Cancel button	Closes the dialog box without applying any changes.
OK button	Applies the changes and closes the dialog box.

Creating Blue Screen Footage

To achieve the best chroma key effect, shoot your blue screen footage with adequate lighting. While you can compensate for some blue screen flaws by adjusting the settings in the ChromaKey Filter dialog box, the adjustments are limited. Lighting and subject position are important in good blue screen footage.

The following tips may help in creating good blue screen source footage:

- Have a smooth and large screen surface.

- Try to have consistent screen lighting. Fluctuations in lighting intensity make the chroma key uneven, letting the background show through in some areas but not in others.
- Ensure that the subject avoids wearing colors in the same family as the background screen.
- Position the subject far enough away from the screen to prevent color spill. Color spill can cause portions of the subject to key out with the background screen.

Adjusting ChromaKey Settings

Selecting the key color automatically defines the optimal values for the Background and Foreground settings in the Information panel. The ChromaKey filter applies a default value to the Color Tolerance and Color Threshold settings. As you view the composited image and the matte, you can make additional adjustments.

- The Color Tolerance and Threshold settings control the allowable range of color and the degree of color saturation.
- All the controls are interdependent. Creating the best ChromaKey composite is a process of trial and error.
- Look at the effect for all the frames of the clip. You may find that the background bleeds through some frames but not others.
- Take special care when changing the controls for the Foreground Information panel. While changes to foreground suppression can remedy bleed-through caused by color spill, they can also change the foreground colors.
- If you are dissatisfied with the results of your changes, click Cancel and try again.

To change settings in the ChromaKey Filter dialog box

1 Adjust the settings using any of the following methods:

- Drag the slider
- Type a value in the control field

- Select the value field and press ⌘-UP ARROW or ⌘-DOWN ARROW to increase or decrease the value by one-tenth.

2 Click OK to save the changes and close the ChromaKey Filter dialog box.

Using ChromaKey Filter Views

The four views in the View pop-up menu give you important visual tools to help you adjust the ChromaKey effect.

- Foreground view
- Background view
- Matte view
- Composite view

Switch between the views as you adjust the setting controls to see each change.

ChromaKey Filter Foreground View

Use the Foreground view as the starting point to select the key color.

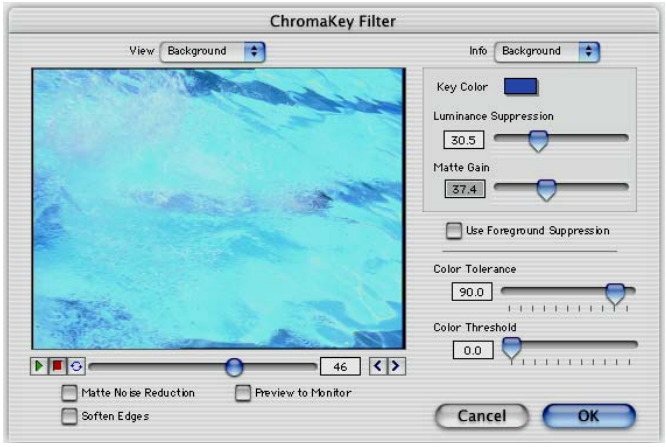
To select the key color

➤ Drag the pointer over blue or green screen to select the key color.

The pointer becomes an eyedropper and the Key Color picks up the screen color.

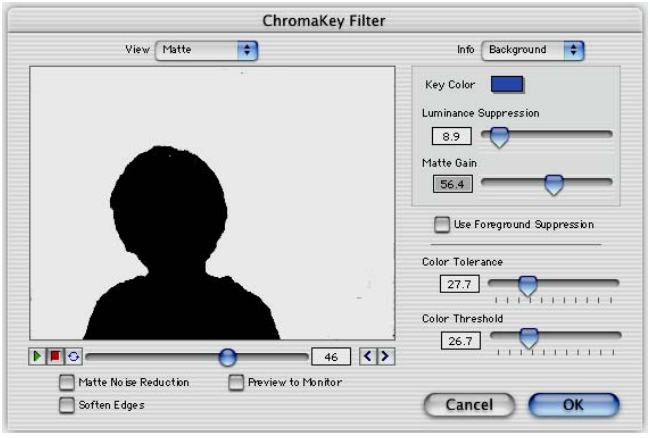
ChromaKey Filter Background View

Select the Background view to show the underlying video.



ChromaKey Filter Matte View

Use the Matte view to see the black and white outline of the matte. It shows where you may need to make adjustments to the edges or to other views.



- The white area is the keyhole through which the background video shows. Gray shades that show up in the background require adjustment. Use the Matte Gain slider to eliminate most or all of the gray.

- The black area is the foreground image. Gray shades in the foreground area indicate that it contains color values similar to the color key that cause the background to bleed through. Use the Color Threshold slider to eliminate the bleed through in the foreground.
- Gray areas control the appearance of halo effects or jagged edges where the foreground image and background meet.

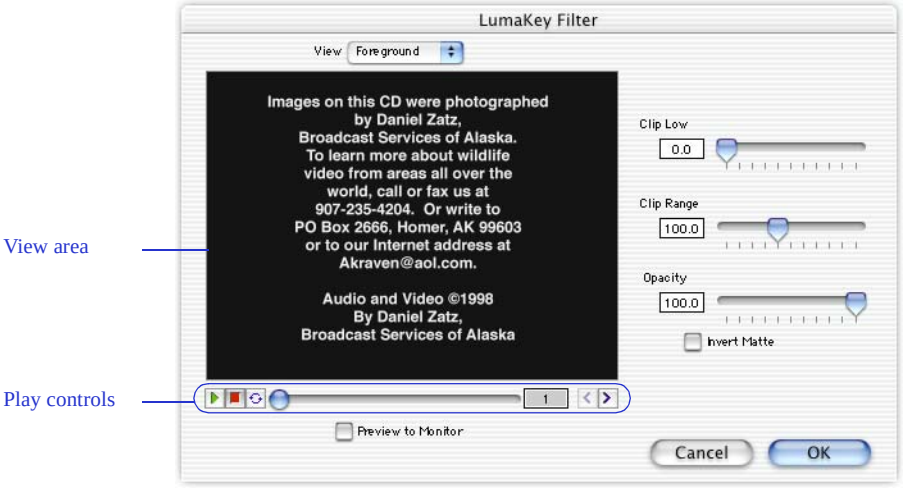
ChromaKey Filter Composite View

Use the Composite view to see how the composited images will look in the rendered clip. Previewing the image on your external monitor while in Composite view enables you to see the effect in detail.



About the LumaKey Filter Dialog Box

The LumaKey Filter dialog box provides all the tools you need to designate a level of brightness to be keyed out, allowing background video to show through.



The following table describes the LumaKey Filter dialog box elements.

LumaKey Filter Dialog Box Elements

Name	Description
View menu	Provides four views of LumaKey elements: **Foreground**. The video frames of the In clip. **Background**. The video frames of the Out clip. **Composite**. The completed keyed effect. **Matte**. The black and white mask designating the key area. The white area is where the background video shows through. The black area keys in the foreground image.
Clip Low control	Sets the luminance level at which the foreground image is keyed in or out. Accepts values from 0 to 225.

LumaKey Filter Dialog Box Elements *(Continued)*

Name	Description
Clip Range control	Applies a gradual transition to the Clip Low setting. The maximum duration of the transition range depends on the Clip Low setting. The Clip Low and Clip Range settings cannot exceed a luminance value of 255.
Opacity control	Sets the level of opacity of the foreground. The range extends from 0% to 100%, with 100% being completely opaque.
Invert Matte check box	Reverses the keyed in and out areas.
View area	Shows the current frame of the effect in the view selected from the View menu.
Play controls	Play and stop the video frames.
Preview to Monitor check box	Displays the video frame in the view area on your external video monitor. The image on the external monitor shows the effect in YUV color space.
Cancel button	Closes the dialog box without applying any changes.
OK button	Applies the changes and closes the dialog box.

Adjusting LumaKey Settings

The LumaKey filter provides standard default settings for the luminance values. As you view the composited image and the matte, you can adjust the settings.

- For best results, set the foreground opacity to 100 percent. To create a transparent effect, set the foreground opacity to a lower value.
- Look at the effect for all the frames of the clip. You may find some frames where the background is not clearly displayed with the current luminance settings.
- If you are dissatisfied with the results, click Cancel and try again.

To change settings in the LumaKey dialog box

1 Adjust the settings using any of the following methods:

- Drag the slider.
- Type a value in the value field.
- Select the value field and press ⌘-UP ARROW or ⌘-DOWN ARROW to increment or decrement the value by one-tenth.

2 Click OK to save the changes and close the LumaKey Filter dialog box.

To set the luminance values

1 Set the Clip Range control to 0.

2 Set the Clip Low control at or just below the luminance value that you wish to retain as the foreground image.

3 Adjust the Clip Range control to fine-tune the luminance setting.

For example, if you set the Clip Low slider to 132 and the Clip Range slider to 0, the LumaKey filter keys out all luminance values below a value of 132 to allow the background video to show through at these values. Conversely, it keys in all luminance values above a value of 132 and retains that information as the foreground image.

4 Click OK.

Using LumaKey Filter Views

The four views available from the View menu give you important visual tools as you adjust the LumaKey effect. The Matte and Composite views are particularly useful in fine-tuning the LumaKey effect. Switching between views as you adjust the setting controls lets you see the effect of each change and achieve the optimal LumaKey effect.

LumaKey Filter Background View

Select the Background view to show the underlying video.

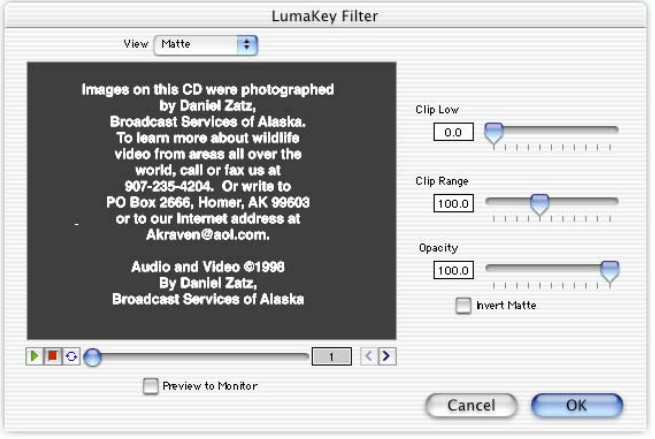


LumaKey Filter Foreground View

Use the Foreground view to adjust the luminance value.

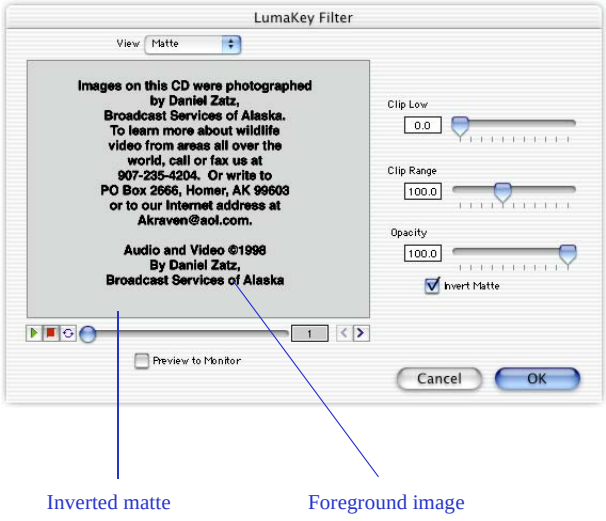
LumaKey Filter Matte View

Use the Matte view to see the black and white outline of the matte. Looking at the matte lets you see easily where to adjust the luminance.



Using the default, the matte keys out all foreground information, wherever the matte is black (low luminance), and allows the background video to show through. Where the matte is white (high luminance), the foreground information is keyed in and retained as the foreground image.

The Invert Matte check box reverses the areas that are keyed in and out.



- The white matte applies to the areas of low luminance. It keys in that information and retains it as the foreground image.
- The black matte applies to the areas of high luminance. It keys out that information and allows the background video to show through.

The result is that video shows through the title rather than the title being played on the background video.

LumaKey Composite View

Use the Composite view to see how the composited image looks in the rendered clip. Previewing the image on your external monitor while in Composite view lets you see the effect in detail.



Keyed Effects in Effect Suite or Composite Suite

You can also create keyed effects using the Effect Suite or Composite Suite. Many of the adjustments are applied automatically using filters.

To create a Chroma Key effect

1. Create a composition clip in the Media 100 timeline. (Tools>New Composition)
2. Double-click the composition clip and click Edit in the Edit Suite to launch Effect Suite or Composite Suite.
3. Choose Edit>Duplicate to add a second track.
4. Click the media icon in Track 1 and select Media 100™ Bin Browser.
5. From the Media 100 Bin Browser, select a blue or green screen clip and click OK.

6 Click the media icon in Track 2 and select Media 100™ Bin Browser.

7 From the Media 100 Bin Browser, select the background clip and click OK.

8 Follow the procedures to create a chroma key in the *Effect Suite or Composite Suite* manual.

The result appears in the Composite window.



9 Click Apply to return to Media 100.

10 Click Render in the Edit Suite.

13

Creating Titles and Graphics

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▼ Introduction

Titles, credits, and graphic images enhance the presentation of video programs. The Media 100 system lets you create graphic overlays, titles, and credits, and add them to your video productions. You can create anti-aliased overlays with alpha-channel masks using Title Suite, Effect Suite or Composite Suite. Also, you can import supported still image files such as PICT and TIFF files as well as QuickTime movies, with or without an alpha channel.

This chapter explains how to do the following:

- Work with titles and graphics in bins and the timeline
- Create new title clips
- Trim title clips and adjust the fade-in and fade-out durations
- Play and render titles in your program
- Export titles with alpha channels

▼ About Graphic Overlays

The Media 100 system creates titles and graphic overlays by blending them with a video background. Titles and graphics that you create or import require a mask that shows or blocks the underlying video. This mask dictates the areas of transparency or opacity applied to the related graphic image when the image is composited or rendered with the underlying video.

You can use alpha-channels to determine the transparency of titles and graphic overlays. Title clips and graphic overlays you create with Title Suite contain an alpha channel. You can also import supported still image files such as PICT and TIFF files as well as QuickTime movies, with or without alpha channels, created with third-party applications such as Adobe Photoshop.

Graphic overlays and titles can be placed on any Video Composition track in the program to create layered effects. Combine alpha keys, still frames, motion path, and titles by staggering the clips over a number of tracks.

If you have overlapping clips on multiple tracks, you must render all lower clips. Depending on the type of clip, the top clip can play in real time without rendering.

NOTE The performance of real-time playback is determined by the host computer being used.

Alpha Channel Masks

Graphic images contain RGB (red, green, and blue) channels representing information about their color elements.

NOTE Make sure that the third-party titles, graphic overlays, and QuickTime movies that you import are defined in RGB color space or are legal NTSC colors.

To key a graphic image over video frames, add a fourth channel to the graphic image. This alpha channel sets the transparency of the graphic image and allows it to blend with the underlying video. It defines a range of transparency values for an 8-bit image from 0 (transparent) to 255 (opaque) (a 10-bit image is 0 to 1023). Refer to your application user manual for information on creating alpha channels.

Color Key Masks

If your third-party application does not have alpha-channel capability, you can instead assign a pure white color key to the background of the title or graphic.

Pure white has a 10-bit RGB value of 1023, 1023, 1023 . This level of white color is considered “illegal” by NTSC and PAL standards and is not used for anything other than a color-key mask. By creating a title or graphic on a pure white background and choosing to composite using the keyer, the white areas can easily be keyed out for transparency to the underlying image.

To composite a title or graphic created on a pure white background

1 Import the created graphic or title.

2 Drag the clip to a Video Composition track.

3 Double-click the clip in the timeline.
The Edit Suite becomes active.

4 Open the ClipFX panel.

5 Choose Composite Using Keyer and click Settings.

6 In the Keyer dialog box choose RGB as the Keyer type.

7 Set the respective Red, Green and Blue values to 1023 to specify the key color as pure white.

NOTE The Media 100 keyer always works in 10-bit color space regardless of the bit-depth of the original media.

▼ Creating Title Clips

Title Suite allows you to create and edit titles. You can do the following:

- Open a bin dedicated to titles and create a succession of title clips directly in the bin. You can then drag copies of those clips to the desired positions in a timeline.
- Create title clips directly in a timeline.

To create a title clip in a bin

1 Click the bin to make it active.

2 Press ⌘-SHIFT-G or choose Tools>New Title.

A 2-second title clip appears in the bin. Each new title is named “Title.” The application adds an incrementing numeric suffix to additional titles created in a Media 100 session.

TIP To change the default length of the title clip, choose Media 100>Preferences>Titles and Effects. Type the new size in the Length field.

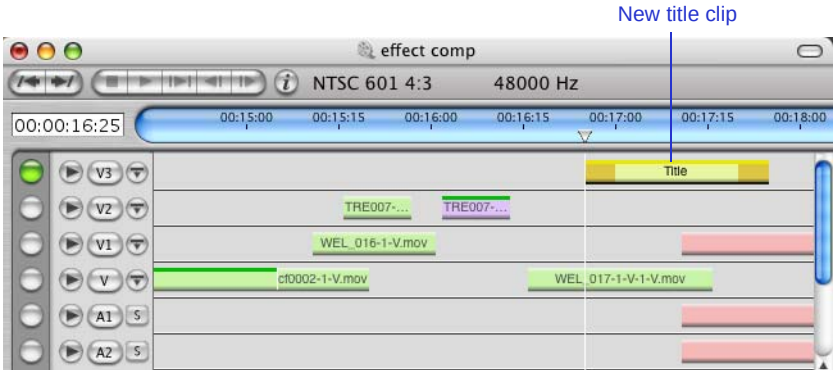


To create a title clip in the timeline

1. Click a Video Composition track in the timeline to make it active.
2. Position the CTI where you want to place a title.
3. Create a new title clip using one of the following methods:
   - Press ⌘-SHIFT-G or ⌘-click a Video Composition track to create a default-length title clip.
   - ⌘-drag in a Video Composition track to create a clip of the desired length.

NOTE ⌘-drag in the Master Video track creates a Composition clip in preparation to access the Effect Suite.

The title clip appears in the active track. The clip is named “Title” with an incrementing numeric suffix.



▼ Importing Graphics

You can add titles and graphics by importing supported still images such as PICTS and TIFFS as well as QuickTime files with an alpha channel and placing them in a Video Composition track. During rendering, Media 100 combines the imported file with the underlying video, producing a static title or animated graphic.

To import a PICT or QuickTime file for a title

1 In a third-party application, create a PICT image or QuickTime movie with an alpha channel.

NOTE PICT images and QuickTime clips without an alpha channel do not allow the underlying video to show through.

2 Press ⌘-I or choose File>Import to import the file into the selected bin.

3 Drag the clip to a Video Composition track.

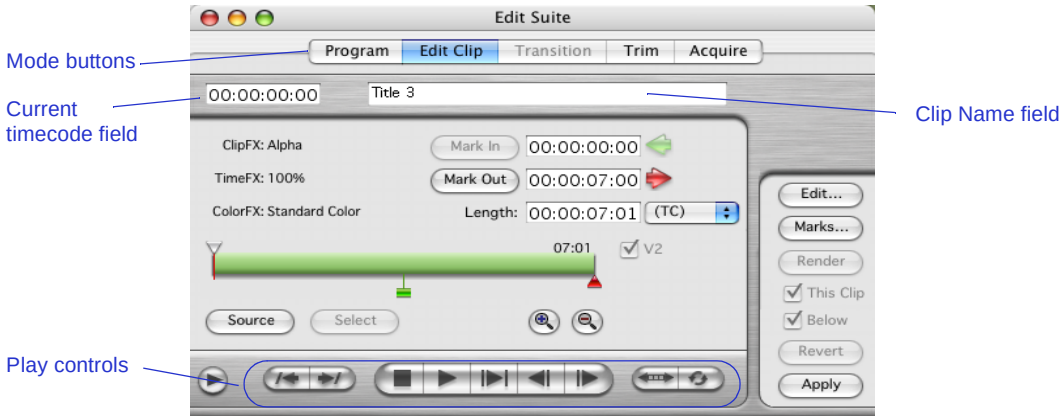
▼ Edit Graphics

You can edit title clips and launch Effect Suite or Composite Suite from the Edit Suite.

To edit Graphics

➤ Create a new title clip or double-click an existing title clip.

The Edit Suite becomes active.



The following table describes the Edit Suite Edit Clip mode elements.

Edit Suite Edit Clip Mode Elements

Name	Description
Mode button	Provides access to the various Edit Suite modes.
Current timecode field	Indicates the current position of the CTI.
Clip Name field	Shows the name of the title clip.
Mark In field	Indicates the In timecode for the title.
Mark Out field	Indicates the Out timecode for the title.

Edit Suite Edit Clip Mode Elements *(Continued)*

Name	Description
Length field	Indicates the length of the title clip. Choose between specifying timecode or the number of frames. You can change the default title length in the Media 100 >Preferences>Titles and Effects panel.
Source button	Changes the view of a trimmed clip in the clip mini-timeline to show the full length of the clip plus the trim points.
Select button	Changes the view of a trimmed clip in the clip mini-timeline to show only the trimmed clip.
Edit button	Launches the Title Suite or Composite Suite plug-in.
Marks button	Opens the clip EventStream window. See Appendix B, “Creating Streaming Media” for information.
Render button	Renders the title clip. The following options are available: **This clip**. Enable this check box to render only the current clip. **Below**. Enable this check box to render all clips below the current clip in the timeline. The current clip and clips that appear above the current clip are not rendered.
Revert button	Changes any modified settings back to their original settings.
Apply button	Applies the most recent changes to the clip in the program or bin.
Play controls	Allow you to play the title clip.

▼ Working with Title Clips

Once you create or import your title clips, you can

- Rename title clips
- Edit title clips
- Trim title clips
- Add fade in or out
- Apply a motion path

Renaming Title Clips

As you create or import clips, apply relevant names to them.

To rename a title clip

1. Double-click the title clip to open the Edit Suite.
2. Type the new name for the title in the clip name field.
3. Click Apply.

   The new name is applied to the title clip in the window where it originated.

Editing Title Clips

Once you create your title clips, add effects and motion to your title using Title Suite or Composite Suite.

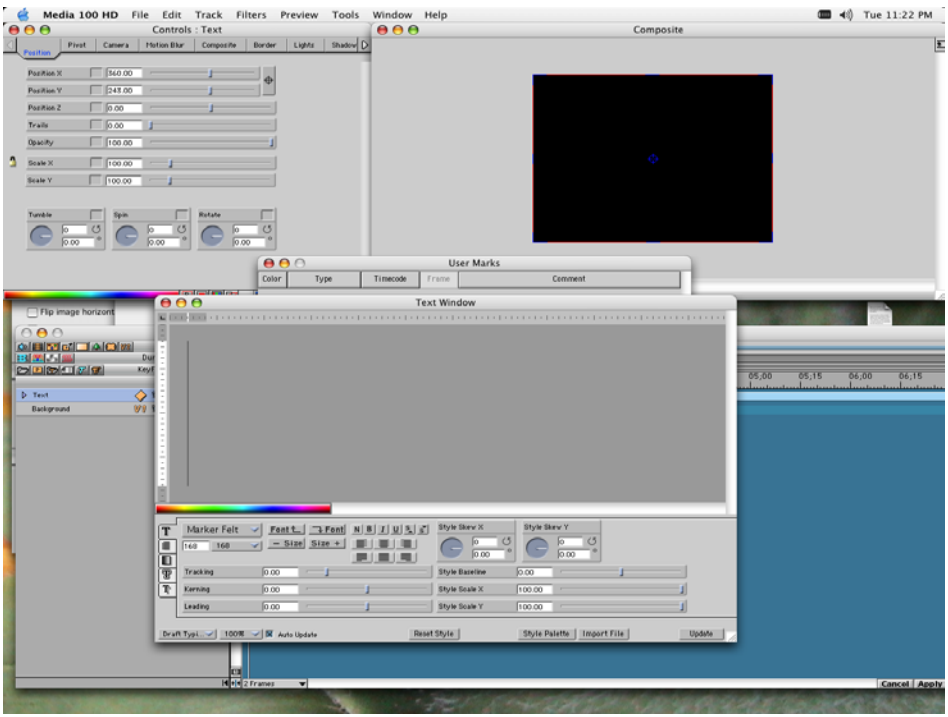
To add elements to a new title clip

1 Double-click the title clip to open the Edit Suite.

2 Click Edit.

A message indicates that Media 100 is busy while editing the clip.

The Title Suite interface opens.



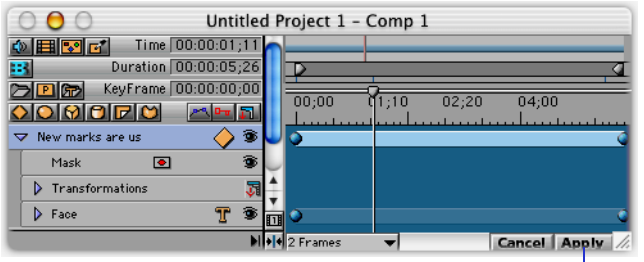
3 Create the title in the Text Window using style elements available in this window.

The background video and text appear in the Composite window.

4 Click Update or Auto Update in the Text Window to view changes in the Composite window.

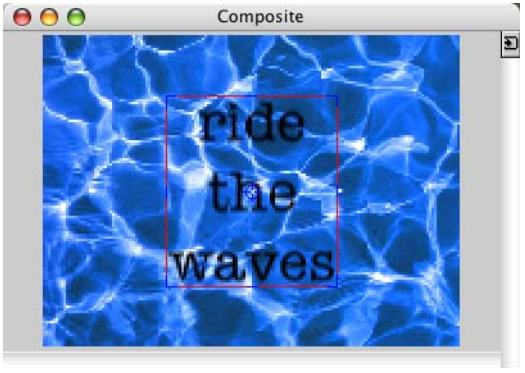
Refer to the *Title Suite* manual for specific information on using the tool.

5 Click Apply in the timeline to return to the Edit Suite.



Apply button

The title clip appears in the Record Monitor and the external monitor with the underlying video frame. If you created the clip in the bin, the title appears over a black background and the poster displays the new title.



6 Render any motion or special effect titles by clicking Render in the Edit Suite.

Changing Existing Titles

When you change a title in the Title Suite Text Window and click Apply, Media 100 does not overwrite the existing version. Instead, it creates an additional new file for that title and stores it at the destination you designated in the Media 100 >Project Settings> Media Destinations panel.

To conserve disk space when you complete your project, delete the extra unused versions of the titles.

Trimming Title Clips

Trim title clips in the Edit Suite or in the program timeline.

NOTE You can extend a single frame PICT file to any length. You can shorten a QuickTime clip, but you cannot extend it beyond its source length.

To trim a title in the Edit Suite

1. Double-click the title clip to open the Edit Suite.
2. Type the desired timecode in the Length field.
3. Click Apply.

   The clip changes to the new length.

To trim a title in the program timeline

1. Place the pointer in the track near either end of the clip to be trimmed.
2. Drag the pointer to extend or shorten the clip to the desired length.

Previewing Clips

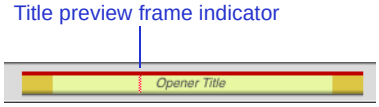
Media 100 features a Preview Frame that lets you generate a single-frame preview without rendering. This feature works with video clips, graphics as well as titles that you generate in Title Suite or Composite Suite. Use this feature to help place the title or related media at a specific location.

To generate a preview frame

1 Place the CTI over the title clip.

2 Press OPTION-⌘-T or choose Tools>Make Preview Frame.

The system generates the clip preview and places a hash mark on the clip over the previewed frame. The preview frame indicator remains on the clip until you close the program or bin.



The preview only appears when the CTI is over the frame.

To change the frame being previewed, move the CTI and repeat step 2.

Adjusting Fade-in and Fade-out Durations

You can adjust the time it takes a title to fade at the beginning and end of the clip.



To adjust Fade In and Fade Out duration

1. Double-click the title clip to open the Edit Suite.
2. Click the Panel Expansion button to display the ClipFX panel.
3. Select the Opacity checkbox.
4. Choose either TC (timecode) or Frames from the pull-down menu.
5. Type in the respective timecode or number of frames for the fade-in and fade-out.
6. Click Apply.

   The new fade duration is applied to the title clip.

NOTE Preset the fade duration in the Media 100>Preferences>Titles and Effects panel.

Creating Motion Paths

You can create and apply a motion path to an imported graphic such as a PICT file or a QuickTime movie on a Video Composition track using the Motion Path editor. Or, you can create rolls, crawls, or text animation in Title Suite. See the *Title Suite* manual for information on using the application.

NOTE Motion paths for titles generated in Media 100 must be created using Title Suite.

To apply a custom motion path to a graphic

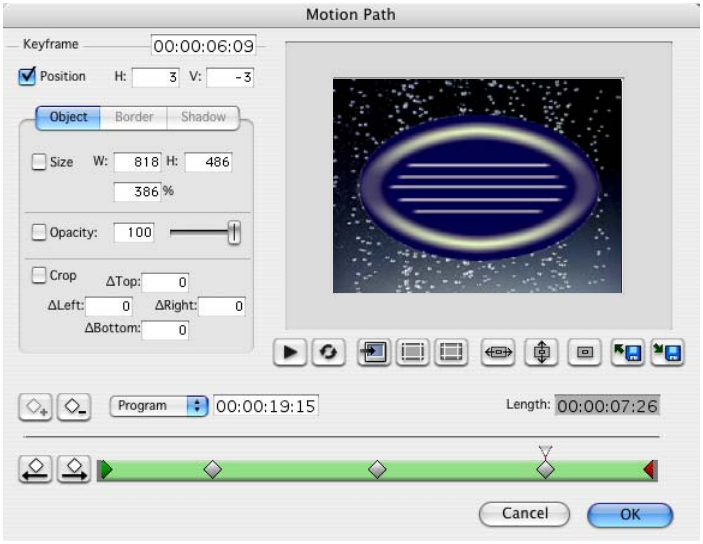
1 Place a graphic clip on a Video Composition track.

2 Double-click the graphic clip to open the Edit Suite.

3 Click the Panel Expansion button to display the ClipFX panel.

4 Select the Motion Path checkbox and click the Custom button.

The Motion Path editor appears.



5 Adjust the settings for the desired motion path effect.
See “Creating Motion Paths” for more information.

6 Click OK to close the Motion Path editor.

The Edit Suite reappears.

7 Click Apply.

8 Click Render.

To detach a motion path from a graphic clip

1 Double-click the graphic clip to open the Edit Suite.

2 Click Static.

TIP You can restore the motion path by clicking the Custom button.

▼ Playing and Rendering Titles

Media 100 requires rendering for all non-real-time titles and effects. However, during playback if some real-time static titles cannot play, the Real-Time Titles and Effects to Render dialog box appears. The dialog box lists any clips, titles, effects, and audio EQ clips that require rendering before you can play them. Select the clips to render and click Render.

If you have overlapping clips on multiple tracks, you must render all lower clips. The top clip can play in real time without rendering.

Playing Titles

Your ability to play titles in real time depends on the nature of the title. You can play all SD media static titles (titles without a motion path) in real time. It is *not* necessary to first render them. All SD media static titles are displayed in the track as yellow, indicating that they are candidates for real-time playback. All HD media titles require rendering.

To play a title clip

1 Position the CTI in the timeline in front of the title to play.

2 Press F5 or the SPACEBAR to play the title.

NOTE The performance of real-time playback is determined by the host computer being used.

Rendering Titles

Rendering composites title clips with the underlying video. Media 100 renders clips starting with the lowest track in the timeline. For example, if you have a title on **V1** and a graphic on **V2**, the application renders the title on **V1** and then the graphic on **V2**.

Because of the rendering order, if you edit or move a clip on a lower track and cause it to unrender, you also cause all the clips on tracks directly above the changed clip to unrender.

To prevent unnecessary re-rendering, build your program from the lower tracks up. Then as you edit and change clips in the timeline, those items rendered below the current clip remain rendered. Use the Render Below option to render clips below the current clip.

Titles that require rendering appear in the track with a red color band and italicized type. After rendering, the color band is green and the type is regular, indicating that they are ready to play. Render all titles with motion and all titles using HD media to play them back.

Before rendering, verify that you have adequate disk space to hold the new media files. You can save rendering time and disk space by selectively rendering clips rather than rendering all of them.

You can render a title created in the timeline or you can render all titles at once.

To render a title created in the timeline

1 Double-click the title clip in the program to open the Edit Suite.

2 Click Render in the Edit Suite.

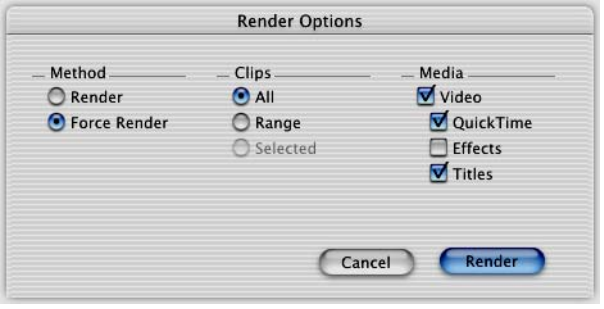
TIP After rendering your title clip, sync the title clip and underlying video clip. Later, you can move the synced video and title clip in the timeline without unrendering the title clip.

To render all titles at once

1 Complete your program.

2 Choose Media>Render.

The Render Options dialog box appears.



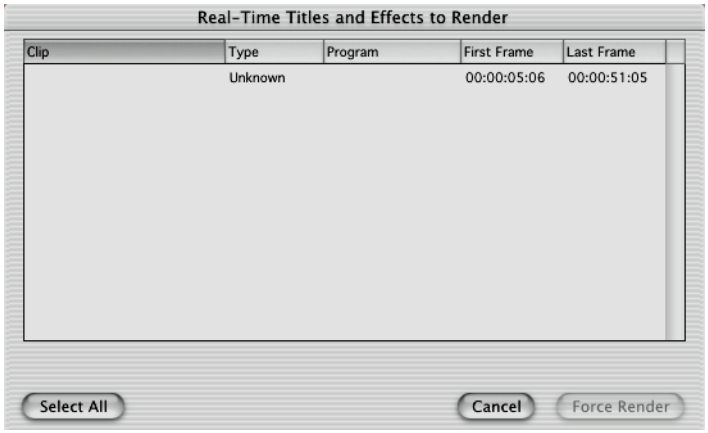
3 Select the Force Render radio button.

4 Select the remaining options in the dialog box and click Render.

NOTE You can render all titles automatically when you master your program to tape.

Required Rendering

As a result of your system performance, the complexity of your program, or the settings you selected, failures may occur while you are playing back real-time applied titles. The Real-Time Titles and Effects to Render dialog box appears at the end of playback, reporting the clips that should be rendered.



Clips that require rendering may include real-time FX, titles, or unrendered effects. Rendering the effects may resolve the problem. If it does not, rendering any real-time transitions or titles may also help.

14

Creating Motion Paths

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▼ Introduction

The Motion Path editor enables you to apply automatic or custom motion path effects to video and graphic clips played over background video and to Picture-in-Picture transitions.

Use the Motion Path editor to create motion path effects by adding and defining keyframe markers for the duration of a video clip, graphic or picture-in-picture transition. Set the attribute values for each keyframe marker to fix the overlay size and position at specific points in time and space.

This chapter describes how to

- Prepare to create a motion path
- Create an automatic or customized motion path
- Work with keyframe markers
- Work with motion path effects

▼ Preparing to Create a Motion Path

Use the Motion Path editor to add animation to video and graphics or to create Picture-in-Picture transition effects. Before you add motion to a Picture-in-Picture effect, create the transition.

NOTE Animate titles directly in Title Suite. See the *Title Suite* manual for details.

After you create your video clip, graphic or transition, access the Motion Path editor through the Edit Suite in Edit Clip mode or Transition mode, respectively.

Accessing the Motion Path Editor

Use one of the following procedures to access the Motion Path editor.

To open the Motion Path editor for a clip or graphic

1 Double-click the clip in the Video Composition track to initiate Edit Clip mode in the Edit Suite.

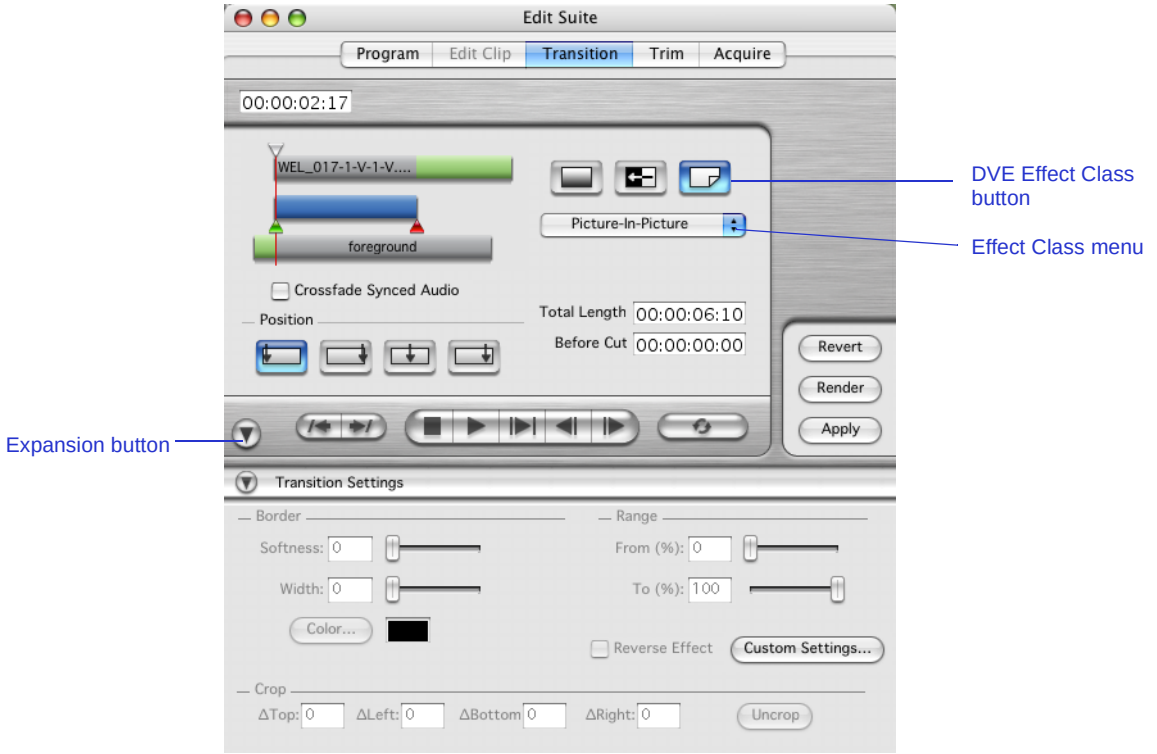
2 Click the Panel Expansion button to display the ClipFX panel.

3 Select the Motion Path checkbox and click the Custom button.

The Motion Path editor appears.

To open the Motion Path editor for a Picture-in-Picture transition

1 Double-click the transition to switch to Transition mode in the Edit Suite.



2 Click the DVE Effect Class button.

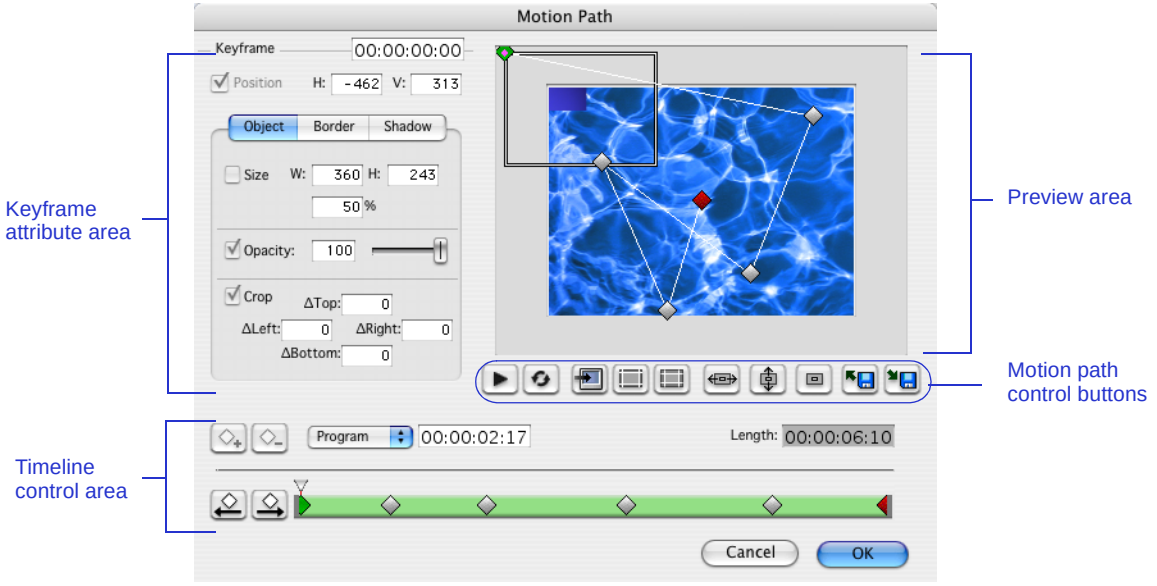
3 Choose Picture-in-Picture from the Effect Class menu.

4 Click the expansion button to open the Transition Settings panel if it is not already open, and click Custom Settings.

The Motion Path editor appears.

About the Motion Path Editor

This section describes the elements of the Motion Path editor.



Keyframe Attribute Area

Specify values for keyframe markers in the keyframe attribute area. The values you specify apply to the markers on the timeline and in the preview area.

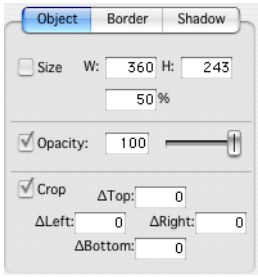
The check box for each attribute indicates whether a value is fixed or interpolated.

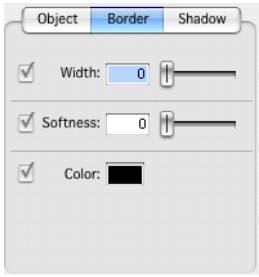
- An unchecked attribute check box indicates that the value in that field is interpolated. The interpolated value is computed based on the fixed values of other keyframe markers in the timeline.

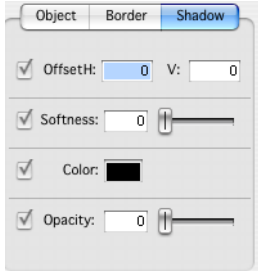
  For example, if the size of the first keyframe marker is fixed at 0%, and the size of the last keyframe marker is fixed at 100%, a keyframe marker positioned in the center, if interpolated, has a size value of 50%.

- A checked attribute check box indicates that the value in that field is fixed for the selected keyframe marker and is a fixed point along the motion path.

A keyframe marker can have both interpolated and fixed attributes, but must have at least one fixed attribute. The values for first and last keyframe markers are fixed.







The following table describes the keyframe attribute area elements.

Keyframe Attribute Area Elements

Name	Description
Keyframe field	Indicates the current timecode of the object overlay.
Position fields	Set the location of the object overlay over the underlying video. Keyframe markers position the center of the object at the location specified by the Horizontal (X axis) and Vertical (Y axis) Position.
Object panel	Sets the following properties: **Size fields**. Set the size of a video object overlay in pixels. The percentage (%) field sizes the object proportionally. **Opacity field and slider**. Set the opacity of a video overlay object. 100% is completely opaque; 0% is completely transparent. **Crop fields**. Control how object edges are cropped. By default, set to 0 pixels (no cropping). Each value can range from 0 to the full width or height of the object. Cropping is enabled for still image imports only when you select Retain Size upon import.
Border panel	Sets the following properties for Picture-in-Picture effects: **Width field and slider**. Set the width of the border from 1 to 100 pixels. A value of 0 eliminates the border. **Softness field and slider**. Set the softness of the border from 0 to 100. Higher values create softer border edges. **Color button**. Displays the color of the border. Click to select a new border color.
Shadow panel	Sets the following properties for Picture-in-Picture effects: **Offset fields**. Set the pixel depth and angle of the shadow cast by the video overlay object. **Softness field and slider**. Set the softness of the shadow from 0 to 100. Higher values create softer shadows. **Color button**. Displays the color of the shadow. Click to select a new shadow color. **Opacity field and slider**. Set the opacity of the shadow. 100% is completely opaque; 0% is completely transparent.

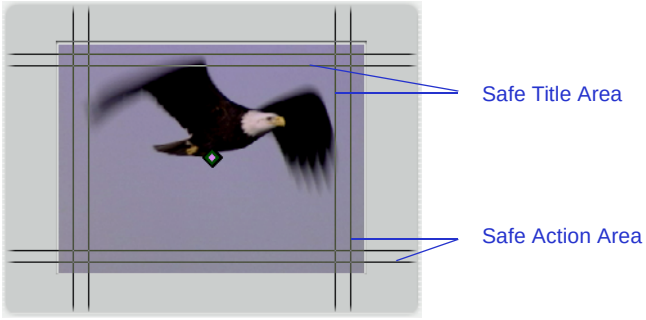
NOTE Borders and Shadows are not available to clips on Video Composition tracks. Borders and Shadows are available only to Picture-in-Picture transitions on the Master Video track.

Preview Area

The upper-right section of the Motion Path editor displays a full image of the background object and the overlay object. Position keyframe markers in the preview area to fix the points of the motion path. Click the corresponding motion path control buttons to set the preview to display the Safe Action and Safe Title Areas to help you position the overlay object. See the next section for details.

Safe Action Area The portion of the television display screen where the video picture is visible. Video action displayed within this area appears on standard television screens.

Safe Title Area The portion of the television display screen where the video picture is not cropped by the bezel of the television monitor. Objects placed within the Safe Title Area will appear properly on standard television screens.

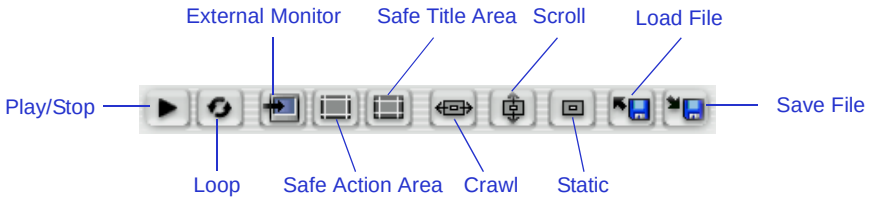


Motion Path Control Buttons

Motion path control buttons allow you to

- Play a motion path
- Display the Safe Action and Safe Title Areas

- Create automatic motion paths
- Save and reuse custom motion paths



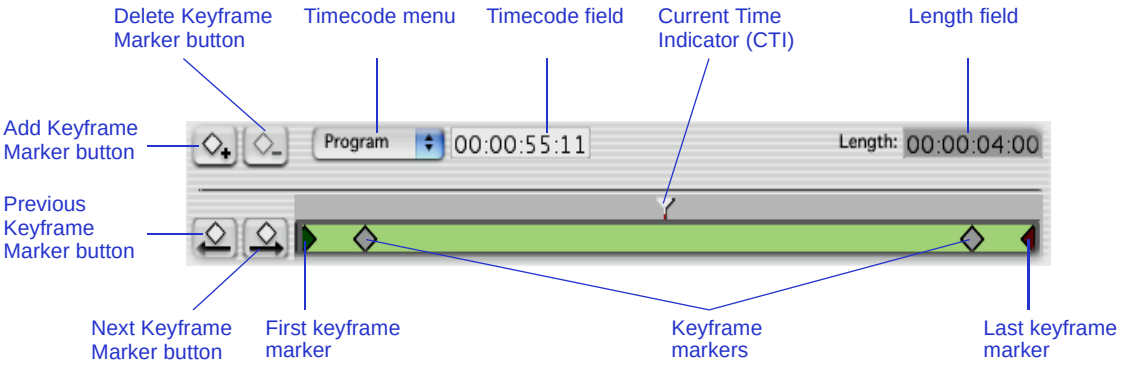
The following table describes the motion path control buttons.

Motion Path Control Buttons

Name	Description
Play/Stop	Plays the motion path from the CTI to the last keyframe marker. Toggles to a Stop button that stops playing the motion path.
Loop	Loops through the motion path repeatedly when playing.
External Monitor	Displays a still image of the preview area at the CTI on the external video monitor. The monitor displays the field(s) you choose from Tools>Stop Mode.
Safe Action Area	Displays an outer boundary in the preview area, designating the Safe Action Area.
Safe Title Area	Displays an inner boundary in the preview area, designating the Safe Title Area.
Crawl	Sets an automatic right-to-left crawling path.
Scroll	Sets an automatic bottom-to-top scrolling path.
Static	Resets the automatic default static path. The first and last frames are positioned at their original positions in the preview area.
Load File	Loads the keyframe markers from a stored motion path.
Save File	Saves the keyframe markers for the current motion path to use with other clips.

Timeline Control Area

The timeline at the bottom of the Motion Path editor represents the full duration of the motion path. When used in conjunction with the preview area, it enables you to design a motion path effect.



The following table describes the timeline elements.

Motion Path Editor Timeline Elements

Name	Description
Add Keyframe Marker button	Adds a new keyframe marker at the CTI.
Delete Keyframe Marker button	Deletes the currently selected keyframe marker.
Timecode menu	Displays the CTI timecode setting in the Timecode field for one of the following: **Current**. Displays the CTI position within the current clip. **Program**. Displays the CTI position within the program.
Timecode field	Indicates the current position of the CTI within the current clip or program, depending on the Timecode menu selection. Type a value in the timecode field to move the CTI to that position in the timeline.

Motion Path Editor Timeline Elements *(Continued)*

Name	Description
Length field	Indicates the total duration of the motion path. This field is read-only; set the motion path length in the Edit Suite.
Previous Keyframe Marker button	Moves the CTI to the previous keyframe marker in the timeline.
Next Keyframe Marker button	Moves the CTI to the next keyframe marker in the timeline.
Timeline	Contains the complete motion path clip. Click anywhere in the timeline to reposition the CTI.
First keyframe marker	Contains default values for all attributes when the Motion Path editor first opens. This green keyframe marker is positioned at the far left of the timeline.
Keyframe markers	Contain attribute values that determine the design of the motion path. These are diamond-shaped marks.
Current Time Indicator (CTI)	Indicates the current frame displayed in the preview area.
Last keyframe marker	Contains default values for all attributes when the Motion Path editor first opens. This red keyframe marker is positioned at the far right of the timeline.

▼ Creating Motion Path Effects

You can use automatic motion paths or create custom motion paths for overlays or Picture-in-Picture transition effects. This section explains how to

- Create Automatic Motion Path Effects
- Create Custom Motion Paths
- Play Motion Path Effects

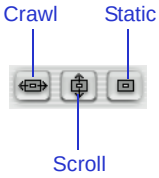
Creating Automatic Motion Path Effects

Use the automatic path control buttons to create automatic motion paths.

To create an automatic motion path

1 Create the clip, graphic or Picture-in-Picture transition and access the Motion Path editor.

2 Click one of the following buttons:



Click...	To...
Crawl	Set an automatic right-to-left crawling path. The first frame of the image moves onto the preview area from the right side.
Scroll	Set an automatic bottom-to-top scrolling path. The first frame of the image moves onto the preview area from the bottom edge.
Static	Reset the automatic default static path. The first and last frames of the image return to their original positions in the preview area.

3 Press RETURN or click OK to close the Motion Path editor.

4 Click Apply in the Edit Suite.

Motion paths created with these buttons use the attribute values set for the First and Last keyframe markers and the fade in and fade out durations set in the Edit Suite.

NOTE If you added additional keyframe markers to the timeline, clicking an automatic motion path button deletes them. To restore original keyframe markers, press ⌘-z or choose Edit>Undo.

Creating Custom Motion Paths

You can customize motion paths for video clips, graphics, imported PICT files, QuickTime movies, and Picture-in-Picture transition effects. The next procedure provides a general overview of how to create a custom motion path. This section also provides specific examples of different types of motion paths you can create.

To create a custom motion path

1. Create the clip, graphic or Picture-in-Picture transition and access the Motion Path editor.

   The Motion Path editor appears with a default motion path; the image overlay is at the center of the underlying video frames for the duration of the path.

2. Add and adjust keyframe markers, setting the attributes for each keyframe to create the desired motion path effect.

3. Play the motion path to see the resulting effect in the preview area.

TIP CONTROL-click the preview area to preview the effect without the keyframe markers.

4. When you are satisfied with the motion path effect, press RETURN or click OK to close the Motion Path editor.

5. Click Apply in the Edit Suite.

Custom Motion Path Examples

The following procedures provide examples of custom motion paths you can create.

To create a growing graphic

1. Add a keyframe marker
2. Drag the marker in the preview area to the upper left corner so the image is out of view.
3. In the size % field, type 0.
4. Add a second keyframe maker.
5. Drag the second keyframe marker to the midway point tin the timeline.
6. In the Opacity field, type 100.
7. In the size % field, type 100.
8. Add a third keyframe marker.
9. Drag the third keyframe marker to a position 10 frames from the end of the timeline.
10. In the Opacity field, type 100.
11. In the size % field, type 100.

    This holds the image size and opacity for the specified duration.
12. Add a final keyframe marker.
13. In the Opacity field, type 0.

    This fades out the image.

To create a left-to-right graphic wipe

1. Drag a graphic to a Video Composition track.
2. In the Edit Suite click the Panel Expansion button to display the ClipFX panel.
3. Select the Motion Path checkbox and click Custom.

   The Motion Path editor opens. The timeline displays the First and Last keyframe markers, as well as the two keyframe markers that set the default 10-second fade-in and fade-out.

NOTE The two keyframe markers representing the fade-in and fade-out are only displayed if the preference in the Title & Effects panel is set with a fade-in and fade-out. (Media 100 >Preferences>Titles & Effects).

4. Move the CTI to the beginning of the timeline.
5. Set Opacity to 100.
6. Set Right Crop to one of the following values:

If your video standard is...	Set the Right Crop to...
NTSC 720 x 486	720
PAL 768 x 576	768
HD 1920 x 1080	1920

   This moves the initial cropping boundary to the right and changes the opacity to 100.

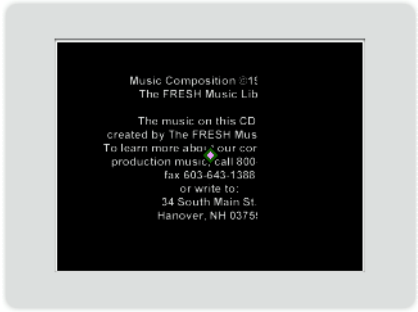
NOTE Crop values cannot exceed the frame size. You can wipe graphics in any direction.

7. Move the CTI to the end of the timeline and set Opacity to 100.

   The Crop fields are at 0 at this location; that is, no cropping is applied and the full image area appears at this point.

8. Move the CTI to the beginning of the timeline and click Play.

As the clip plays, the graphic is revealed from left to right.



To create a stationary or moving Picture-in-Picture effect

➤ Do one of the following to create a stationary or a moving effect:

To create a...	Set the coordinates of the first and last keyframe markers at...
Stationary effect	The same location in the preview area to force the motion path to run its course in the same location. For example, create a Picture-in-Picture effect that fades in and grows to full size at the center of the preview area. ■ Set the following attributes for the first keyframe marker: Position: 0, 0 Size: 0 Opacity: 0 ■ Set the following attributes for the last keyframe marker: Position: 0, 0 Size: 100 Opacity: 100
Moving effect	Opposite sides of the preview area. Move them far enough out so that the overlay image is not visible in the preview area. For example, create a Picture-in-Picture effect that moves in from the left, moves diagonally across the screen, and then zooms out. ■ Drag the first keyframe marker to the far left of the preview area. ■ Drag the last keyframe marker to the far right of the preview area.

Playing Motion Path Effects

As you add and adjust keyframe markers, review the results in the Motion Path editor preview area and on the external monitor.

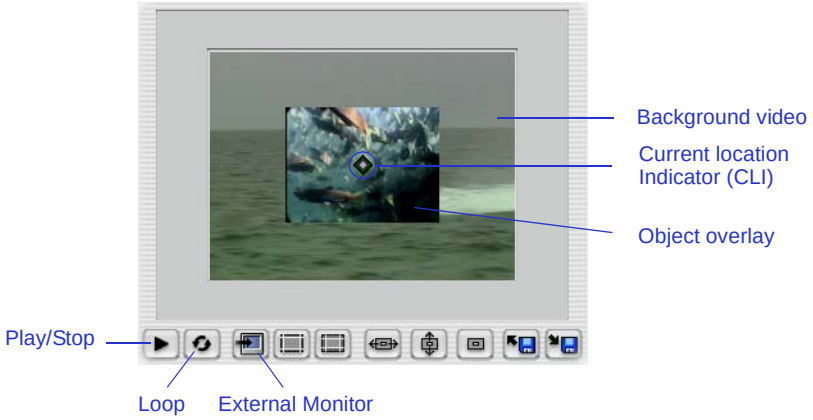
The external video monitor does not display images while they play from the Motion Path editor. Render the effect before playing it on the monitor. However, you can preview individual motion path frames on the monitor.

To play a motion path effect in the preview area

1 Move the CTI to the beginning of the timeline.

2 Press F5 or click Play.

The Current Location Indicator (CLI) at the center of the overlay object moves along the length of the motion path. The Play button toggles to the Stop button.



TIP Click Loop to play the effect continuously.

3 Click and hold Stop, press the SPACEBAR, or hold down the mouse button anywhere until the CTI in the preview area stops moving to stop the effect.

You can hide the keyframe markers and motion paths in the preview area to make it easier to see the overlay object as you play the effect.

To hide/show the motion path

➤ CONTROL-click the preview area.

To preview individual frames of an effect on an external monitor

1 Click External Monitor.

2 Move the CTI in the timeline to the frame to view on the external video monitor.

TIP If the external monitor display flickers, choose Tools>Stop Mode and select either Display First Field (OPTION-⌘-1) or Display Second Field (OPTION-⌘-2) to display a single field of the stopped video image.

3 After previewing the frame on the external monitor, click External Monitor again; images in the Motion Path editor preview area take longer to display on the external monitor.

▼ Working with Keyframe Markers

Keyframe markers define the attributes of the motion path at specific points in time and space. Each keyframe marker appears in

- The timeline, which represents time
- The preview area, which represents space

Each keyframe marker sets attribute values including time, space, and size onto the motion path. Media 100 creates a motion path effect by calculating and interpolating the attribute values for each frame of the overlay. Interpolated values are based on settings specified for the keyframe markers. As you play the motion path, each frame along the path reflects the fixed or interpolated values at that point.

For example, to create a motion path where the overlay image grows from nothing to full size, set the first keyframe marker size to 0 and the last keyframe marker size to 100. The values between the first and last keyframe markers are interpolated. This section explains how to

- Add keyframe markers
- Select keyframe markers
- Cut, copy, and paste keyframe markers
- Move keyframe markers
- Adjust keyframe marker attributes

Adding Keyframe Markers

Add new keyframe markers in the preview area or the timeline. The new keyframe inherits the interpolated values at that point in time. Adding a keyframe marker displays its two representations: one in the preview area, and one in the timeline.

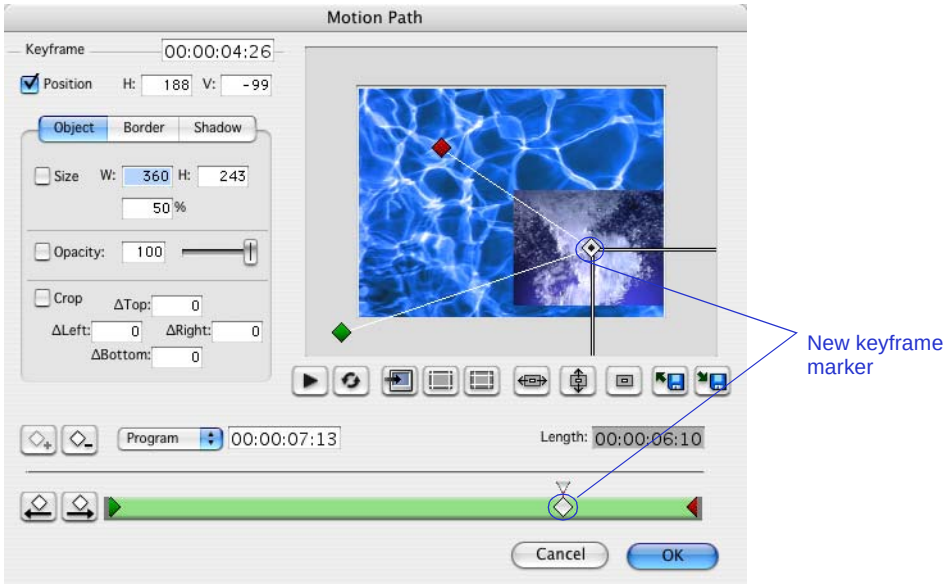
To add a keyframe marker

1 Move the CTI to an unmarked position in the timeline.

2 Add a keyframe marker using one of the following methods:

To add a marker in the...	Do this...
Timeline	⌘-click an empty area in the timeline or click the Add Keyframe button.
Preview area	⌘-click an empty space in the preview area.

A new keyframe marker appears in the preview area and at the CTI.



Selecting Keyframe Markers

Select a keyframe marker in the timeline or in the preview area before moving or applying attribute values to it. Selected keyframe markers are bright. Selecting a keyframe marker in one view automatically highlights it in the other view.

- When you select a single keyframe marker and position the CTI over it, the keyframe attribute area displays the attributes of that marker.
- When you select multiple keyframe markers and position the CTI over one of them, the keyframe attribute area displays the attributes of that keyframe marker and italicizes any values that are not the same for all the selected markers.

To select keyframe markers in the timeline

➤ Use one of the following methods:

To select...	Do this...
A single marker	Click the marker.
Multiple markers	SHIFT-click the markers.
All markers	Press ⌘-A or choose Edit>Select All.
The previous marker	Press ⌘-SHIFT-LEFT ARROW.
The next marker	Press ⌘-SHIFT-RIGHT ARROW.
A group of markers	Drag or SHIFT-drag a selection rectangle around a group of keyframe markers inside the green area of the timeline.

To select keyframe markers in the preview area

➤ Click or SHIFT-click a single keyframe marker; drag or SHIFT-drag a selection rectangle around a group of keyframe markers inside the preview area.

Keyframe markers selected in the preview area are white and display the outline of the overlay object at that keyframe.

Cutting, Copying, and Pasting Keyframe Markers

You can cut, copy, and paste keyframe markers from one place to another. You can use this method to

- Create new keyframe markers
- Replace existing keyframe markers

The new keyframe markers contain the fixed attributes of the markers from which they were copied or cut. The values that are not fixed are interpolated based on the values of the preceding and following keyframe markers.

To create new keyframe markers using cut, copy, and paste

1 Select a keyframe marker(s).

2 OPTION-drag the marker(s) to a new position in the timeline.

Or

a Cut or copy the keyframe marker using standard cut and copy commands.

b Move the CTI to a new position in the timeline.

c Use standard paste commands to create the new marker.

New keyframe marker(s) containing the copied fixed attributes appear in the timeline. When you paste multiple keyframe markers, they may intersperse with or overwrite existing keyframe markers as necessary. Markers that extend beyond the end of the timeline are not included in the operation.

To replace existing keyframe markers using cut, copy, and paste

1 Select the keyframe(s) whose attributes you plan to use to replace an existing marker.

2 Copy or cut the keyframe marker(s) using standard cut and copy commands.

3 Select the keyframe marker(s) to replace.

NOTE The number of keyframe markers you select to replace must be equal to or greater than the number of markers you are copying. If the number of markers selected is greater than the number being copied, pasting picks up again with the first item copied.

4 Use standard paste commands to replace the marker.

New keyframe markers containing the copied fixed attributes replace the selected keyframe markers in the timeline.

Moving Keyframe Markers

You can arrange the keyframe markers in the timeline and in the preview area. Moving the keyframe markers in the timeline changes their position in time; moving them in the preview area changes their position in space.

You can move single keyframe markers or groups of selected keyframe markers in the timeline. You cannot position a marker directly over another keyframe marker in the timeline, but can drag a marker directly over another in the preview area.

If you drag one of several selected keyframe markers, all the other keyframe markers move with it in their relative positions. The keyframe attribute area displays the new interpolated values and italicized fixed values for the marker under the CTI.

To move keyframe markers in the timeline

➤ Drag a keyframe marker to a new position in the timeline.

The keyframe attribute area displays the fixed values, the timecode, and other interpolated values for the marker at its new position.

Or

1 Select a keyframe marker.

2 Enter a new value in the Timecode field in the keyframe attribute area.

The selected keyframe marker moves to the new position in the timeline. The keyframe attribute area displays the fixed values and the new interpolated values.

To move keyframe markers in the preview area

1 Select a keyframe marker or its object overlay outline in the preview area.

2 Do one of the following:

- ⌘-click a new position in the preview area. Use this method for moving a single marker only.
- Drag a keyframe marker or its object overlay outline to a new position in the preview area.

TIP SHIFT-drag to constrain the drag horizontally or vertically. Drag the marker outside the bounds of the preview area to make the overlay object not visible on the screen.

- Type a new coordinate in the Horizontal and/or Vertical Position field(s) and press RETURN.

The selected keyframe marker(s) move to the new location in the preview area, and the Position fields in the keyframe attribute area display the coordinates of the new keyframe marker location.

Adjusting Keyframe Marker Attributes

Keyframe markers contain the information that controls the motion path effect. By adjusting the attribute values in the keyframe attribute area, you determine the characteristics of the path that the overlay object takes over the underlying video. You can select and copy any number of fixed attribute values from the Keyframe attribute area and apply them to any number of selected keyframe markers. You can also change a fixed attribute to an interpolated value, or the reverse.

Specialized attribute settings are grouped together in the Object, Border, and Shadow panels. For details about the panels, see “Keyframe Attribute Area”.

To set an attribute value

1 Select the keyframe marker.

2 Type a value into the appropriate field or adjust the slider.

3 Press TAB or ESC or click outside the field to set the value.

The field check box displays a checkmark, indicating that the field value is fixed.

To cut, copy, and paste keyframe attributes

1 Select the keyframe marker whose attributes you want to use.

2 In the Keyframe attribute area, SHIFT-click the attribute title for each attribute to use. SHIFT-click the Object, Border, and Shadow panels to select attributes from other panels.

3 Do one of the following:

Press...	To...
⌘-X or choose Edit>Cut Attributes	Cut the selected keyframe attributes, making them interpolated rather than fixed.
⌘-C or choose Edit>Copy Attributes	Copy the selected keyframe attributes.

4 Select the keyframe marker(s) to which to apply the attributes.

5 Press ⌘-V or choose Edit>Paste Attributes.

The fixed attributes become part of the selected keyframe markers.

To change an interpolated attribute value to a fixed value

1 Select the keyframe marker.

Its attributes appear in the keyframe attribute panels. A field whose check box is not selected contains interpolated values.

2 Click the check box to the left of the field that is to be a fixed value.

The formerly interpolated value becomes a fixed value.

To change a fixed attribute value to an interpolated value

1 Select a keyframe marker.

Its attributes appear in the keyframe attribute panels. A field whose check box is selected contains fixed values.

2 Clear the check box of the desired attribute field to deselect it as a fixed value.

The interpolated values for the keyframe at this point in time and space are restored.

▼ Working with Motion Path Effects

As you create your motion path, you can

- Store the effect for later use with other programs and projects
- Render the effects to play them in the program

Saving and Loading Motion Path Effects

This section describes how to save your custom motion path effects to use with other programs and projects. By saving and later loading motion paths, you can use complex motion path effects without having to recreate them.

To save your motion path settings

1. Create the motion path effect.
2. Click Save File.
3. Name and save the motion path.

To load stored motion path settings

1. Click Load File.
2. Select the motion path effect to load.

   The Media 100 system immediately applies all the keyframe marker settings in the selected motion path effect to the current motion path. Media 100 applies the keyframe markers proportionally in their relative positions along the timeline, regardless of the length of the original motion path.

NOTE If you set keyframe markers for the current effect, loading a stored motion path effect deletes those markers. To restore the original keyframe markers, press ⌘-z or choose Edit>Undo.

Rendering Motion Path Effects

Render your motion path effects to play them back in the program. You can render individual effects as you create them or batch render effects.

- Rendering a motion path composites the video clip or graphic with the underlying video.
- Rendering Picture-in-Picture transition effects composites the video clips in the **A** and **B** video tracks. After rendering, the transition effect clip appears as light green in the **FX** track, indicating that it is rendered and that you can play it.

NOTE If you create a motion path over an existing transition effect, render the transition as well.

To render individual motion path effects

1 Complete your motion path effect.

2 Click OK in the Motion Path editor.

The Motion Path editor closes and returns you to the Edit Suite.

3 In the Edit Suite, click Render to render the motion path effect.

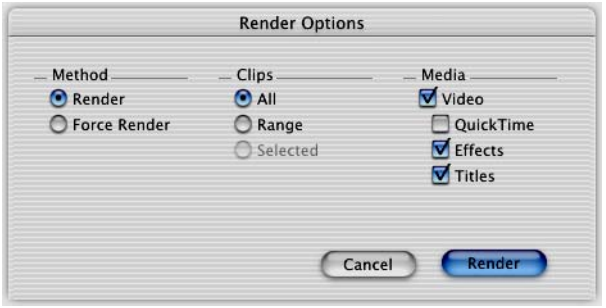
NOTE Before rendering select the desired Render options. **This Clip** renders only the current clip. **Below** renders all clips below the current clip in the timeline. Select both options to render the selected clip and all clips below it in the timeline.

To batch render motion path effects

1 Select the program, range, or clip(s) to render.

2 Choose Media>Render.

The Render Options dialog box appears.



3 Choose the Render radio button.

4 Choose one of the Clips radio buttons.

5 Choose the Video check box, and the Effects and/or Title check boxes, depending on whether you are rendering Picture-in-Picture transition effects, video clips and/or graphics.

NOTE Opacity level adjustments on clips with Motion Paths must be generated in the Motion Path Editor opacity controls rather than the Opacity level line on the video composition track as the opacity levels on the video composition track clip are removed upon rendering the motion path.

15

Working with Audio

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▼ Introduction

Media 100 provides up to 24 real-time tracks of audio to use as you build your program. It also includes level and pan controls, crossfades, audio equalization, true stereo reverb, and sweetened dynamics. For more information on Audio EQ, Dynamics, and reverb see “Creating Audio Effects.”

This chapter provides information about audio input and output. It describes the Audio window, the audio Bus track, expanded real-time audio tracks, and other audio editing tools. The chapter tells you how to

- Work with synced clips
- Create audio crossfades
- Adjust audio levels
- Adjust pan levels
- Mix down audio for export
- Use the Bus track

▼ Monitoring Audio Output

The Media 100 audio output is not connected to the computer speaker system, therefore, listening to or editing audio material requires an audio monitor connection. The Media 100 junction box provides digital AES/EBU, balanced XLR and unbalanced RCA audio output. In addition, audio may be output via FireWire.

Signal Distribution

Twenty-four real-time audio tracks, **A1–A24**, distribute level output to the audio channel connections at the junction box. This is based on the individual pan settings previously established for each audio clip.

▼ Media 100 Audio Components

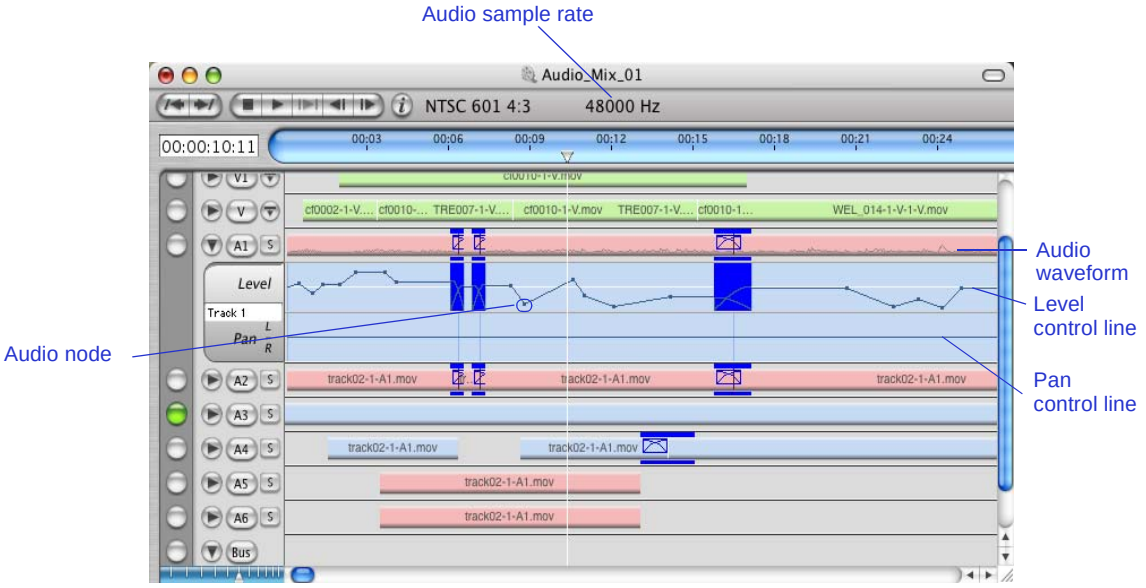
The Media 100 interface provides the following components for setting up, acquiring, monitoring, and manipulating audio during the creation of your program:

- The Program window, where you place and edit audio clips
- The Track Setup dialog box, where you select the number of audio tracks
- The Pan Track dialog box, where you adjust the pan signal distribution
- The Scan Audio tool, which lets you hear off-speed sound while scrubbing audio
- The Audio window, where you monitor and adjust the audio signal
- The audio Bus track to adjust levels and add effects universally to a program, a segment of a program or per frame

The following sections describe each of these audio tools and their features.

Program Window

Use the Program window to place audio clips onto audio tracks.



The following table describes the Program window elements that are pertinent to working with audio clips.

Program Window Audio Elements

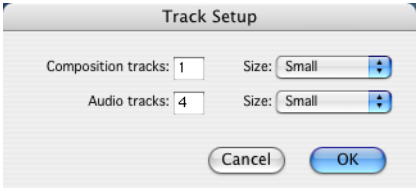
Name	Description
Audio sample rate	Set the audio sample rate for your program in the Audio Input panel of the Preferences dialog box. (Media 100 >Preferences>Audio Input) **NOTE** The audio sample rate for the program timeline is based on the “Convert to Sample Rate” selection in the Audio Input Preference Panel.
Audio waveform	A visual representation of the audio power of each frame of the clip. Select an audio track and then choose Track>Show Audio Waveform to view the waveform.

Program Window Audio Elements *(Continued)*

Name	Description
Level line	Indicates the gain level for the respective audio clip. The white line in the center of the track is the unity gain, where there is no adjustment to the signal.
Pan line	Indicates the pan signal distribution to the left and right channels. The white line in the center of the track is the point of equal signal distribution.
Audio node	Lets you change gain levels and pan distribution at a specific point in time. Place an audio node on a level or pan line and manipulate it.
Track Name field	A text field where you type an audio track name (up to ten characters).
Audio Bus	Sets overall audio levels for all audio clips in all tracks. Applies all audio effects (EQ, Dynamics, Reverb) globally.

Track Setup Dialog Box

Through the Track>Track Setup dialog you can adjust the size of all the expanded audio tracks in the currently selected program. The three sizes are: small, medium, and large. Use the Track Setup dialog box to select which audio tracks appear and play in the Program window.



To add additional audio tracks to the Program window

1 Choose Track>Track Setup.

2 To change the number of audio tracks, click in the Audio tracks field and type the number of desired tracks.

To enlarge the size of the audio track

1 Choose Track>Track Setup.

2 To change the size of audio tracks, enable a check box next to the size you require.

You can also adjust the default track size for all new programs using Media 100 >Preferences>Program.



Small expanded track (default)



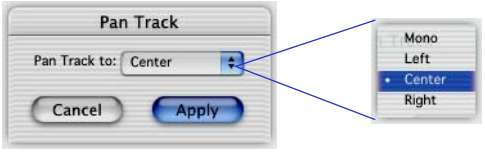
Medium expanded track



Large expanded track

Pan Track Dialog Box

Use the Pan Track dialog box to reset the audio signal distribution for selected tracks. Change the pan signal distribution you set when you acquired the clips or change the default pan signal distribution settings of imported audio files.



The pan track menu lets you choose one of four pan distribution settings for the audio signal for each track. These settings are the same as those found in the Pan menus in Acquire mode in the Edit Suite.

To reset the audio signal distribution

1 Choose Track>Pan Track.

2 Choose one of the following options:

Choose...	To distribute the signal...
Mono	Equally between the left and right channels and adjust the gain level by +3 dB to compensate for the diminished single-channel level output. Use this setting to master your program with only a single track of audio.
Left	Entirely to the left channel.
Center	Equally between the left and right channels.
Right	Entirely to the right channel.

Scan Audio Tool

The Scan Audio tool lets you hear the sound associated with specific frames as you move the CTI over them. Monitor the playback of audio tracks to find edit decision points in an audio clip and fine-tune the signal.

To enable Scan Audio

➤ Press SHIFT-⌘-2 or choose Tools>Scan Audio.

Audio Window

The Audio window monitors your acquired audio media in real time. Watch the master gain levels to ensure the signal is being acquired at the proper volume level.

The Audio window supports real-time playback, preview, and adjustment while playing clips in Program mode. Use the Audio window to

- Set Pan and level settings for individual audio clips
- Adjust global settings for each track
- Adjust Bus settings for the combined audio track output
- Alter Bus settings for the program or for a clip per frame
- Automatically fade in and fade out tracks of audio
- Mute or solo tracks
- Change the peak hold preference for all tracks
- Change nominal reference for all tracks

To display the Audio window

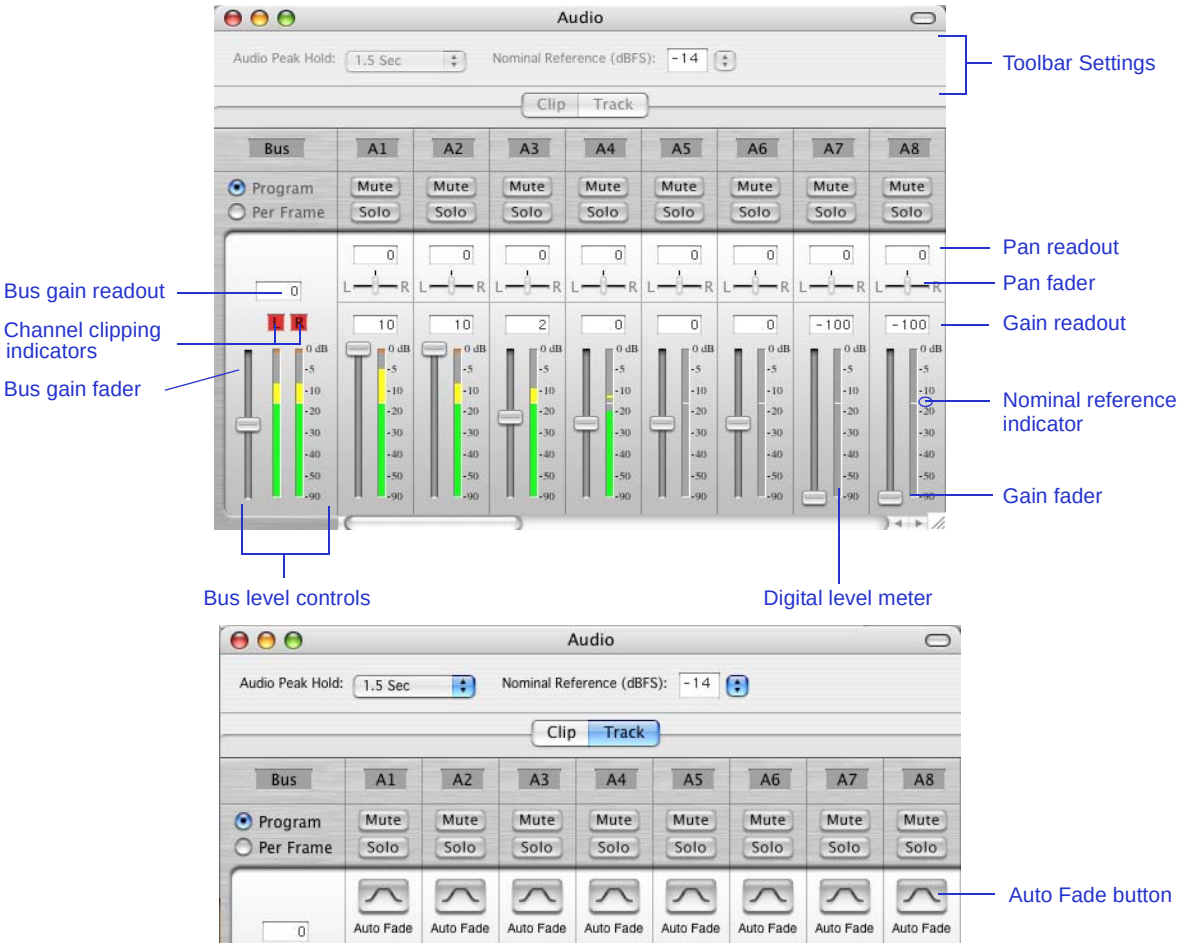
➤ Press ⌘-2 or choose Windows>Audio.

The Audio Window appears.

Toolbar Tools

The Toolbar button in the Audio windows reveals access to nominal reference and audio peak hold settings.

NOTE If the Toolbar is not visible in a window, click the Toolbar button to display it



The following table describes the Audio window elements.

Audio Window Elements

Name	Description
Audio Bus	Lets you adjust the master fader control on a per frame basis or across the entire program. You can use a Master Audio filter clip on the Bus track of the program to apply Bus settings and effects for a segment of your program. **Program.** Applies all audio level settings to all the audio clips on every track in the entire program. Use a Master Audio clip to apply effects to a segment of or to the entire program. **Per Frame.** Applies the audio level settings and effects to a particular frame on your audio clip.
Clip button	Lets you adjust the pan signal distribution and gain level of individual audio clips.
Track button	Lets you adjust the gain level for the entire track. Gain adjustments you make at the track level are added to adjustments you made to individual clips.To change the pan for a track, use the Pan Track dialog box. **Auto Fade.** Fades in and fades out the audio clips on the track. This automatically sets the fade in and fade out to less than a frame. Minimizes audio popping.
Audio Peak Hold	Allows you to set the peak hold values for the Audio window. **NOTE** The Audio Peak Hold is displayed in the Toolbar of the Audio Window.
Nominal Reference	Allows you to set the nominal reference values for the Audio window. **NOTE** The Nominal Reference is displayed in the Toolbar of the Audio Window.
Bus Level controls	Represents the mix of stereo and dual-mono input or output from active audio tracks to the left and right channels.
Bus gain readout	Displays the volume level of the signal passed to the audio output channels.

Audio Window Elements *(Continued)*

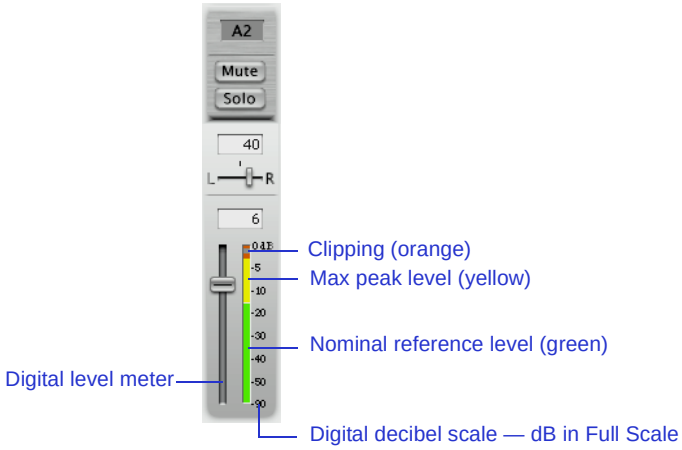
Name	Description
Bus gain fader	Boosts or cuts the gain factor applied to the audio output signal. As you move the fader, the master gain readout above the fader displays the level of the gain adjustment.
Channel clipping indicator	Illuminates if, by boosting the gain fader, you increase the overall audio level to the point where clipping distortion occurs. Click to reset.
Digital Level Meter	Registers the fluctuating levels of the audio signal you are currently adjusting.
Gain Fader	Boosts or cuts the gain factor applied to the audio output of the clip.
Nominal Reference indicator	Indicates the point on the meter where the display changes from green to yellow.
Peak Hold indicator	Appears as the signal on an audio track peaks. The indicator clears the most recent peak at the end of each duration.
EQ Clipping indicator	Illuminates if, by boosting the EQ, you increase the overall audio volume level to the point where clipping distortion occurs.
Gain Readout	Displays the gain or volume level adjustment you made for the respective clip or track.
Solo button	Plays the designated track, muting all others. Click multiple Solo buttons to play multiple tracks. OPTION-click a disabled Solo button to select it and deselect all other currently enabled Solo buttons. OPTION-click one enabled Solo button to deselect them all.
Mute button	Silences the designated track so that only the unmuted tracks play. Click multiple Mute buttons to mute multiple tracks. OPTION-click a disabled Mute button to enable all Mute buttons. OPTION-click an enabled Mute button to disable all Mute buttons.

Audio Window Elements *(Continued)*

Name	Description
Pan Fader	Slides to adjust the panning mix for the clip signal. When centered, the signal is equally distributed to the left and right channels.
Pan Readout	Displays a numeric percentage from –100% to +100% indicating signal distribution.

Digital Level Meter

The level meters register the gain adjustments you make at the clip and track levels, but not any gain adjustment you make with the EQ filters.



The dynamic range for the full scale digital level meter is represented by a logarithmic scale from –90 dBFS to 0 dBFS, the maximum amplitude gain. The yellow and orange segments represent the available headroom.

The *headroom* is the difference between the nominal reference and the maximum peak level allowed for the recording medium being used. The available headroom determines the maximum amplitude gain you can apply to the audio signal to attain an optimal signal-to-noise ratio without clipping.

To equate the digital levels to the levels of an analog VU meter, subtract the nominal reference setting value from the level reading. For example, if the digital level meter with a –18 dBFS nominal reference shows the clip level at –14, the corresponding level would be 4 VU on an analog meter.

The selected nominal reference setting determines the point at which the meter changes from green to yellow.

NOTE For the most dynamic signal and best signal-to-noise ratio, adjust the gain so the highest audio peaks appear at the top of the yellow segment of the level meter.

The following table shows the nominal reference setting when converting from analog to digital audio.

Analog–Digital Nominal Reference Conversion Table

Analog Metering Volume Unit	Digital Metering Decibel-Full Scale			
	–9 dBFS = 0 VU	–14 dBFS = 0 VU	–18 dBFS = 0 VU	–20 dBFS = 0 VU
20				0
18			0	–2
14		0	–4	–6
9	0	–5	–9	–11
8	–1	–6	–10	–12
4	–5	–10	–14	–16
0	–9	–14	–18	–20
–6	–15	–20	–24	–26
–16	–25	–30	–34	–36
–26	–35	–40	–44	–46
–51	–60	–65	–69	–71
–70	–79	–84	–88	–90

Analog–Digital Nominal Reference Conversion Table *(Continued)*

Analog Metering Volume Unit	Digital Metering Decibel-Full Scale			
	–9 dBFS = 0 VU	–14 dBFS = 0 VU	–18 dBFS = 0 VU	–20 dBFS = 0 VU
–72	–81	–86	–90	
–76	–85	–90		

Audio Window Settings

The Audio Window settings appear in the toolbar of the Audio window. Choose audio peak hold and nominal reference settings from the settings menus.



▼ Preparing to Acquire Audio

Before you can incorporate audio into your program, you need to record and prepare your source audio for acquisition. This section explains how to

- Record audio
- Use the Test Sequence programs
- Set nominal reference
- Monitor source audio

Recording Audio

When recording source tape, set the recording device meters at nominal reference (average amplitude). The nominal reference can change depending on the type of recording you make. To get an accurate nominal reference, record a 1 kHz nominal reference tone through all associated mixers and record it on the master tape.

This process ensures that the playback system that handles the tape later has a nominal reference as a baseline. Nominal reference settings do not affect the actual audio. When deciding how to set the nominal reference level for digital recorders that allow for setting changes, refer to “Setting Nominal Reference.”

If you are recording on a Multitrack Digital Machine (MDM), maintain maximum headroom by recording with peak levels that are set to less than the 0 decibels Full Scale (dbFS) meter calibration. If the audio clips, the sound becomes distorted.

If you are recording on an Analog Recording Device do not allow peaks to go higher than +3 VU into the red. In addition, with analog deck recordings, tape formulation (bias) can affect the headroom. Maintaining peaks at +3 is usually good for Type 4 Metal tapes and Type 2 Chrome tapes. Type 1 Normal tapes are usually not used for high-quality recording. If you use them, do not allow peaks higher than +1 VU.

Setting Nominal Reference

The nominal reference setting determines the available headroom, where the meter changes from green to yellow. The nominal reference setting in the Audio window does not affect the audio signal. Use the setting to match the scale of the reference levels on the external equipment you are using for input or output.

The nominal reference setting in the Media 100 system is used primarily to match digital-to-analog signals. The nominal reference is roughly equivalent to 0 volume units (VU) on an analog meter. Using nominal reference to match digital-to-digital signals is less critical.

As you create your program, you set the nominal reference in two instances:

- Acquisition
- Mastering to tape

Set the nominal reference of the Media 100 system to match

- The setting of the equipment you used to record your audio

  Refer to the documentation for the mixer, deck, and other equipment to determine the default nominal reference.

- The baseline reference on the source audio to ensure that when you adjust audio levels within the Media 100 system there is no distortion and you have the best signal-to-noise ratio

To set the nominal reference

1 Press ⌘-2 or choose Windows>Audio.

  The Audio window appears.

2 Click the Audio Toolbar button to display the Audio Window Toolbar.

3 Choose a setting from the Nominal Reference menu or type a custom nominal reference in the Nominal Reference field.

The Media 100 system provides the following nominal reference settings:

–09 dBFS	Default format for some analog devices. Appropriate for very low dynamic devices such as microphones or low-end decks.
–14 dBFS	Default format for most analog devices. Appropriate for less dynamic material such as voice or ambient recording.
–18 dBFS	Default format for many digital devices. Appropriate for high yet constant dynamic recording such as pop music.
–20 dBFS	Another default format for digital devices. Appropriate for the most dynamic recordings such as symphonic orchestration.
Other	In addition to the settings listed, you can type a custom value in the nominal reference text field between -96 and 0.

4 Play the 1 kHz tone you recorded on your master tape.

The Master level control meter reading should show the tone registering at the nominal reference.

Monitoring Source Audio

After setting the nominal reference, play back your source audio and watch the Master level controls for the left and right channels on the Audio window.

As you play your source audio, the green, yellow, or orange bars illuminate when the audio is in that range. Ideal peak audio levels reach the top of the yellow portion of the meter. If the red audio clipping indicators illuminate, your audio level is too high and needs to be reduced.

TIP Try to locate and audition the loudest audio passages as you are setting input levels.

To monitor source audio

1 Press ⌘-2 or choose Windows>Audio.

The Audio window appears.

2 Click the Audio Toolbar button to display the Audio Window Toolbar.

3 Choose a peak hold preference from the Audio Peak Hold menu.

Use the Audio Peak Hold setting to select the duration of peak hold and the corresponding time that the peak hold indicator appears in the digital level meters before resetting. If a higher peak occurs during the peak hold duration, the new peak level registers and holds for the time remaining.

Choose...	To set the peak hold indicator to...
None	Off. The audio peak will not hold, but will continually change.
0.5 Sec	Automatically reset every half second.
1.5 Sec	Automatically reset every one and one-half seconds
Infinite	Register the first peak and hold it indefinitely until a higher peak occurs. Choose infinite again or choose another setting from the menu to clear the indicator. Use this setting to find the highest overall level of the audio you acquire without monitoring the Audio window.

TIP Use the Infinite hold setting to initially set up your acquisition levels. You can search your source material for the loudest sections of material you are acquiring. Then adjust the level so the loudest section is in the upper range of the yellow section, just below the orange section of the Master controls.

4. Click Play in the Edit Suite to play your audio source media.
5. Click OK to continue.
6. As the audio plays, the highest peaks of your audio register in the upper yellow range of the digital meter. Adjust the audio levels using your deck controls.

When you are satisfied that your audio is playing at peak levels without clipping, you are ready to acquire your source media.

NOTE The acquired audio signal can only go out the channel from which it was acquired. For example an acquired audio signal from channel 3/4 can only go out channel 3/4. An acquired audio signal from channel 1/2 can only go out channel 1/2.

Reset Audio Clip Indicators

Reset the audio clip indicators in the Audio window during playback or acquisition.



To reset clip indicators

1. Set Audio Peak Hold to Infinite.
2. Play the audio.

   When audio clips, the clip indicators light.
3. To reset all the indicators, OPTION-click one indicator.

   Or

   To reset one indicator, click the indicator.

▼ Replacing Media

You can use the Replace Media command with audio clips. When you replace media, you retain the clip attributes of a clip in the timeline while replacing the media. You can replace

- Audio media — replaces the audio as well as the video media in a synced clip
- Audio EQ — retains the audio effects applied to the clip

- Audio level — retains the audio gain level of the clip
- Audio pan — retains the audio pan level of the clip

▼ Working with Synced Clips

You can sync audio clips to specific video clips or leave them unsynced. Audio that was acquired from a videotape is automatically synchronized to the associated video clip. The following procedures explain how to

- Sync and unsync clips
- Reassign audio tracks
- Remove synced audio clips

Syncing and Unsyncing Clips

You can manually sync audio clips to video clips or to other audio clips. The clips you sync must be on separate tracks.

Once you sync clips, adjustment to the gain level of one of the synced audio clips in the program or the Audio window applies to the other synced audio clips. The pan settings remain independent of one another.

Unsync clips to break their relationship with other clips and to move them to other tracks.

Unsyncing Video Clips

Acquiring video with audio media creates clips with video and audio synced together. Editing in the timeline sometimes requires unsyncing the clips. When you use the Unsync Clips command, all the clips linked together are unlinked. Often, leaving the audio clips linked together while unsyncing only the video is useful.

To access the Unsync Video Only command

➤ Press OPTION-⌘-U or Press OPTION and choose Program>Unsync Video Only.

Removing Synced Audio Clips

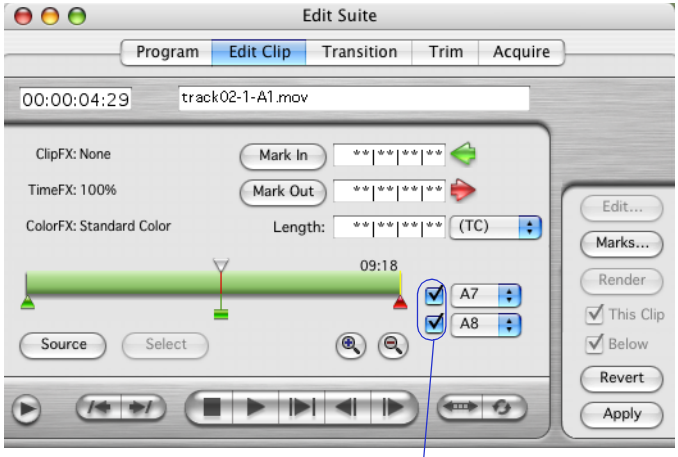
You can remove synced audio clips in the Edit Suite or in a program.

To remove a synced clip in the Edit Suite

1 Double-click a synced clip in the bin.

The Edit Suite switches to Edit Clip mode.

2 Click the audio track check box to clear it and remove the audio track.



3 Click Apply and exit Edit Clip mode by clicking either the bin or program.

To remove a synced clip from a program

1 Select the synced clip.

2 Press ⌘-U or choose Program>Unsync Clips.

3 Select the clip to remove and press DELETE.

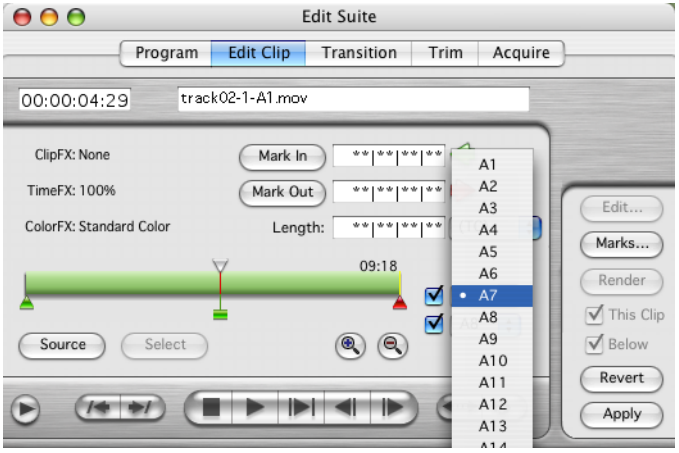
Reassigning Audio Tracks

Once audio clips are assigned to specific audio tracks, they retain that track relationship until you alter it. The following procedures explain how to reassign audio tracks of clips in a bin or program.

To reassign audio tracks for a clip in a bin

1 Double-click the clip in the bin.

The Edit Suite switches to Edit Clip mode.



2 Select the new track from the track assignment menu and click Apply.

The audio clips are reassigned to the new tracks.

To reassign clips to different audio tracks in a program

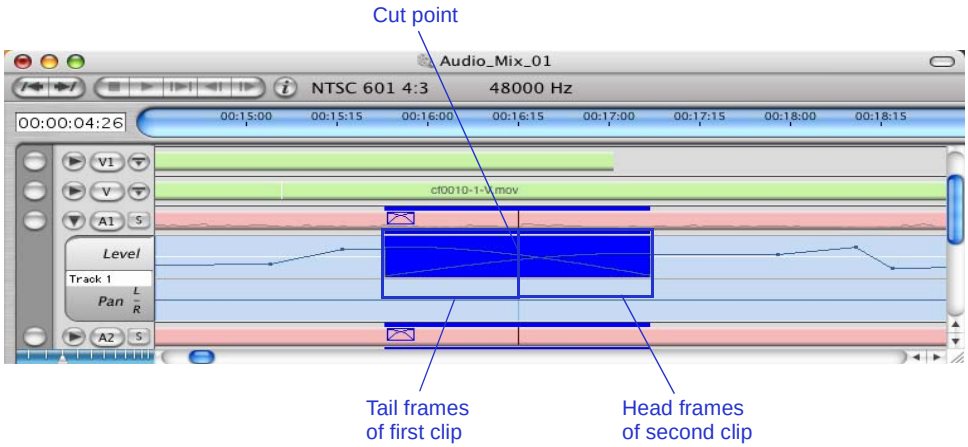
➤ Drag an audio clip in a program to a new track.

The clip in the program is now assigned to the new audio track. The original clip in the bin is still assigned to the original track.

▼ Creating Audio Crossfades

Crossfades combine the sound of two trimmed audio clips that abut one another on the same audio track. Whenever you place two clips together in an audio track, add a crossfade to ensure a clean audio transition. You can create a crossfade on a single audio track or between synced clips on multiple tracks.

Crossfades combine the sound of the two clips at the crossfade mid-point, fading down the trimmed tail frames of the first clip while simultaneously fading up the trimmed head frames of the second clip.



You can create crossfades at the following positions in relation to the cut point:

- Starting at the cut point. The first clip must have trimmed tail frames.
- Ending at the cut point. The second clip must have trimmed head frames.
- Centered over the cut point. The first clip must have trimmed tail frames, and the second clip must have trimmed head frames.

The following procedures describe how to create a crossfade directly in the program timeline and in conjunction with transitions in the Edit Suite.

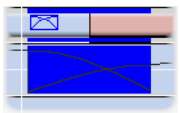
To create an audio crossfade in the program

1 Position two audio clips next to one another in the same audio track.

2 Make sure that each of the clips has sufficient trimmed head and tail frames to create a crossfade for the duration you want.

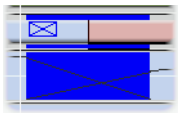
NOTE Enable Scan Audio to help you choose the trim points.

3 Choose the crossfade type from the Program>Crossfade Type menu.



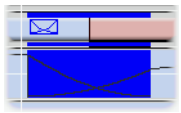
Equal Power

Fades the first clip out as the second clip fades in with no change in the volume level throughout the crossfade.



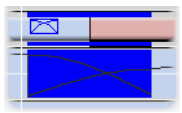
Linear

Fades the first clip out at a constant rate as the second clip fades in at the same constant rate. There is a dip in the volume at the halfway point of the crossfade.



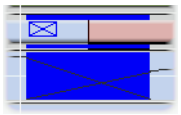
Exponential

Fades the first clip out gradually as the second clip fades in gradually. There is almost silence at the halfway point of the crossfade as both clips have low volume.



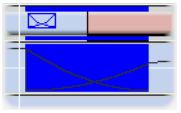
Classic Equal Power

Fades the first clip out slowly as the second clip fades in quickly with no change in the volume level throughout the crossfade.



Classic Linear

Fades the first clip out at a constant rate as the second clip fades in quickly. There is a noticeable dip in volume at the halfway point of the crossfade.



Classic Exponential

Fades the first clip out gradually as the second clip fades in quickly. There is almost silence at the halfway point of the crossfade as both clips have low volume.

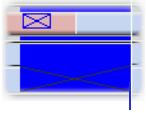
4 Position the arrow pointer over the junction of both audio clips until the Trim pointer appears.

You can position a crossfade at different positions relative to the cut so that it starts, ends, or is centered at the cut point between the audio clips.

5 Press OPTION.

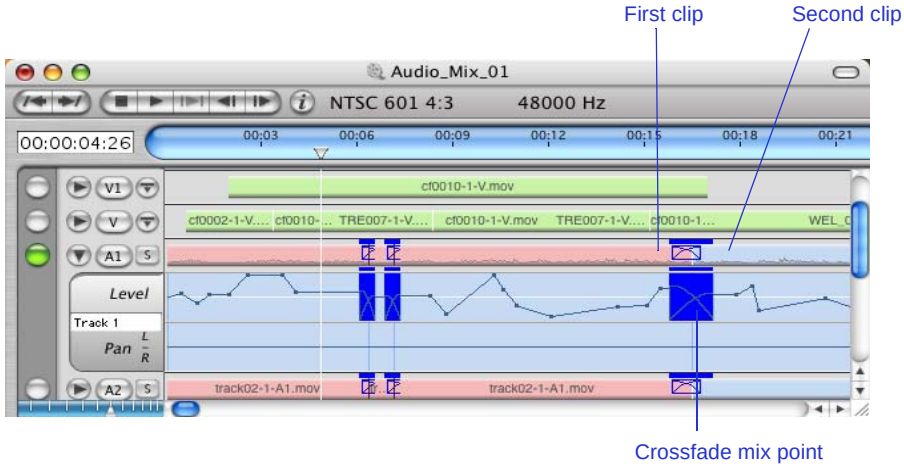
The trim pointer turns blue, indicating that you can create a crossfade.

6 OPTION-drag the trim pointer to create the crossfade you want relative to the cut between the adjacent audio clips.

OPTION-drag...	To create a...	That mixes...
Right-Trim pointer 	Start-at-cut crossfade 	Hidden tail frames of the first clip with the displayed frames of the second clip.
Dual-Trim pointer 	Center-at-cut crossfade 	The displayed and hidden head and tail frames of the adjacent clips equally across the cut point.
Left-Trim pointer 	End-at-cut crossfade 	The displayed frames of the first clip with the hidden head frames of the second clip.

NOTE When you create a center-at-cut crossfade, always OPTION-drag the dual-trim pointer to the right.

As you drag the trim pointer, the blue crossfade appears in the audio track and in the level control line in the expanded audio track.



Customizing Crossfades

You can customize and change crossfades that you created in a variety of ways. The following procedures explain how to customize crossfades by

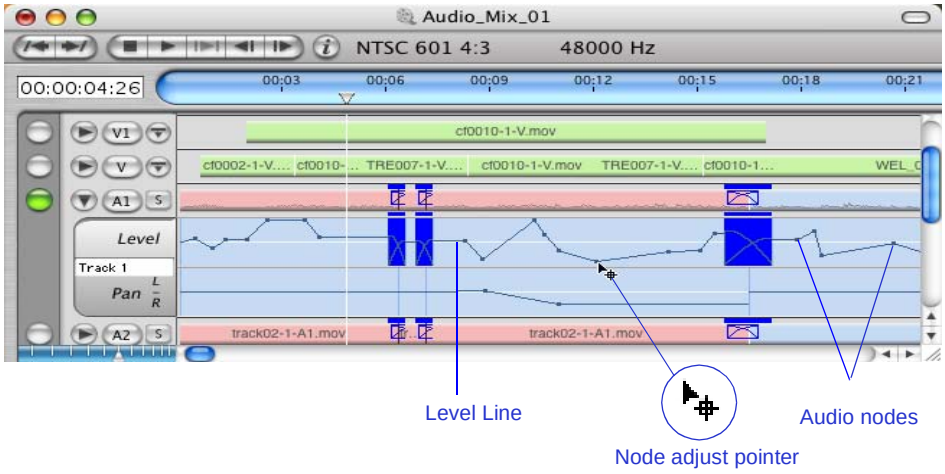
- Adjusting the audio levels
- Moving the crossfades
- Trimming the abutting audio clips
- Trimming the crossfades
- Converting from a center-at-cut to either a start-at-cut or end-at-cut
- Changing crossfade type

To adjust the audio levels

1 Expand the audio track to display the level line.

2 Use the node-adjust pointer to drag the level line preceding or following the crossfade.

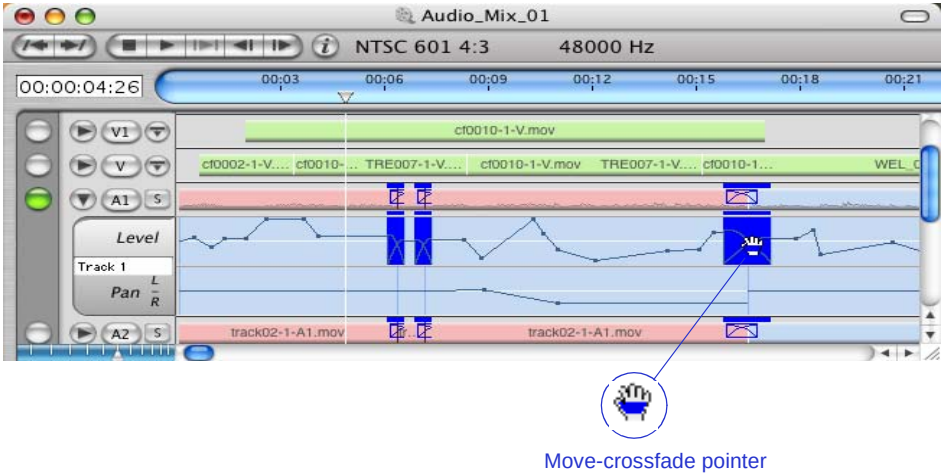
Audio nodes indicate the change in audio levels. The levels within the crossfade change accordingly.



To move a crossfade

1 Position the pointer over the crossfade that you want to move.

The move-crossfade pointer appears.



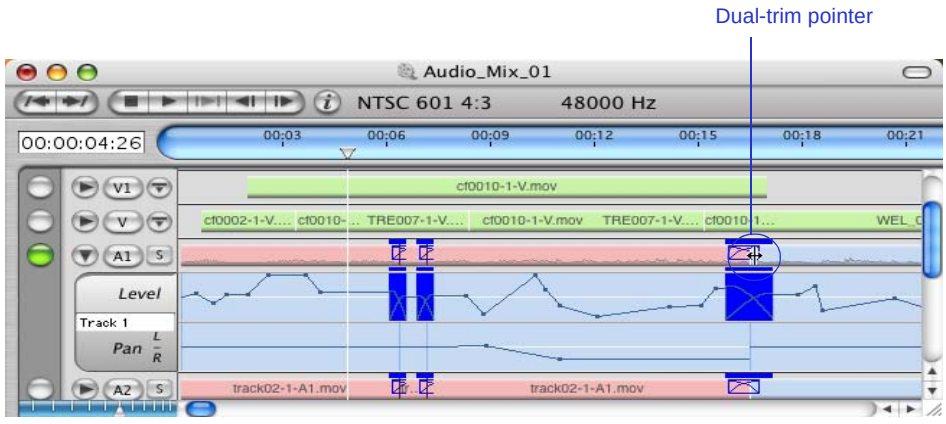
NOTE You can move, trim, or change crossfade types without expanding the audio track.

2 Drag the move-crossfade pointer to move the crossfade to the position you want within the bounds of the available head and tail frames.

TIP You can create a center-at-cut crossfade where there is leftover available media and then move it so it is off-center. If you have available trimmed media, you can create an end-at-cut or start-at-cut crossfade and move the crossfade so the mix point is at a different location, even creating a center-at-cut crossfade.

To trim a crossfade by trimming the cut point

1 Position the pointer over the cut point between the two audio clips so that the dual-trim pointer appears.



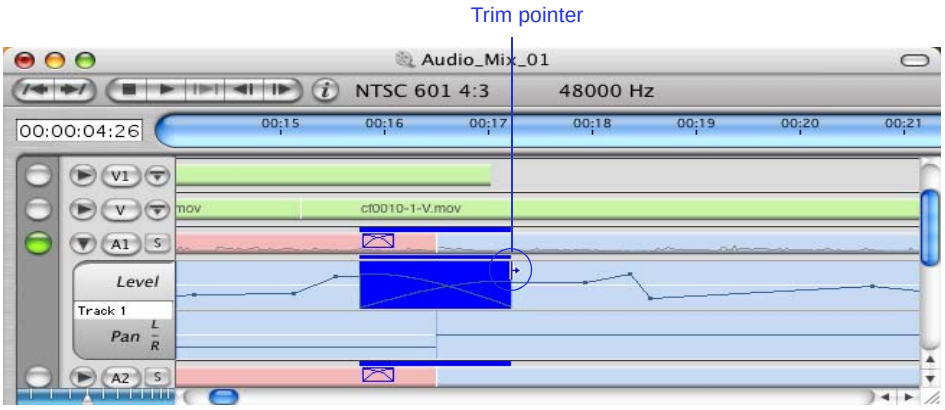
2 Drag the dual-trim pointer to adjust the cut point between the two audio clips.

As you move the cut point between the two clips in the timeline, the crossfade follows accordingly as long as the available head and trail frames allow.

NOTE If you edit either of the two clips sufficiently to cause a clip to become shorter than the portion of the crossfade contained in it, the crossfade shortens correspondingly.

To trim a crossfade

1 Position the blue trim pointer at either edge of the crossfade in the expanded audio track.



2 Drag the trim pointer to trim or expand the crossfade.

The number of available head and tail frames determines how far you can trim the crossfade.

To convert a center-at-cut crossfade to a start-at-cut crossfade

1 Select the first half of a center-at-cut crossfade.

2 Press DELETE.

To convert a center-at-cut crossfade to an end-at-cut crossfade

1 Select the second half of a center-at-cut crossfade.

2 Press DELETE.

To change an existing crossfade to a new crossfade type

1 Click the existing crossfade in the program timeline.

2 Choose a new crossfade type from the Program>Crossfade Type submenu.

The existing crossfade changes to the new type.

Removing Audio Crossfades

You can remove audio crossfades in one of two ways.

To remove an audio crossfade

➤ Drag one clip away from the other until the crossfade disappears.

Or

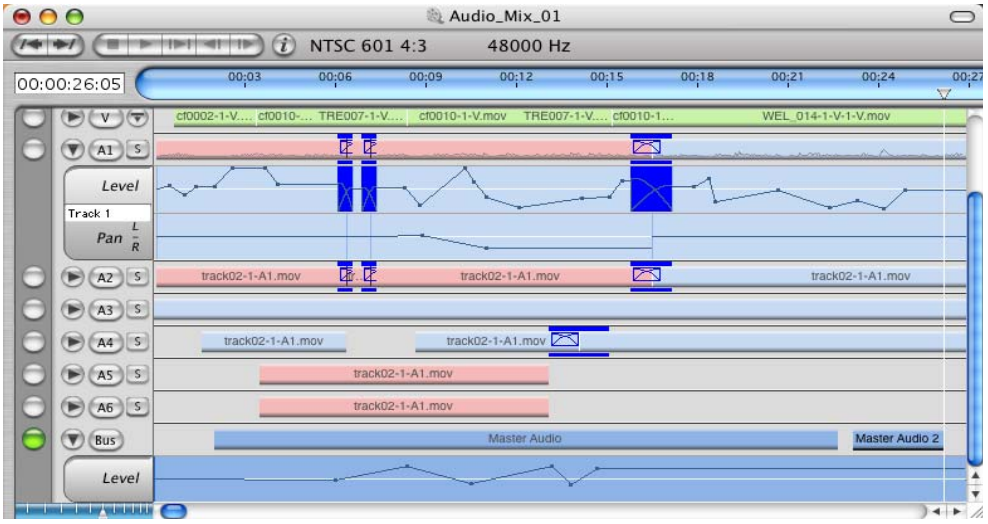
1 Select the crossfade clip.

2 Press DELETE.

NOTE Click and delete both sides of a center-at-cut crossfade.

▼ Using the Audio Bus

You can use the audio Bus to set the overall audio levels for all clips in all tracks per frame or for the entire program. You can also apply audio filters via a Master Audio clip to all tracks in a segment of a program, useful when trying to apply audio effects to the final audio output. See “Using Effects on the Audio Bus.”

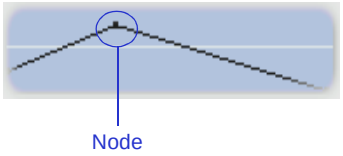


You can alter the Master Audio levels in the Program window.

To adjust overall level in the Program window

1 Select the Bus track and click on the Bus Level control line.

2 Drag the node up or down to adjust the level.



To adjust the overall level across the program in the Audio window

1 In the Bus section of the Audio Window, activate the Program button.

2 Click and drag the Bus gain fader to adjust the level.

To adjust the level per frame at the CTI

1 In the Program Window, place the CTI on the frame you want to adjust.

2 In the Bus section of the Audio Window, activate the Per Frame button.

3 Click and drag the Bus gain fader to adjust the level.

As you perform this action, a node appears on the Bus audio level control line.

You can reset any universal changes made via the Bus back to the default settings.

To reset levels to the default settings

1 Select the Bus audio track.

2 Choose Edit>Clear Master Audio Level Nodes.

▼ Adjusting Audio Gain Levels

The clip gain level line in the Program window represents the relative gain boost or cut applied to the clip itself. It does not reflect applied EQ adjustments or the overall combined gain adjustments you apply to the entire track or to the Master left and right output channels through the Audio window.

The final level (volume) of the signal passed to the output channels is the sum of four level adjustments:

- Any level adjustment made through the application of EQ
- The independent level control setting established for each clip

- The respective track gain fader setting in the Audio window
- The master gain fader setting in the Audio window

The overall master volume level in the Audio window is determined from the sum of the EQ level, the audio clip level, and the track level. By adjusting the gain at these different levels, you adjust the total gain to create a relative balance of levels in your audio mix.

You can adjust the audio gain level at frame-specific points in a clip. For example, you can fade music, yet keep it in the background while actors speak. You can also adjust the audio gain level for an entire track.

Adding Nodes to the Gain Line

You can adjust audio levels in the program or the Audio window. The following procedures explain how to adjust the levels of individual clips and of entire tracks.

To adjust the level of an audio clip in a program

1 Click the audio track buttons to enable or disable the appropriate tracks in the program.

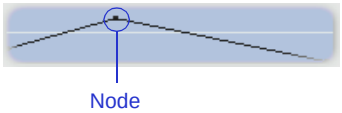
2 Select and expand the audio track for the clip you want to adjust.

NOTE If the clips are synced, level changes you make to one clip apply to all others. To change the levels of only one clip, unsync the clips.

3 Press SHIFT-⌘-2 or choose Tools>Scan Audio to enable Scan Audio.

4 Click the clip level line in the program.

The pointer changes to a node-adjust pointer, and a node appears on the line.



5 Move the node to the desired position.

NOTE You can readjust existing level nodes at any time.

6 Click the level line to add as many nodes as you need and adjust them to achieve the level you want. You can

- Drag a node up and down and to the left and right. The line adjusts to accommodate the new position set by the node.
- ⌘-drag a node to constrain it to a straight vertical or horizontal path.
- OPTION-drag the line itself to move the entire gain level uniformly.
- SHIFT-drag a line segment to uniformly move it between two nodes.

With Scan Audio enabled, you can listen to the gain level adjustment as you drag the node.

NOTE Delete a node by dragging it off the timeline. To delete all the level nodes in the clip, select the clip and choose Edit>Clear Level Nodes.

As you adjust the gain level, you hear the gain adjustment. At the same time, the Audio window gain fader, gain readout, and digital level meter reflect the changes you make to the clip in real time.

NOTE If you drag a node more than 14 pixels past its nearest node neighbor, the cursor will change indicating you'll be replacing the adagcent node. If there is only node, when you drag past 14 pixels, it replaces the implied node.

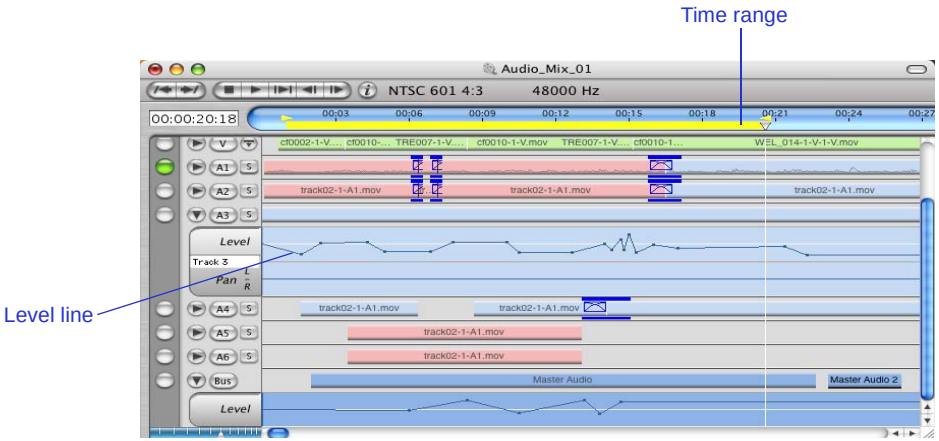
Adjusting Gain over a Range of Clips

Create a time range over a group of clips to change the gain for all clips at one time.

To increase or decrease gain

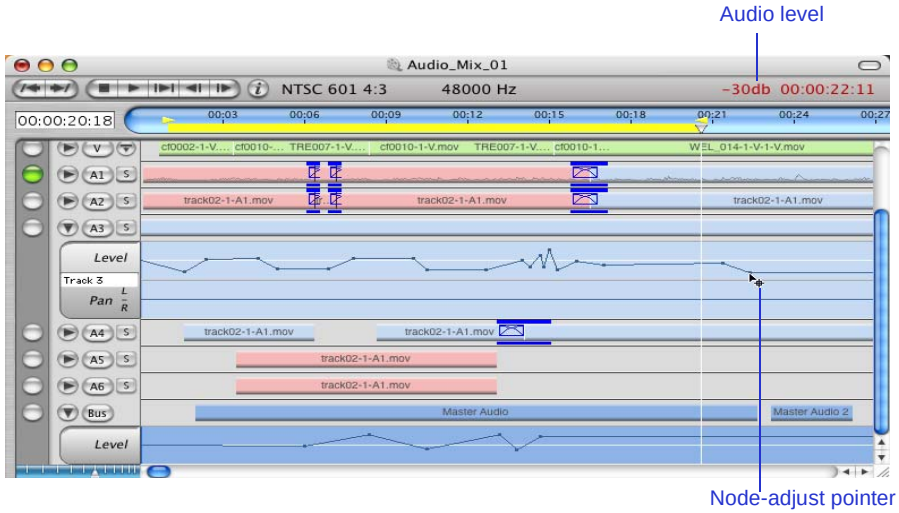
1 Create a time range over the audio clips to adjust.

2 Select and expand the audio track.



3 To change the volume level, do the following:

Press...	To...
OPTION	Move all the nodes in the range up or down by dragging one node with the mouse.
SHIFT-ARROW UP SHIFT-ARROW DOWN	Move all the nodes in the range up or down in incremental steps by the keyboard.



4 Press ⌘-\ to play the range over the adjusted audio nodes to verify the changes.

To remove a range of nodes

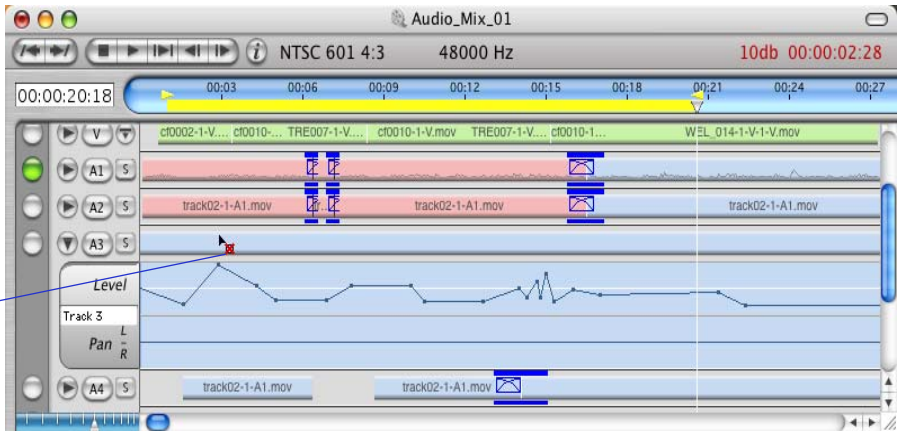
1 Create a time range.

2 Select and expand audio track.

3 OPTION-dragging a node out of the audio track until a red pointer appears, removes all audio nodes within the time range.



Level line with audio nodes



Node removal pointer

Nodes being dragged off audio track



Audio nodes cleared from level line

Adjusting Gain for Single Clips

You can adjust gain for single clips by timecode, while playing, or moving all nodes up or down.

To adjust the level at a specific timecode for an audio clip

1. Press SHIFT-⌘-2 or choose Tools>Scan Audio to enable Scan Audio.
2. In the program, move the CTI to where you want to adjust the audio level.
3. Click the Clip button in the Audio window to apply the adjustments to the individual audio clip.
4. Click Mute for tracks you do not want to hear, or click Solo to hear one track.
5. Create and adjust a gain level node in one of two ways:
   - Type a value between –100 and +10 in the gain readout field.
   - Slide the gain fader up or down to set the value.

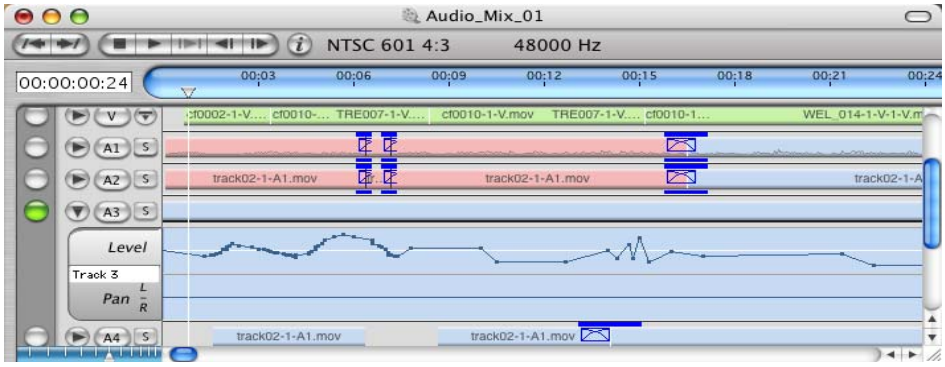
   The node appears in the audio clip gain level line in the program.

To adjust gain levels on-the-fly for an audio clip in the Audio window

1. Click the Clip button in the Audio window to apply the adjustments to the individual audio clip.
2. Click Mute for tracks you do not want to hear, or click Solo to hear one track.
3. In the program, move the CTI to the beginning of the clip you want to modify.
4. Press F5 or the SPACEBAR to play the clip.
5. As the clip plays, drag the gain fader up or down to increase or decrease volume.

NOTE If clips are synced, the gain faders for all the clips synced to the one you are adjusting also move up and down in unison. To apply the adjustment to only one of the synced clips, CONTROL-drag the appropriate gain fader up or down.

A series of corresponding nodes appear in the level control line for the selected clip in the Program window.



To adjust audio for one clip

1 Place the CTI over the desired audio clip.

2 Select the audio track.

3 Expand the track.

4 To change the volume level, do the following:

Press...	To...
OPTION	Move all the nodes in a clip up or down by dragging one node with the mouse.
SHIFT-ARROW UP SHIFT-ARROW DOWN	Move all the nodes in a clip up or down in incremental steps by the keyboard.
CONTROL-OPTION	Move all the nodes for a single audio clip within a synced clip pair.

5 Play the clip to verify the adjustment.

To adjust gain levels for a single audio track in the Audio window

1. In the Program window, position the CTI at the beginning of the track that you want to modify.
2. Click the Track button in the Audio window.
3. Press F5 or the SPACEBAR to play the track.
4. Move the gain fader up or down to adjust the track to the desired level.

   As you move the gain fader, the level you set is reflected in the gain readout and in the digital level meter. You hear the changes in the level as you make them.

NOTE Changes you make to one track of a synced clip apply to all tracks.

Setting the track level boosts or cuts the base level upon which all clip levels depend. Adjustments to the track level are not reflected in the program timeline.

To adjust final level output for all audio tracks in the Audio window

1. In the Program window, position the CTI at the start of the program.
2. Press ⌘, then 2 or choose Windows>Audio.
3. Click the Track button in the Audio window.

4 Resize the Audio window to show only the Bus and **A1** to focus on the Bus level controls.



5 Press F5 or the SPACEBAR to play the program.

6 Move the master gain fader up or down to adjust the volume levels for all the audio tracks.

As you move the master gain fader, the level is reflected in the master gain readout and in all the digital level meters. You hear changes in the level as you make them.

Setting the master level boosts or cuts the base level upon which all clip and track levels depend. Adjustments to the master level do not change the program.

▼ Adjusting Audio Pan Distribution

You can adjust audio pan distribution at frame-specific points in a clip, for example, to have an audio sound effect pass from the left channel to the right channel. You can also adjust the audio pan distribution for an entire audio track.

- Moving the pan line up alters the panning mix so that the left channel receives more signal and the right channel receives less.
- Moving the pan line down reverses the mix, making the right channel dominant.

Changes you make in the pan control line update the Audio window. This section explains how to change the pan distribution in a program or the Audio window.

To adjust pan signal distribution for a clip in the program

1 Enable and disable the appropriate tracks in the program.

2 Expand the audio track for the clip you want to adjust.

NOTE Pan adjustments you make affect only the clip on the selected track. It does not affect the pan distribution of other audio clips to which it is synced.

3 Press SHIFT-⌘- 2 or choose Tools>Scan Audio to enable Scan Audio.

4 Click the clip pan control line in the program.

The pointer changes to the node-adjust pointer, and a node appears on the line.

5 Move the node to the desired position.

6 Click the pan control line to add as many nodes as you need and adjust them to achieve the pan distribution you want. Use any of the following methods:

- Drag a node up and down and to the left and right. The line adjusts to accommodate the new position set by the node.
- ⌘-drag a node to constrain it to a straight vertical or horizontal path.
- OPTION-drag the line itself to move the entire gain level uniformly.
- SHIFT-drag a line segment to uniformly move it between two nodes.

NOTE You can readjust any existing pan nodes at any time. You can delete a node by dragging it off the timeline. To delete all the pan nodes in the clip, select the clip, press OPTION and choose Edit>Clear Pan Nodes.

As you adjust the pan distribution, you hear the adjustment. At the same time, the Audio window pan fader and readout reflect the changes you make in real time.

To adjust pan signal distribution for a track in a program

1 Select the track that you want to pan in the program.

2 Choose Track>Pan Track.

The Pan Track dialog box appears.

3 Choose Mono, Left, Center, or Right from the Pan Track to menu.

The pan line for the entire track in the program adjusts to the new position.

To adjust pan distribution at a specific timecode for an audio clip

1 Press SHIFT-⌘- 2 or choose Tools>Scan Audio to enable Scan Audio.

2 In the program, move the CTI to the specific timecode where you want to adjust the pan signal distribution.

3 Click the Clip button in the Audio window to adjust the individual clip.

NOTE You cannot adjust the pan distribution for an entire track from the Audio window.

4 Click Mute for tracks you do not want to hear or click Solo to hear one track.

5 Create and adjust pan signal distribution in one of two ways:

- Type a value between –100% (panned to far left) and +100% (panned to far right) in the pan readout field.
- Slide the pan fader left or right to set the value.

The corresponding node appears in the audio clip pan line in the program.

To adjust pan distribution on-the-fly for an audio clip in the Audio window

1 Click the Clip button in the Audio window.

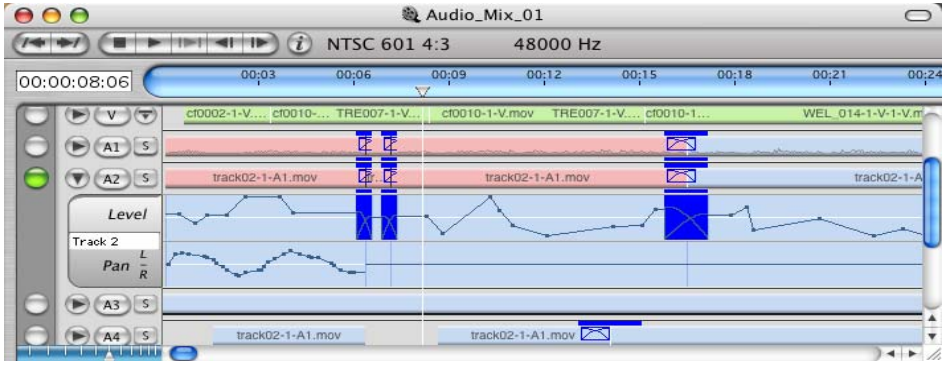
2 Click Mute for tracks you do not want to hear or click Solo to hear one track.

3 In the program, move the CTI to the beginning of the clip that you want to adjust.

4 Press F5 or the SPACEBAR to play the clip.

5 As the clip plays, drag the pan fader in the Audio window to gradually pan the signal for that track to the left or right channels.

A series of nodes appear in the pan line for the selected clip in the program.



NOTE The panning adjustment applies only to the specific track that you are adjusting, whether or not it is synced to another clip.

▼ Creating an Audio Mixdown

If you need more tracks than are provided with the Media 100 system, you can mix down the existing tracks to free up tracks for additional audio material.

TIP Make a duplicate of the existing program with its current audio levels and EQ before you mix down in case you want to restore your original program.

To mix down audio tracks

1. Disable audio tracks that you do not want to include in the audio export.
2. Press ⌘-2 or choose Windows>Audio.
3. Click the Track button.
4. Set the gain adjustments for each track you are mixing down.
5. Set the master gain adjustments for the total output.

NOTE After the tracks are mixed down you cannot change the individual track settings.

6. Choose Program mode in the Edit Suite.
7. Choose File>Export from Edit Suite.

   The Export dialog box appears.
8. After you mix down the audio tracks, import the new audio file and replace the original tracks of audio in your program with the new single track.

16

Creating Audio Effects

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▼ Introduction

With Media 100, you can apply three types of audio effects (EQ, Dynamics, and Reverb) to a clip, a segment of a program, or an entire program. These effects let you enhance your audio productions and solve audio issues.

This chapter provides information about Media 100 audio effects features and describes how to

- Use the Audio Effects window
- Use effects filters
- Apply and render audio effects
- Use the Audio Bus to apply effects
- Solve audio effects issues

▼ About Audio Effects

This section provides information about audio sample rates supported by audio effects and explains the features of the Audio Effects window.

Media 100 effects filtering is designed for use with audio media acquired at 32000, 44100, or 48000 samples per second. These sample rates are the most widely used professional digital audio sample rate standards. The filtering for these sample rates covers a frequency range from 20 Hz to 20 kHz.

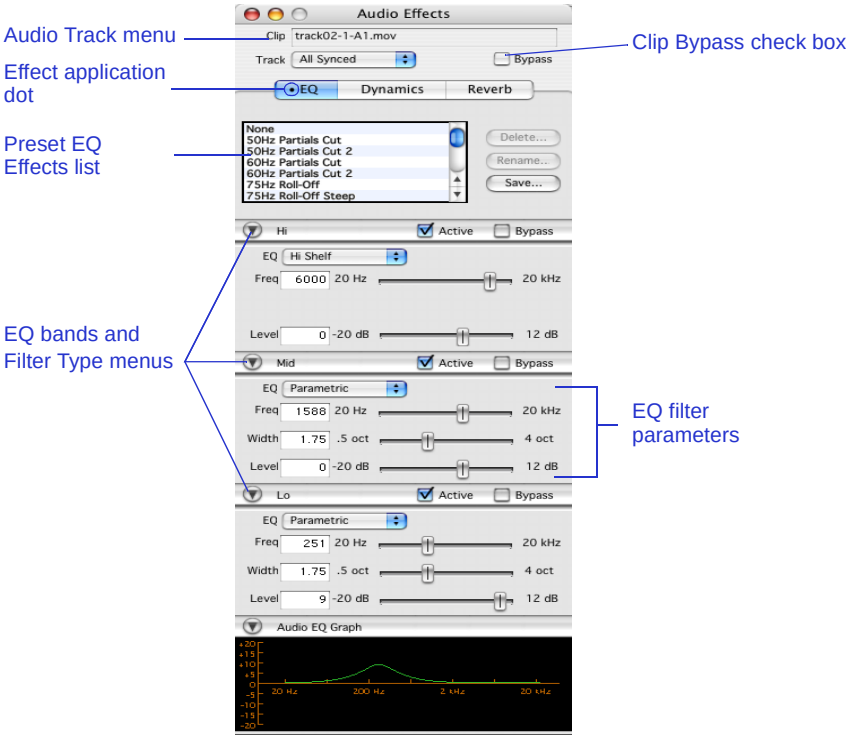
NOTE Using this feature with 22050 and 11025 sample rates may produce undesirable results.

About the Audio Effects Window

The Media 100 Audio Effects window contains three buttons: EQ, Dynamics, and Reverb. Each button offers a preset effects list with filter parameters that you can adjust to create custom effects. Once you apply an effect, a dot next to the effect title appears.

▼ About Audio EQ

Audio EQ filters change the tonal characteristics of audio by boosting (amplifying) or cutting (attenuating) a frequency or a range of frequencies across three bands in a selected audio clip.



The following table describes the Audio EQ button elements.

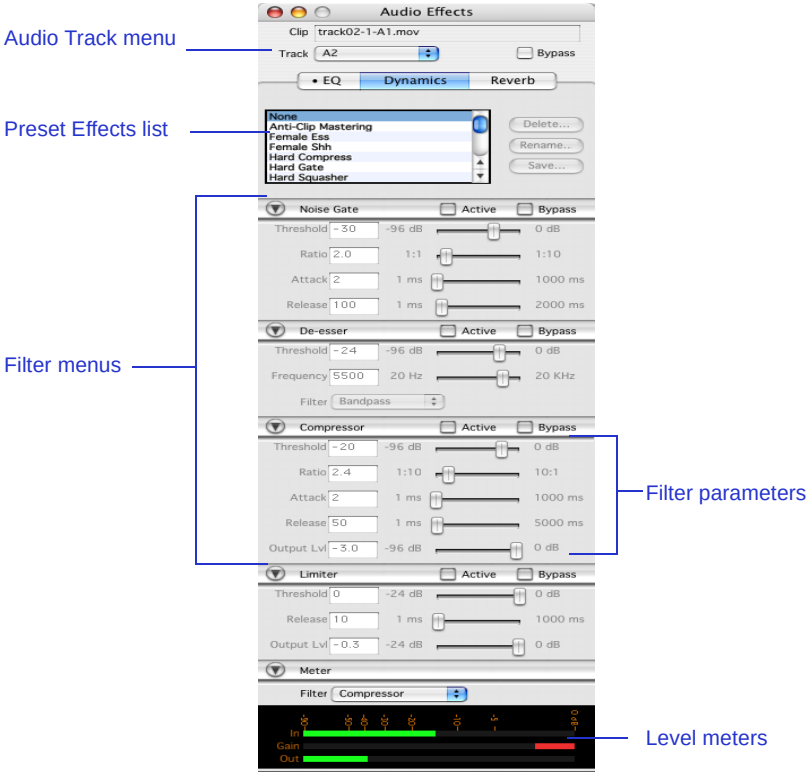
Audio EQ Button Elements

Name	Description
Audio Track menu	Lets you choose the track of a synced clip to which you want to apply EQ. Choose one track or apply EQ to all synced clips.
Clip Name field	Displays the name of the selected clip.
Clip Bypass check box	Switches EQ off and on for all bands while preserving filter settings, letting you compare the original and equalized sound.
Preset Audio Effects list	Displays preset Media 100 audio effects and custom audio effects you create.
Delete button	Deletes the selected customized audio effect from the audio effect list.
Rename button	Lets you rename a previously created audio effect.
Save button	Lets you save a new audio effect that contains the currently defined attributes.
EQ Bands and Filter Type menus	Lets you select filters for three EQ bands: Hi, Mid, and Lo. Filters available depend upon the EQ band.
Band Active checkbox	Enables EQ for each individual band (Hi, Mid, or Lo) while preserving the EQ filter settings.
Band Bypass check box	Disables EQ for each individual band (Hi, Mid, or Lo) while preserving the EQ filter settings.
EQ Filter Parameters	Determine how the audio signal is equalized.
Panel expansion button	Lets you display or hide the full panels for each EQ band and the Audio EQ Graph.
Audio EQ Graph	Represents the frequency response of the selected EQ filters.

About Audio Dynamics

The Dynamics processor performs both track processing (pre-mixed) and master processing (post-mixer).

- At the track level, the Dynamics processor provides noise gating, de-essing, and the compressing of dialog, sound effects, and music. The effect is mono-in, mono-out when used at the track level.
- At the Bus level with a Master Audio clip, the Dynamics processor lets you master compression, limiting, and loudness maximization. The effect is stereo-in, stereo-out, and affects both channels equally while maintaining stereo panning information.



NOTE You cannot apply Dynamics to synced audio clips.

The following table describes the Audio Dynamics button elements.

Audio Dynamics Button Elements

Name	Description
Noise Gate	Attenuates noise during quiet portions of recordings. Signals above the noise floor are unaffected by the Noise Gate. Signals below the noise floor threshold are attenuated. **Threshold.** Gates input signals that fall below this level. Ranges from -96 dB to 0 dB. **Ratio.** Applies gating based on the setting. Ranges from 1:1 to 1:10. **Attack.** Sets the time it takes the gate to shut off once the input signal rises above the threshold. Ranges from 1 ms to 1000 ms. **Release.** Sets the time it takes the gate to activate once the input signal falls below the threshold. Ranges from 1 ms to 2000 ms.
De-esser	Decreases sibilant (ess or shh) sounds in speech signals. Uses a bandpass filter to detect sibilant sounds in the 3 to 6 kHZ band. When sibilant sounds are detected, the output is attenuated by 6 to 9 dB to decrease the sibilant sound. **Threshold.** Attenuates input signals, near the specified frequency, that fall below this level. Ranges from -96 dB to 0 dB. **Frequency.** Targets the de-essing frequency. Ranges from 20 Hz to 20 kHz. **Filter.** Attenuates the de-essing frequencies. Options include: ■ **Bandpass.** Use to attenuate a narrow band of frequencies. ■ **Highpass.** Use to attenuate a wide band of frequencies.

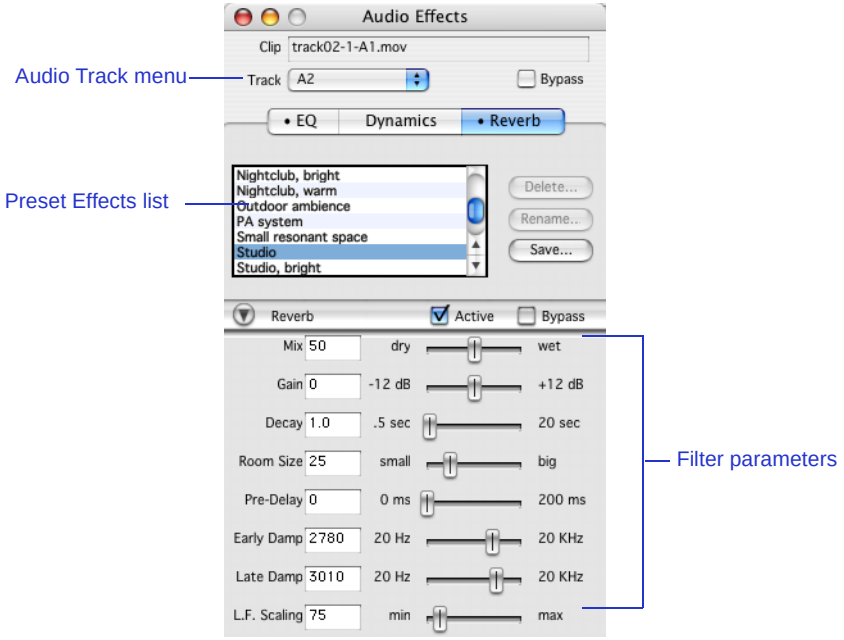
Audio Dynamics Button Elements *(Continued)*

Name	Description
Compressor	Controls the aperture and drive. Aperture controls the compression threshold while drive specifies how much compression is applied. **Threshold.** Compresses input signals that rise above this level. Ranges from -96 dB to 0 dB. **Ratio.** Determines how much compression is applied. Ranges from 1:10 to 10:1. **Attack.** Sets the time is takes the compressor to shut off once the input signal rises above the threshold. Ranges from 1 ms to 1000 ms. **Release.** Sets the time it takes the compressor to shut off the input signal falls below the threshold. Ranges from 1 ms to 5000 ms. **Output Level.** Sets the target level for the compressor output. Ranges from -96 dB to 0 dB.
Limiter	Controls the peak amplitudes in the signal to the output gain level. **Threshold.** Limits input signals that rise above this level. Ranges from -24 dB to 0 dB. **Release.** Sets the time it takes the limiter to shut off once the input signal falls below the threshold. Ranges from 1 ms to 1000 ms. **Output Level.** Sets the maximum level allowed by the limiter. Ranges from -24 dB to 0 dB.
Meter	Shows the levels for the tracks or tracks to which you apply Dynamics. Allows you to select for which level the filters appears. **Filter.** Lists the Dynamics filters: Noise-Gate, De-esser, Compressor, and Limiter. The one you select shows the In, Out, and Gain levels. **In.** Shows the level of the filter input. **Gain.** Reveals the gain level of the filter. **Out.** Shows the level of the filter output.

About Audio Reverb

Media 100 provides a professional quality stereo reverb that can simulate a variety of spaces from small booths to expansive concert halls. Independently adjusting the room size and decay time produces the basic room character.

Media 100 audio reverb is a true stereo reverb that retains stereo imaging while processing mono inputs.



NOTE Audio reverb effects contain additional sound or a tail at the end of the clip unless it is a Master Audio clip on the Audio Bus. For more information on the Audio Bus, see “Using Effects on the Audio Bus.”

The following table describes the Audio Reverb button elements.

Audio Reverb Button Elements

Name	Description
Mix	Sets the amount of wet (processed) sound and dry (unprocessed) sound that is mixed together to create the output. Sets the perceived distance of the input sound. ■ 100% of the Dry/Wet mix sounds distant and means the output is completely processed. ■ 0% of the Dry/Wet mix sounds close.
Gain	Sets the overall gain applied to the Dry/Wet mix in decibels. Gain does not affect the relative levels of dry and wet sound.
Decay	Sets the decay time of the reverberation in seconds: 0.5 to 20. **Decay Time.** The time it takes for frequencies to near 500 Hz to decay by 60 dB. Specifies the effective length of the reverberation tail in seconds.
Room Size	Scales the size of the simulated room with a range from 0% to 100%. ■ A Room Size of 0% sounds like a bathroom or closet. ■ A Room Size of 100% sounds like an aircraft hangar or stadium. **NOTE** Small rooms sound best with short decay times, and large rooms sound best with longer decay times.
Pre-Delay	Sets the delay of the wet output relative to dry output. Used to achieve an additional echo effect in the reverberation. Pre-Delays larger than 100 ms simulate large spaces like stadiums or canyons. Ranges from 0 to 330 ms, depending on sampling rate (lower sampling rates can have longer pre-delays).

Audio Reverb Button Elements *(Continued)*

Name	Description
Early Damping (Early Damp)	Adjusts the cutoff frequency of a lowpass filter at the input of the reverb to set the upper limit of frequencies admitted into the reverb. ■ Low Early Damping settings result in a dull, muffled reverberation. ■ High Early Damping settings result in a bright, crisp reverberation. Range is 20 Hz to half the sampling rate, for example, 22.05 kHz at 44.1 kHz sampling rate.
Late Damping (Late Damp)	Sets the cutoff frequency of the damping filter in the reverb. ■ A lower frequency causes the high frequencies to decay faster, which results in a duller sounding late reverberation. ■ A higher frequency results in a brighter sounding late reverberation. Ranges from 20 Hz to half the sampling rate, for example, 22.05 kHz at 44.1 kHz sampling rate.
Low Frequency Scaling (L.F. Scaling)	Sets the decay time of frequencies below 250 Hz relative to the decay time at 500 Hz, which is set using the Decay parameter. For example, if L.F. Scaling is set to 200%, the decay time of low frequencies is twice as long as the decay time at 500 Hz. This parameter is useful to reduce the rumble that can occur with long reverberation times, or to increase the bass content in a short reverberation.

▼ About EQ Filters

Audio equalization (EQ) is the process of applying filters to an audio signal to cut and boost selective audio frequencies. Audio EQ lets you enhance your audio productions and solve audio problems. Use EQ to

- Enhance existing audio
- Re-create a sound to simulate a particular effect or setting
- Attenuate audio imperfections
- Deliberately create audio imperfections

Use EQ filters to boost or cut selective audio frequencies. This section describes

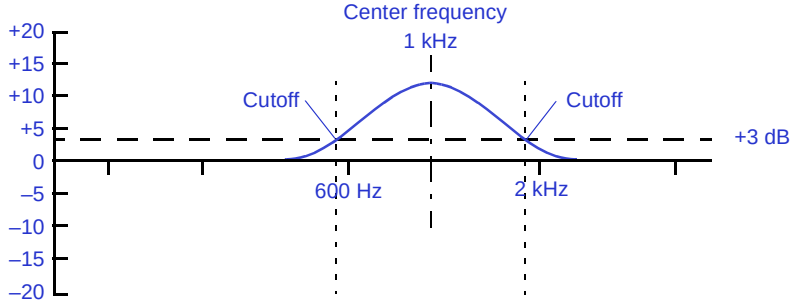
- Filter types
- Filter parameters
- Using EQ filters

About Filter Types

Media 100 provides two fundamental types of equalization filters:

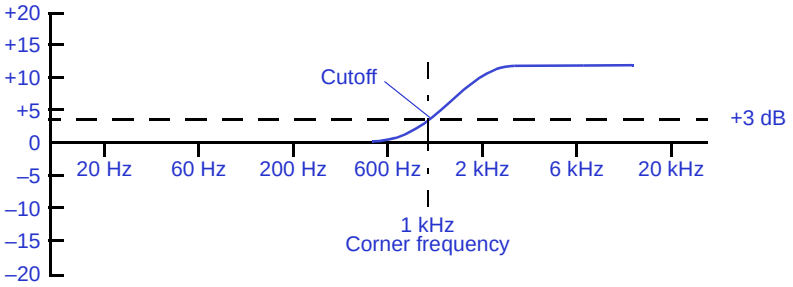
- Center Frequency filters center the equalization around a specified frequency.

  Parametric, Notch, and Hum Cut filters are examples of this type.



- Corner Frequency filters apply the equalization before or after a specified corner frequency.

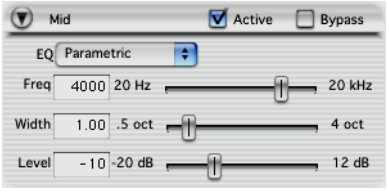
  Hi Shelf, Lo Shelf, Lo Pass, Hi Pass, and Noise Cut filters are examples of this type of filter.



The *cutoff* point determines the point where you first hear the equalization. The cutoff, or level of perceptibility, is generally +3 dB or –3 dB. However, it can be as low as 1 dB.

About Filter Parameters

The parameters specific to each filter determine how the equalization responds. There are three controlling parameters: frequency, width, and level. A combination of these parameters applies to each of the filters. Set each parameter by dragging the slider or typing a value within the defined range in the field.



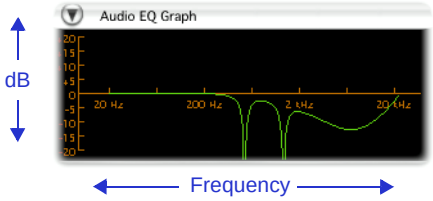
The following table describes each parameter.

Filter Parameters

Parameter	Description
Frequency	Determines which frequencies the equalization affects. **Center Frequency filters.** Set the frequency around which the equalization boost or cut is centered. **Corner Frequency filters.** Select the corner at –3 dB or +3 dB where the cut or boost begins.
Width	Sets the range of frequencies, in octaves, that are affected around the defined center frequency. The width parameter applies to Center Frequency filters. The number of octaves relative to the specified center frequency defines the bandwidth of affected frequencies. Higher octave settings affect a greater number of frequencies. Lower octave settings affect a lesser number of frequencies.
Level	Sets the amount to boost or cut the designated frequencies. Depending on the filter you choose, the EQ level selected is ■ The dB level at the midpoint of a Center Frequency filter ■ The dB level at the peak shelf of a Hi or Lo Shelf filter

About Using EQ Filters

As you select filters for the EQ bands and adjust their settings, the Audio EQ Graph updates the equalization response in real time.



The vertical scale represents the decibel level from –20 dB to +20 dB, and the horizontal scale represents the range of audible frequencies on the logarithmic axis from 20 Hz to 20 kHz.

You can apply different filters to different bands. The following table shows which bands can use which filters.

EQ Filter Availability

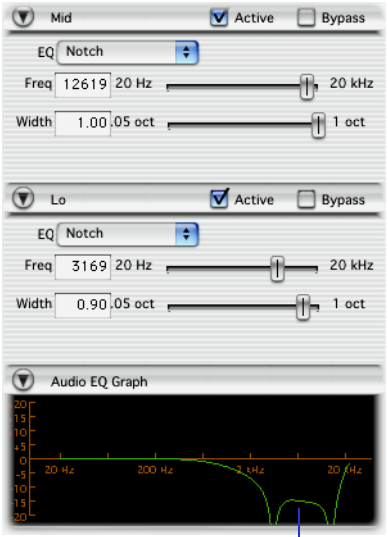
Filter	Hi Band	Mid Band	Lo Band
Parametric	✔	✔	✔
Hi Shelf	✔		
Lo Pass	✔		
Noise Cut	✔		
Lo Shelf			✔
Hi Pass			✔
Notch	✔	✔	✔
Hum Cut			✔

NOTE When you apply EQ filters across multiple EQ bands, the dB level changes are cumulative for each band.

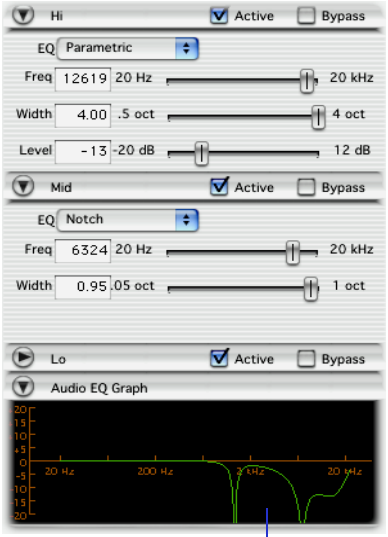
Parametric Filter

The Parametric filter provides multiple parameter controls to boost or cut the audio signal across an adjustable width for a precisely selected center frequency. It results in the gradual boost and cut of the audio levels around the specified center frequency. The greater the width of the parametric curve, the more gradual the effect, and the more frequencies affected. The Media 100 Audio EQ section lets you set a parametric EQ in the Hi, Mid, and Lo bands simultaneously.

- Boosting the mid-low frequencies adds richness to the sound.
- Boosting the mid-high frequencies adds clarity to the sound.



Richer sound

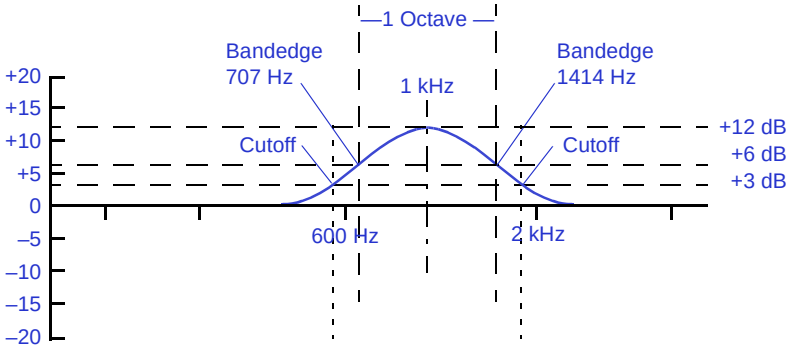


Clearer sound

The Parametric filter has the following adjustable parameters.

Parameter	Range	Default
Frequency	20 Hz to 20 kHz	Hi band = 6000 Hz Mid band= 2000 Hz Lo band = 600 Hz
Width	.5 octave to 4 octaves	1 octave
Level	–20 dB to 12 dB	0 dB

The upper and lower limits of the bandwidth at half the specified decibel level are called the *bandedges* of the equalization. The following illustration shows the Parametric EQ width and the bandedges that result if you set the center frequency to 1 kHz, the decibel level to +12, and the width to 1 octave.



Hi Shelf Filter

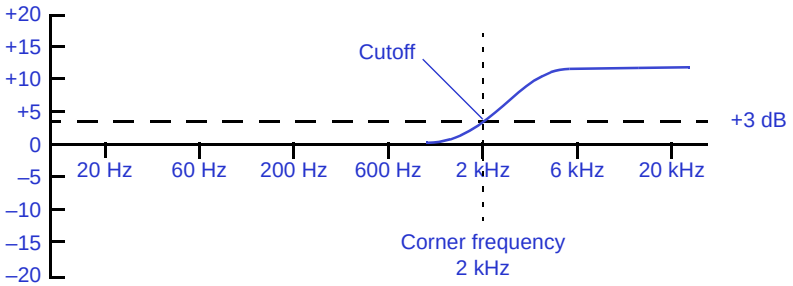
The Hi Shelf filter is analogous to the treble control on a stereo system. It gradually boosts or cuts the treble above the designated frequency. Apply a Hi Shelf filter in the Hi band of the EQ section in the Audio Effects window.

- Boosting the frequency brightens the sound.
- Cutting the frequency dulls the sound.

The Hi Shelf filter has the following adjustable parameters.

Parameter	Range	Default
Frequency	20 Hz to 20 kHz	6000 Hz
Level	–20 dB to 12 dB	0 dB

When you boost frequencies with the Hi Shelf filter, the equalization becomes noticeable at the +3 dB corner frequency. The following illustration shows the response when you set the corner frequency to 2 kHz and the level to +12 dB.



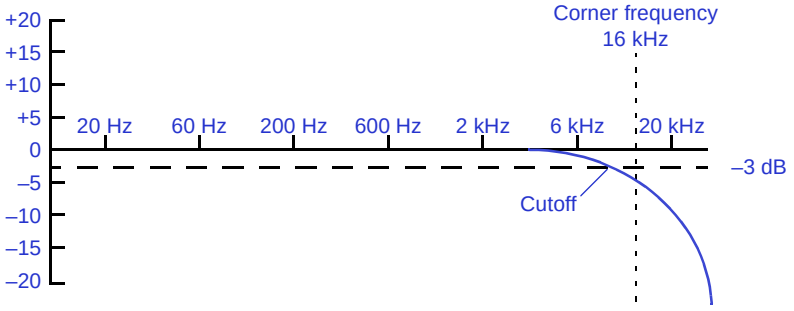
Lo Pass Filter

The Lo Pass filter eliminates high frequencies, leaving the low frequencies and making the sound more dull. Apply a Lo Pass filter in the Hi band in the EQ section of the Audio Effects window to eliminate hisses, crackles, and scratchiness.

The Lo Pass filter has the following adjustable parameter.

Parameter	Range	Default
Frequency	20 Hz to 20 kHz	16 kHz

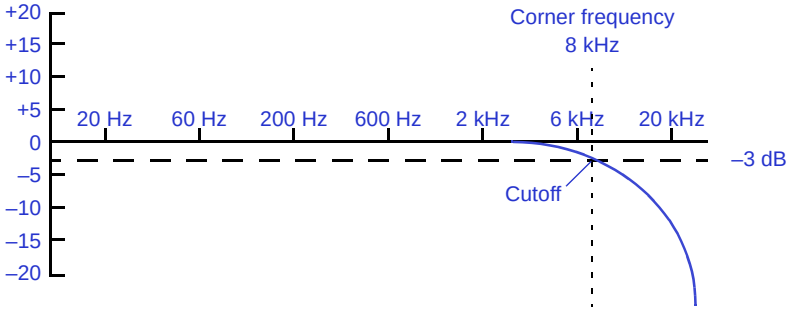
When you cut frequencies using the Lo Pass filter, the equalization becomes noticeable at the –3 dB corner frequency. The following illustration shows the response for the Lo Pass filter when the corner frequency is at its default of 16 kHz.



Noise Cut Filter

The Noise Cut filter is a specialized Lo Pass filter that rolls off and eliminates frequencies above 8 kHz. Apply the Noise Cut filter in the Hi band in the EQ section of the Audio Effects window to eliminate high-frequency noise. It has no adjustable parameters.

The following illustration shows the frequency response for the Noise Cut filter.



Lo Shelf Filter

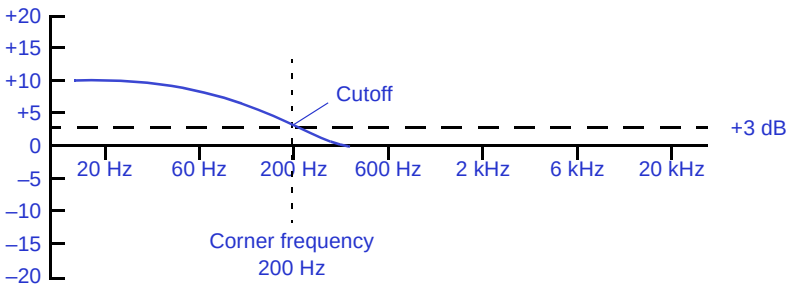
The Lo Shelf filter is analogous to the bass control on a stereo system. It gradually boosts or cuts the bass below the designated frequency. Apply the Lo Shelf filter in the Lo band in the EQ section of the Audio Effects window.

- Boosting the bass frequencies adds warmth and boominess to the sound.
- Cutting the bass frequencies excessively leaves a tinny sound.

The Lo Shelf filter has the following adjustable parameters.

Parameter	Range	Default
Frequency	20 Hz to 20 kHz	200 Hz
Level	–20 dB to 12 dB	0 dB

The following illustration shows the response for a Lo Shelf filter with a designated corner frequency of 200 Hz and a level of +10 dB.



Hi Pass Filter

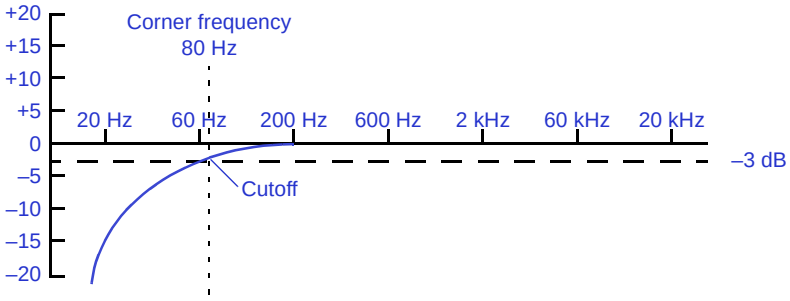
The Hi Pass filter eliminates rumble and boominess. Apply the Hi Pass filter in the Lo band in the EQ section of the Audio Effects window to eliminate the wind rumble of an outdoor microphone.

NOTE Setting the corner frequency too high creates a tinny sound.

The Hi Pass filter has the following adjustable parameter.

Parameter	Range	Default
Frequency	20 Hz to 20 kHz	80 Hz

The following illustration shows the equalization response for a Hi Pass filter with a designated corner frequency of 80 Hz.



Notch Filter

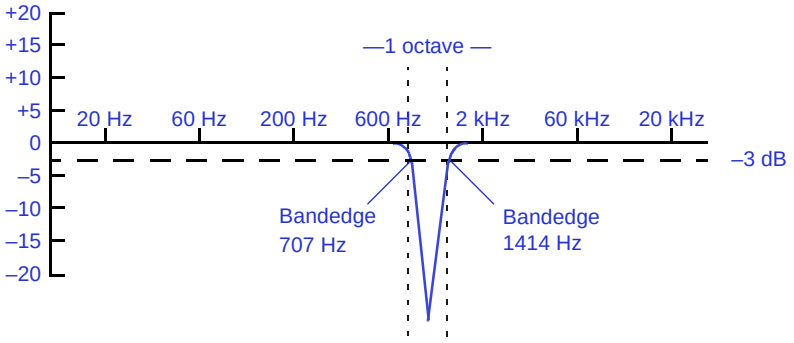
The Notch filter eliminates a narrow range of frequencies, such as a pure tone. Apply the Notch filter in the Hi, Mid, and Lo bands in the EQ section of the Audio Effects window.

The Notch filter has the following adjustable parameters.

Parameter	Range	Default
Frequency	20 Hz to 20 kHz	Hi band= 6000 Hz Mid band= 2000 Hz Lo band= 600 Hz
Width	.05 octave to 1 octave	.25 octave

The depth of the Notch filter is –× dB, and its width is gauged at the –3 dB level relative to the selected center frequency.

The following illustration shows the Notch EQ bandedges that result if you set the center frequency to 1 kHz and the width to 1 octave.



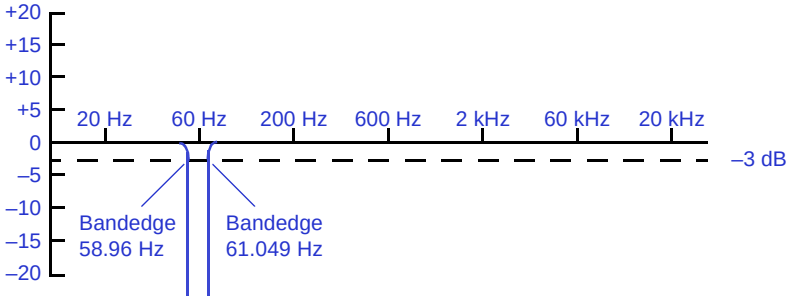
Hum Cut Filter

The Hum Cut filter is a customized Notch filter. It helps eliminate the hum that may be caused by poor grounding when the audio was recorded. Grounding hum where A/C is used is approximately 60 Hz. Grounding hum where D/C is used is approximately 50 Hz.

The video standard selected in the Video Input panel of the Preferences dialog box determines the default frequency used.

Parameter	NTSC	PAL
Frequency	60 Hz	50 Hz

The width of the Hum Cut filter is .05 octave. The following illustration shows the bandedges for a Hum Cut filter with a center frequency of 60 Hz.



NOTE The Hum Cut filter cuts only the primary hum frequency. It does not eliminate any associated harmonics. You can apply additional Notch filters to cut out any harmonic frequencies. For example, a secondary harmonic for 60 Hz is 120 Hz and a secondary harmonic for 50 Hz is 100 Hz. The 50 Hz and 60 Hz Partials Cut preset effects may help to eliminate associated harmonics.

▼ Using Audio Effects

There are several ways to apply audio effects to a clip. You can do the following:

- Apply filters to one or more audio effects bands.
- Use the Media 100 audio effects presets.
- Create your own customized effects.

NOTE To use audio effects clips from other projects in a new project, import the rendered media file.

Working with Preset Audio Effects

The Media 100 preset audio effects are filter settings frequently used to eliminate common audio imperfections or to enhance specific types of audio. You can use the preset audio effects without changing them or you can modify the preset effects to create a custom effect.

The Preset Audio Effects list displays a list of the preprogrammed Media 100 audio effects as well as any custom effects you create.

Media 100 presets are in bold text, while custom presets are in plain text. You can delete or rename any presets that you create; however, you cannot delete or rename preprogrammed Media 100 audio effects.

The following tables list the preset Media 100 audio effects and how they operate on the audio signal.

Audio EQ Presets

Name	Description
50Hz Partials Cut	Removes 50 Hz (PAL) groundloop hum and its first (100 Hz) and second (150 Hz) associated harmonic frequencies.
50Hz Partials Cut 2	Removes 50 Hz (PAL) groundloop hum and its second (150 Hz) and third (200 Hz) associated harmonic frequencies.

Audio EQ Presets *(Continued)*

Name	Description
60Hz Partials Cut	Removes 60 Hz (NTSC) groundloop hum and its first (120 Hz) and second (180 Hz) associated harmonic frequencies.
60Hz Partials Cut 2	Removes 60 Hz (NTSC) groundloop hum and its second (180 Hz) and third (240 Hz) associated harmonic frequencies.
75 Hz Roll-off	Removes low-end hum and rumble and microphone popping.
75 Hz Roll-off Steep	Removes low-end hum and rumble and microphone popping, but with a steeper slope.
Animate Male Voice	Adds low-end and high-end boost to an animated voice, giving it more impact and character.
Big Bottom	Boosts lower frequencies primarily used for sound effects
Bigger Bottom	Boosts lower frequencies (higher than Big Bottom) primarily used for sound effects.
Biggest Bottom	Boosts lower frequencies (higher than Bigger Bottom) primarily used for sound effects.
Brt Female VoiceOver	Adds brightness to a female spoken voice.
Brt Male VoiceOver	Adds brightness to a male spoken voice.
Commercial Speak	Adds clarity and presence to voiceovers and spoken text.
Crowd Quieting	Cuts back the presence of crowd noise. It is useful under voice-over or when the crowd noise needs to be softer.
Dance Beat Music EQ	An equalization for dance music.
Distant Sounds Forward	Brings distant sounds into the foreground.
Divine Voice	Adds a strong boost to very low frequencies for a deep sounding male voice.
FletcherMunson Curve	Simulates the FletcherMunson curve to present a balanced sound at low volume levels.
Hi-Freq Softening	Cuts high frequencies resulting in a softer sound. Use for bright background.

Audio EQ Presets *(Continued)*

Name	Description
Hi-8 Camera Noise	Removes noise introduced with the Hi-8 camera microphone.
Hi-8 Camera Noise2	Removes noise introduced with the Hi-8 camera microphone, but with a steeper high-frequency cut.
Hi-8 Camera Whine	Removes toned frequencies introduced with the Hi-8 camera microphone.
Hi-8 Mic Wind Cut	Removes outdoor wind noise recorded with Hi-8 microphone input.
Instrumental Music	Provides equalization for instrumental music.
Midrange Resonance	Boosts a narrow band around 1 KHz. Use for sound effects.
Nearfield Softening	Softens or distances nearfield (close) sounds.
Orchestral Music EQ	Provides equalization for orchestral music.
Rock Music EQ	Provides equalization for rock music.
Sibilance Cut	Reduces sibilance in speaking voices.
Telephone Vox 1	Simulates the sound of a telephone.
Telephone Vox 2	Simulates the sound of an older telephone or an old radio. Often used as an effect.
Vocal Presence	Provides generalized shelving equalization for adding presence or sharpness to any audio material.

Audio Dynamics Presets

Name	Description
Anti-clip Mastering	Uses a limiter to prevent digital clipping, ensuring the audio output does not exceed 0dB.
Female Ess	Attenuates “ess” sounds from a female voice.
Female Shh	Attenuates “shh” sounds from a female voice.

Audio Dynamics Presets *(Continued)*

Name	Description
Hard Compress	Tightens the dynamic range of an audio track, making it louder and bolder.
Hard Gate	Makes quiet sounds completely inaudible. Use to eliminate low-volume background noise.
Hard Squasher	Flattens the dynamic range of an audio track, creating a loud, dense, and fat sound.
Heavy Mastering	Uses a limiter to significantly boost the audio while ensuring it does not clip.
Male Ess	Attenuates “ess” sounds from a male voice.
Male Shh	Attenuates “shh” sounds from a male voice.
Moderate Mastering	Uses a limiter to boost the audio while ensuring it does not clip.
Soft Compress	Tightens the dynamic range of an audio track. Use to even out dialog.
Soft Gate	Makes quiet sounds quieter. Use to attenuate low-volume background noise.
Voiceover/Broadcast	Uses a limiter to make dialog sound stronger and louder.
Wideband	Attenuates “ess” and “shh” sounds from both female and male voices.

Audio Reverb Presets

Name	Description
Cathedral	Creates the sound of a very large, spacious room with a long reverberant tail.
Cathedral, bright	Creates the sound of a very large, spacious room with a brighter reverberant decay, typically found in rooms with walls constructed of hard materials such as stone or glass.

Audio Reverb Presets *(Continued)*

Name	Description
Concert hall	Gives the sound of a large, spacious room with moderately long reverberant trail.
Concert hall, bright	Gives the sound of a large, spacious room with a brighter reverberant decay.
Concert hall, warm	Gives the sound of a large, spacious room with less brightness and boosted low-frequency reverberation, typical of rooms with plush furnishings.
Nightclub	Provides the sound of a medium-sized room, typical of a nightclub, large classroom, or small lecture hall.
Nightclub, bright	Provides the sound of medium-sized room with a brighter reverberant decay.
Nightclub, warm	Provides the sound of medium-sized room with less brightness and boosted low-frequency reverberation.
Outdoor ambience	Offers the sound of an extremely large space with short reverberant decay, simulating urban areas with some reflective surfaces such as buildings or trees.
PA system	Creates reverberation typical of bad public address systems in large venues with a distinct delayed echo. Simulates a train station, stadium, or sports arena.
Small resonant space	Provides the sound of a small confined space with hard reflective surfaces, such as a tunnel or air shaft.
Studio	Creates typical small-room reverberation found in a room of a house.
Studio, bright	Creates typical small-room reverberation with a brighter reverberant decay.
Studio, warm	Creates a small-room reverberation with less brightness and boosted low-frequency reverberation.

Audio Reverb Presets *(Continued)*

Name	Description
Tiny room, bright	Provides the sound of a very small room with bright, lively reverberation, such as a bathroom.
Tiny room, muffled	Provides the sound of a very small room with muffled reverberation, such as a closet containing clothes.

To apply a preset audio effect

1 Select an audio clip.

2 Press ⌘-5 or choose Windows>Audio Effects.

The Audio Effects window opens.

NOTE If the audio clip is synced to another audio clip, and you want the effect to apply to all synced clips, choose All Synced from the Audio Track menu.

3 Click the effect button (EQ, Dynamics or Reverb) to apply.

4 Select an audio effect from the preset audio effect list.

The EQ bands display the parameters for the selected audio effect, and the Dynamics display shows the In/Out and Gain of the effect.

Creating Customized Audio Effects

You can create customized audio effects. The following instructions explain how to create, rename, and delete customized audio effects.

To create a customized audio effect

1 Do one of the following to create a customized effect:

- Choose and adjust the effects filters in any or all of the effects bands.
- Adjust the parameters of the filter defaults.
- Choose a Media 100 preset from the list and adjust the settings.

2 Click Save.

The Save Preset dialog box appears.



3 Type a name for the preset in the Name field and click Save.

The Media 100 system saves the attributes currently defined in one of the three sections (EQ, Dynamics, or Reverb) of the Audio Effects window to the Media 100 Audio Effects Presets file in the Media 100 Preferences folder.

To rename a customized audio effect

1 Select the effect name in the Preset Audio Effects list.

NOTE You cannot rename a Media 100 preset audio effect.

2 Click Rename.

The Rename Preset dialog box appears.



3 Type a new name for the effect in the Name field and click Rename.

The new effect name appears in the Preset Audio Effects list. All clips in the current project with the original effect name change to the new name.

NOTE If you later open an offline project, bin, or program that uses the original name, the Media 100 system adds that effect name to the Preset Audio Effects list. If you see a duplicate name in the list, verify its filter parameters and rename it.

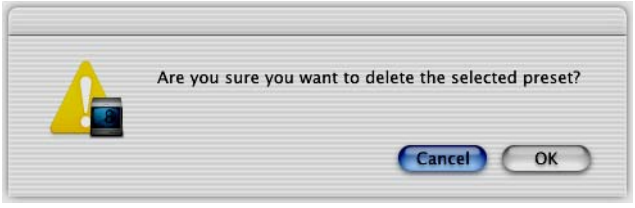
To delete a customized audio effect

1 Select the effect name in the Preset Audio Effects list.

NOTE You cannot delete a Media 100 preset audio effect.

2 Click Delete.

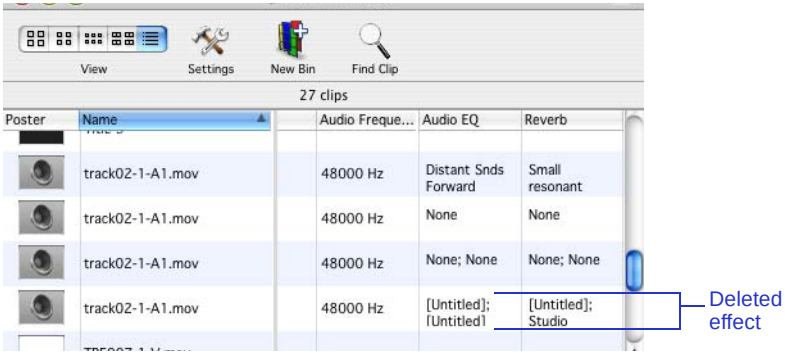
A message appears, asking you to confirm the deletion.



3 Click OK.

The effect is removed from the Preset Audio Effects list.

When you delete an effect, the filter type for all clips in the current project with the deleted effect name retains the original filter parameters but changes the type name to “Untitled.” If you later open an offline project, bin, or program that uses the deleted effect, the Media 100 system adds that effect to the Preset Audio Effects list.



TIP Although you cannot undo the delete operation, you can resave the settings while they are still displayed.

Applying Effects

You can apply preset and customized effects to a clip, multiple clips, synced clips, and clips on a track in a bin. Through the Audio Bus, you can apply effects using a Master Audio clip for a segment of the program or for the entire program. In the Audio Window, the Bus lets you apply effects for the program or per frame.

This section explains how to apply

- Effects to a clip in the timeline
- Previously created effects to multiple clips in the timeline or on a track
- Effects to a clip in a bin
- Effects presets to clips in a bin

NOTE Audio effects are applied in real time.

To apply effects to a single clip in the timeline

1 Press ⌘-2 or choose Windows>Audio.

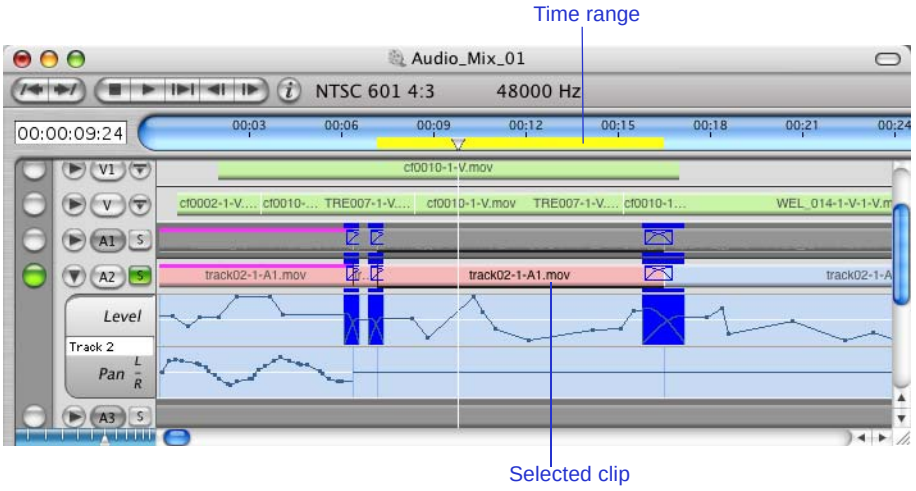
The Audio window appears.



2 Click Solo to hear only the clip to which you are applying the effect.

3 Select an audio clip in the timeline.

4 SHIFT-drag the pointer in the operations bar to create a time range over the clip you selected.



5 Click the Loop button in the Edit Suite Program mode to enable loop playback of the audio effect for the selected clip.

6 Press ⌘-5 or choose Windows>Audio Effects.

The Audio Effects window appears.

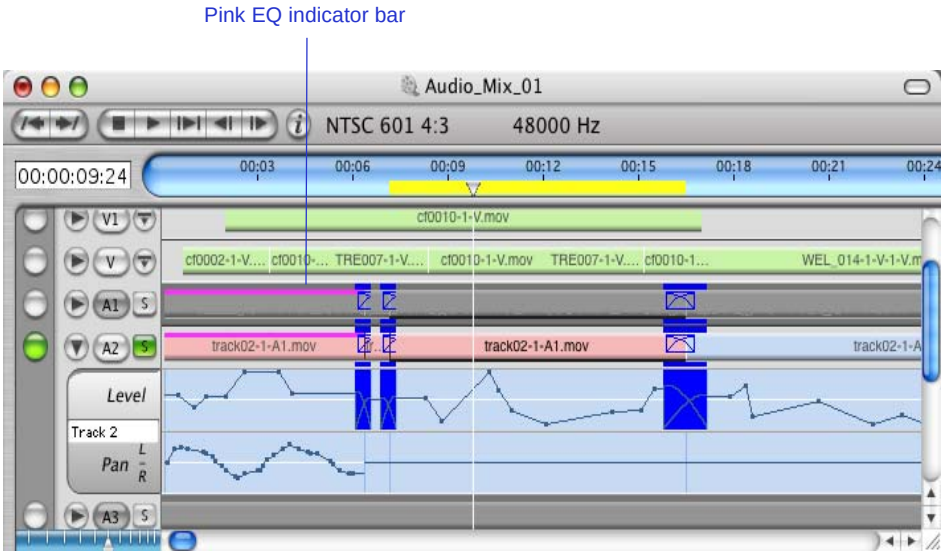
NOTE If the audio clip is synced to other audio clips, apply effects separately to each synced clip by choosing the appropriate track from the Audio Track menu. You can also apply effects to all the synced clips simultaneously by choosing All Synced from the Audio Track menu.

7 Position the Audio and Audio Effects windows so you can monitor them both while editing the effects settings.

8 Select an effect by doing one of the following:

- Choose a filter type or one of the preset audio effects.
- Create a custom effect by selecting a filter type in one or more of the audio effects tab bands and adjusting its parameter settings.
- Choose an effect from the Preset Audio Effects list and adjust the parameter settings.

The settings are applied. A bright pink indicator bar appears along the top of the affected clip in the program timeline, indicating that the audio clip has EQ, Dynamics, and/or Reverb.



9 Press ⌘-BACKSLASH (\) to loop the clip and listen to the effect.

TIP Focus on one band at a time to best assess the effect of the settings you made. Listen to the clip with the applied effect and then click the band Bypass check box to hear the clip without the effect. Comparing the two can help you to hear the changes being applied and to fine tune the settings.

10 Adjust the other bands in the same way until you achieve the desired effect.

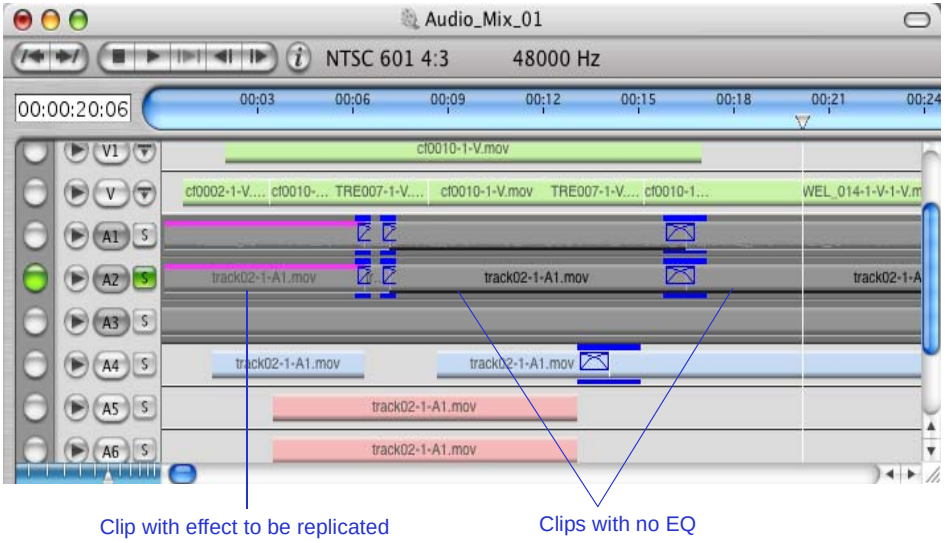
After applying the effect, listen to the effect files in context with the other audio tracks to be sure the effect works. Sound from other audio clips can mask the tonality of audio clips that have effects.

TIP For the best effects results, use cutting rather than boosting. Then adjust the gain fader in the Audio window to compensate for the decreased volume. For example, to have a voiceover stand out against a music background, try cutting the mid-frequencies of the music background before boosting the mid-frequencies of the voice.

To apply previously created effects to multiple clips

1. Determine which clip has the previously applied effects to replicate in other clips and select it.
2. SHIFT-click the clips to which you want to copy the applied effects.

   You can select clips from any unlocked track.



3. Double-click the clip that has the desired applied effects.

   This enables the track on which it is located.

4. The Edit Suite switches to Edit Clip mode.

5 Choose one of the following:

- To apply effect to multiple tracks, choose Tools>Apply Audio Effects to Selected Clips.
- To apply effect to a single track of multiple synced clips, press OPTION and choose Tools>Apply Audio Effects to Selected Clips in Track.

The selected clips display a pink indicator bar, indicating that the effect is applied.

To apply effects presets to clips in a bin

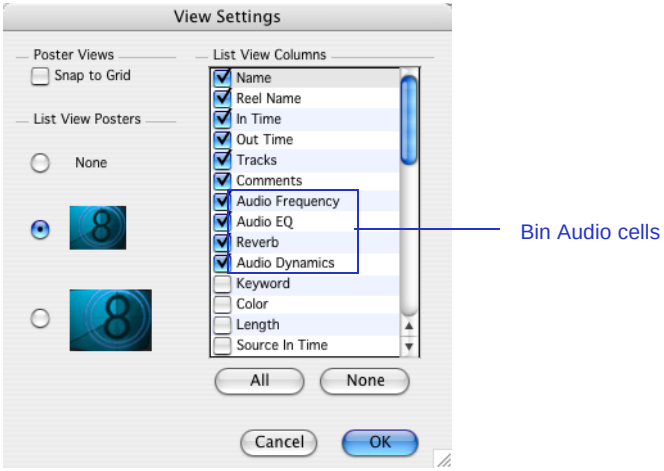
1 Click the bin.

If the bin is not in List view, press ⌘-L or choose View>List view.

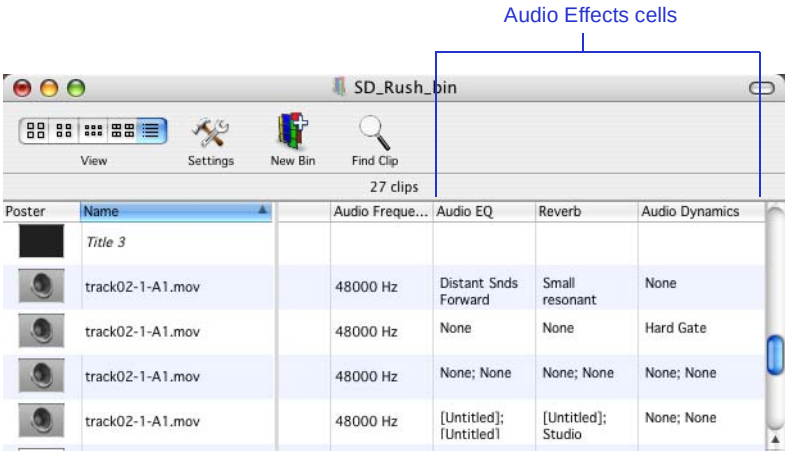
2 Choose View>View Settings.

The View Settings dialog box appears.

3 Select the effects (Audio EQ, Dynamics, and Reverb) check box and click OK.



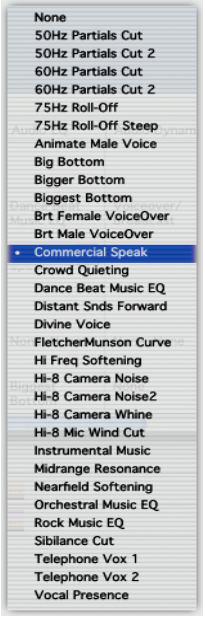
The audio effects cells appear in the Bin window.



4 Double-click the audio effects cells of the clip to edit.

The Audio Effect menu displays the available audio effects.

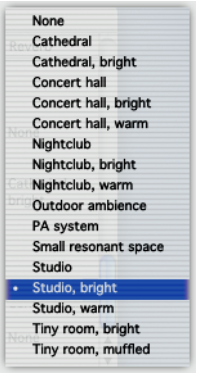
Audio EQ menu



Dynamics menu



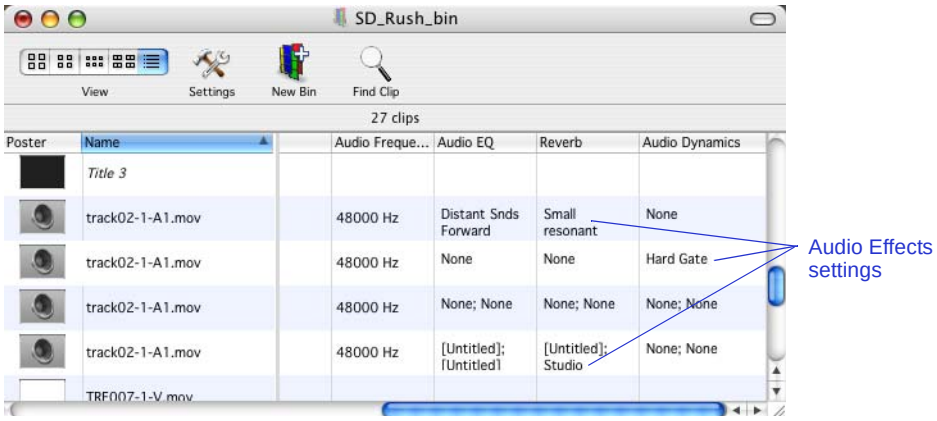
Reverb menu



5 Choose the audio effect to apply.

6 Click outside the audio effects cell.

The system applies the setting to the affected clip.



The newly selected audio effect replaces the previous effect settings for a clip. The audio effect applies to all tracks of synced audio clips.

To apply effects to a single track of a synced clip in a bin

1 Double-click the audio clip in the bin.

The Edit Suite switches to Edit Clip mode.

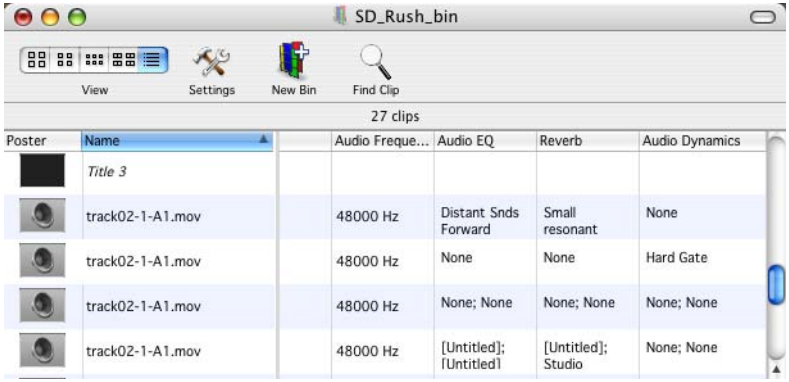
2 Press ⌘-5 or choose Windows>Audio Effects.

The Audio Effects window appears and displays the name of the selected clip.

3 Choose the track(s) to which to apply the effects from the Audio Track menu.

4 Choose a preset audio effect or create a custom effect.

The effect is applied in the bin.



5 Click the Loop button in the Edit Suite.

6 Click Play, press F5, or the SPACEBAR to play the clip and listen to the effect.

TIP Focus on one band at a time to best assess the effect of the settings you made. Listen to the clip with the applied effects and then click the clip Bypass check box to hear the clip without the effects. Comparing the two can help you to hear the changes being applied and fine tune the settings.

Removing Effects

You can remove effects from an applied or rendered audio clip in a program or a bin.

To remove effects in a program

1 Select the audio clip that has the effect to remove.

2 Press ⌘-5 to open the Audio Effects window.

3 Choose the tracks to affect from the Audio Track menu.

4 Select None from the Preset Audio Effects list.

The effect is removed from the selected clips.

NOTE When you remove effects from a rendered clip, the media file for that clip remains in your Project Media folder. You can delete the unused audio media to free up disk space.

To remove effects in a bin

1 If the bin is not in List view, press ⌘-L, or choose View>List View.

2 Select the clip from which to remove the effect.

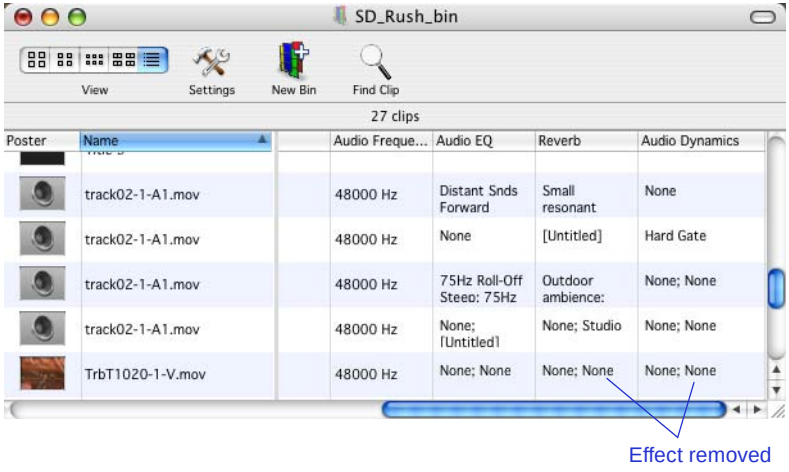
3 Double-click the effect cell.

The Audio Effect menu appears.

4 Choose None from the menu.

5 Click outside the effect cell in the bin.

The effect is removed from the track(s).



▼ Using Effects on the Audio Bus

Use a Master Audio filter clip on the Audio Bus to universally apply any effects (EQ, Dynamics, or Reverb) to a segment of your program or to the entire program.

To create a Master Audio clip

1 Select the Audio Bus track.

2 Choose one of the following:

a Press ⌘-drag.

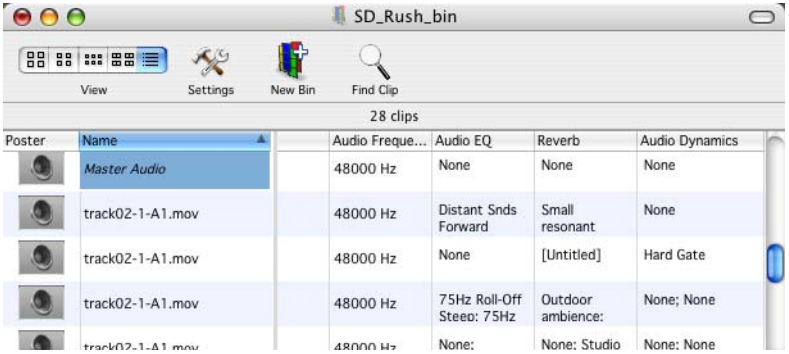
b Press SHIFT-⌘-M.

c Choose Tools>New Master Audio.

The clip appears on the Bus track.



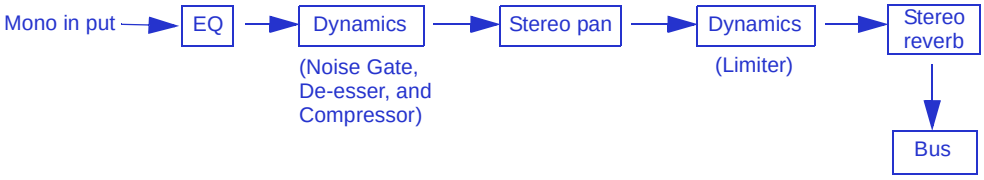
You can trim, split, delete, and drag existing Master Audio clips on the Bus track. You cannot drag Master Audio clips to any other track, but you can save them to a bin for use in other programs.



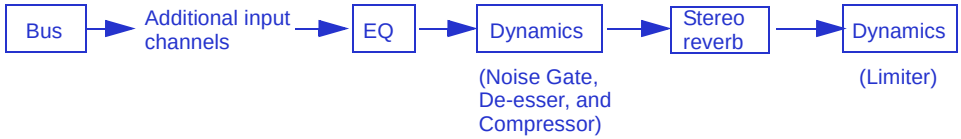
NOTE Because effects applied to the Audio Bus are real time, the pink effect indicator does not change color after you render your effects.

About Audio Processing

In Media 100, each mono input channel is sent through audio EQ then Dynamics (Noise Gate, De-esser, and Compressor). After Dynamics, the mono signal pans to a stereo signal and passes through Dynamics (Limiter). The signal then goes through an optional channel stereo reverb. The result sums to the stereo master Bus.



After all input channels are summed to the Bus, you can add optional Master Audio clips containing effects. The effects on the Bus process in the following order: EQ, Dynamics (Noise Gate, De-esser, and Compressor), stereo reverb, and Dynamics (Limiter).



NOTE Too many real-time reverbs can create a system processing issue. During playback, the Audio Window displays yellow lights on the tracks that cannot be processed. The Bus also displays the yellow light, so you can see this issue if you do not have your Audio Window expanded.

Effects Processing During Playback

Monitor the Audio window while playing back and adjusting the effects filters in the Audio Effects window. If your system cannot process all the effects on all audio tracks, a yellow indicator light illuminates on the affected tracks and on the Bus.

Reduce the effects boost to eliminate the clipping. Adjusting the track gain fader levels does not correct the problem.

NOTE While audio effects may be clipping, the digital level meters in the Audio window do not register the gain adjustments you apply with effects. The digital level meters show only the gain adjustments you make in the Audio window and in the timeline.

17

Exporting Media

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▼ Introduction

The Media 100 system allows you to export media files to external QuickTime, graphics, encoding, and audio applications to further manipulate and enhance the files. Choose a variety of formats in which to export your media. Export an entire program or selected portions. Export Media 100 QuickTime media files and open them in third-party QuickTime applications.

Media 100 also offers an integrated export option to a third-party application such as Adobe After Effects.

This chapter explains how to select and export files. It describes the Export dialog box and tells you how to

- Export a still frame or movie
- Export a program or program range
- Adjust compression settings for video files
- Adjust settings for audio files
- Open Media 100 files in QuickTime applications
- Export a Media 100 program as a PowerLog file
- Export a Media 100 program as an After Effects project

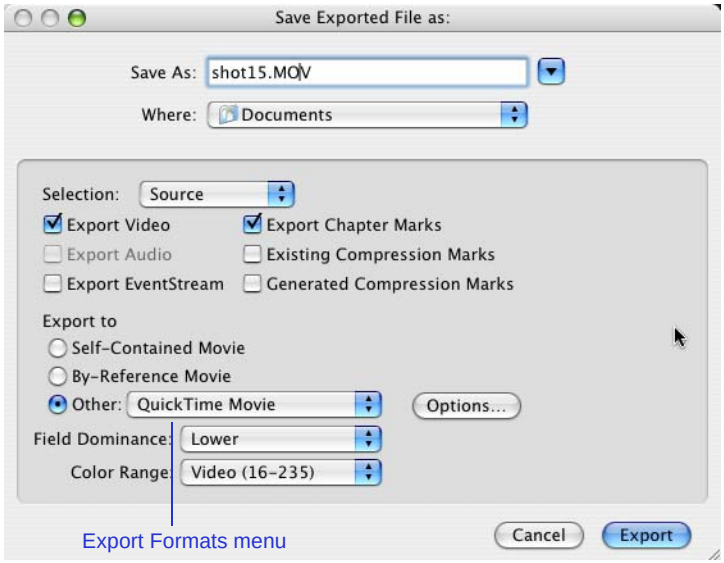
▼ About the Export Dialog Box

Use the Export dialog box to specify output settings, including the selection to export and export method.

To display the Export dialog box

➤ Choose File>Export from Edit Suite.

The Save Exported File as (Export) dialog box appears.



The following table describes the Export dialog box elements.

Export Dialog Box Elements

Name	Description
Save As field	Type the name to use for the exported file.
Where field and menu	Use standard Macintosh operating system navigation elements to specify where to save the exported file. For details, see your Macintosh documentation.

Export Dialog Box Elements *(Continued)*

Name	Description
Selection menu	Select what to export as follows: ■ When the Edit Suite is in Program mode, the options are: **Program**. Exports the entire program (default). **Range**. Exports the range specified in the Operations bar. **Frame**. Exports the frame under the CTI as either a movie or as a still frame, depending on which exporter you select in the Export Formats menu. With this option selected, you cannot export audio. ■ When the Edit Suite is in Edit Clip mode and a clip is selected, the options are: **Source**. Exports the entire clip (default). **Select**. Exports the trimmed clip. **Frame**. Exports the clip as a series of still frames. The clip portion exported corresponds to what appears in the Video window when you click the Source or Select button.
Export Video check box	Active when the selection to export contains video. **NOTE** When you select this check box, only the exporters in the Export Formats menu that support video are active. Audio-only formats are dimmed.
Export Audio check box	Active when the selection to export contains audio. The Export Audio check box is disabled when the Selection menu is set to Frame. **NOTE** When you select this check box, only the exporters in the Export Formats menu that support audio are active. Video-only formats are dimmed.
Export EventStream check box	Select to export metadata and EventStream events. The data is exported as a separate file that you can then import into Cleaner for encoding to a streaming format. See Appendix B, “Creating Streaming Media” for details.

Export Dialog Box Elements *(Continued)*

Name	Description
Export Chapter Marks check box	Select to export EventStream Chapter Marks. Chapter marks with their own labels export on their own chapter track. See Appendix B, “Creating Streaming Media” for details.
Existing Compression Marks check box	Select to export compression marks within the timeline. Compression marks create I-frames in the generated file.
Generated Compression Marks check box	Select to add a Compression Mark at the In point of every clip in the exported movie.
Export to section	Enable the radio button to select an export method. Options include: **Self-Contained Movie**. Exports the complete file. **By-Reference Movie**. Creates a small file that points to the essential elements of the original video clips in the program or range. You must retain the original media. This function is useful when exporting a clip that you intend to reimport into Media 100 or other QuickTime applications. It eliminates the lengthy and space-consuming process of creating a copy of the original clip. **NOTE** You cannot export still frames by reference. **NOTE** Self-contained and By-Reference exports may create a multiple CODEC media file if the timeline being exported contains media from multiple CODECs. For example, if you export a timeline containing an 844/X clip and a Media 100 clip, the exported file will contain some media samples in the 844/X format and some in the Media 100 format. **Other**. Exports the file using an exporter you choose from the Export Formats menu. **NOTE** When exporting to Other and choosing QuickTime all Media 100 CODEC options appear in the Export Format list.
Options button	When available, displays the settings for the exporter selected in the Export Formats menu.

Export Dialog Box Elements *(Continued)*

Name	Description
Cancel button	Closes the dialog box without exporting.
Export button	Exports the selection and closes the dialog box.
Field Dominance	Specify Upper or Lower Field Dominance.
Color Range	Specify Color Range as Video (16-235) or Computer (0-255)

About Export Formats

The Export Formats menu in the Export dialog box offers a selection of QuickTime exporters.

The following table describes each of the available QuickTime exporters and the formats each supports.

Supported Export Formats

Name	Description	Supports Audio	Supports Video
3G	Exports to the 3G format	✔	✔
AIFF	Exports to the AIFF audio format.	✔	
FLC	Exports to the .FLC animation format.		✔
QuickTime Movie	Exports to a QuickTime movie, with any video or audio CODEC. Also *hints* the movie for streaming. (Hint: Hidden code that travels with the video to tell the player how to display the video.)	✔	✔
µlaw	Exports to the .AU audio format.	✔	
AVI	Exports to the .AVI format, with any video or audio CODEC.	✔	✔

Supported Export Formats *(Continued)*

Name	Description	Supports Audio	Supports Video
Wave	Exports to the .WAV sound format.	✔	
DV Stream	Exports to the DV (.DVC) format.	✔	✔
MPEG-4	Exports to the MPEG-4 format	✔	✔
Image Sequence	Exports to any QuickTime supported still image format: BMP, JPG, MacPaint, Photoshop, PICT, PNG, SGI, TGA, and TIFF. Some formats have additional option settings. Exports a series of numbered stills when program or range is selected.		✔

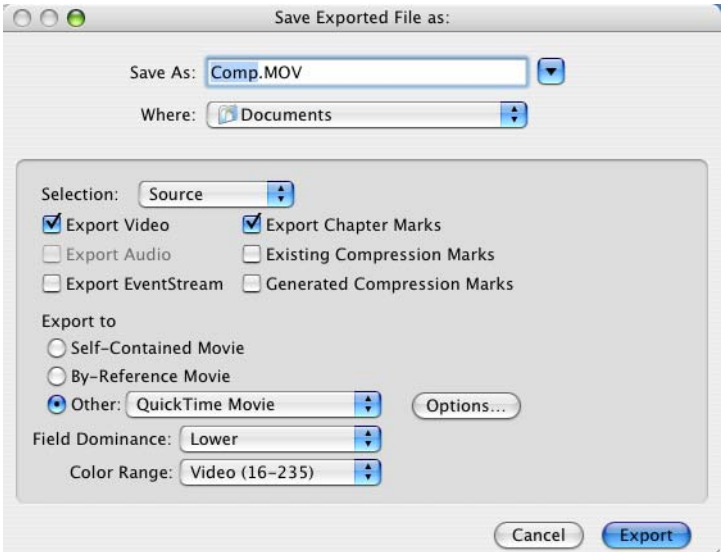
Selecting an Exporter

The Export Formats menu lists the QuickTime exporters that are available. The exporters displayed depend on what you choose to export. Each exporter provides its own option settings.

To select an exporter and specify export options

➤ Choose an exporter from the Export Formats menu and click Options.

The associated settings dialog box for the selected exporter appears.



▼ Render for Export

Real-time overlays, titles, transitions, ClipFX, TimeFX and ColorFX must be rendered to be included in your exported file. In addition Black clips and Color clips must be rendered prior to export.

NOTE Black frames, black clips, color clips and strobe black export a single pixel per frame to the None CODEC which is used to fill the frame with the respective color. This means it will cause the export file to contain multiple CODECs, if exported as self-contained or by-reference. When reimporting an exported media file, it will only fast import if it contains a single fast-importable CODEC. Therefore, any exported content containing a black or color clip will slow import if re-imported back into the system.

Force Render using Render Options Dialog Box

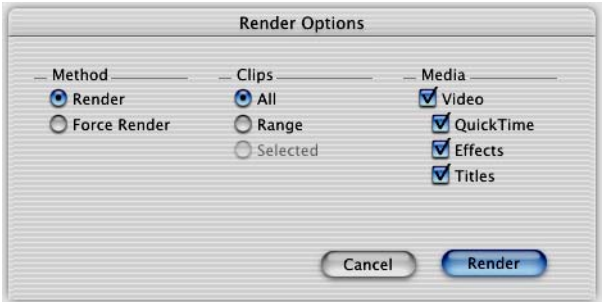
Use the Render Options dialog box to force render your content prior to exporting.

To render using the Render Options dialog box

1 Select the program to render.

2 Choose Media>Render.

The Render Options dialog box appears.



3 From the Method section, choose Force Render.

4 From the Clips section choose All.

5 From the Media section, select all of the check boxes.

6 Click Render.

▼ Exporting a Frame

You can export a still frame from a video clip in a program or bin. Media 100 lets you export the frame to a still image format or to a QuickTime movie format, depending on the exporter you select in the Export Formats menu.

To export a still frame

1 Select a frame to export as follows.

To export from...	Do this...
A program	Move the CTI in the timeline until the video frame appears in the Record Monitor window.
A clip in the active bin or program	Double-click the clip. When the Edit Suite becomes active in Edit Clip mode, move the CTI in the mini-timeline until the Source Monitor window displays the video frame to export.

2 Choose File>Export from Edit Suite.

The Export dialog box appears.

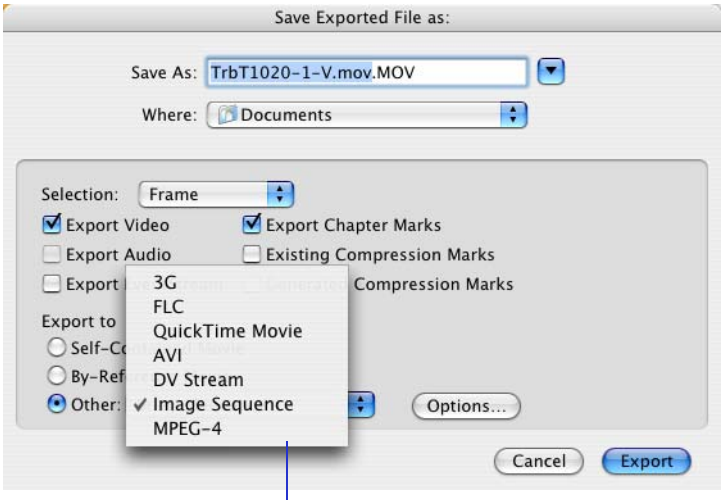
3 Choose the folder in which to save the file and name the file.

4 Enable the Selection>Frame option.

Since the file you are exporting contains video, the Export Video check box is available. You cannot export audio as a still frame.

NOTE Selecting Frame enables the Other radio button.

5 To choose an option from the Export to section of the dialog box, enable the Export Video check box.



Export Formats menu

Choose...	To export...
Self-Contained Movie radio button	The frame using the Media 100 HD CODEC or the CODEC of the clip if originally acquired via fast import. For example, if the clip is an original 844/X media file imported into Media 100, the system will use the 844/X CODEC on export when self-contained is selected.
Other radio button and select Image Sequence	To any QuickTime supported still image format by clicking Options and selecting a format. Some formats have additional option settings.
Other radio button and select an available movie format.	The frame using the movie format selected.

NOTE You cannot export a frame by reference.

6 If you choose Self-Contained Movie to export, go to step 9; otherwise, continue with the next step.

7 If you choose an exporter from the Export Formats menu, click Options to display additional settings.

8 Select settings from the Options dialog box and click OK.

9 Click Export.

Media 100 exports the still frame.

The system adds a graphic file extension to the file name.

Exporting a Frame to a PICT Format

Export a still frame using an exporter from the Export Formats menu. The following procedure explains how to export a frame to the PICT still image format.

To export to a PICT file format

1 Select the frame to export from the bin or timeline.

2 Choose File>Export from Edit Suite.

The Export dialog box opens.

3 Type a name in the Name field and specify the folder in which to save the file.

4 Choose Selection>Frame.

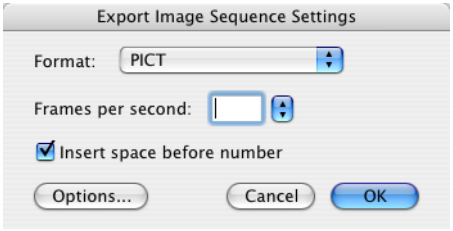
5 Enable the Export to>Other radio button.

6 Choose Image Sequence from the Export Formats menu.

7 Click Options.

The Export Image Sequence Settings dialog box appears.

8 Choose Format>PICT.



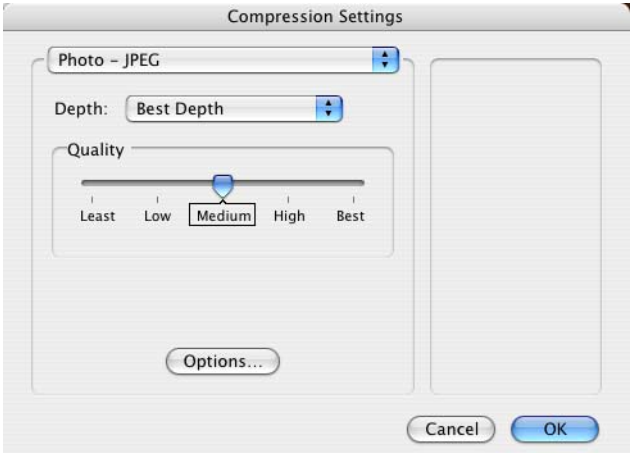
TIP When exporting a frame to import into Photoshop, consider choosing the Photoshop format instead of PICT.

9 Click Options.

The PICT Options dialog box appears.

10 Click Options.

The Compression Settings dialog box opens.



11 Choose compressor and quality settings.

12 Click OK until you return to the Export dialog box.

13 Click Export.

The system adds a .PCT extension to the file name on export.

Exporting Media as Numbered Stills

Using the Export Formats selection, you can export a range as a series of numbered still images.

To export media as series of stills

1. Select a range in the timeline.
2. Choose File>Export from Edit Suite.
3. From the Export dialog box, choose Selection>Range.
4. Enter a file name in the Name field.

   Media 100 adds incremental numbers to the selected name for each still image.
5. Click the Other radio button.
6. Choose Export Formats>Image Sequence.
7. Click Options.

   The Export Image Sequence Settings dialog box appears.
8. Choose the format in which you want to export the still images from the Format menu.
9. Select additional settings if required.
10. Click OK until you return to the Export dialog box.
11. Click Export to export the range as numbered stills.

▼ Exporting Media as a Movie

Export a clip, a program, or a program range as a QuickTime movie. Media 100 supports various QuickTime export formats, including DV (.DVC), AVI (.AVI), and QuickTime (.MOV). Most of these formats allow you to specify custom quality settings, including the CODEC to use.

For the list of supported export formats, see “About Export Formats.”

To export media as a movie

1 Select the program or clip to export as follows.

To export...	Do this...
An entire clip	Double-click the clip in a bin or in the timeline. The Edit Suite switches to Edit Clip mode.
A selected portion of a clip	Double-click the clip in a bin or in the timeline and trim it. To view the trimmed clip, click Select in the Edit Suite. To view the entire clip, click Source.
A program	Click anywhere in the timeline. The Edit Suite switches to Program mode. Use this feature to create a compound clip; that is, export the program as a single file, then import that file into a bin for use within another program.
A program range	Create a range containing the clips to export. The clips to export must be fully contained in the range.

2 Choose File>Export from Edit Suite.

The Export dialog box appears.

3 Choose the folder in which to save the file and name the file.

4 Choose the element to export from the Selection menu.

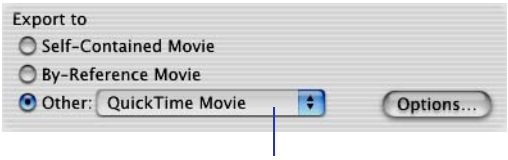
Choose...	To export...
Program	The entire timeline. Available only when exporting a program and the Edit Suite is in Program mode.
Range	The selected program range. Available when exporting a program range and the Edit Suite is in Program mode.
Frame	A still image. The Image Sequence exporter is selected from the Export Formats menu.
Source	The entire clip. Available only when a clip is selected for export and the Edit Suite is in Edit Clip mode.
Select	The trimmed clip. Available only when a clip is selected for export and the Edit Suite is in Edit Clip mode.

If the clip or program contains audio and/or video, the Export Video and/or Export Audio check boxes are enabled.

If you are exporting media for streaming that contains EventStream events or metadata, select Export EventStream check box. For more information on creating EventStream events,”Creating Streaming Media.”

NOTE If you are working with a synced audio/video clip, you can choose to export only the audio or video portion by deselecting the corresponding check box. If you export only one or the other, you can restore the synchronization in the destination QuickTime application.

5 Select one of the following to export:



Enable the...	To...
Self-Contained Movie radio button	Export the clip or program using the Media 100 HD CODEC or multiple CODECs will be used if any clips were originally acquired via fast import. For example, if a timeline contains some clips that are original 844/X media files and others that originated using the Animation CODEC brought into Media 100 via fast import, those clips will use the respective CODECs on export. The native Media 100 files will use the Media 100 HD CODEC when self-contained is selected. Thus multiple CODECs will be used.
By-Reference Movie radio button	Export the clip or program by reference using the Media 100 CODEC or multiple CODECs will be used if any clips were originally acquired via fast import.
Other radio button	Export the file to the selected movie export formats QuickTime movie, DV Stream, or AVI.

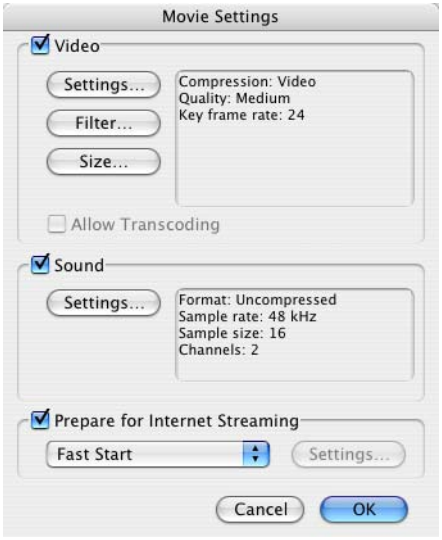
6 If you select the Other radio button, choose QuickTime movie or AVI and continue with the next step.

Or

If you select Self-Contained or By- Reference, go to step 11.

7 Click Options.

The Movie Settings dialog box appears. This dialog box varies depending on the movie exporter you choose.



NOTE The Allow Transcoding check box becomes active if you choose MJPEG-A or MJPEG-B from the Settings menu. It does not refer to a Media 100 Transcoder.

8 Click Settings.

The Compression Settings dialog box appears.

9 Click the Video menu to show the list of export CODEC's.

10 Click OK until you return to the Export dialog box.

11 Click Export.

If the selection to export contains unrendered clips, the Render Confirmation dialog box prompts you to render the clips. Any real-time overlays, transitions, ClipFX, TimeFX or ColorFX are not included in your exported files unless you render them.

- Click Render All to render quality changes to clips and non-real-time titles and transitions. This option does not render real-time titles.
- Click Force Render All to render all real-time and non-real-time titles, transitions and effects. You will generally select this option.

The Media 100 system renders the designated media and exports the file.

▼ Export EventStream Markers

Chapter and Compression markers export to third-party applications and appear in the QuickTime player. You can add the markers directly in the timeline or in the EventStream window. For information on adding the Chapter or Compression markers, see “Creating Streaming Media.”

Chapter marks with their labels are exported to their own chapter track. Compression marks that you add to the timeline are exported using the Existing Compression Marks check box. Choosing the Generated Compression Marks check box automatically adds a compression mark at the in point of every clip in the exported movie. Compression marks create I-frames in the generated file.

To add Chapter and Compression markers

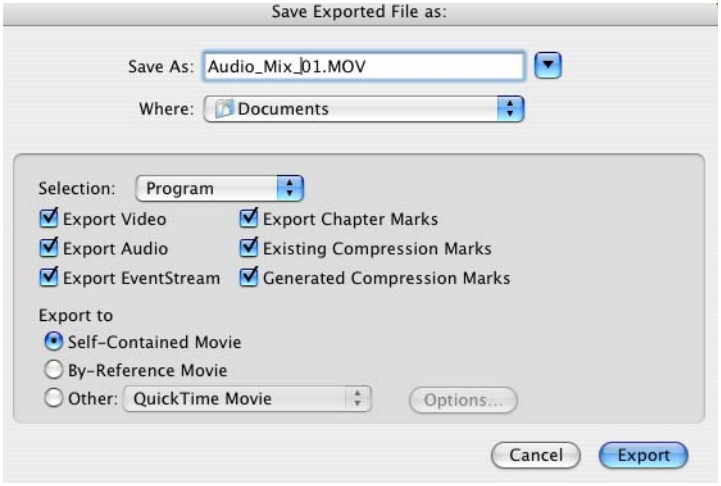
1 Open a completed program or create a new program.

2 To add markers, do the following:

Press...	To...
SHIFT-F6	Add a Chapter mark.
CONTROL-SHIFT-F6	Add a Compression mark.

3 Choose File>Export from Edit Suite.

The Save Exported File as dialog appears.



4 Select the export options as required.

5 The program is exported as a self-contained movie.

6 Open the program in the QuickTime Player to see the Chapter markers.

▼ Exporting Audio-Only Clips

You can export audio clips to achieve special effects. For example, you might want to apply audio sweetening or manipulate synced video and audio clips in a third-party application.

When exporting audio, the following apply.

- You can export audio in various supported formats.
- Audio is not compressed in the Media 100 system.
- You can export to only two audio tracks at a time. Media 100 mixes the active audio tracks into a single stereo pair.

To export multiple pairs of stereo tracks, disable all the audio tracks in your program except the pair to export.

- To export audio EQ settings from a program, mix down your audio before beginning the export.

To export audio clips

1 Select the audio to export as follows.

To export a...	Do this...
Clip	Double-click the clip in a bin or timeline. The Edit Suite switches to Edit Clip mode.
Program	Click in the timeline. The Edit Suite switches to Program mode.
Program range	Create a range containing the clips to export.

2 Choose File>Export from Edit Suite.

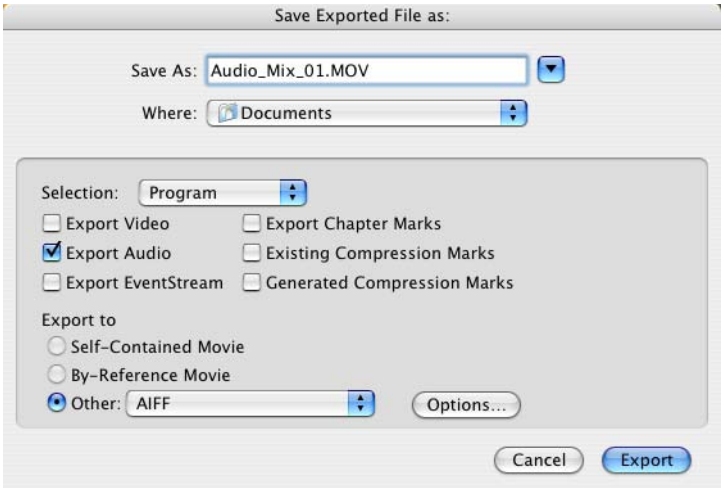
3 From the Export dialog box, choose a name and location the file.

4 Choose the element to export from the Selection menu.

Choose...	To export...
Program	The entire timeline. Available only when exporting a program and the Edit Suite is in Program mode.
Range	The selected program range. Available only when the Edit Suite is in Program mode.
Source	The entire clip. Available only when a clip is selected for export and the Edit Suite is in Edit Clip mode.
Select	The trimmed clip. Available only when a clip is selected for export and the Edit Suite is in Edit Clip mode.

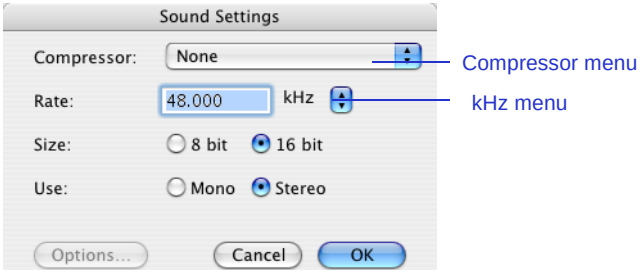
5 Click the Export Audio check box.

6 Enable the Other radio button to select an exporter from the Export Formats menu.



7 Click Options.

The Sound Settings dialog box appears.



8 Choose your settings as follows.

To set...	Click...
Compressor	The Compressor menu and choose an audio CODEC from the list that fits your requirements. If the menu does not appear, there are no additional compressor options.
Rate	The kHz menu and select one of the sample rate choices.

To set...	Click...
Size	8 bit or 16 bit radio button. To reimport audio back into Media 100 at the best quality, choose 16 bit.
Use	Mono or Stereo radio button. To reimport audio back into Media 100 at the best quality, choose Stereo.

9 Click OK to close the Sound Settings dialog box.

10 Click Export to export your audio from Media 100.

▼ Opening Media Files with QuickTime

Because all Media 100 media files are QuickTime movies, you do not need to export these files to applications that read QuickTime movies. You can open the media files in an external QuickTime application or drag the media files over the QuickTime application icon.

The QuickTime manager resets the initial frame timecode to zero, flags the file as NTSC or PAL, and passes it to the QuickTime application. The Media 100 file opens as a QuickTime movie. If multiple CODECs are included in the file, QuickTime will only indicate the first CODEC type it finds.

NOTE External applications cannot access the Media 100 movie if Media 100 is active. Move Media 100 to the background to use an external QuickTime application.

You can make changes to the movie within the external QuickTime application and then reimport it to a Media 100 bin as a new media file.

To open a Media 100 file in another QuickTime application

➤ Use one of the following methods:

- Drag a file from the Media 100 media folder onto the QuickTime Player.



  Verify that the QuickTime Player icon is highlighted when you drag the selected file over it.

- Launch QuickTime and open the clip from within the application.

▼ Exporting as PowerLog File

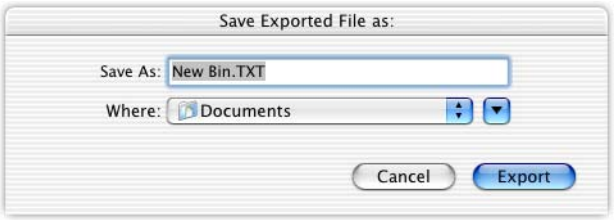
You can export Media 100 bins as a PowerLog file to other nonlinear editing systems such as 844/X.

To export a bin as a PowerLog file

1 Open a bin.

2 Choose File>Export to>PowerLog.

The Save Exported File as dialog appears.



3 Select a directory to send the file from the Where menu.

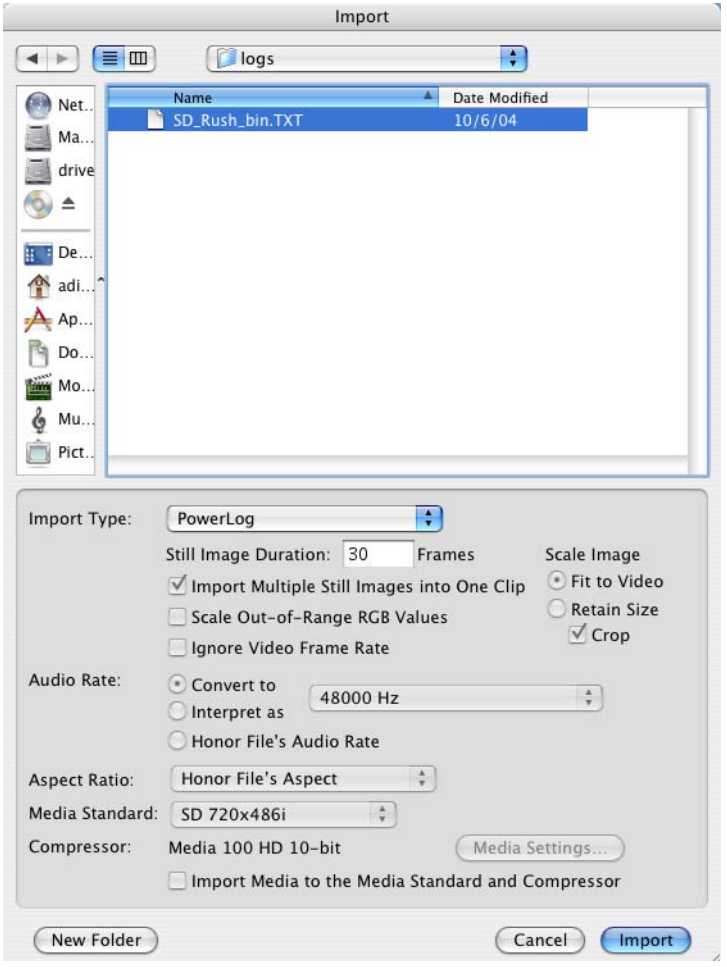
The file exports to the selected directory.

To import the PowerLog file

1 Choose File>Import.

The Import dialog appears.

2 From the Type menu, choose PowerLog.



3 Select the exported file.

The PowerLog file displays in the directory.

▼ Exporting Files to After Effects

Media 100 can convert the Media 100 timeline directly into an After Effects project (Macintosh version). Using the After Effects plug-in, “AE XML Project Importer”, you import the resulting file into After Effects, and it is ready to manipulate. The After Effects project puts each clip in a separate layer and maintains the layer ordering and information present in the Media 100 timeline.

NOTE The Media 100 “AE XMLProject Importer” plug-in is compatible with After Effects version 4 and later; it cannot be used with earlier versions of After Effects.

This section describes how to

- Export programs as After Effects projects
- Import the newly exported file into After Effects

Exporting Programs to After Effects

The Export to After Effects command is available when the Media 100 Program window is active.

Media 100 exports the program by reference by creating a small file that points to the essential elements of the original video clips in the program. If you move or rename the media files after exporting the program, they are unavailable in After Effects and appear as placeholders. The file contains the audio data.

NOTE Real-time overlays, titles, transitions, ClipFX, TimeFX, ColorFX, black and color clips must be rendered to generate a media file that can be pointed to prior to exporting the program to After Effects. Choose Media>Render to open the Render Options dialog box. Force render everything so all effects are included in your exported file.

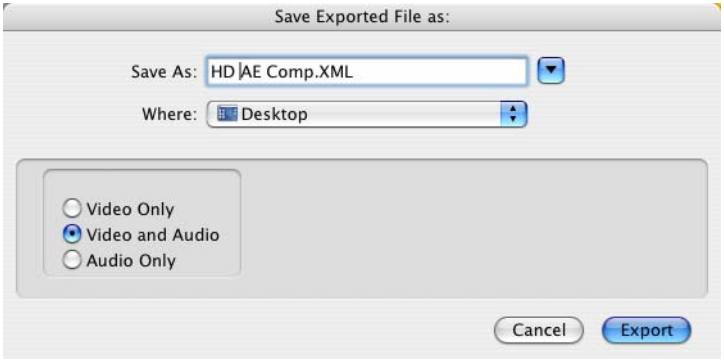
Media 100 exports the timeline to a file with the .XML extension (for example, Creatures of the Wild.XML). The .XML file format is specific to use Media 100 with After Effects. The exported file contains the entire timeline. You cannot export a program range.

To export a Media 100 program as an After Effects project

1 Select the program or clip to export.

2 Choose File>Export to>After Effects.

The Save Exported File as dialog box appears.



3 Name the file and specify the folder where to save the file.

4 Choose the Clip Types to export and click Export.

Media 100 does not export programs that contain unrendered clips. To export a program that has unrendered effects, non-real-time titles, ClipFX, ColorFX, black clips, color clips and transitions, render those clips prior to exporting.

NOTE All motion paths on exported titles are lost.

If you do not need the rendered media in the After Effects project, click Stop to cancel the render process. After Effects uses placeholders for unrendered effects, as well as for media it cannot find. You can then replace clips in the After Effects timeline directly.

After rendering, Media 100 continues the export process and saves the file in the specified location.

Importing the Program into After Effects

After Effects imports the exported Media 100 program as a single composition.

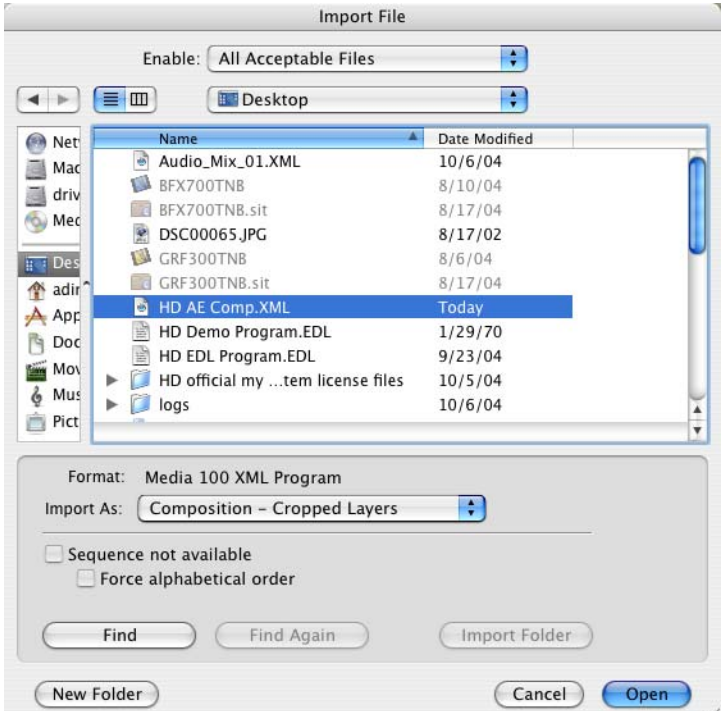
CAUTION

Prior to importing the .XML file specify the Tiimecode Base in After Effects. In After Effects, choose File>Project Settings. From the Timecode Base menu select either 30 fps for NTSC or 25 fps for PAL.

To import the file into After Effects

1 In After Effects, choose File>Import>File.

The Import dialog box appears.

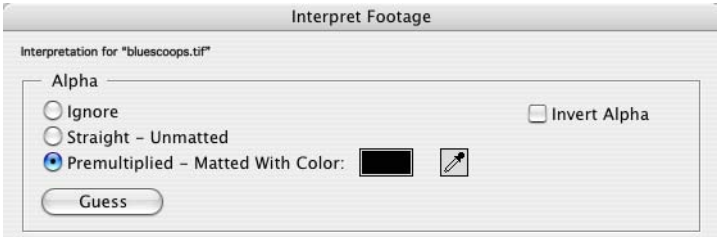


2 Choose the file to Import.

3 From the Import As list, choose Composition.

4 Click Import.

If the Media 100 program contains titles, the Interpret Footage Alpha dialog box appears. Choose the desired option and click OK.



The Media 100 program appears as a single composition in the Project window. The Project window displays a folder containing each clip in the program.

NOTE Some versions of After Effects require the de-interlacing of imported video footage.

5 To view the timeline, double-click the imported composition.

The timeline appears in the Time Layout window as follows:

- The Layer Outline displays each clip in its own layer, and includes a label, a number assigned by After Effects, and the source name for the layer. Each layer is fully manipulable with After Effects tools and effects.

  The source name is the media file name assigned in Media 100. Click the Source Name column heading to see the layer name, which is the clip name assigned in Media 100.

- The Time graph visually represents the position and duration of each layer.

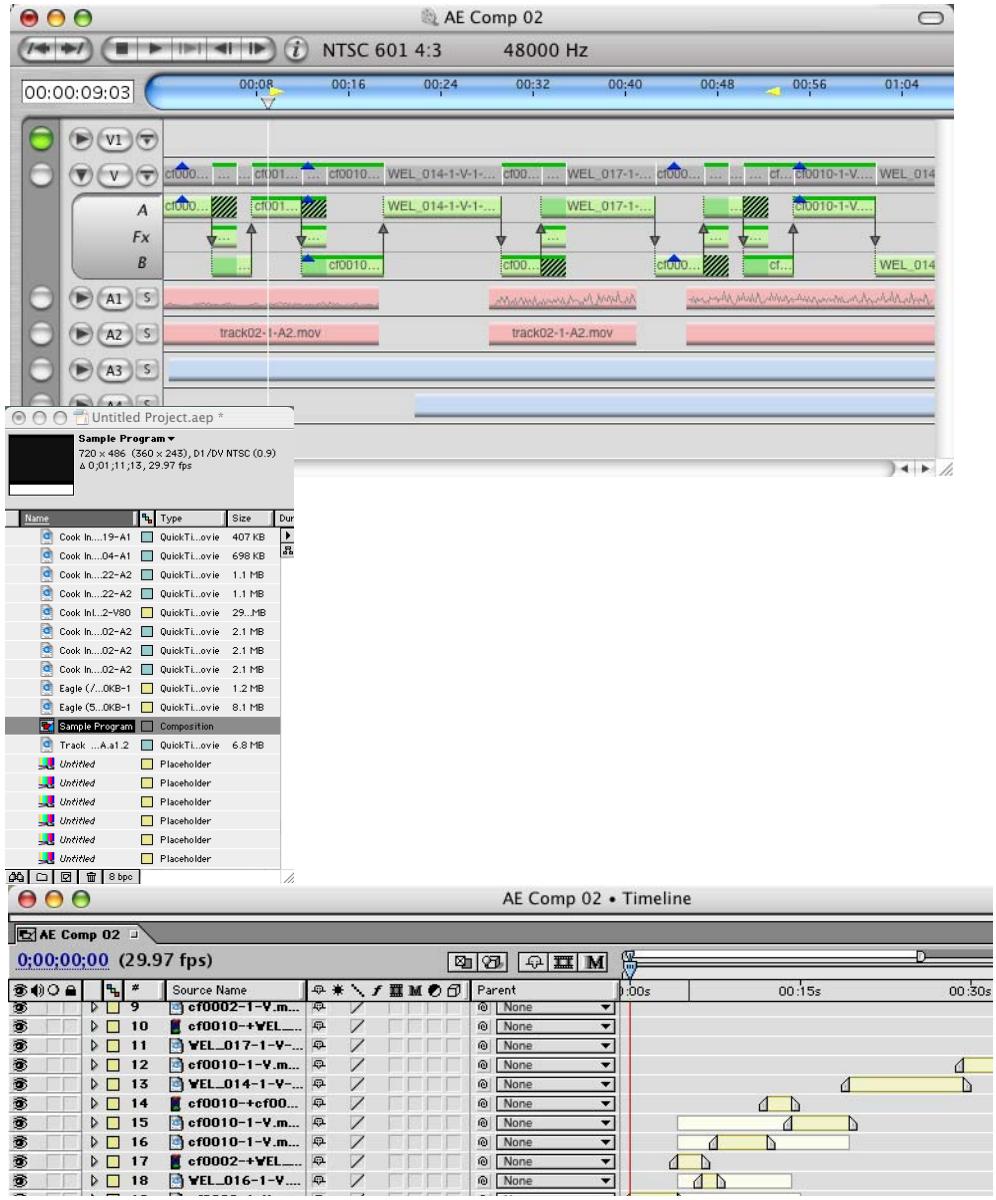
- Placeholders are labeled “Untitled.”

The following illustration shows the timeline in Media 100 before export, and the After Effects Project and Time Layout windows after importing the Media 100 program file.

Media 100 timeline

After Effects project

After Effects timeline



To de-interlace imported video footage

1 Open the clip folder in the Project window.

2 Select the first video clip.

3 Press ⌘-F or choose File>Interpret Footage>Main.

The Interpret Footage dialog box appears.



4 Specify the following settings, and click OK:

- Under Frame Rate, enable the Use frame rate from file radio button.
- From the Separate Fields list, choose the field order.

  For details about choosing and interpreting field order, see the After Effects online documentation.

TIP The Media 100 NTSC 720 x 486 video standard uses second-field dominance. Media 100 PAL 720 x 576 video standard uses first-field dominance. Media 100 1920 x 1080 uses first-field dominance.

- Choose the desired pixel aspect ratio.

5 Select the clip folder and press ⌘-OPTION-V or choose File>Interpret Footage>Apply Interpretation to apply the same Interpret Footage settings to the rest of the clips.

6 To view the timeline, double-click the imported composition.

The timeline appears in the Time Layout window.

▼ Export to 844/X

Media 100 programs may be exported using the XML markup language and imported into an 844/X system for further manipulation.

To export a Media 100 timeline to 844/X

1 Choose File>Export To>844/X

2 Specify a file name and location to save the exported .XML file to.

▼ Export to XML

Media 100 bins and programs may be exported using the XML markup language and imported into a compatible XML application for further manipulation.

To export a Media 100 bin or timeline to XML

1 Select the bin or timeline window to activate.

2 Choose File>Export To>XML

3 Specify a file name and location to save the exported .XML file to.

▼ Supported CODECs for Export

Each CODEC is designed to work with different types of images.

To access the video CODECs

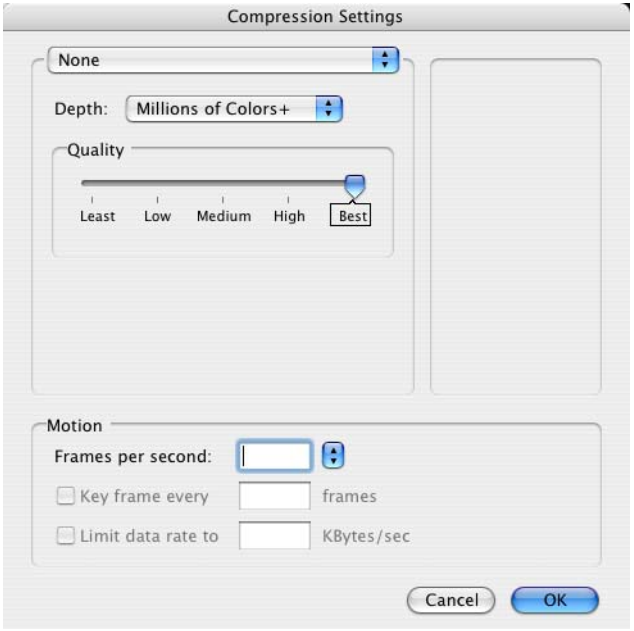
1 From the Export dialog box, enable the Export to>Other radio button.

2 From the Export Formats menu, choose a movie format.

3 Click Options.

The Movie Settings dialog box appears. This dialog box varies depending on the movie exporter you choose.

4 Click Settings and the Compression Settings dialog box appears.



5 Click the Video menu to show the list of export CODECs.

The following table lists the CODECs available for export from the Media 100 system and provides a brief description of when their use is appropriate.

Supported CODECs for Export

Name	Function
844X Uncompressed	Designed for content being used in the Media 100 844/X system.
Animation	Supports animation, computer-generated, and resident content. Use this CODEC with the Media 100 Transcoder.
Apple Intermediate Codec	*Developed to handle HDV in a non-b/p frame codec (all I frames). Improves compatibility and reliability as well as improved export and playback performance.
Apple VC H.263	A modified version of Apple H.263 used for iChat AV. Also referred to as I263. Designed for video conferencing. Uses very high compression ratios. Only works at window sizes of 352x288, 176x144, or 128x96. Movie windows are resized to one of these options.
Apple Pixlet Video	Pixlet is the first studio-grade CODEC available exclusively in Mac OS X v10.3 Panther. It's tuned for use with high-definition source.
Avid Meridien Compressed	*Allows applications to understand 8-bit Meridien JFIF media.
Avid Meridien Uncompressed	*Allows applications to understand 8-bit Meridien uncompressed media.
BMP	Supports still images when exporting in the BMP format. Performs minimal compression. Not suitable for video-based movie playback.
Cinepak	Supports high-quality mastering to CD-ROM and fast playback speed. Performs slowly while compressing.

Supported CODECs for Export *(Continued)*

Name	Function
Component Video	Also referred to as YUV. The compression ratio is 2:1. Use when image quality is more important than compression ratio or real-time playback. Best suited for archival or interim storage of digitized video. For example, acquire video using this CODEC, then do your editing, and compress the final result with another CODEC for delivery.
DV - NTSC DVCPRO - NTSC DVCPRO50 - NTSC	Supports NTSC digital video cameras.
DV - PAL DVCPRO - PAL DVCPRO50- PAL	Supports PAL digital video cameras.
DVCPRO HD 1080i50	*A high-definition codec suitable for broadcast finishing applications that allows online quality at significantly smaller file sizes. It's an 8-bit fixed bit rate codec that uses DCT compression. Data rates range from 5.8 MB/sec to 14 MB/sec.
DVCPRO HD 1080i60	*A high-definition codec suitable for broadcast finishing applications that allows online quality at significantly smaller file sizes. It's an 8-bit fixed bit rate codec that uses DCT compression. Data rates range from 5.8 MB/sec to 14 MB/sec.
DVCPRO HD 720p60	*A high-definition codec suitable for broadcast finishing applications that allows online quality at significantly smaller file sizes. It's an 8-bit fixed bit rate codec that uses DCT compression. Data rates range from 5.8 MB/sec to 14 MB/sec.
Graphics	Provides compression for 8-bit still frame images and sequences of images where compression is more important than the rate of decompression.
H.261	Designed for video conferencing. Optimized for low data rates. Not as good quality as H.263. Works best for low-motion video.
H.263	Designed for low latency video conferencing.
H.264	* Is a scalable codec delivering excellent quality and based on open standards.

Supported CODECs for Export *(Continued)*

Name	Function
HDV 1080i50	*HDV is an MPEG-2 format for digital video which has a resolution of 1440x1080 pixels interlaced (field based) and is always displayed at 16x9. Data rate 11 MB/sec. (38GB/hr)
HDV 1080i60	*HDV is an MPEG-2 format for digital video which has a resolution of 1440x1080 pixels interlaced (field based) and is always displayed at 16x9. Data rate 14 MB/sec (46 GB/hr)
HDV 720p30	*HDV is an MPEG-2 format for digital video which has a resolution of 1280x720 pixels progressive (frame based) and is always displayed at 16x9. Data rate 4 MB/sec.
JPEG 2000	Provides better rate distortion performance than the original JPEG standard with the largest improvements at the very high and very low bit-rates.
Media 100 HD	Native Media 100 HD CODEC
Media 100 NTSC	Media 100 i square pixel 640 x 480 NTSC CODEC
Media 100 NTSC-720	Media 100 i non-square pixel 720 x 486 NTSC CODEC
Media 100 PAL	Media 100 i square pixel 768 x 576 PAL CODEC
Media 100 PAL- 720	Media 100 i non-square pixel 720 x 576 PAL CODEC
Motion JPEG A Motion JPEG B	Allows you to decompress files made with specific Motion-JPEG cards when the card is not available, or to compress in a format that can be played by specific Motion-JPEG cards.
MPEG IMX 525/60 (30 Mb/s)	*MPEG IMX is a form of the MPEG codec which produces higher quality footage than conventional MPEG-2. It provides for 4:2:2 component digital at 30 MB/sec.
MPEG IMX 525/60 (40 Mb/s)	*MPEG IMX is a form of the MPEG codec which produces higher quality footage than conventional MPEG-2. It provides for 4:2:2 component digital at 40 MB/sec.
MPEG IMX 525/60 (50 Mb/s)	*MPEG IMX is a form of the MPEG codec which produces higher quality footage than conventional MPEG-2. It provides for 4:2:2 component digital at up to 50 MB/sec.

Supported CODECs for Export *(Continued)*

Name	Function
MPEG IMX 625/50 (30 Mb/s)	*MPEG IMX is a form of the MPEG codec which produces higher quality footage than conventional MPEG-2. It provides for 4:2:2 component digital at 30 MB/sec.
MPEG IMX 625/50 (40 Mb/s)	**MPEG IMX is a form of the MPEG codec which produces higher quality footage than conventional MPEG-2. It provides for 4:2:2 component digital at 40 MB/sec.
MPEG IMX 625/50 (50 Mb/s)	**MPEG IMX is a form of the MPEG codec which produces higher quality footage than conventional MPEG-2. It provides for 4:2:2 component digital at 50 MB/sec.
MPEG-4 Video	Designed for interactive multimedia across networks.
None	Allows you to capture or store brief video sequences and maintain their quality without compression.
Photo – JPEG	Supports high picture quality for images that lack sharp detail, have few edges, and have smooth transitions.
Planar RGB	Supports photographic graphics with an alpha channel (for use when you have an image that you want to composite with video).
PNG	Supports still images when exporting in the PNG format. Performs minimal compression. Not suitable for video-based movie playback.
Sorenson Video Sorenson Video 3	Provides very high compression ratios and maintains high quality. Useful for Web and CD-ROM. Compresses very slowly.
TGA	Supports still images when exporting in the TGA format. Performs minimal compression. Not suitable for video-based movie playback.
TIFF	Supports still images when exporting in the TIFF format. Performs minimal compression. Not suitable for video-based movie playback.
Uncompressed 10-bit 4:2:2	*Supports uncompressed 10-bit 4:2:2.

Supported CODECs for Export *(Continued)*

Name	Function
Uncompressed 8-bit 4:2:2	*Supports uncompressed 8-bit 4:2:2.
Video	Allows fast decompression of good picture quality video images.

NOTE * These codecs are not available with QuickTime or QuickTime Pro but can be acquired by other means.

18

Mastering to Tape

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▼ Introduction

With Media 100, you can master your completed video program to tape. This chapter tells you how to master an entire program or a selected range from a program

NOTE Prepare your videotape and set up your VTR before mastering your final video program.

▼ Mastering Modes

The system offers three mastering modes: Record, Assemble Edit, and Insert Edit.

Record Mode

Record mode records both video and audio onto your tape while automatically generating new control track and timecode information. Any previously existing control track or timecode is erased. Therefore, you do not need to black-stripe the videotape with this information.

Record mode records directly to the beginning of the tape or to the current tape location; the tape does not preroll to reach optimum speed before recording begins. Because there is no preroll period, the starting point will not be frame accurate. To produce frame-accurate edits on your videotape, use Assemble Edit or Insert Edit mode.

Assemble Edit Mode

Assemble Edit mode records both video and audio to tape, while automatically generating new control track and timecode information. Previously existing control track or timecode is erased.

A 5-second preroll guarantees that the In point is frame accurate in Assemble Edit mode. Prerolling the videotape for approximately 5 seconds before recording lets the VTR reach stable speed before beginning to lay down control track and timecode at the specified location.

Assemble Edit mode requires timecode and control track on the blank videotape for the length of the preroll period (5 seconds). To prepare the videotape for the preroll period, black-stripe the first 30 seconds of the tape.

Insert Edit Mode

Insert Edit mode allows you to record video, audio, or synced video and audio, without erasing the videotape control track. To use Insert Edit mode, black-stripe the entire videotape on which you plan to record with control track and timecode. This procedure ensures a continuous control track without any relation to additional inserted footage.

A 5-second default preroll guarantees that the In and Out point of the Insert Edit is frame accurate. The tape prerolls to reach optimum speed so that recording can begin exactly at the specified location.

TIP If you have analog machine control enabled, master in Insert Edit mode for best results. Although Insert Edit mode requires you to pre-stripe your entire videotape with control track and timecode, it offers a non-linear, non-destructive approach to mastering. Assemble Edit and Record modes are linear and overwrite timecode and control track.

▼ Setting Up for Mastering

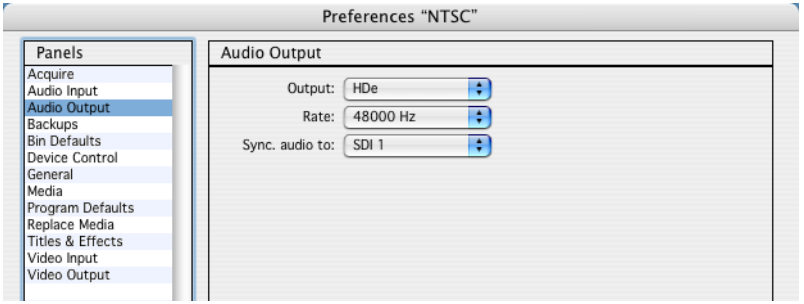
Before mastering, verify the following settings:

- Audio Output panel
- Device Control
- Video Output Panel
- Genlock output signal
- Nominal reference
- Timecode mode (NTSC only)
- Stable genlock reference in

To configure the Audio Output panel

1 Choose Media 100>Preferences>Audio Output.

The Audio Output panel appears.



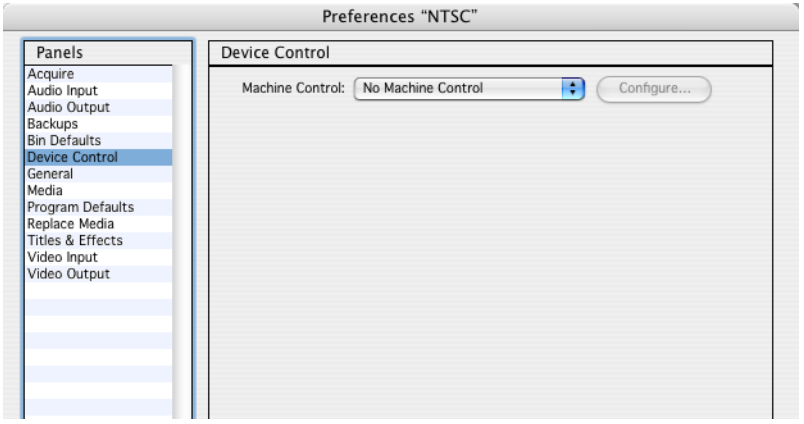
NOTE All audio is output AES/EBU at a sample rate of 48 kHz.

2 Choose to sync audio to the SDI 1, Ref Out or analog video signal output of the junction box.

To configure the Device Control panel

1 Choose Media 100>Preferences>Device Control.

The Device Control panel appears.

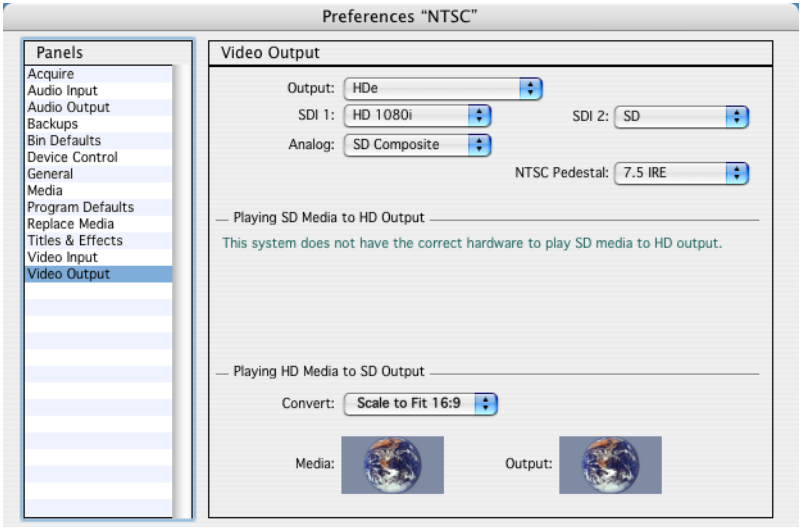


2 Choose a machine control device from the Machine Control menu.

To configure the Video Output panel

1 Choose Media 100>Preferences>Video Output.

The Video Output panel appears.



2 Choose the desired video output for each output signal. The options are

Output	Format
SDI 1	HD 1080i HD 720p SD
SDI 2	not currently active (reserved for future use)
Analog	SD Composite SD Component HD Component HD VGA

Component	SMPTE/EBU N10 Beta RGB RGB-HV
Analog HD Std	HD 1080i HD720p

3 Specify the desired conversion settings for “Playing 4:3 SD Media to HD Output.” The options are

Convert To	Description
4:3 to 14:9	Conversion to BBC recommended standard. Crops the top and bottom, and pillarboxes the result (black on left and right)
16:9 to 14:9	Conversion to BBC recommended standard. Crops the left and right, and letterboxes the result (black on top and bottom)
Crop	Crops the top and bottom.
Pillarbox	Adds black on left and right.
Scale to Fit	Stretches the image to fit the new aspect ratio.

4 Specify the desired conversion settings for “Playing HD Media to SD Output.” The options are

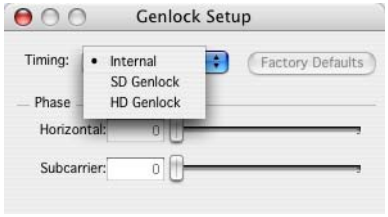
Convert To	Description
4:3 to 14:9	Conversion to BBC recommended standard. Crops the top and bottom, and pillarboxes the result (black on left and right)
16:9 to 14:9	Conversion to BBC recommended standard. Crops the left and right, and letterboxes the result (black on top and bottom)

Crop to 4:3	Crops the left and right.
Letterbox to 4:3	Adds black on top and bottom.
Scale to Fit 16:9	Stretches the image to fit the new aspect ratio.

To use Genlock Setup

1 If you are using a black burst generator, press ⌘-4 or choose Windows>Genlock Setup.

The Genlock Setup window appears.



2 If you are syncing to Standard Definition equipment choose SD Genlock from the Timing menu. If you are syncing to High Definition equipment choose HD Genlock from the Timing menu.

3 Adjust output signals.

To set the nominal reference

➤ Set the nominal reference in the Audio window to match the nominal reference of the equipment to which you are mastering.

To set the timecode mode (NTSC only)

➤ Set the timecode of the program to match the timecode mode (drop frame or non-drop frame) of the destination tape.

a Choose Program>Show in Drop Frame

Or

b Choose Program>Show in Non-Drop Frame

▼ About the Master to Tape Dialog Box

Use the Master to Tape dialog box to select the material to master and make final additions to your videotape, such as black leaders and trailers. This section explains the elements of the Master to Tape dialog box.

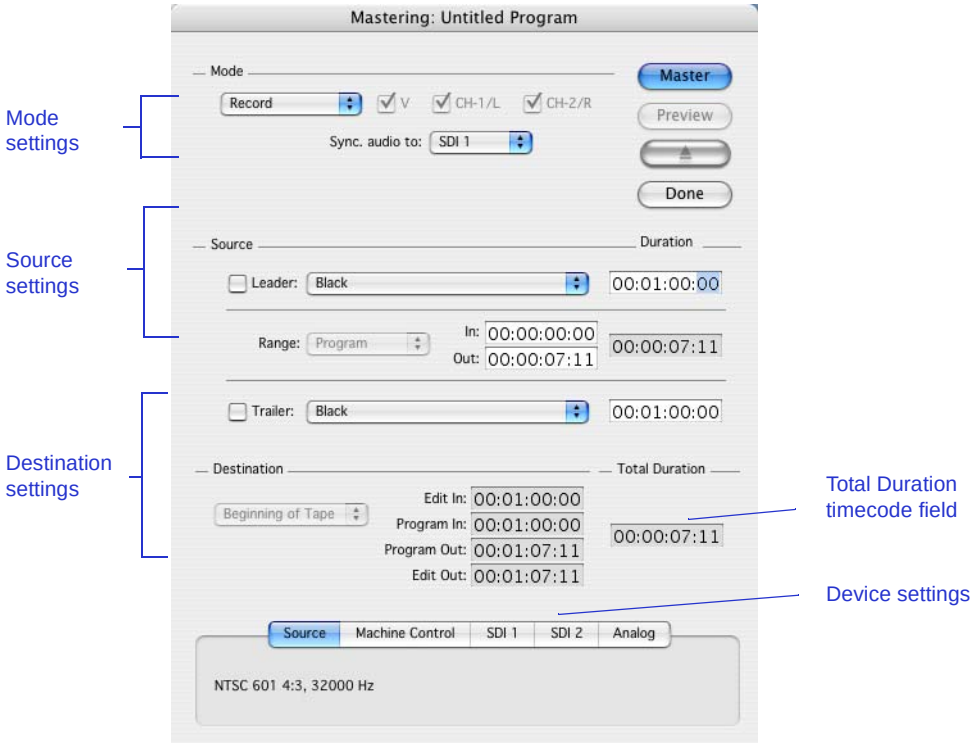
When you select the Master to Tape option, any titles or effects that need rendering are rendered prior to the appearance of the Master to Tape dialog box.

To open the Master to Tape dialog box

1 Activate the Program window to master.

2 Choose File>Master to Tape.

The Master to Tape dialog box appears.



NOTE Media 100 renders any media that needs rendering before opening the dialog box.

The following table describes the Master to Tape dialog box elements.

Master to Tape Dialog Box Elements

Name	Description
Master button	Starts the mastering process.
Preview button	Available in Insert mode only, it plays the VTR to the point of insertion.
Eject Tape button	Ejects the tape from the VTR.
Done button	Closes the dialog box.

Master to Tape Dialog Box Elements *(Continued)*

Name	Description
Mode settings	Select the recording mode. The options are Record, Assemble Edit or Insert Edit. **V** - Select to master video **CH-1/L** - Select to master audio channel 1, Left **CH-2R** - Select to master audio channel 2, Right **Sync. audio to:** Select the video output to sync the audio to - SDI 1, Ref. Out, Analog.
Source settings	Select the portion of the program to master and specify whether to add leaders and trailers.
Destination settings	Select the videotape timecode value where you want to start recording.
Total Duration timecode field	Indicates the length of the material to be mastered.
Device settings	Lists the currently selected device settings. **Source** - Specifies the program video standard, aspect ratio and audio sample rate. **Machine Control** - Specifies the selected machine control. **SDI 1** - Specifies the output from the SDI 1 connector on the junction box. **SDI 2** - not currently active (reserved for future use) **Ref. Out** - Specifies the selection of the Ref. Out connector on the junction box. **Analog** - Specifies the output from the Analog connector on the junction box. **NOTE** Machine Control is modified in the Media 100 Preferences. Media 100>Preferences>Device Control. The SDI 1, Ref. Out and Analog settings are modified in the Media 100 Preferences. Media 100>Preferences>Video Output.

▼ Leaders & Trailers

The default leader and trailer available in the Master to Tape dialog box is black. You can create your own custom leaders and trailers and make them available in the leader and trailer pull-down menus in the Master to Tape dialog box. To do so, create a folder within the Media 100 application folder labeled “Leaders and Trailers.” Within that folder create a subfolder labeled “Programs.” Place your custom leader and trailer programs within this folder. When you launch the Master to Tape dialog box they will be available in the leader and trailer pull-down menus.

Refreshing Leaders & Trailers

When adding or removing leaders and trailers the Master to Tape dialog box will need to be refreshed to display the changes.

To refresh the Master to Tape dialog box

1 Close the Master to Tape dialog box if it’s already open

2 Press OPTION and choose File>Master to Tape to relaunch the Master to Tape dialog box.
The updated Leaders and Trailers will be displayed in their respective lists.

▼ Mastering

Use the Master to Tape dialog box to select the recording mode and the material to master.

To select mode settings

1 Select a recording mode from the Mode menu.

Choose Record, Insert Edit, or Assemble Edit.

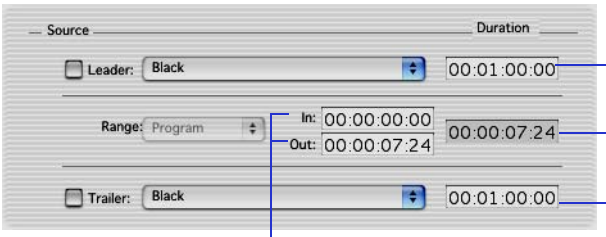


Mode menu

2 If you select Insert Edit in step 1, choose the tracks to record: V, CH-1/L, CH-2/R, or any combination.

To select source settings

1 Click the Leader and/or Trailer check boxes to include a black leader and/or trailer with black striping.



Leader Duration timecode field

Source Duration timecode field

Trailer Duration timecode field

In and Out Source timecode fields

2 Type the length for your leader or trailer in the Leader or Trailer Duration timecode field.

3 Choose the portion of the program to master from the Range menu.

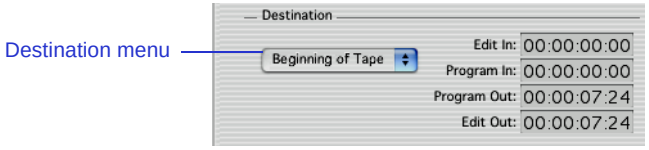
Choose...	To master...
Program	The entire program.
Selection	A range within the program. This option is only available if a range is selected within the program.

The program length appears in the Source Duration timecode field. The total recording length (including any black leader and/or trailer) appears in the Total Duration timecode field at the bottom of the Master to Tape dialog box.

4 To modify the length of the program to be mastered, type new timecode values in the In and Out Source timecode fields.

To select destination settings

➤ From the Destination menu, choose the videotape timecode location where you want to start recording.



Choose...	To record the program...
Beginning of Tape	Starting at the beginning of the destination tape. This option is available in Record mode and Assemble Edit mode. The tape rewinds to the beginning before the system starts recording. In Record mode, there is no VTR preroll at the beginning of the tape, so the starting point of your program will not be frame accurate. The starting timecode (00:00:00:00) appears in the Program In timecode field. The values in the Edit In and Edit Out timecode fields are adjusted according to the length of the material being mastered. If you record a leader before your program, the Edit In timecode field value subtracts the length of the leader from the Program In value in Assemble Edit mode. In Record mode, the system adds the length of the leader to the program value.
Current Position	Starting at the current location of the destination tape. This option is available in all mastering modes. In Record mode, the tape does not preroll; it begins recording at the current tape location. Specify a starting timecode value in the Program In destination timecode field. When using Record mode with analog, you cannot control the starting timecode value. In Assemble Edit and Insert Edit, a 5-second preroll lets the tape reach a stable speed before starting to record. The Program In timecode field displays the current timecode value that it reads from the tape. You cannot edit the field.

Choose...	To record the program...
Timecode	Starting at the specified videotape timecode value. This option is available in Insert Edit or Assemble Edit mode. Type a value in the Program In timecode field to specify the timecode. The values in the Edit In and Edit Out timecode fields are adjusted according to the length of the material being mastered. If you record a leader before your program, the Edit In timecode field value subtracts the length of the leader from the Program In value. Specify a large enough Program In value for the leader time to be subtracted from it.

To preview an insert or assemble edit before performing the edit

1 Press OPTION and click Master.

Hold down the OPTION key until a dialog box asks if you want to preview the edit.

2 Click OK.

Your VTR plays a preview edit.

NOTE If you set the preview In timecode to Current Position, the timecode changes after the preview is completed because the tape plays during preview without rewinding. To perform a preview prior to mastering, set a specific value for the In timecode.

To master the selected material

➤ Click Master.

A progress bar appears as the system masters the program.

NOTE If you select the Show Need to Render during Mastering check box in the Titles & Effects panel (Media 100>Preferences>Titles & Effects), the system warns you if real-time titles or effects need to be rendered. You can have the system alert you after mastering is completed or stop mastering as soon as it encounters a clip that needs rendering.

The VTR stops recording when it reaches the end of the program or selected program range. Click Stop to halt the recording process.

After mastering is completed, Media 100 positions the CTI at the end of the program timeline in the Program window.

Calibrating the VTR

When you calibrate a program to the VTR, you establish a baseline between the audio levels in the program and the VTR. The audio tone becomes a reference level to match the output level of Media 100 to the audio input settings of the VTR. Calibration sets the nominal, or average, levels for both and ensures that the program audio levels are mastered to tape correctly.

NOTE VTR and recording media limitations can affect the range and quality of a recording. For in-depth information about audio engineering, see the appropriate third-party reference material.

▼ About Genlock

When video signals are output to various types of video equipment (multiple tape decks, media computers, switchers, and so forth), it is important that all the pieces of equipment are synchronized to each other. If equipment is not in sync, some sources may have problems displaying stable pictures.

Genlocking is the process of synchronizing video equipment by using the sync signals from one piece of equipment to drive the others and ensure synchronzied timing to all units. A master sync generator provides horizontal sync, vertical sync, and subcarrier reference burst signals that flow to every piece of source equipment in your Media 100 system. This configuration maintains a common signal timing reference throughout the system. Each source (including Media 100) is perfectly synchronzied in terms of horizontal, vertical, and subcarrier phase signals.

The following describes how to use the Genlock Setup window controls to select the reference source signal for video signal timing.

Connecting Equipment

To fully use the Media 100 genlocking capability, connect the following equipment to your system:

- An external timing device that functions as the master sync generator. This device can be a black burst generator, a sync generator, or any device known to be stable in its video timing.

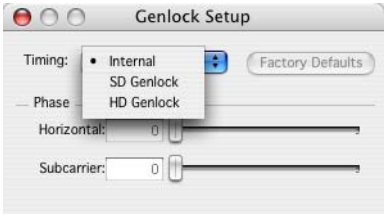
- An external vectorscope and waveform monitor to adjust the horizontal sync and subcarrier burst signals using the Genlock Setup window.

Using the Genlock Setup Window

The Genlock Setup window provides the ability to synchronize the Media 100 output signal with the signals from other video equipment. It also allows you to adjust the Media 100 horizontal sync and subcarrier burst signals to match them to the master sync generator.

To display the Genlock Setup window

➤ Press ⌘-4 or choose Windows>Genlock Setup
The Genlock Setup window appears.



The following table describes the Genlock Setup window elements..

Genlock Setup Window Elements

Name	Description
Timing menu	Specify the timing source for synchronization. By default, it is set to Internal. The options are: **Internal.** The Media 100 internal crystal clock is the video timing source for output signals to your external devices. When selected, the horizontal and subcarrier phase controls are dimmed. **SD Genlock.** The Media 100 system accepts input from an external timing source, such as a black burst generator through the junction box. The external timing source delivers a stable signal. The signal synchronizes the video signal timing of the Media 100 system's SD video output with the output timing of the external devices. **HD Genlock.** The Media 100 system accepts input from an external timing source, such as a black burst generator through the junction box. The external timing source delivers a stable signal. The signal synchronizes the video signal timing of the Media 100 system's HD video output with the output timing of the external devices.
Horizontal text field and slider	Sets the horizontal sync output signal.
Subcarrier text field and slider	Sets the subcarrier burst output signal.
Factory Defaults button	Restores the original factory default settings..

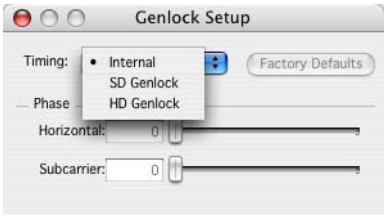
Selecting the Timing to Use

The Genlock Setup timing setting specifies the reference source used for video signal timing when you output video and synchronized audio from the Media 100 system to an external device.

To select a timing option

1 Press ⌘-4 or choose Windows>Genlock Setup
The Genlock Setup window appears.

2 Choose the desired option, Internal or Genlock, from the Timing menu.



Adjusting the Genlock Output Signal

Use the Genlock Setup phase adjustments to correct Media 100 horizontal sync and subcarrier burst output signals. Then synchronize the output signals with the signals provided by the master sync generator. The signals from the master sync generator and the Media 100 system are synchronized when they are positioned on the external vectorscope/waveform monitor with the same phase relationships.

To adjust output signals

1 Select color bars of black from the device to genlock to the output of the Media 100 system.

2 Set the waveform monitor to a two-line display to look at the horizontal sync and external sync signals (as opposed to internal sync).

3 Use the horizontal phase adjustment to align the waveform so that the leading edge of the horizontal sync signal is on a specific mark.

4 Set the vectorscope to external sync and align the subcarrier burst to place the color burst at the 0 degree mark.

5 Select the output from the Media 100 system on the waveform monitor.

6 In the Genlock Setup window, use the Horizontal slider (or type a value in the text field) to adjust the horizontal synch on the waveform monitor.
Set the leading edge of the sync signal at exactly the same location on the monitor as it was for the reference signal in step 3.

7 Select the output fromthe Media 100 system on the vectorscope.

8 In the Genlock Setup window, use the Subcarrier slider (or type a value in the text field) to adjust the subcarrier burst on the vectorscope until the color burst is located at the 0 degree mark.
The Media 100 video output is now synchronzied with the master sync generator.

A

Working with AppleScript

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▼ Introduction

Media 100 supports the AppleScript® scripting environment. AppleScript lets you create sets of written instructions, known as scripts, to automate repetitive tasks and customize your Media 100 software. This allows you to save time and make your workflow more productive.

NOTE Media 100 supports Apple Open Scripting Architecture, of which AppleScript is one language. Other scripting languages may also be used to write scripts, including UserLand Frontier, Perl, Tcl, and Java.

This appendix explains how to run scripts and how to create your own scripts using a script editor and the Media 100 AppleScript dictionary.

Several ready-to-use scripts are included with the Media 100 software. Use these to perform various tasks automatically. You can edit these scripts or write your own scripts to customize your workflow.

About AppleScript

AppleScript is an English-like programming language that you use to create scripts for your computer to perform. These scripts start and operate actions within an application or between multiple applications.

Using a script editor and AppleScript commands, you describe the task, save it as a script file, and run the script. For example, the following script tells Media 100 to activate and play a portion of a program.

```
tell application “Media 100”
    activate -- bring Media 100 to the foreground
    play program “Opening Credits” from start to “00;01;35;00”
end tell
```

Using AppleScript with Media 100

AppleScript allows you to control and automate complex workflows. For example, the following are tasks you can automate with scripts:

- Log and acquire video and audio clips
- Convert source media files using third-party audio, video, or image editing applications before importing to Media 100
- Import audio, video, and still images from a database or a networked volume
- Automate the layout of transitions and clips in programs
- Edit clip attributes and organize bins
- Identify and mark specific media files for archiving or reimporting
- Add clips and transitions to programs
- Change playback options—control the current time, select ranges, change track properties, and play multiple programs
- Render programs during off-peak hours
- Master videos using multiple mastering settings
- Export new media content for the Internet and DVD

If you repetitively perform tasks in any of these areas, use AppleScript to automate them. By combining these tasks with the AppleScript support included with other applications, you can dramatically improve your content creation and delivery workflow.

What You Need to Start

You need to have the following components on your Macintosh:

- AppleScript extension and AppleScriptLib library file in the Extensions folder
- A script editor application
- Scripting Additions folder in the System folder

These items are included with the Mac OS. If you cannot locate them on your hard drive, you can install them from your Mac OS CD by checking only the AppleScript item in the Installer.

To Learn More about AppleScript

This appendix assumes that you are familiar with the AppleScript language and understand basic programming concepts such as loops, conditional programming, if-then-else statements, and variables.

To learn more about AppleScript, choose Help Center>AppleScript Help from the Finder's Help menu or refer to www.apple.com/applescript.

There are also a number of AppleScript books, including the following:

- *AppleScript Language Guide*, by Apple Computer, Inc., published by Apple Developer Connection. This book is a reference for writing AppleScript scripts. An HTML version is available on the Apple Developer Connection website.
- *Danny Goodman's AppleScript Handbook*, Second Edition, published by Random House. This book covers the basics of writing AppleScript scripts, and also includes intermediate and advanced topics.
- *AppleScript for Dummies*, by Tom Trinko, published by IDG Books Worldwide. This book walks you through the process of learning AppleScript and using it to automate tasks on your Macintosh.
- *AppleScript for the Internet: Visual QuickStart Guide*, by Ethan Wilde, published by Peachpit Press. This guide covers AppleScript language basics and addresses scripters who want to automate Internet-related tasks.

▼ Running Scripts

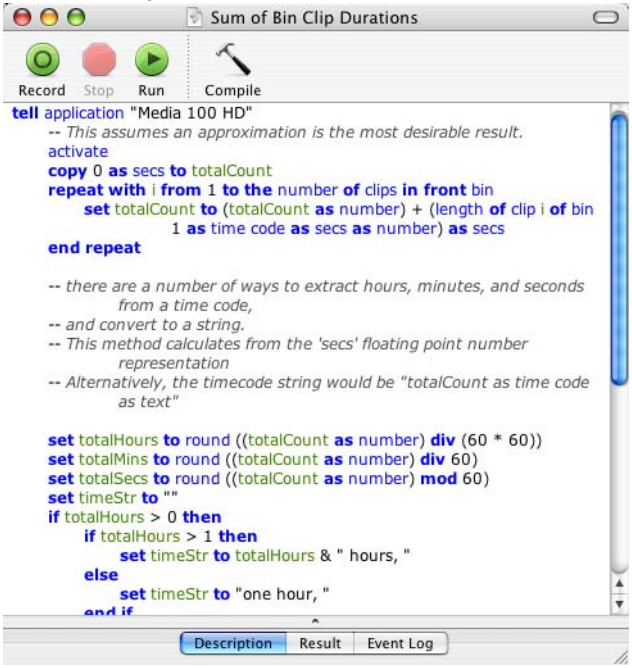
Run any AppleScript script by double-clicking it in the Finder, or by opening it and running it from a script editor. In addition, you can run ready-to-use scripts from the Scripts menu in the Media 100 menu bar. You can customize them as needed.

To run a script from the Scripts menu

➤ Select the item from the Scripts menu.



Media 100 executes the script commands. For example, Make Program from Bin automatically creates a new timeline.



The application can also send results back to the script editor where they are displayed in a result window. For example, the Sum of Bin Clip Durations script displays the duration value in a result window.



Adding Items to the Script Menu

You can add additional scripts to the Media 100 Script menu.

NOTE Scripts in the Script Menu Items folder do not need to be specific to Media 100 and can contain AppleScript terminology from other applications used with Media 100.

To add a new script to the Scripts menu

➤ Place the script file in the Script Menu Items folder in the Media 100 folder.

The script is listed in the Script menu.

To remove a script

➤ Remove the script from the Script Menu Items folder.

▼ Creating Custom Scripts

You can write your own custom scripts or modify existing scripts using the Media 100 dictionary and a script editor application. See "The Media 100 Dictionary" for detailed descriptions of the dictionary commands and objects.

Script Editor, a scripting application from Apple Computer, Inc., is located in the AppleScript folder within the Apple Extras folder on your startup disk. Other third-party AppleScript editors and debugger tools are also available.

Composing Scripts

There are three levels of AppleScript support: scriptability, recordability, and attachability. Media 100 is fully scriptable, recordable, and attachable, that is, you can create your own custom scripts, record them, and add them to the user interface.

You compose scripts using *commands* and *objects*. Commands perform actions on objects. For example, you can write a script to open a bin and count the number of clips it contains. The bin and clips are objects. You perform actions on the bin (opening it) and on the clips in the bin (counting them). *Properties* further define characteristics of objects, for example, the view of a bin.

TIP A convenient way to start writing a script is to record a sequence of actions or copy the syntax of commands you wish to use from other example scripts that already use them.

Once you compose and save your compiled script, you can launch it from the Media 100 Script menu.

Using a Startup Script

You can use a Startup script to automatically perform tasks when Media 100 launches. When Media 100 launches, it looks for the Startup script and runs it before performing any other actions.

NOTE You *must* name the script "Startup" and place it in the Script Menu Items folder.

For example, the following Startup script checks the available disk space and displays a message if there is not enough space to launch Cleaner.

```
on run
    tell application "Finder"
        if largest free block < (46 * 1000 * 1000) then
            tell application "Media 100"
                activate -- make sure this dialog appears inside Media 100, not in the Finder
                display dialog "Cleaner may not be able to launch while Media 100 is running.
                Just FYI." buttons {"OK"} default button "OK"
            end tell
        end if
```

```
    end tell
end run
```

Recording Actions

Recordability is the ability to record actions in a script editing application. A script describing the actions appears in the script editor.

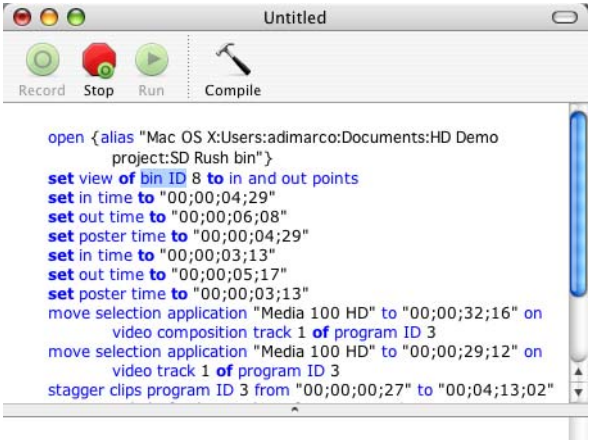
To record actions

1 Launch your script editing application and press Record.

2 Perform the actions you want to script.

3 When finished, return to the script editing application and press Stop.

The recorded script appears.



4 Edit the script to customize it as needed.

5 Press Run to verify that the actions recorded correctly.

The following table lists recordable Media 100 actions.

Recordable Actions

Command or Action	Action Recorded
Apply audio EQ, Dynamics or Reverb in the Audio panel or Bin (List View)	A ’set audio EQ, Dynamics, or Reverb of clip’ command
Change clip attributes (name, In point, Out point, poster, sync frame, comments, keyword, reel name, input setup, quality, colorFX) in the Bin	A ’set’ property command for the clip
Change Preferences Configuration	A ’set configuration’ command
Change track audio wave forms (mute, solo, click reduction, volume enabled, selected, locked, expanded)	A ’set’ property command for the track
Clean Program	A clean program command
Close the last document window (bin, program, project)	A close command
Export from Edit Suite	An export command (for programs only)
Import	An import command
Master to Tape	A master to tape command
Make New graphics, video, or audio clip	A ’make new’ command
Move Clips in the Timeline	A ’move selection’ command
Move CTI	A ’set current time’ command
New Bin	A make new bin command
New Program	A make new program command

Recordable Actions *(Continued)*

Command or Action	Action Recorded
Open	An open command
Press the Apply button in Edit Clip panel	A collection of ’set’ property commands for the clip
Press the Acquire Controls panel Acquire button	An acquire clip command
Press the Acquire Controls panel Log button	A log clip command
Print	A print command
Quit	A quit command
Render All	A render command
Resize or move a window	A 'set bounds of window' command
Revert	A revert command
Save, Save As	A save command
Set a bin sort column	A 'set arrangement of bin' command
Set a bin view	A 'set view of bin' command
Set a range in the timeline	A ’select range’ command
Set Timeline Start	A 'set in time of program' command
Stagger a/b Selected	A stagger clips command
Swap a/b	A swap channels command
Trim a clip in the timeline	A ’set start time’ or ’set out point’ command
Undo/Redo	An undo or redo command

Notes

- Commands such as 'make new' may generate code that you must edit before including in a script. For example, 'make new bin' adds 'with properties' and 'with data' parameters. These parameters are optional; you may remove them or further define them. For example, to specify a name for a bin, complete the parameter as 'with properties {name:"Alaska Bin"}'.
- Commands involving documents (projects, bins, and programs) are recorded using a unique ID that you must edit before including in a script. After recording actions, replace the 'ID###' with the document name in quote. For example, replace 'bin ID 6' with 'Alaska Bin'. Proper capitalization is required when referencing objects by name.
- Most properties of objects are not recordable when you manipulate them via menu commands, keyboard commands, or mouse actions. However, you can use the get and set property commands to manipulate object properties. These commands are utilized in the sample scripts included with the software.

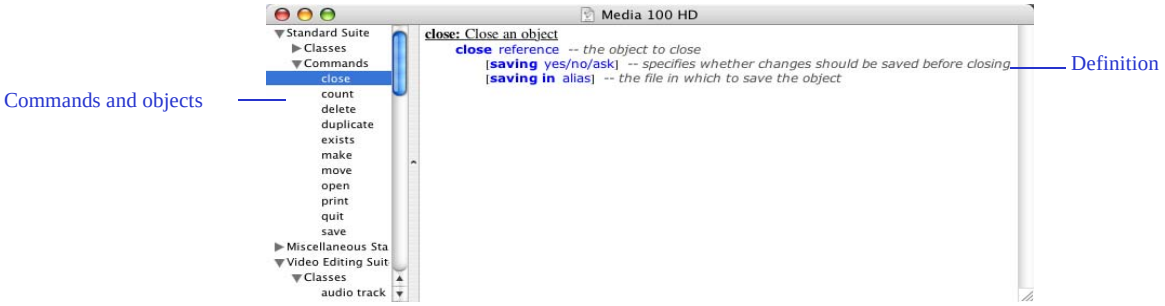
▼ The Media 100 Dictionary

The Media 100 dictionary lists commands and objects. Use it to locate the elements you need to write your script.

To open the Media 100 dictionary

1. Launch Script Editor or your script editing application and choose File>Open Dictionary.
2. In the file dialog, choose the Media 100 application.

The Media 100 Dictionary window opens.



Commands and objects are listed in the left pane. They are grouped in suites containing related topics. Commands are shown in plain text and objects are shown in italics.

The definition for the selected term appears in the right pane.

Dictionary Conventions

This section explains the format of command and object dictionary entries.

Command example

select: select a range in a program

select reference *-- program*

[**from** time code] *-- from a starting time code*
[**from** start/current] *-- or one of these starting time options*
[**to** time code] *-- to an ending time code*

- The underlined entry is the command name, followed by a brief description.
- The next line shows how to write the command (in bold) in a script.
- Any expressions required by the command are listed beneath the command line. Brackets indicate that an expression is optional.
- Dashes precede explanatory comments, which are italicized.

Object example

Class video channel: A Media100® video channel.
Plural form:
video channels
Elements:
clip by numeric index, by name
transition by numeric index, by name
Properties:
name international text [r/o] -- *the video channel name (a, b or fx)*

- The underlined entry is the object name, followed by a brief description.
- The plural form is listed next.
- Elements are items contained within an object. For example, video channels may contain clips.
- Properties describe the content or appearance of the object. For example, name is a property of a video channel.

Dictionary Suites

The Media 100 dictionary is organized into six suites containing related commands and objects. The following tables list the terms included with each suite as they appear in the dictionary window.

Standard Suite

This suite includes items common to all applications that support AppleScript.

Standard Suite Commands and Objects

Command/Object	Description
close	Closes the specified object
count	Counts the number of elements in the specified object
delete	Deletes an element from an object

Standard Suite Commands and Objects *(Continued)*

Command/Object	Description
application	Characteristics of the Media 100 i application
document	A document
duplicate	Duplicates an object
exists	Verifies if an object exists
file	A file
insertion point	An insertion location between two objects
make	Makes a new element
open	Opens the specified object
print	Prints the specified object
quit	Quits an application program
save	Saves an object
window	A window

Miscellaneous Standards Suite

This suite includes commands that are not provided in any other suites.

Miscellaneous Standards Suite Commands and Objects

Command/Object	Description
copy	Copies an object to the clipboard
cut	Cuts an object to the clipboard
paste	Pastes an object from the clipboard
redo	Reverses the immediately preceding undo command
revert	Reverts an object to its last saved state
undo	Undoes the action of the previous event

Video Editing Suite

This suite includes terms specific to Media 100 video editing.

Video Editing Suite Commands and Objects

Command/Object	Description
acquire clip	Acquires media and creates a clip in the active bin
apply transition	Applies a transition to cut points in a range
audio track	A Media 100 audio track
bin	A Media 100 bin document
black clip	A black clip
clean	Trims extra frames from program clips
clip	A Media 100 clip
clip instance	A bin clip that is placed in a program

Video Editing Suite Commands and Objects *(Continued)*

Command/Object	Description
cue	Cues media for program playback or mastering
deselect	Clears the selected range for the program
export	Exports a program or clip
exporter settings	The settings for exporting media
import	Imports any kind of file supported by Media 100
import media	Imports audio or video media files
import still	Imports still image files
log clip	Logs a clip in the bin to be acquired later
master	Masters a program to tape
play	Plays a program
program	A Media 100 program document
project	A Media 100 project document
render	Renders all or part of a program
rewind	Rewinds program from the current time to the beginning
select	Selects a range in a program
stagger clips	Staggers clips between video tracks for a specified range
step backward	Moves the program current time backward
step forward	Moves the program current time forward
stop	Stops playing a program
swap channels	Swaps clips between video tracks at a specified timecode
track	A Media 100 program track
transition	A Media 100 transition

Video Editing Suite Commands and Objects *(Continued)*

Command/Object	Description
video channel	A Media 100 video channel
video track	A Media 100 video track

Program Suite

This suite defines commands that relate to the timeline.

Program Suite Commands

Command/Object	Description
close gap	Closes the gap for a track or all tracks at a specified time
remove frames	Removes frames from a specified range, optionally leaving gaps
remove gaps	Removes all gaps within a specified range
split clips	Splits clips at a specified time in the timeline
sync clips	Synchronizes selected clips in the timeline
unsync clips	Removes synchronization between selected clips in the timeline

EventStream Suite

This suite defines Media 100 streaming media objects.

EventStream Suite Objects

Object	Description
annotation	A program annotation (metadata)
chapter event	An event that navigates to specific sections of a movie

EventStream Suite Objects *(Continued)*

Object	Description
display text event	An event that displays text
event	An EventStream event
go to time event	An event that jumps to a specific timecode in the program
hotspot action	The action performed by clicking on a hotspot
hotspot event	An event that designates an area on the video that triggers an action when the viewer clicks it
hotspot shape	The shape of the hotspot area
keyframe event	An event that designates frames in a movie to be completely synced
open url event	An event that specifies a URL to open in the web browser during the playback of the movie
pause event	An event that pauses a movie
replace movie event	An event that links movies
user mark	A user mark event

Timecode Suite

This suite defines timecode units used in the Media 100 application.

Timecode Suite Objects

Object	Description
frames	Time as a number of movie frames
hrs	Time as a number of hours
mins	Time as a number of minutes
secs	Time as a number of seconds

Timecode Suite Objects *(Continued)*

Object	Description
tc type	The type of timecode: drop frame or non-drop frame
time code	A record of time

Commands

This section describes the Media 100 dictionary commands in alphabetical order.

acquire clip

Description Acquires media and creates a clip in the active bin.

Syntax

acquire clip
named international text -- *the new clip name*
from reel international text -- *the reel name*
from timecode -- *a starting timecode*
to timecode -- *an ending timecode*
[**video** boolean] -- *video channel*
[**right audio** boolean] -- *right audio channel*
[**left audio** boolean] -- *left audio channel*
[**commented** international text] -- *comments for the clip*

Example

```
tell application "Media 100"
    acquire clip named "Bobby" from "01:00:02:20" to "01:00:03:00" from reel "rt"
end tell
```

Comments When entering timecode values, the timecode format must correspond to the video standard selected in the Preferences Video Input panel. Use the correct separator: a SEMICOLON (;) for NTSC drop frame, a COLON (:) for NTSC non-drop frame, and a PERIOD (.) for PAL.

apply transition

Description Applies a transition to every cut point of a range, replacing any existing transitions.

Syntax

apply transition reference -- *program*
[**to** range] -- *to the program range*
[**from** timecode] -- *or from a timecode for range start*
[**to** timecode] -- *and to a timecode for range end*
[**with properties** record] -- *the initial values for the properties of the transition*

Example

```
tell application "Media 100"
    apply transition front program from “00:00:07:00” to “00:00:15:00” with properties¬
    {name:"Dissolve-FastFX", length:1.5 as secs, justification:center, audio crossfade:false}
end tell
```

clean

Description Trim extra frames from applicable clips in a program.

Syntax **clean** reference -- *program*

Example

```
tell application "Media 100"
    clean program “Wildlife”
end tell
```

close

Description Closes the specified object. The close command has two optional parameters: saving and saving in. Close with saving closes the object and saves with the existing name ("yes"), ignores changes ("no"), or asks whether to save the changed object. Close with saving in closes the object and saves it with the supplied "alias".

Syntax

close reference -- *the object to close*
[**saving** yes/no/ask] -- *specifies whether changes should be saved before closing*
[**saving in** alias] -- *the file in which to save the object*

Example

```
tell application "Media 100"
    close program "June Program" saving in file "HD1:My program2"
end tell
```

copy

Description Copies an object to the clipboard.

Syntax **copy**

Example

```
tell application "Media 100"
    -- pick a folder, or create one
    «event sysostfl»
    set targetFolder to the result
    repeat with i from 1 to the number of clips in front bin
        copy (targetFolder as string) & (name of clip i of front bin) to pathName
        export clip i of front bin in file pathName as range to media 100 by reference
    end repeat
end tell
```

count

Description Counts the number of elements within an object.

Syntax

count reference -- *the object whose elements are to be counted*
each type class -- *the class of the elements to be counted*
Result: integer -- *the number of elements*

Example

```
tell application "Media 100"
    count each clip of track "Video" of front program
end tell
```

cue

Description Cues media for program playback or mastering. The cue command moves the CTI to the indicated timecode.

Syntax

cue reference -- *program to cue*
    [**to** timecode] -- *timecode to cue up*

Example

```
tell application "Media 100"
    cue program 1 to "00:00:03:00"
end tell
```

cut

Description Cuts an object to the clipboard.

Syntax

cut

Example

```
tell application "Media 100"
    cut clip “Bears” of front bin
end tell
```

delete

Description Deletes an element from an object.

Syntax

delete reference -- *the element to delete*

Example

```
tell application "Media 100"
    delete clip 1 in Bin "NatureBin"
end tell
```

deselect

Description Clears the selected range for the program.

Syntax **deselect** reference -- *program*

Example
```
tell application "Media 100"
    deselect program “Wildlife”
end tell
```

duplicate

Description Duplicates object(s).

Syntax **duplicate** reference -- *the object(s) to duplicate*
[**to** location reference] -- *the new location for the object(s)*
Result: reference

Example
```
tell application "Media 100"
    duplicate clip “Wildlife” of bin 1
end tell
```

exists

Description Verifies if an object exists.

Syntax **exists** reference --*the object in question*
Result: boolean -- *true if it exists, false if not*

Example
```
tell application "Media 100"
    activate
    if exists program “Wildlife” then
        play from range
    end if
end tell
```

export

Description Exports a program or clip. Parameters default to the last used settings if not specified.

Syntax

export reference -- *program(s) or clip(s)*

in alias -- *the file in which to save the object*

as still/range/source -- *as a still, range (from in to out point), or source (whole clip or program)*

[**to** international text] -- *a QuickTime Exporter component name (for example, "QuickTime Movie", "Image Sequence", etc.)*

[**to** Media 100/Media 100 by reference/aiff/flc/quicktime movie/uLaw/avi/wave/DV stream/image sequence] -- *or, a target Media 100 file type, or an exporter type*

[**video** boolean] -- *whether to export video*

[**audio** boolean] -- *whether to export audio*

[**static graphic clips as overlay** boolean] -- *whether to export static graphic clips as a separate overlay*

[**event stream** boolean] -- *whether to export EventStream events*

[**using settings** record] -- *QuickTime Exporter video and audio settings*

Example

```
tell application "Media 100"
    export program "Sly" in file "VDrive:Exports:Sly.qtname" as source to "QuickTime Movie"¬
    with video and audio without static graphic clips as overlay and event stream
end tell
```

import

Description Imports any kind of file (for example, EDL files or PowerLog files).

Syntax **import** reference -- *files*

Example

```
tell application "Media 100"
    import "Scotia:Projects:Fire Movie"
end tell
```

import media

Description Imports audio, video, or other media files.

Syntax **import media** reference -- *files*

[**with out of range RGB** scaled/unscaled] -- *RGB values scaled (16-235 for 8-bit; 64-940 for 10-bit) or unscaled (0-255 for 8-bit; 0-1023 for 10-bit)*

[**at frame rate** ignored/honoring file] -- *use or ignore the file's video frame rate*

[**sizing to** fit video/original size] -- *size the image to fit to video, or retain the original size*

[**with sample rate** converted/interpreted/honoring file] -- *how to import the audio sampling rate*

[**using** file aspect/aspect4by3/aspect16by9] -- *image aspect ratio*

Example

```
tell application "Media 100"
    import media “Oranges” with sample rate honoring file with out of range RGB unscaled
end tell
```

import still

Description Imports still image files.

Syntax **import still** reference -- *files*

[**with length** timecode] -- *still image duration*

[**as** separate clips/one clip] -- *import multiple still images as one clip*

[**with out of range RGB** scaled/unscaled] -- *RGB values scaled (16-235 for 8-bit; 64-940 for 10-bit) or unscaled (0-255 for 8-bit; 0-1023 for 10-bit))*

[**sizing to** fit video/original size] -- *size the image to fit to video, or retain the original size*

[**cropping** boolean] -- *crop the still image*

[**using** file aspect/aspect4by3/aspect16by9] -- *image aspect ratio*

Example

```
tell application "Media 100"
    import still “Block Island” as one clip using aspect4by3
end tell
```

log clip

Description Logs a clip in the active bin to acquire later.

Syntax

log clip

named international text -- *the new clip name*

from reel international text -- *the reel name*

from timecode -- *a starting timecode*

to timecode -- *an ending timecode*

[**video** boolean] -- *video channel*

[**right audio** boolean] -- *right audio channel*

[**left audio** boolean] -- *left audio channel*

[**commented** international text] -- *comments for the clip*

Example

```
tell application "Media 100"
    log clip named "Misty" from reel "Bob Reel" from "00:00:00:00" to "00:00:02:00"¬
    commented "Cool Clip" with video without right audio and left audio
end tell
```

make

Description Makes a new element.

Syntax

make

new type class -- *the class of the new element*

at location reference -- *the location at which to insert the element*

[**with data** anything] -- *the initial data for the element*

[**with properties** record] -- *the initial values for the properties of the element*

Result: reference -- *to the new object(s)*

Example

```
tell application "Media 100"
    tell front program
        make new graphics clip at end with properties ¬
            {original clip: 2, start time: 12 as secs, fade in time: 22 as frames}
    end tell
end tell
```

master

Description Masters a program to tape.

Syntax

master reference -- *program*
from source/range -- *master from the beginning, or the current selected range*
using mode record/insert edit/assemble edit -- *mastering mode*
[**video** boolean] -- *video channel*
[**right audio** boolean] -- *right audio channel*
[**left audio** boolean] -- *left audio channel*
[**using leader** international text] -- *leader*
[**leader duration** time code] -- *leader duration time code*
[**using trailer** international text] -- *trailer*
[**trailer duration** time code] -- *trailer duration time code*
at tape destination beginning/current -- *destination type, or a time code*

Example

```
tell application "Media 100"
    master program "My Program" mode record
end tell
```

move

Description Moves object(s) to a new location.

Syntax

move reference – *the object to move*
to location reference – *the new location for the object(s)*

Example

```
tell application "Media 100"
    move window "Main Project" to front
end tell
```

open

Description Opens the specified object(s).

Syntax **open** reference -- *list of objects to open*

Example

```
tell application "Media 100"
    open bin “Africa” of project 1
end tell
```

paste

Description Pastes an object from the clipboard.

Syntax **paste**

Example

```
tell application "Media 100"
    paste clip 1
end tell
```

play

Description Plays a program.

Syntax **play** reference -- *program*
[**from** range] -- *from the program’s range*
[**from** timecode] -- *or from a starting timecode*
[**from** start/current] -- *or one of these starting time options*
[**to** timecode] -- *to an ending timecode (if not playing the range)*

Example

```
tell application "Media 100"
    play program “My Program” from current to “00:00:12:00”
end tell
```

print

Description Prints the specified object(s).

Syntax **print** reference -- *list of objects to print*

Example

```
tell application "Media 100"
    print bin “Durham”
end tell
```

quit

Description Quits an application program.

Syntax **quit**

Example

```
tell application "Media 100"
    quit
end tell
```

redo

Description Reverses the action of the immediately preceding undo command.

Syntax **redo**

Example

```
tell application "Media 100"
    delete clip 1
    undo
    redo
end tell
```

render

Description Renders all or part of a program. Parameters default to the last used settings if not specified.

Syntax

render reference -- *program to render*
[**from** range] -- *from the program range*
[**from** timecode] -- *or from a starting timecode*
[**from** start/current] -- *or one of these starting time options*
[**to** timecode] -- *to an ending timecode (if not rendering the range)*
[**audio** boolean] -- *rendering audio clips*
[**video** boolean] -- *rendering video clips*
[**effects** boolean] -- *rendering effects*
[**titles** boolean] -- *rendering titles*
[**forcing** boolean] -- *force rendering real-time effects*

Example

```
tell application "Media 100"
    render program “Big Program” from range with video, audio, effects, titles and forcing
end tell
```

revert

Description Reverts an object to its last saved state.

Syntax **revert** reference -- *list of object(s) to revert*

Example

```
tell application "Media 100"
    revert program “My Guy”
end tell
```

rewind

Description Rewinds the program current time to the beginning.

Syntax **rewind** reference -- *program to rewind*

Example

```
tell application "Media 100"
    rewind front program
end tell
```

save

Description Saves an object.

Syntax

save reference -- *the object to save*
[**in** alias] -- *the file in which to save the object*
[**as** type class] -- *the file type of the document in which to save the data*
[**copying** boolean] -- *save a copy of the document without effecting the original*

Example

```
tell application "Media 100"
    save program “Spider” in “Scotia:June”
end tell
```

select

Description Selects a clip or a range in a program.

Syntax

select reference -- program, clip
[**from** timecode] -- *from a starting timecode*
[**from** start/current] -- *or one of these starting time options*
[**to** timecode] -- *to an ending timecode*
[**to** end/current] – *or one of these ending time options*
[**with clips in range** boolean] – *all clips in a set range*

Example 1

```
tell application "Media 100"
    select clip 1 of track "V" of front program
end tell
```

Example 2

```
tell application "Media 100"
    select front program from 9 as secs to 12 as secs with clips in range
end tell
```

stagger clips

Description Staggers clips between video tracks **a** and **b** for a specified time range.

Syntax

stagger clips *reference -- program*
[**from** range] -- *from the program's range*
[**from** timecode] -- *or from a starting timecode*
[**from** start/current] -- *or one of these starting time options*
[**to** timecode] -- *to an ending timecode (if not staggering the range)*

Example

```
tell application "Media 100"
    stagger clips of front program from start to "00:01:04:00"
end tell
```

step backward

Description Moves the program current time backward.

Syntax

step backward reference -- *program to step*
[**by** timecode] -- *length as a timecode*

Example

```
tell application "Media 100"
    step backward program “Wildlife” by "00:00:03:00"
end tell
```

step forward

Description Moves the program current time forward.

Syntax

step forward reference -- *program to step*
[**by** timecode] -- *length as a timecode*

Example

```
tell application "Media 100"
    step forward program 1 by "00:00:06:00"
end tell
```

stop

Description Stops playing the program.

Syntax **stop** reference -- *program to stop playing*

Example
```
tell application "Media 100"
    stop front program
end tell
```

swap channels

Description Swaps clips between video tracks a and b at a specified timecode.

Syntax **swap channels** reference -- *program*
[**at** timecode] -- *the timecode to perform the swapping*

Example
```
tell application "Media 100"
    swap channels of front program at "00:00:04:14"
end tell
```

undo

Description Undoes the action of the previous event or user interaction.

Syntax **undo**

Example
```
tell application "Media 100"
    delete clip “bronco” of bin 1
    undo
end tell
```

Comments Some actions are not undoable. For example, you cannot undo saving files, deleting files, closing programs, and other permanent changes to data.

Objects

This section describes the Media 100 dictionary objects in alphabetical order.

annotation

Description Program annotation (metadata) that is attached to a program, such as title, author, or copyright.

Properties **name** international text -- *the metadata label*

full text international text -- *the metadata content*

Example

```
tell application "Media 100"
    set a_count to the number of annotations of front program
    repeat with i from 1 to a_count
        set a_name to name of annotation i of front program
        set a_value to full text of annotation i of front program

        display dialog "By index " & a_name & ": " & a_value
    end repeat
end tell
```

application

Description Defines the characteristics of the Media 100 application and tracks all opened documents regardless of type. The application object can enumerate bins and programs, but only if they are open.

The Media 100 application contains windows, and documents associated with those windows. Media 100 recognizes several kinds of documents, including projects, bins, and programs, which contain clips, transitions, tracks, and so on.

Elements **document** by numeric index, by name

window by numeric index, by name

Properties

clipboard a list of anything -- *the clipboard*

frontmost boolean [r/o] -- *Is this the frontmost application?*

name international text [r/o] -- *the name*

selection 'csel' [r/o] -- *the selection visible to the user*

version version [r/o] -- *the version number of the application*

configuration international text -- *the preferences configuration name*

standard international text [r/o] -- *the Video Input source standard and media standard*

audio frequency integer -- *The Audio Input preferences audio sample rate. Values can be 11025, 22050, 32000, 44100, or 48000.*

scan audio boolean -- *audio scanning when scrubbing the timeline*

Example

```
tell application "Media 100 i"
    log version
    log configuration
    log audio frequency -- the requested information is reported in the Event Log window
end tell
```

audio track

Description

A Media 100 audio track.

Properties

<Inheritance> track [r/o] -- *an audio track is a kind of track*

name international text -- *the audio track label*

shows waveform boolean -- *whether this track shows waveforms*

volume real -- *audio volume, a floating point number in decibels (-100..+9.5)*

muting boolean -- *whether this track is mute*

soloing boolean -- *whether this track is solo*

Example

```
tell application "Media 100"
    copy volume of clip clipNum of audio track 1 of front program to clipVolume
end tell
```

bin

Description

A Media 100 bin document.The bin document contains clips and has various display properties. Clips may be counted and referenced by name or index.

Elements **clip** by numeric index, by name

Properties **<Inheritance>** document [r/o] -- *the bin is a kind of document*

view large poster/medium poster/small poster/in and out points/list -- *how to view the clips in the bin*

fade in time frames – *time where the clip fades in*

fade out time frames – *time where the clip fades out*

arrangement arrange by name/arrange by in time/arrange by out time/arrange by length/ arrange by source in time/arrange by source out time/arrange by source length/arrange by comments/arrange by reel name/arrange by keyword/arrange by color/arrange by audio frequency/arrange by input setup/arrange by track/arrange by quality/arrange by standard/ arrange by colorfx/arrange by motionfx/arrange by audio EQ/arrange by audio channel/ arrange by acquired date/arrange by media file name/arrange by rendered file name/arrange by media file size/arrange by rendered file size/arrange by selection order -- *how to arrange or sort the clips in the bin*

Example 1

```
tell application "Media 100"
    set view of bin “Japan Material” to list
end tell
```

Example 2

```
tell application "Media 100"
    set fade in time of clip 2 of the front bin to 15 as frames
end tell
```

black clip

Description A black clip.

Properties **start time** timecode -- *timecode where the clip starts in the timeline*

length timecode -- *the length (duration) timecode*

Example

```
tell application "Media 100"
    get length of black clip “placeholder”
end tell
```

chapter event

Description An EventStream event that navigates to specific sections of a movie.

Properties **<Inheritance>** event [r/o] -- *a chapter is a kind of event*

Example

```
tell application "Media 100"
    make new chapter event at end of program 1 with properties¬
    {start time:"00:00:03:00",name:"Chapter 1"}
end tell
```

Comments Chapter events let users navigate to specific sections of the movie by clicking the up and down arrows on the player window. A user can also search for a specific chapter name.

clip

Description A Media 100 clip. Clips are created from the acquire, log, and import commands, and can be referenced by name or index from a bin.

Elements **file** by numeric index, by name

user mark by numeric index, by name

Properties **name** international text -- *the clip name*

in time timecode -- *the start (in) timecode*

out time timecode -- *the end (out) timecode*

length timecode -- *the length (duration) timecode*

source in time timecode -- *the source media in timecode*

source out time timecode -- *the source media out timecode*

source length timecode -- *the source media length (duration) timecode*

poster time timecode -- *the poster timecode*

comments international text -- *the clip comments*

reel name international text -- *the source reel name*

keyword international text -- *the keyword*

color green/blue/red/orange/yellow/magenta/teal/gray -- *the color*

audio frequency integer [r/o]-- *The audio sample rate. Values can be 11025, 22050, 32000, 44100, or 48000.*

input setup international text -- *the input setup preset (if any)*

Properties *(cont.)*

source track international text -- *the tracks currently assigned to the media*

quality international text -- *the quality (KB rate and online/draft)*

standard international text -- *the media standard*

colorfx international text -- *the ColorFX preset (if any)*

motionfx international text -- *the MotionFX setting (if any)*

audio EQ international text -- *the audio EQ preset (if any)*

audio channels international text -- *the audio channel assignments*

volume list -- *audio volume settings, a list of decibel (-100..+9.5)/timecode pairs*

pan list -- *audio pan settings, a list of pan (-127..127)/timecode pairs*

Example

```
tell application "Media 100"
    acquire name “Takayama” from reel name “Japan” at “00;00;05;00” until “00;02;31;17”¬
    with video, right audio and left audio
end tell
```

clip instance

Description

A bin clip that is placed in a program.

Two objects, the transition and clip instance, can be used to lay out clips from a bin and create transitions between them.

Elements

clip by numeric index, by name

Properties

source bin reference [r/o] -- *source bin*

original clip international text -- *source clip name (or index)*

start time timecode -- *timecode where the clip starts in the timeline*

ripple boolean -- *whether to ripple adjacent clips to fit*

split clips boolean -- *whether to split clips where necessary to fit*

Example

```
tell application "Media 100"
    make new clip instance at end with properties {original clip:"BB.mov.M1QV¬
    (200%)-15KB", start time:"00;00;31;00"}
end tell
```

display text event

Description An EventStream event that displays text.

Properties **<Inheritance>** event [r/o] -- *display text is a kind of event*
full text international text -- *the text to display*

Example
```
tell application "Media 100"
    make new display text event at end of program 1 with properties¬
    {start time:"00:00:03:00", name"text 1",full text:"example text"}
end tell
```

Comments You can use a Text event for closed captions or subtitles and to add search capability to a portion of a movie.

document

Description A document object.

Elements **file** by numeric index, by name

Properties **modified** boolean [r/o] -- *Has the document been modified since the last save?*
name international text -- *the name*
selection selection-object -- *the selection visible to the user*

Example
```
tell application "Media 100"
    get name of document 1
end tell
```

event

Description An EventStream event.

Properties **kind** in point/out point/sync mark/poster/mark/chapter/keyframe/display text/open url/hotspot/go to/replace movie/pause movie/play movie-- *the kind of event*

start time time code -- *the start timecode*

length time code -- *the length (duration) timecode*

name international text -- *the label*

Example

```
tell application "Media 100"
    get the kind of event 1 of front program
end tell
```

exporter settings

Description The settings used for exporting media.

Properties **video compressor** 844/X Uncompressed/animation/BMP/Cinepak/component/DV NTSC/DV PAL/graphics/H261/H263/Intel indeo/Intel raw/JPEG 2000/motion JPEG A/motion JPEG B/none/photo JPEG/planar RGB/PNG/Sorenson video/TGA/TIFF/video -- *the video compressor (CODEC), by name or type*

quality integer -- *the compression quality, a value between 0..1024*

quality low/medium/high/best -- *or one of these compression qualities*

fps floating point -- *the frames per second (e.g., 24, 25, 29.97, 30)*

keyframe integer -- *if specified, key frame every number of these seconds*

data rate integer -- *if specified, this limits the data rate (K/second)*

audio compressor float32/int32/float64/aLaw/IMA/mace3/mace6/QUALCOMM PureVoice/uLaw -- *the audio compressor (CODEC), by name or type*

audio frequency integer -- *if specified, the audio frequency (valid values depend on the exporter)*

audio sample size integer -- *if specified, the audio sample size (8 or 16 bits)*

stereo boolean -- *if specified, the stereo (two track) or mono (single track) audio setting*

Example

```
tell application "Media 100"
    export front program in file "Padawan:Exports:m2997fps.mov" as source ¬
    to quicktime movie using settings {fps:29.97}
end tell
```

file

Description A file.

Properties **stationery** boolean [r/o] -- *Is the file a stationery file?*
name international text [r/o] -- *the name*

Example
```
tell application "Media 100"
    get name of file 1
end tell
```

frames

Description Time as a number of movie frames.

Example
```
tell application "Media 100"
    set length of clip 1 of bin 1 to 15 as frames
end tell
```

go to time event

Description An event that jumps to a specific timecode in the movie.

Properties **<Inheritance>** user mark [r/o] -- *go to is a kind of event*
destination time timecode -- *the time to go to*

Example
```
tell application "Media 100"
    make new go to event at end of program 1 with properties¬
    {start time:"00:00:03:00", destination:"00:00:04:00"}
end tell
```

graphics track

Description A Media 100 i graphics track.

Elements **clip** by numeric index, by name

Properties **<Inheritance>** track [r/o] -- *a graphics track is a kind of track*
length seconds – *length (duration) of element*
fade in time frames – *position where element fades in*
fade out time frames – *position where element fades out*

Example 1
```
tell application "Media 100 i"
    copy clip clipNum of graphics track to front bin
end tell
```

Example 2
```
tell application "Media 100 i"
    set length of clip 1 of track "G" of front program to 3 as secs
end tell
```

Example 3
```
tell application "Media 100 i"
    set fade in time of clip 1 of track "G" of front program to 15 as frames
end tell
```

hotspot action

Description The action performed by clicking on a hotspot.

Properties **action** replace movie/pause movie/play movie/go to/open url -- *hotspot action type*
url international text -- *[URL, Replace Movie action] URL address*
target international text -- *[URL action] URL target frame*
destination time timecode -- *[Go to action] time to go to*

Example
```
tell application "Media 100"
    get the url of hotspot action 1 of event 1 of front program
end tell
```

hotspot event

Description An EventStream event that designates the area on the video that triggers an action.

Elements **hotspot shape** by numeric index
hotspot action by numeric index

Properties **<Inheritance>** event [r/o] -- *a hotspot is a kind of event*

Example
```
tell application "Media 100"
    make new hotspot event at end of front program
end tell
```

hotspot shape

Description The shape of the hotspot area.

Properties **shape** rectangle/oval/polygon -- *shape*
point data list -- *[Polygon shape] list of shape points*
bounds bounding rectangle -- *[Rect, Oval shape] shape bounds*

Example
```
tell application "Media 100"
    get the bounds of hotspot shape 1 of event 1 of front program
end tell
```

hrs

Description Time as a number of hours.

Example
```
tell application "Media 100"
    play from 1 as hrs to 2 as hrs
end tell
```

insertion point

Description An insertion location between two objects.

Example

```
tell application "Media 100"
    set insertion point to end of front program
end tell
```

keyframe event

Description An EventStream event that designates frames in a movie to be completely synced.

Properties **<Inheritance>** event [r/o] -- *a keyframe is a kind of event*

Example

```
tell application "Media 100"
    make new keyframe event at end of front program
end tell
```

mins

Description Time as a number of minutes.

Example

```
tell application "Media 100"
    set length of clip to 3 as mins
end tell
```

open url event

Description An EventStream event that specifies a URL to open in the web browser during movie playback.

Properties

<Inheritance> event [r/o] -- *open url is a kind of event*

url international text -- *URL address*

target international text -- *URL target frame*

Example

```
tell application "Media 100"
    if the kind of event 1 of front program is open url then
        get the url of event 1 of front program
    end if
end tell
```

pause event

Description An EventStream event that pauses a movie.

Properties

<Inheritance> event [r/o] -- *pause is a kind of event*

Example

```
tell application "Media 100"
    activate
    tell front program
        make new pause event at end
    end tell
end tell
```

program

Description A Media 100 program document. The program document contains tracks, clip instances and transitions. Programs respond to play, render, apply transition, master, and export commands.

Elements

track by numeric index, by name

user mark by numeric index, by name

annotation by numeric index, by name

Properties

<Inheritance> document [r/o] -- *the program is a kind of document*

looping boolean -- *keep playing the program in a loop*

done boolean [r/o] -- *whether the program is done playing*

playing boolean -- *whether the program is playing; can be set to start or stop the program*

current time timecode -- *the current time indicator (CTI) timecode*

selected range a list of timecode -- *The selected range, as {start, end}. This is a two element list containing an in and out timecode.*

scale fit to program/fit to selection/zoom in/zoom out/normal -- *timeline tick scale*

in time timecode -- *the start (in) timecode for the program*

out time timecode [r/o] -- *the end (out) timecode for the program*

length timecode [r/o] -- *the length (duration) timecode for the program*

audio frequency integer [r/o] -- *The audio sample rate for the program. Values can be 11025, 22050, 32000, 44100, or 48,000.*

standard international text [r/o] -- *the media standard for the program*

Examples

```
tell application "Media 100"
    set looping of program "Japan Trip" to true
    set current time of program "Japan Trip" to "00;00;05;00"
    set scale of program "Japan Trip" to fit to program
end tell
```

project

Description

A Media 100 project document. The project document contains bins and programs.

Elements

program by numeric index, by name

bin by numeric index, by name

Properties **<Inheritance>** document [r/o] -- *the project is a kind of document*

Examples

```
tell application "Media 100"
    close project
end tell
```

Comments Use **make new bin** and **make new program** to create new bins and programs with initial properties, and add them to the project. Use the core suite **open** command to add a program or bin from a file or alias reference.

The application tracks all opened documents regardless of type. It lists bins and programs, but only if they are open. However, the project document lists both opened and closed bins and programs.

replace movie event

Description An EventStream event that specifies a URL for a new movie.

Properties **<Inheritance>** user mark [r/o] -- *replace movie event is a kind of event*

url international text -- *URL address of movie*

Example

```
tell application "Media 100"
    if the kind of event 1 of front program is replace movie then
        get the url of event 1 of front program
    end if
end tell
```

Comments Use the Replace Movie event to concatenate movies together. You can use this to keep the movie file sizes to a certain limit, to simulate the local insert of a station break or advertisement, or with hotspots to give the viewer multiple options.

secs

Description Time as a number of seconds.

Example

```
tell application “Media 100”
    play from 1 as secs to 5 as secs
end tell
```

tc type

Description The timecode type: PAL, NTSC drop frame, NTSC non-drop frame.

time code

Description A record of time.

Example

```
tell application “Media 100”
    set in time of clip 1 of front bin to (source in time of clip 1 of front bin as time code)
end tell
```

track

Description A Media 100 program track.

Elements **clip** by numeric index, by name

Properties

name international text [r/o] -- *the track name*
expanded boolean -- *whether this track is expanded to show more detail*
enabled boolean -- *whether this track is enabled for playing*
selected boolean -- *whether this track is selected*
locked boolean -- *whether this track is locked from editing*
visible boolean -- *whether this track is visible (displayed)*
hidden boolean -- *(opposite of visible) whether this track is hidden from view*

Example

```
tell application “Media 100”
    tell front program to set expanded of track "V" to true
end tell
```

transition

Description A Media 100 transition.

Properties **name** international text [r/o] -- *the transition name*

start time timecode -- *the start timecode*

length timecode -- *the length (duration) timecode*

justification left/right/center/timecode -- *transition justification*

audio crossfade boolean -- *should a crossfade be applied to audio?*

Example

```
tell application “Media 100”
    make new transition at end with properties {name:"Roll Away", start time:"00;00;31;00",¬
    length:"00;00;02;00"}
end tell
```

user mark

Description A user mark event.

Properties **<inheritance>** event [r/o] -- *a marker is a kind of event*

Example

```
tell application "Media 100"
    make new user mark at end of program 1
end tell
```

video channel

Description A Media 100 video channel.

Elements **clip** by numeric index, by name

transition by numeric index, by name

Properties **name** international text [r/o] -- *the video channel name (a, b or fx)*

Example

```
tell application “Media 100”
    get the number of transitions in video channel "fx" of video track 1 of front program
end tell
```

video track

Description A Media 100 video track.

Elements **video channe**l by numeric index, by name
clip by numeric index, by name
transition by numeric index, by name

Properties **<Inheritance>** track [r/o] -- *a video track is a kind of track*

Example
```
tell application “Media 100”
    get the number of clips in video track 1 of front program
end tell
```

window

Description A window.

Elements **document** by numeric index, by name

Properties **bounds** bounding rectangle -- *the boundary rectangle for the window*
closeable boolean [r/o] -- *Does the window have a close box?*
titled boolean [r/o] -- *Does the window have a title bar?*
index integer -- *the number of the window*
modal boolean [r/o] -- *Is the window modal?*
resizable boolean [r/o] -- *Is the window resizable?*
zoomable boolean [r/o] -- *Is the window zoomable?*
zoomed boolean -- *Is the window zoomed?*
name international text -- *the title of the window*
selection selection-object [r/o] -- *the selection visible to the user*

Example
```
tell application “Media 100”
    get name of front window
end tell
```

▼ Example Scripts

This section provides some example scripts that show a variety of Media 100 uses. Also see the More Scripts folder within the Media 100 folder.

NOTE All examples are created with the Script Editor application and follow its default conventions. Comments are designated with a double hyphen and are italicized. The line break symbol ¬ designates a continuation.

Reset Clip Lengths

This script resets clip lengths to their original source media clip length.

```
tell application "Media 100"
    activate
    repeat with i from 1 to the number of clips in the front bin
        set in time of clip i of front bin to (source in time of clip i of front bin as time code)

        -- if the source length is not an arbitrarily large one
        --(12 hours is impossible, for example), reset it
        if source length of clip i of front bin as time code as frames as number¬
        < "12:00:00:00" as time code as frames as number then
            get source length of clip i of front bin
            set length of clip i of front bin to the result
        else
            set length of clip i of front bin to 1 as secs
        end if
    end repeat
end tell
```

Remove Unavailable Clips

This script removes clips that have no associated media from the front bin.

```
tell application "Media 100"
    if the (count of bins) is 0 then
        display dialog "Cannot run this script. There are no bins open." buttons {"Stop"}¬
        default button "Stop"
    else
        display dialog "This script will remove all clips in the frontmost bin that have no¬
        associated media online." buttons {"Cancel", "Continue"} default button "Continue"

        set clip_count to the number of clips in front bin
        repeat with i from clip_count to 1 by -1
            if exists file 1 of clip i of front bin then
                -- file exists, don't delete the clip
            else
                delete clip i of front bin
            end if
        end repeat
    end if
end tell
```

Produce a Web Video

This example illustrates how to search for media with keywords in a Canto Cumulus database, import the media into a Media 100 bin, lay out a timeline using all the clips, apply transitions between the clips, export to Cleaner, and produce a video for the web.

```
property bin_name : "Working Clips"
property transition_duration : 2
-- -----------------------------------------------------------------------------
tell application "Cumulus S5.0"
    activate
    if not (exists front collection) then return "no database"
    find all records of the front collection
    display dialog "Enter the search string:" default answer ""
    set this_string to the text returned of the result
```

```
    set the match_count to (find every record of front collection matching "Notes" & tab &¬
    "contains" & tab & this_string)
    if the match_count is 0 then
        beep
        display dialog "No matches were found for the search string “" & this_string & "”."¬
        buttons {"Cancel"} default button 1
    end if
    set these_clips to the asset of every record of the front collection

    -- Convert asset file paths to aliases

    repeat with i from 1 to the number of items in these_clips
        set item i of these_clips to item i of these_clips as alias
    end repeat

    repeat
        display dialog "Enter the name for the new movie:" default answer ""
        set the program_name to the text returned of the result
        if the program_name is not "" then exit repeat
    end repeat
end tell
-- ------------------------------------------------------------------------------
tell application "Media 100"
    activate
    close (every bin) saving no
    close (every program) saving no

    -- create a bin and import the clips

    set bounds of window "Edit Suite" to {326, 60, 746, 290}

    set this_bin to make at beginning new bin with data {} with properties {name:bin_name}
    set bounds of window bin_name to {35, 58, 295, 258}

    import these_clips

    -- create a program for the clips

    set this_program to make new program at beginning with properties¬
    {name:program_name}
```

```
set bounds of window program_name to {9, 339, 817, 556}
tell program program_name to set expanded of track "V" to true
-- overlay and stagger the clips

repeat with i from 1 to the count of clips of bin bin_name
    set the clip_name to the name of clip i of bin bin_name
    if i is 1 then
        set the start_time to 0 as secs
    else
        set the program_length to the current time of program program_name
        set the start_time to ((program_length as time code as secs as number)¬
        - transition_duration) as secs
    end if

    -- make sure the standards match
    set clip_standard to (the standard of clip i of bin bin_name) & (audio frequency of¬
    clip i of bin bin_name)
    set program_standard to (the standard of program program_name) & (audio¬
    frequency of program program_name)
    if clip_standard = program_standard then
        tell program program_name
            make new clip instance at end with properties {original clip:clip_name, start¬
            time:start_time}
        end tell
    else
        display dialog "clip " & clip_name & " standard " & clip_standard & " is not¬
        compatible with hardware standard " & program_standard & "."
    end if

end repeat

-- add transitions between all of the clips and render

apply transition program program_name with properties {name:"Band Slide",¬
length:transition_duration as secs}
with timeout of 1800 seconds
    render program program_name with forcing, video, audio and effects
end timeout
set the movie_file to (path to desktop as text) & program_name
```

```
    -- now export

    with timeout of 1800 seconds
        export program program_name in file movie_file as source to media 100 by reference
    end timeout

    close (every bin) saving no
    close (every program) saving no
end tell
-- ------------------------------------------------------------------------------
tell application "Media Cleaner Pro 5.0"
    activate
    Clear
    Add alias movie_file
    SelectAll
    Setting "QT4-WWW movie (small)"
    set the finished_file to (path to desktop as text) & program_name & ".mov"

    Start encoding Destination file finished_file with Cleanup
end tell
```

▼ AppleScript Error Messages

An AppleScript error is an error that occurs when AppleScript encounters problems handling an event, object, or data type when processing script statements. The following table lists some error messages you may receive.

Common Error Messages

Error Code	Error Message
errAECoercionFail (–1700)	Can't make some data into the expected type.
errAENoSuchObject (–1728)	Can't get <object reference>.
errAENotASingleObject (–10014)	Handler only handles single objects.
errAENotAnElement (–10008)	The specified object is a property, not an element.
errAENotModifiable (–10003)	Can't set <property> to <value>. Access not allowed.
errAEWriteDenied (–10006)	Can't set <property> to <value>.
errAECantHandleClass (–10010)	Handler can't handle objects of this type.
errAEIllegalIndex (–1719)	Can't get <object-reference>. Invalid index.
errAEImpossibleRange (–1720)	Invalid range.
errAEWrongDataType (–1703)	<value> is the wrong data type.
errAETypeError (–10001)	<value> is the wrong type.
errAEBadKeyForm (–10002)	Invalid key form.
errAECantSupplyType (–10009)	Can't supply the requested type for the data.

NOTE The AppleScript Language Guide at developer.apple.com contains a comprehensive list of error codes and error messages.

B

Creating Streaming Media

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▼ Introduction

Media 100 lets you create interactive events and assign metadata to your programs before exporting them to Discreet Cleaner for streaming media on the Internet. With EventStream™, you can add navigation, ancillary text events, and embed hotspots with layers of interactivity while you edit your program. When you stream your program, the information stays with it.

This functionality allows you to author events while you create and edit your program. This eliminates the need to author events for each streaming format, maintains a single source for data, and therefore centralizes and simplifies the streaming media creation workflow.

When you export the program to Discreet Cleaner with the Export EventStream check box checked, an EventStream file (.ties) is created, containing the streaming data. You can export to Cleaner by reference or by exporting from Media 100 on one system and importing the program into Cleaner on another system. If you are using two different systems, make sure to transport both the program and EventStream files, and do not rename files.

This chapter explains how to assign metadata and add events to your streaming media. It describes how to

- Assign metadata to programs for annotation
- Work with EventStream at the program or clip level
- Designate static graphics as an overlay for playback

▼ Working with Metadata

You can use metadata to attach important information to a program without having it appear in the actual video. Metadata is annotation information that is attached to a program, such as title, author, or copyright. Specify metadata in the Program Info dialog box. When you export the program to Cleaner and encode it into one of the streaming formats, you can access the information when the movie file is loaded in the player. You can also access metadata in an archived project as part of its history.

NOTE QuickTime® supports all default information types in the Program Info dialog box. RealSystem® and Windows Media™ display Author, Copyright, Information, and Title metadata.

To access the Program Info dialog box

1 Select a program by doing one of the following:

- Click a program in the Project window.
- Click an open Program window.

2 Choose File>Get Program Info.

Or

Click the Program Info button in the Program window.

The Program Info dialog box appears.



NOTE In QuickTime, Title metadata maps to “Full Name.”

3 Type information into the designated fields.

4 To create a new information type, do the following:

a Click New.

The Create New Info Type dialog box appears.



b Type a name in the field and click Create.

The new information type appears in the Type column.

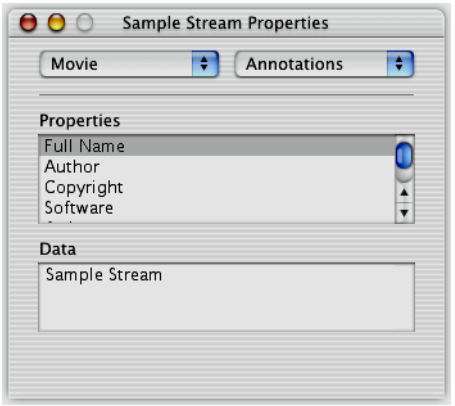


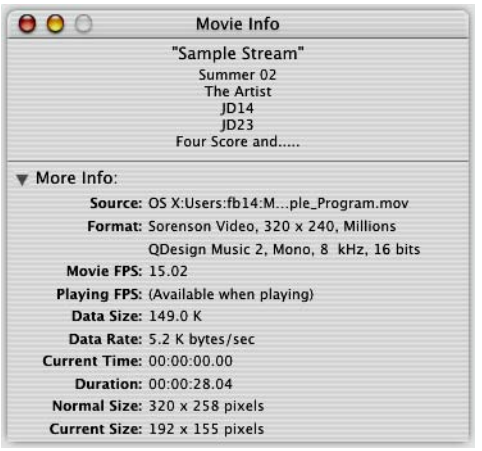
NOTE You can delete information types that you create, but you cannot delete default types.

5 Click OK.

NOTE To edit select metadata in Cleaner after exporting the program, choose Windows>Project, click the Settings Modifiers & Metadata Edit button, and click the Metadata tab.

When you export to Cleaner with the Export EventStream check box selected and encode the movie, you can access this annotation when the movie is loaded in the player. For example, press ⌘-I to access metadata on a QuickTime movie.





▼ Working with EventStream

EventStream technology allows you to assign events to specific frames of a program or clip and to embed interactivity into your movie as you create, edit, and add effects to it. Each program and clip has an EventStream window. Assign events to programs or clips. Assigning clip-based events ensures that the event stays with the designated frame and does not shift if you trim, add, or delete clips in the timeline.

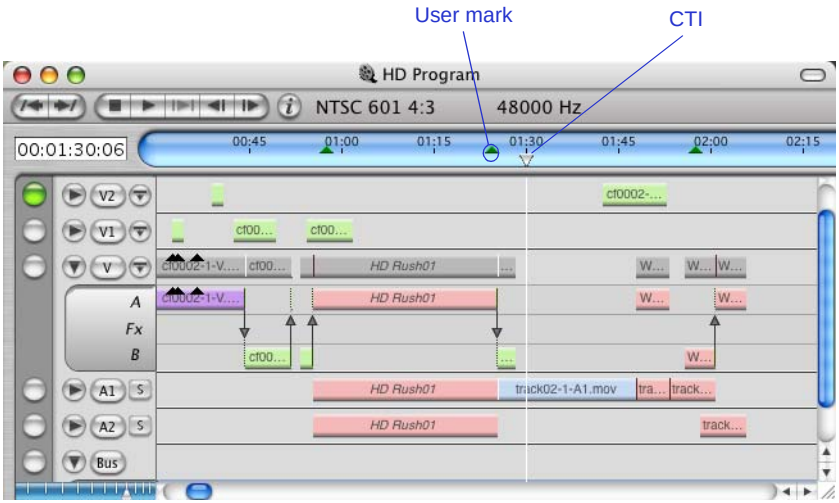
NOTE Once you export to Cleaner, you can edit the events again, if necessary. In Cleaner, with the Project window open, choose Windows>EventStream or click Edit in the Project window EventStream panel.

To open the EventStream window for a program

1 In the program, move the CTI to the frame where the event is to occur.

2 Press F6.

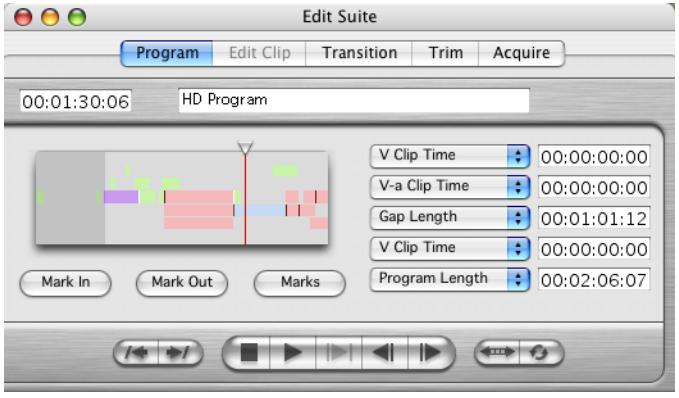
A green User mark appears in the Operations bar.



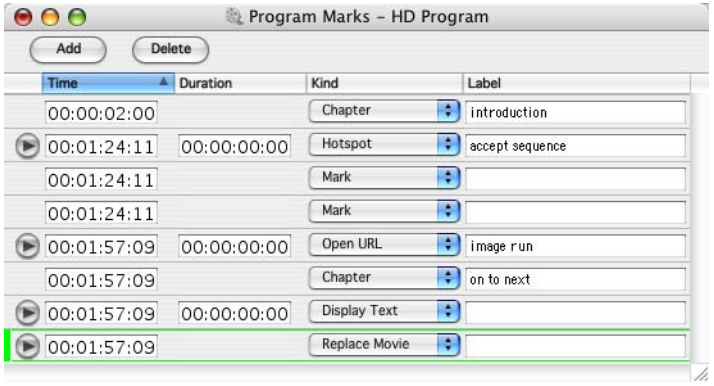
3 Double-click the User mark.

Or

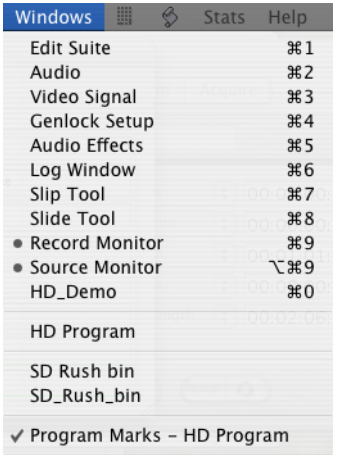
➤ In the Edit Suite in Program mode, click the Marks button.



The Program EventStream window opens.



Once the EventStream window is open, you can access it through the Windows menu.



TIP ⌘-click an expansion button to expand all or close all additional event parameters.

Add User marks directly in the program or in the EventStream window.

- When you add a User mark in the program, you specify the event properties in the EventStream window.

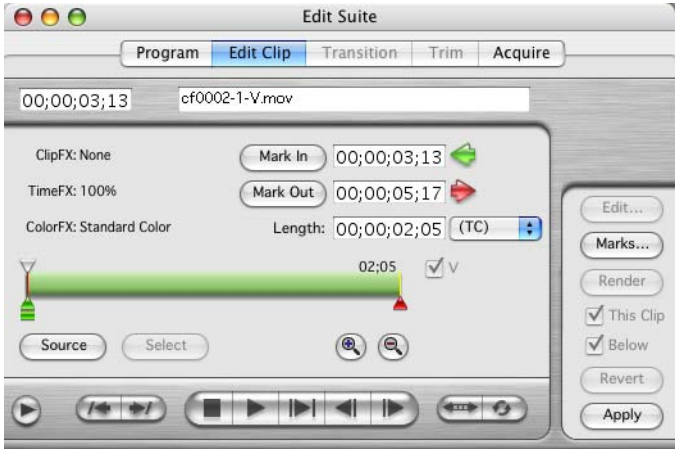
- When you add an event in the EventStream window, you specify its timecode and properties, and a corresponding User mark appears in the program.

NOTE Add multiple events at the same timecode directly in the EventStream window.

If it is crucial that the event is associated with a particular clip, you may want to assign the event to the clip.

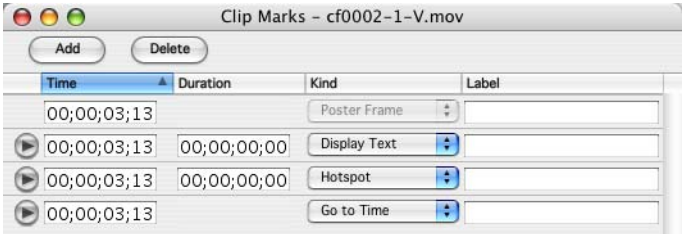
To open the EventStream window for a clip

1 Double-click a clip in a bin or program to open the Edit Suite in Edit Clip mode.



2 Click the Events button.

The Clip EventStream window appears.



EventStream window elements for programs and clips are identical, except that the events either apply to a program or a specific clip.

The following table explains the EventStream window elements.

EventStream Window Elements

Name	Description
Add button	Inserts a mark at the same frame as the selected event, or if none is selected, at the first event.
Delete button	Deletes a selected User mark and associated event.
Time column	Indicates the clip or program timecode at which the event occurs.
Duration column	Indicates the length of the event, if applicable.
Event column	Indicates the type of event. Depending on the event selected, additional controls may appear.
Label column	Provides a location for user notes or for a Chapter mark name. The label helps you distinguish one event from another.

TIP Click a column name to sort by that criteria.

Most events require additional information. The next section explains the different types of events, and how to specify the corresponding properties.

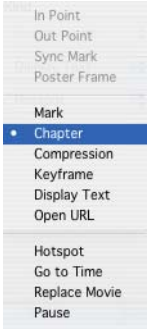
Specifying Event Properties

Choose the event type and properties in the EventStream window. This section explains the different types of events and how to specify the required information.

To choose an event type

➤ In the EventStream window, click the Event menu.

The event type you choose determines the properties you specify.



The following table briefly defines each mark and event type. See the corresponding sections for information about specifying the event properties.

Event Definitions

Name	Description
In Point	Indicates a program In point with no associated action
Out Point	Indicates a program Out point with no associated action
Sync Mark	Indicates a clip Sync mark with no associated action
Poster Frame	Indicates the frame shown before playback of the encoded movie starts
Mark	Indicates a User mark with no associated action
Chapter	Indicates a chapter name for temporal navigation
Keyframe	Indicates a frame that is required to be fully synced and accurate

Event Definitions *(Continued)*

Name	Description
Display Text	Contains text up to 1000 characters for captions and searching
Open URL	Instructs a Web browser to open a URL
Hotspot	Specifies a shape on the video and up to ten associated actions
Go To Time	Jumps to a different time in the movie
Replace Movie	Specifies a URL for a new movie to start at the specified time
Pause	Pauses the movie

The following table shows which streaming formats support which events at the time of printing.

EventStream Compatibility

Events	QuickTime	RealSystem	Windows Media
Poster Frame	x		
Chapter	x		x[a]
Keyframes	x	x	x
Text	x	x	x
Open URL	x	x	x
Hotspot	x	x	
Go To Time	x		
Replace Movie	x		
Pause	x		

a. Windows Media refers to Chapter events as “file markers.”

NOTE Encoding a movie that contains an unsupported event does not generate an error; unsupported events are ignored.

In Point

By itself, an In point (F1) in a program does not have an associated action. If a program has an In point and an Out point, a program range is created that you can export.

NOTE When exporting a range, events that go to a timecode not included in the range jump to the end of the exported range.

Out Point

By itself, an Out point (F2) in a program does not have an associated action. If a program has an In point and an Out point, a program range is created that you can export.

NOTE When exporting a range, events that go to a timecode not included in the range jump to the end of the exported range.

Sync Mark

The Sync mark indicates the frame of a clip that you plan to synchronize with the CTI or another User mark in the timeline. The clip Sync mark has no associated actions.

Poster Frame

You can choose one frame in your program that represents the movie, for example, a frame that you might use as a still advertisement or poster. There can be only one web poster in a program. The web poster appears in the player before playback of the encoded movie begins. If you do not specify a web poster, the first frame of your movie appears in the player before playback by default.

A web poster lets you embed a still image in a web page that is then replaced by the movie once the viewer clicks it. This helps the web page load faster, particularly if there are multiple movies on a page, and lets the user start the movie manually.

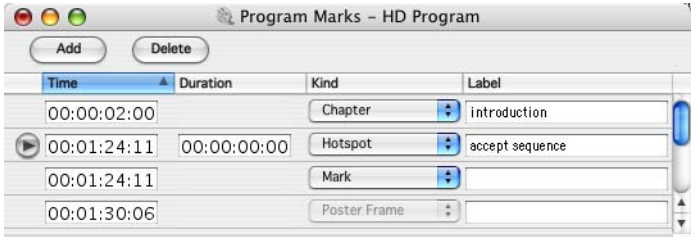
Although you can specify a web poster at the clip level, there is no event associated with it, unless you export the clip itself.

To set a Poster Frame event

1 Move the CTI to the frame you plan to use.

2 Choose Tools>User Marks>Set Poster Frame.

The square Poster mark appears in the Operations bar of the program, and the event appears in the EventStream window.



NOTE You cannot add a Poster Frame event directly in the EventStream window.

To move the Web Poster to a different location

➤ Do one of the following:

- Move the CTI to a new location and reset the Poster.
- Drag the Poster mark to a new location in the Operations bar.
- Type a new timecode in the Time column of the EventStream window.

Mark

Mark is the default Event menu item and specifies no action. You can designate an associated event or use the mark as an editing User mark.

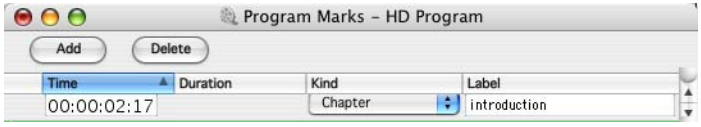
Chapter

Chapter events let users navigate to specific sections of the movie by clicking the up and down arrows on the player window. A user can also search for a specific chapter name. For example, if you have a long movie, a user can access specific sections of the movie immediately.

To insert a Chapter event

1 In the EventStream window, choose Event>Chapter.

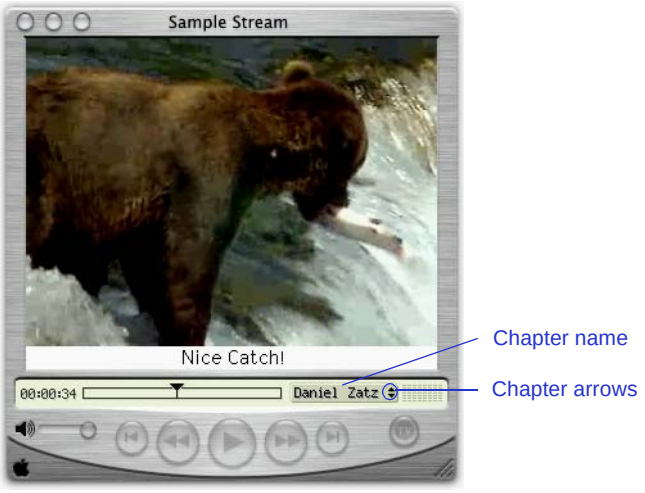
2 Specify the chapter name in the Label field.



The chapter name appears in the Record Monitor window as you play the program. Click the chapter arrows to jump to different chapters.



When you export to Cleaner with the Export EventStream check box enabled, the chapters appear in the final output. For example, in the QuickTime player, the user can click the chapter arrows to jump to different sections of the movie.



Keyframe

You can designate any number of frames in your movie to be completely synced and accurate in your final output. Designating a greater number of keyframes makes your movie more frame-accurate, but creates larger files, and is less likely to play at low data rates. Cleaner automatically assigns keyframes when encoding; the keyframes you designate are in addition to automatic keyframes. In determining the number of keyframes to use, consider the connection speed of the output format, program complexity, and required file size. For example, keyframes are useful at the beginning of a scene change to ensure a clean transition.

To set a Keyframe event

1 In the EventStream window choose Event>Keyframe.

The frame is designated as a keyframe.



Display Text

You can use a Display Text event for subtitles or to add search capability to a movie.

TIP When creating Display Text events that are to be closely synchronized with the movie, play the clip or program and add User marks on-the-fly to indicate when the text will appear and when it will disappear, as in a scene or dialog change.

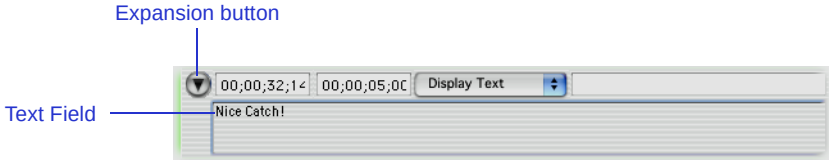
To add a Display Text event

1 In the EventStream window choose Event>Display Text.

An expansion button appears, indicating that there are additional parameters.

2 Click the expansion button to access the Text event parameters.

The additional parameters associated with the Text event appear.



3 Type the text (up to 1000 characters) in the Text field.

NOTE Windows Media supports only one line of text in the player window.

4 Specify the duration of the event in the Duration timecode field. If you do not specify a duration, the event will have no length and will not appear at all.

When you export to Cleaner with the Export EventStream check box enabled, and encode it to one of the streaming formats, the text appears in the movie.



TIP In QuickTime Pro, choose Edit>Enable Track and choose Text to view the text. Choose Movie>Get Info and choose Text Track to change the size, location, and background of the text. Press ⌘-F to search text.

Open URL

You can specify a URL or an HTML document to open in a new page or in a specific frame of the current page during the playback of the movie. For example, you can synchronize a set of slides to a video presentation by playing a movie in one frame of the web page with the changing text in another frame in the surrounding area.

There are two types of URL links available: absolute and relative.

- Use an absolute URL to load another website. An absolute URL is written as a full address, such as “http://www.media100.com”. You do not need to specify a target frame for this type of URL.

  For example, if used in conjunction with a hotspot, you can embed a “buy me” link. The user clicks an article of clothing shown in the video, and the website where the user can purchase the clothing launches.

With this type of link, you may want to assign a hotspot Pause event in addition to the Open URL event so that the movie does not continue to play as the user buys the item.

- Use a relative URL to trigger an HTML document to load into a frame on the web page. A relative URL is written as a partial address in relation to the current page, such as "../foldername/filename.html". Specify a target frame where you want the HTML document to appear on the page.

  For example, you can have the video play in a particular frame of the page, and trigger for the surrounding text in another frame to change, either when the user clicks a hotspot or automatically at a particular time in the movie that you specify while editing.

To add an Open URL event

1 In the EventStream window choose Event>Open URL.

An expansion button appears, indicating that there are additional parameters.

2 Click the expansion button to access the Open URL event parameters.

The additional parameters associated with the event appear.



3 Specify the URL to open.

4 If using a relative URL, specify the target frame in the Target field or menu. Type a custom target exactly as the frame is named on the web page or choose one of the standard target values from the menu:

Choose...	To open the URL document...
_blank	In a new window.
_parent	In the immediate parent frame (the next highest frame set in the hierarchy) of the document that contains the link.

Choose...	To open the URL document...
_self	In the same window or frame as the link.
_top	To fill the current window.

If you do not specify a target, the video will trigger a new window to open. For more information about using targets and URLs, refer to an HTML authoring or website creation application, such as Macromedia® Dreamweaver®, Adobe® GoLive™, or Microsoft® Front Page®.

NOTE RealSystem and Windows Media do not recognize targets in Open URL events.

5 Click the URL globe icon to the left of the field to open a browser and verify the location.

Hotspot

Use a Hotspot event to designate an area on the video that triggers an action when the viewer clicks it. You can have one hotspot per Hotspot event. However, you can have multiple actions assigned to each Hotspot event, and can have multiple Hotspot events per frame.

NOTE To assign hotspots to titles, render the titles first so they appear in the Edit Hotspot dialog box.

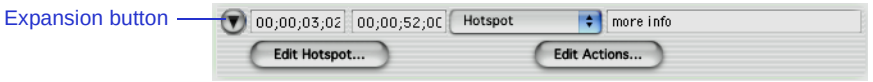
To add a Hotspot event

1 In the EventStream window choose Event>Hotspot.

An expansion button appears, indicating that there are additional parameters.

2 Click the expansion button to access the Hotspot event parameters.

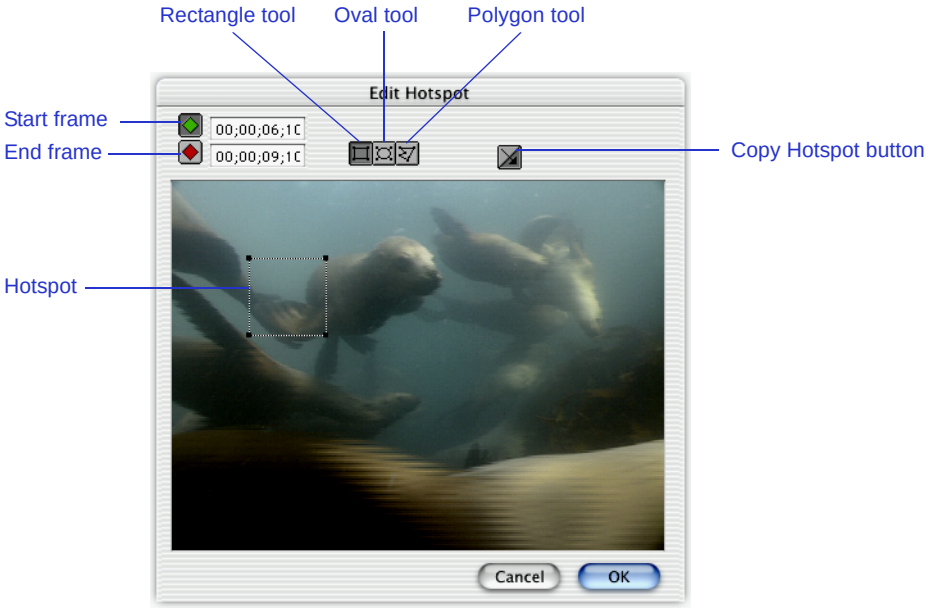
The additional parameters associated with the event appear.



3 Specify a duration in the Duration timecode field. An event with no duration does not occur.

4 Click Edit Hotspot to designate the hotspot location on the video.

The Edit Hotspot dialog box appears.



The following table describes the Edit Hotspot dialog box elements.

Edit Hotspot Dialog Box Elements

Name	Description
Start frame button	Displays the hotspot start frame.
Start frame timecode field	Indicates the timecode of the start frame. Editing the timecode field starts the event at a different time, but does not affect the end frame timecode. The duration field in the EventStream window reflects the new length.
End frame button	Displays the hotspot end frame.

Edit Hotspot Dialog Box Elements *(Continued)*

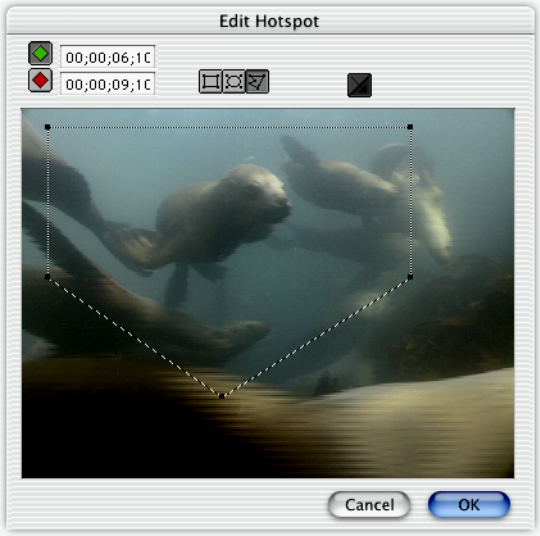
Name	Description
End frame timecode field	Indicates the timecode of the end frame, calculated by the Timecode and Duration fields in the EventStream window. Editing the timecode field ends the event at a different time, but does not affect the start frame timecode. The duration field in the EventStream window reflects the new length.
Rectangle tool	Creates a rectangular hotspot.
Oval tool	Creates an oval hotspot.
Polygon tool	Creates a polygonal hotspot. You can add an unlimited number of sides.
Copy Hotspot button	Copies and pastes the hotspot shape from the other frame (start or end) to the currently displayed frame.
Hotspot	Indicates the area on the video that triggers the action(s), specified in the Hotspot Actions dialog box, when the viewer clicks it in the final output.

To edit a hotspot

1 Choose the Rectangle, Oval, or Polygon tool, depending on the object shape.

2 Drag the corners of the hotspot to resize/reshape it; OPTION-drag a corner to move the hotspot.

3 When using the Polygon tool, ⌘-click to add more sides to the hotspot.



4 To verify that the hotspot is located in an appropriate place on the video, do the following:

   a Click the End Frame button.

   b Click the Copy Hotspot button.

   c If you need to modify the shape to incorporate the element(s) to hotspot, make sure you copy it back to the Start Frame; when you export, Cleaner takes the shape from the Start Frame only.

5 Click OK to return to the EventStream window.

Once you create and edit the hotspot shape, assign associated actions.

To assign a hotspot action

1 In the EventStream window click Edit Actions.

The Edit Actions dialog box appears.

2 Click Add to assign an action.

The Event menu appears, with None selected.



3 Choose a hotspot action from the menu and add the required information.

The actions in the Edit Actions dialog box function the same as the events in the EventStream window, but occur only when a user clicks the hotspot. The exception is Play, which only exists for hotspots. Use the Play action to resume play of a paused movie. For example, if one hotspot action has triggered the movie to pause, another can trigger it to play and/or to go to another timecode.

NOTE If you select actions that contradict one another, for example pause and play, the action that appears first in the Edit Actions dialog box takes precedence.

In the final output, when the viewer clicks the hotspot, the actions specified in the Edit Actions dialog box determine the outcome.

The following table shows which streaming formats support which hotspot actions. Windows Media does not support hotspots at the time of this printing.

Hotspot Action Compatibility

Event	QuickTime	RealSystem
Pause	x	
Play	x	
Go To Time	x	x

Hotspot Action Compatibility

Event	QuickTime	RealSystem
Open URL	x	x
Replace Movie	x	x

Go To Time

Use the Go To Time event to jump to a specific timecode in the program. For example, when used with multiple hotspots, you can give the viewer options on what to view next. You can also use a Go To Time event to loop the movie.

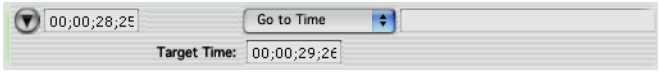
To add a Go To Time event

1 In the EventStream window choose Event>Go To Time.

An expansion button appears, indicating that there are additional parameters.

2 Click the expansion button to access the Go To Time event parameters.

The additional parameters associated with the event appear.



3 Edit the Target Time field to activate the event.

TIP Set a Keyframe event at the Target Time frame to ensure that the image is high quality when it appears.

Replace Movie

Use the Replace Movie event to concatenate movies together. You can use this to keep the movie file sizes to a certain limit, to simulate the local insert of a station break or advertisement, or with hotspots to give the viewer multiple options.

To add a Replace Movie event

1 In the EventStream window choose Event>Replace Movie.

An expansion button appears, indicating that there are additional parameters.

2 Click the expansion button to access the replace movie event parameters.

The additional parameters associated with the event appear.



3 Type or paste the appropriate URL into the Movie URL field.

4 Click the URL icon to the left of the field to verify the location.

Pause

Use the Pause event to temporarily pause the movie. The movie pauses until the user clicks a hotspot that triggers another action or clicks Play in the player. The Pause event is best used in conjunction with hotspots. For example, you can create hotspots that act as self-contained movie controls.

To add a Pause event

1 In the EventStream window choose Event>Pause.



The movie pauses at that location.

C

Storage and Data Rate Chart

Storage and Data Rate Chart. C-2

▼ Storage and Data Rate Chart

The following chart provides the gigabytes per hour of storage needed depending upon the data rates and compressor type of the acquired media. Alpha content and draft quality are also included.

Storage and Data Rate Chart

	NTSC 720 X 486	NTSC 1920 x 1080	PAL 720 x 576	PAL 1920 x1080
8-bit Media 100 HD Compressor	76 GB/ hour	447 GB/ hour	75 GB/ hour	373 GB/ hour
10-bit Media 100 HD Compressor	101 GB/ hour	597 GB/ hour	100 GB/ hour	498 GB/ hour
8-bit with alpha Media 100 HD Compressor	113 GB/ hour	671 GB/ hour	112 GB/ hour	560 GB/ hour
10-bit with alpha Media 100 HD Compressor	138 GB/ hour	820 GB/ hour	137 GB/ hour	684 GB/ hour
8-bit draft quality Media 100 HD Compressor	38 GB/ hour	224 GB/ hour	37 GB/ hour	187 GB/ hour
10-bit draft quality Media 100 HD Compressor	50 GB/ hour	298 GB/ hour	50 GB/ hour	249 GB/ hour

Storage and Data Rate Chart *(Continued)*

	NTSC 720 X 486	NTSC 1920 x 1080	PAL 720 x 576	PAL 1920 x1080
8-bit with alpha draft quality Media 100 HD Compressor	57 GB/ hour	336 GB/ hour	56 GB/ hour	280 GB/ hour
10-bit with alpha draft quality Media 100 HD Compressor	69 GB/ hour	410 GB/ hour	68 GB/ hour	342 GB/ hour
8-bit 844/X Compressor	76 GB/ hour	N/A	75 GB/ hour	N/A
10-bit 844/X Compressor	95 GB/ hour	N/A	94 GB/ hour	N/A
Media 100 i P6000/MJPEG (@10-300 KB/ frame)	1-32 GB/ hour	N/A	1-27 GB/ hour	N/A

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