**Autodesk®**

Lustre® 2009 Extension 1

A Discreet® systems product

# New Features Guide

Autodesk®

## Trademarks



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# Contents

# What's New

# 1

**Topics in this chapter:**



## About This Release

This release of Lustre introduces many new and updated creative tools, as well as workflow improvements. See the themes below for a quick overview, and then follow the links for more detailed information.

# Compressed Media Support

Lustre now supports the following compressed file formats:

- QuickTime®
- Material exchange format (MXF)
- RED digital camera (R3D™)

These compressed media files can be imported into Lustre using the Wiretap Gateway. Ffor Wiretap Gateway installation information, refer to the **Lustre 2009 Extension 1 Release Notes**. All three file formats can be worked on natively, but you may want to transcode the RED media file to improve playback.

Transcoding RED media allows you to set the initial colour correction, high-level, and output options before transcoding the file into a DPX or to the StoneFS. Once you have established your transcoding settings, you have the choice of saving these settings as a template for future use. For more information about compressed media, transcoding RED media, and the transcoding template, see Compressed Media Support on page 7.

# EDL Enhancements

There are new enhancements to the file browser and the EDL. The following is a list of the improvements:

- If the timeline is empty, a cut is automatically created when you assemble an EDL. This cut has the same name as the EDL.
- EDL reel names containing long tape names (more than eight characters) are now supported through the source table. Some editorial applications support reel/tape names longer than eight characters. A source table is produced that lists the short reel/tape name and its corresponding long tape name. If this information is part of the EDL, it is used when an EDL is assembled.

**NOTE** Lustre only shows the short (eight characters) name, but when you export a cut as EDL or render a grade, it uses the original long name.

- A CMX3600 EDL coming from a third party application such as Avid® and Apple® Final Cut Pro®, is now supported with a source table. This allows Lustre to match the short eight character EDL name to the long reel name.
- Lustre supports the Avid EDL with a 16-character reel name. The Avid EDL is specific to RED media.

# Change Cut

The change cut option allows you to apply the grade settings from the current cut to the new cut. The grade is applied to the new cut based on the Match Options. In this release of Lustre, there are a few new keywords added to the Custom list.

| Select: | To: |
|---|---|
| DLEDLOrigin | Match the image import path and file name of the timeline coming from the Wiretap server. |
| DLEDLSourceId | Match the media source's unique ID of the timeline coming from the Wiretap server. |
| DLEDLSegmentId | Match the segment's unique ID of the timeline coming from the Wiretap server. |
| EDLComment | Match the unique comment that is applied to the original cut from another application. |

For example, when you assemble an EDL based on the record timecode, you can perform a change cut using the Source option. Since Lustre preserves all the source information in the cut file, it is able to compare cuts for matching metadata and apply the correct colour grading decision.

Lustre can also apply grading to a new cut on a shot-to-shot (and layer-to-layer) basis, regardless of any matching criteria.

For more information about the change cut option, see Changing a Cut on page 19.

**NOTE** The new keywords also apply to the Match Grade option.

# 3D Input LUTs

The following enhancements have been made to 3D LUTs:

- The ability to select a 3D LUT as an input LUT.
- 16-bit input and output depth for 3D LUTs.

# Colour Isolation Enhancements

The following colour isolation enhancements have been implemented in Lustre.

## Diamond Keyer

The Diamond Keyer, using chrominance Tolerance and Softness Diamonds in a hue cube, allows you to precisely and easily perform colour isolation. See Using the Diamond Keyer to Extract a Key on page 23.

## Matte Colour Overlay

The matte overlay has been improved to allow you to more easily view the colour isolation in your secondaries. You will also have the ability to control the colour and opacity of the unselected region of your matte. See Adjusting the Colour and Opacity of a Matte Overlay on page 44.

- A description of the Matte Overlay settings is provided to help you understand how this new feature helps with colour isolation. See Matte Overlay Settings on page 43.
- The way you view Secondaries has improved because of improvements made to the matte overlay feature. See Matte Overlay Settings on page 43.
- The Mask Type selection has changed in the user configuration. You can now choose your Mask Type to default to Overlay or Greyscale when you press **F11** or click the M button in the View Mode panel. See the Mask Type option box in the “Display & Interface Settings” section in the Project Management chapter.

## Colour Isolation Options

In the Tools Settings menu of User Settings, you can set defaults for the Key-in filters and the Keyer.

## ACS Panel

You can use the ACS control panel to extract keys with the Diamond Keyer. See Extracting Keys using the Diamond Keyer on page 36.

# Capturing Media with Timecode Breaks

The capture timecode breaks feature allows you to capture media from tape, regardless of the number of breaks that are contained on the tape. A file is created for each continuous timecode section. See Capturing Media with Timecode Breaks on page 47.

# Audio Enhancements

Several enhancements have been made to the current audio feature within Lustre. You can now do the following:

- Import/playback/playout AIFF audio files.
- Import multiple audio tracks with the same name as one file.
- Select different bit depths (16-bit or 24-bit) when capturing audio tracks.
- Import timeline with up to 16 audio tracks through the Wiretap server.
- Enable up to 16 tracks of embedded audio to be captured and played out (AJA only).
- Capture each audio track as a single file.
- Select a monitoring option when you are playing back audio (e.g., stereo, 4 tracks, etc.).

For more information, see Audio on page 49.

# Wiretap Interoperability

There is new and improved interoperability between Lustre and the Visual Effects and Finishing applications. The following is a list of the improvements:

- When the Storyboard or timeline is empty, loading a timeline from Wiretap automatically creates a cut. The name of this cut is the same as the name of the timeline.
- When you import a timeline from Wiretap, it imports the accompanying audio tracks. The number of tracks that can be imported depends upon your audio device (DVS or AJA). Be aware that you can only read the audio tracks and cannot render them back to Wiretap

  **NOTE** Audio tracks need to be accompanied by an EDL if they are to be imported through Wiretap. For example, if within your timeline the audio track begins before the video, it needs to accompany a black clip for it to be imported into Lustre.

- Loading a timeline from Wiretap that contains source clips with a tape name longer than seven characters is now supported. Lustre also writes back the long tape name metadata when you render back to Wiretap.

# Other Additional Enhancements

The following are additional changes to Lustre:

- The clip information that is displayed in the file browser and Shot bin now includes the frame rate, reel name, and the DPX reel name.
- Additional options are added to the video and file format list in the Render > Resize menu.

# Compressed Media 2

**Topics in this chapter:**



## Compressed Media Support

Lustre allows you to import and grade compressed media files (e.g., RED, Quicktime, and MXF files). Each of these file formats can be imported into Lustre, and you can work on them natively. The playback performance of these files varies depending upon the file format, resolution, codecs, and CPU of the Wiretap Gateway. Since reading native RED media files is CPU intensive, you can improve the playback of your media by transcoding your RED media to a DPX file or to a Wiretap server. See Transcode Workflow on page 8.

**WARNING** Only RED media with firmware 16 and higher is supported in Lustre.

There are some limitations when it comes to assembling an EDL with compressed media. For example, not all QuickTime files contain a reel name and timecode data, therefore, only files with this data can be used to assemble an EDL. As well, MXF files do not contain a reel name, therefore, assembling an EDL is also not possible.

There are three common workflows when you are working with compressed media.

**Dailies grading** You import the original footage, apply grading, and then render out (or play out to tape) for an offline editorial or production screening. Dailies grading would mostly be used for footage captured by a RED ONE camera.

**Final grading** You import all the source files needed for finishing a project, grade them, and then render out (or play out to tape) for finishing.

**Confidence check** You import QuickTime files to compare the offline editorial and the conformed version for editorial accuracy.

# Browsing for Compressed Media Footage

Within Lustre, you can use the file browser to view footage that is located on a local or remote file system. The files that are located on the file system can be displayed along with some of the metadata. Compressed media footage can be imported using the Wiretap Gateway, as seen within the file browser. For more information about the Wiretap Gateway, refer to the **Lustre 2009 Extension 1 Release Notes**. To load the compressed media footage,refer to "Loading Shots into the Shot Bin" in the "Browsing for Footage" chapter in the **Lustre User Guide**.


# Transcode Workflow

Once you have imported the RED media and want to improve the playback of this file, follow the typical workflow to transcode your footage.

| Step: | Refer to: |
|---|---|
| 1. Set the initial colour correction. | Transcode Colour Settings on page 12 and Detail, OLPF Compensation, and Noise Reduction in Transcode Format Settings on page 10. |
| 2. Set the high-level options. | Transcode Format Settings on page 10. |
| 3. Set the output options and transcode the RED media. | Transcode Output Settings on page 13. |

| Step: | Refer to: |
|---|---|
| 4. (Optional) Save the transcode settings as a template. | Transcoding Template on page 15. |

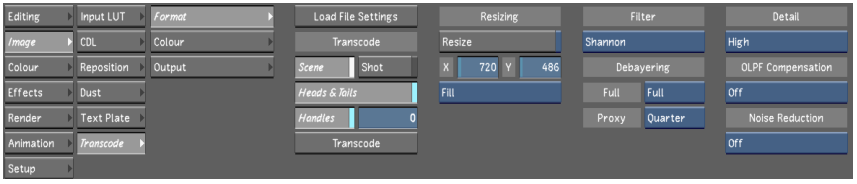
# Transcode Options

RED digital cameras record RAW media that is compressed using a proprietary codec known as REDCODE™, which is saved as an R3D™ file. The R3D files contain very high-resolution digital images (2K, 4K, or even higher). Since working with RED media files is CPU intensive, you can improve playback by either working with the proxy resolution of the native file, or by transcoding the high-resolution file.

**NOTE** Working with the proxy resolution does not guarantee real-time playback.

The transcoding settings contain a number of parameters that can be set for the clips in your RED decoding session. They are defined on a shot-by-shot basis to improve the playback of your RED media. Some of the settings (e.g., colour settings) can be applied to the RED media without having to click the Transcode button, and the other settings are not applied until you click the Transcode button. Once you begin transcoding, the transcoded media replaces the current media. After the transcoding is complete, the cut is automatically saved and the media paths and processing options are stored in the cut file.

The Transcode menu is divided into three settings.




**Format** Sets the high-level options for the media decoding (e.g., debayering, resizing, filter, etc.). See Transcode Format Settings on page 10.

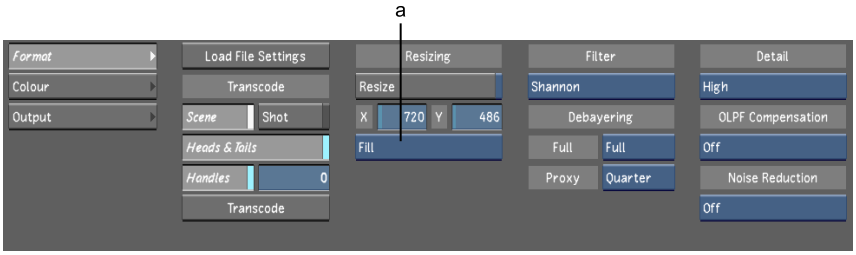
**Colour** Sets the colour settings to be transcoded (e.g., colour and curve settings, etc.). This is useful to set the initial colour correction before grading your footage. See Transcode Colour Settings on page 12.

**Output** Sets the file output settings (e.g., folder structure, timecode, and image format). See Transcode Output Settings on page 13.

Once these values have been set, you can choose to save the settings to a transcoding template (similar to the project and user settings template option).

To enter the Transcode menu, click Image in the Main menu, and then Transcode.

# Transcode Format Settings




**(a) Fit Method option box**

**Load File Settings button** Reverts all of the transcoding information (format and colour settings) to its original value upon file import.

**Scene button/Shot button** Enable Scene or Shot to transcode either the entire scene or the shot that is selected in the Storyboard.

**Heads & Tails button** Enable to make sure the heads and tails from the RED media are kept when it is transcoded.

**Handles button and Handles field** Enable the Handles button when you want to transcode fewer heads and tails than what is currently showing in the footage. Enter a value in the Handles field to determine how many heads and tails to transcode. This option can only be used if the Heads & Tails option is enabled.

**Transcode button** When the format, colour, and output settings have been established, click this button to transcode the RED media to a DPX file.

**Resize button** When enabled, the resize settings are implemented when the RED media is transcoded.

**X/Y field** Enter the desired resize setting. Note that a resize setting that is not directly proportional to the size of the original media takes longer to process.

**Fit Method option box** To use a different aspect ratio during a resize, select one of the following fit method options to be applied to the exported clip.

| Select: | To: |
|---|---|
| Fill | Fit the source, width, and height into the destination frame. If the source and destination frames do not have the same aspect ratio, the image can become distorted. This is the default option. |
| Crop Edges | Fit one edge of the source into the destination frame without stretching or squashing the frame. Excess parts of the source frame after resizing are cropped. If the source, after the one edge is resized, is wider than the destination, its overhanging left and right edges are cropped. If the source is taller than the destination, the upper and lower edges are cropped. |
| Letterbox | Fit the source to the destination frame without squashing or stretching it, and without cropping the source. If the source is wider than the destination, black bars fill the top and bottom of the destination frame. If the source is narrower than the destination, black bars fill the right and left sides of the frame. If the source is narrower than the destination, black bars fill the right and left sides of the frame. In all cases, the entire source frame is contained within the destination frame. |
| Center/Crop | Fit the source image, centered, over the destination frame. If the source is larger than the destination, it is cropped. If the source is smaller than the destination, it is surrounded by a black border. |

**Filter option box** Select the filter option to determine the quality of the interpolated resize result.

| Select: | To get: |
|---|---|
| Bicubic | Very good results for resizing soft-looking images. Use to sharpen the image. This is the default option. |
| Mitchell | Best results when resizing a clip to a higher resolution. |
| Triangle | Moderate results with little processing overhead. |
| Impulse | Quick, low-quality results. |
| Lanczos | Best results when resizing a clip containing a variety of patterns and elements to a lower resolution. It is the most complex, with the longest processing time. |

| Select: | To get: |
|---|---|
| Shannon | Excellent results when resizing a clip to a lower resolution. Very similar to Lanczos, but results are a little softer. |
| Quadratic | Good results for resizing simple images with straight edges. Similar to Gaussian, but with more blurring. Use to soften the image. |
| Gaussian | Excellent results when resizing a clip with no patterns and a lot of straight edges to a lower resolution. Useful for softening some detail. |

**Debayering Full/Proxy option box** Select the level of quality required from the debayering algorithm. Higher resolutions take more time to process. Select one of the following options for the full or proxy footage:

- Full
- Half Premium
- Half Good
- Quarter
- Eighth

**Detail option box** Select the level of detail extraction required. Your options are:

- Low
- Medium
- High

**OLPF Compensation option box** Select the level of Optical Low Pass Filter compensation to use. The OLPF is a type of sharpening used to compensate for the optical anti-aliasing filter, which can induce softening of the image during recording.

**Noise Reduction option box** Select the level of noise reduction applied to the debayered shot.

# Transcode Colour Settings

Adjust the values in this Colour settings tab to set the preliminary colour correction to your RED media.


**Colour Space option box** Displays the value of the native colour space of the images, as set in the camera. Overiding this value may produce unexpected results.

**Gamma Curve option box** Displays the value of the output gamma curve that is applied to the shots.

**ISO option box** Displays the value of the linear gain operation. RED images are always shot at 320 ISO.

**Kelvin slider** Displays the perceived colour temperature of the image.

**Tint slider** Adjust the level of green or magenta in the shadow areas of the shot.

**Exposure slider** Displays the exposure increments, which are equivalent to f-stops.

**Saturation slider** Adjust the intensity of the colours in the footage.

**Contrast slider** Adjust the gradation between the light and dark areas of the footage.

**Brightness slider** Adjust the red, green, and blue levels across the entire image.

**DRX slider** Adjust the setting for the Dynamix Range Extension (DRX), which sets how much pixel data is copied from non-saturated channels into saturated channels.

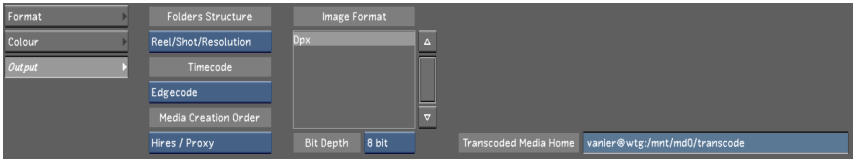
**R/G/B Gain slider** Modifies the red, green, and blue within the shot.

**Curve Settings** For more information on the curve settings, consult RED.

# Transcode Output Settings

Use the Output settings to set an output destination for your transcode job and to change how the timecode is used.

**NOTE** The Folders Structure, Media Creation Order, and Image Format options are not applied if you are transcoding to the Wiretap server.




**Folders Structure option box** Defines how the transcoded media is organized on the storage.

| Select: | To: |
|---|---|
| Reel/Resolution | Establish a <reel name>/<resolution> folder structure. This is the default option. |
| Reel/Shot/Resolution | Establish a <reel name>/<file name>/<resolution> folder structure. |

**Timecode option box** Select which RED media timecode to transcode. Note that when conforming an EDL, overiding the timecode data of the clips with a different timecode track will prevent relinking in the Autodesk Visual Effects and Finishing applications.

| Select: | To: |
|---|---|
| Primary | Select either the Time of Day or Edgecode timecode. Only select this option if you know which timecode has been set as the primary. |
| Time of Day | Establish a timecode field that is set by the internal clock from the RED camera. |
| Edgecode | Establish a timecode field that is set by the camera operator. |

**Media Creation Order option box** Defines the high-resolution and proxy media transcoding order.

| Select: | To: |
|---|---|
| Proxy/Hires | Transcode the proxy media for all the shots first, and then the high-resolution media is transcoded. |
| Hires/Proxy | Transcode the high-resolution media for all the shots first, and then transcode the proxy media. |
| Hires only | Transcode only the high-resolution media. This is the default and recommended media creation option. This allows you to work on the native proxy as the high resolution is transcoded. |

| Select: | To: |
|---|---|
| Proxy only | Transcode only the proxy media. |

**Image Format list** Select the type of file you want the RED footage to be transcoded to.

**NOTE** Currently, you can only transcode the RED footage into DPX and to StoneFS.

**Bit Depth option box** Select the bit depth to transcode your RED media to.

**Transcoded Media Home field** Enter a folder path to transcode the RED media. For Linux workstations, use the backward slash.

| Transcode to: | Type: |
|---|---|
| Wiretap Server | <server_name>@wt:/stonefs/Test_transcode/Transcode |
| Wiretap Gateway | <server_name>@wtg:/mnt/md0/transcode |

# Transcoding Template

Once all settings have been established for the RED media, you can choose to save these settings as a template. In the Transcoding Template, you can create a new template, load an existing template, or delete a template.

## Creating a New Transcoding Template

When you are working on a RED media project, you may want to apply the same transcoding settings to new footage as you import them. Being able to apply the settings from a previous session can ease the transcoding process.

There are two ways to create a new template:

- By setting the RED media options and saving a new template.
- By loading a previously-saved template, making the necessary changes to the settings, and saving the new template.

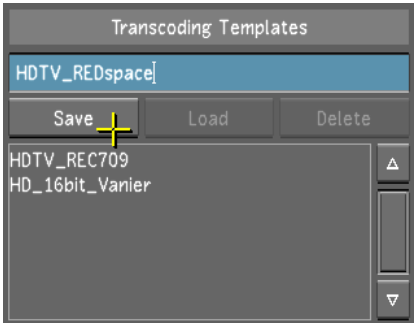
**To create a new transcoding template:**

1. Set the values for the following three settings:
   - RED media colour settings. See Transcode Colour Settings on page 12.

- RED media format settings. See Transcode Format Settings on page 10.
- Output settings. See Transcode Output Settings on page 13.

2 In the Transcoding Template field, enter a name and click Save.

**NOTE** You should enter a name that will help you distinguish what type of settings you have selected.




**To create a new transcoding template from an existing template:**

1 From the Transcoding Template list, select the template to use as baseline.

2 Click Load.

**WARNING** Rename the new template, or you will overwrite the original template with the new settings.

3 Configure the template by editing the values of the following settings:
- RED media colour settings. See Transcode Colour Settings on page 12.
- RED media format settings. See Transcode Format Settings on page 10.
- Output settings. See Transcode Output Settings on page 13

4 Click Save.

## Loading a Transcoding Template

When you are working with new RED media that has not been transcoded, you can select an existing template to apply its settings.

**To load a transcoding template:**

1. Import the RED media file.
2. From the Transcoding Template list, select the template you want to apply.
3. Click Load.

## Deleting a Transcoding Template

For templates that are no longer used, you can delete them from the Transcoding Template list.

**To delete a transcoding template:**

1. Select the template you want to remove from the Transcoding Template list.
2. Click Delete and then confirm the selection to delete the template.

# Cuts

# 3

**Topics in this chapter:**



## Changing a Cut

A change cut allows you to apply the grade settings from the current cut to the new cut you are loading.

For example, assume you create a grade with a cut file. You then receive a new EDL and create a new cut from it. This new cut is similar to the first one because it uses many of the same shots, so you would like to use the grade settings that are already done to prevent manually reloading individual grade settings. You load the grade with the original cut, and then change to the new assembled cut. The grade settings that were in the original cut are transferred to the shots that correspond to the Match Options (described below).

The grade is applied to the new cut based on the Match Options (i.e., UID, Source, Record, and Custom). You can base the match on one or multiple options. By default, UID, Source, and Custom are enabled.


**NOTE** Though the Custom option is enabled by default, nothing is initially selected from the Custom list.

| Select: | To: |
|---|---|
| UID | Match the unique ID of the shots in the original cut to the new cut. |
| Source | Match the tape/reel name, source ID, and source timecode of the original cut to the new cut. |
| Record | Match the record timecode of the original cut to the new cut. |
| Custom | Match the original cut to the new cut based on the keyword that is selected in the custom list. |

If the Custom option is enabled, there is a list of keywords to which you can associate the custom option.

| Select: | To: |
|---|---|
| EDLReelName | Match the reel name of the EDL. |
| FolderReelName | Match the folder reel name. |
| DPXReelName | Match the DPX reel name. |
| DLEDLClipName | Match the clip name of the shot coming from the Wiretap server. |
| DLEDLOrigin | Match the image import path and file name of the timeline coming from the Wiretap server. |
| DLEDLSourceId | Match the media source's unique ID of the timeline coming from the Wiretap server. |
| DLEDLSegmentId | Match the segment's unique ID of the timeline coming from the Wiretap server. |

| Select: | To: |
|---|---|
| DLEDLStartTc | Match the start source timecode of the timeline coming from the Wiretap server. |
| DPXKeycodeStart | Match the DPX header keycode start. |
| DPXKeycodeEnd | Match the DPX header keycode end. |
| EDLComment | Match the unique comment that is applied to the original cut from another application. |

The more match options that are enabled, the easier it is to complete an accurate change cut. For example, if you enable UID, Source, and Custom, the same shot can be in the timeline numerous times and the grade will be matched according to the shot's unique ID, tape/reel name, source ID, source timecode, and the custom option you have selected.

Lustre can also apply grading to a new cut on a shot-to-shot (and layer-to-layer) basis, regardless of any matching criteria. This is similar to a direct transfer of grading, depending upon the location of the shots within the timeline. To apply this type of change cut, disable all of the Match Option buttons.

For example, if the original cut is a single layer with two shots, the grade is applied to the new cut's first two shots (if there are more than two shots), even though there is no matching criteria between the shots in the original and new cut.

On a multi-layered cut, if there are two layers of shots in the original cut, the grade is applied to the first two layers of the new cut, on a shot-to-shot basis, even if the new cut has more than two layers. Note that within a multi-layered timeline, the grading is applied to the bottom layer first.

**NOTE** An alternative to the procedure below is the Match Grade feature. It allows you to apply current grade settings to a new assembled timeline without having to first create a cut file and then apply the Change Cut option. See "Match Grade" in the "Browsing for Footage" chapter of the **Lustre User Guide**.

**To change a cut:**

1. Make sure a graded cut is already loaded into the timeline.
2. Click Editing, and then click Browse to display the Browse menu.
3. Display the Cut Name list by selecting Cut from the Cut/Change List option box.

4 Select the cut you want to change to in the Cut Name list.

5 Enabled the match options you want applied to the change cut.

6 Click Change Cut.

The new cut is loaded with the grade settings from the old cut.

When working with a multi-layer timeline, and Solo mode is disabled, the layers are flattened and only the grade settings from the shots that are visible in the Storyboard are applied to the new cut. When working with a multi-layer timeline and Solo mode is enabled, only the grade settings from the active layer are applied to the new cut. If the new cut has multiple layers, then the grade setting is applied to each layer.

7 Click Setup, and then click Grade to display the Grade menu.

8 Click New Version to save the grade with the newly associated cut.

# Colour Isolation

# 4

**Topics in this chapter:**



## Using the Diamond Keyer to Extract a Key

The Diamond Keyer provides comprehensive controls to set the key colour, as well as the chrominance range and luminance levels for softness and tolerance on the hue cube. You can set these by using sliders and numeric fields, or by sampling colours in the image.

With the Diamond Keyer, you can extract a key based on a preset red, green, blue, cyan, magenta, or yellow colour, or on a sampled colour. You can also use previously-saved keyer presets. By manipulating the chrominance Softness and Tolerance Diamonds, which define the boundaries of the chrominance range for softness and tolerance on the hue cube, you can quickly and easily isolate the colour for which you want to extract a key.

You can modify a key by adjusting the luminance levels using the Luminance gradient controls and by adjusting the chrominance range and luminance levels using the Add/Remove Softness and Tolerance buttons. You can further modify a key using the Sharpness, Cleanup, Shrink, and Blur parameters.

**NOTE** To disable the Diamond Keyer at any time, right-click on the Keyer option box.

Before extracting a key, you can modify the source image by using the Input Transform Log to Lin and Soften options.

Use the following workflow to extract a key for colour isolation.

| Step: | Refer to: |
|---|---|
| 1. Access the Diamond Keyer. | See the "Accessing the Diamond Keyer" section. |
| 2. Select the colour that you want to key. | See the "Sampling a Colour in the Diamond Keyer" section. |
| 3. View your secondary to determine the range of colour to key. | See the "Viewing Secondaries in the Diamond Keyer" section. |
| 4. Set the luminance levels and chrominance range for tolerance to extract in the key. | See the "Setting the Tolerance Range in the Diamond Keyer" section. |
| 5. Set the luminance levels and chrominance range for softness to extract in the key. | See the "Setting the Softness Range in the Diamond Keyer" section. |
| 6. Blend the light and dark edges of a key by shrinking, eroding, or blurring the edges of a key. | See the "Modifying the Edges of Key" section in the Secondary Colour Grading chapter. |
| 7. Remove stray pixels from a key to clean it up for colour grading. | See the "Removing Stray Pixels from a Key" section in the Secondary Colour Grading chapter. |
| 8. Increase or decrease the softness of pixels that are in the tolerance range. | See the "Sharpening a Key Source Image" section in the Secondary Colour Grading chapter. |

The following procedures are not essential for extracting a key. You can perform these procedures any time after extracting a key.

| Step: | Refer to: |
|---|---|
| 1. Remove colours that you do not want to include in the key. | See the "Inverting Keys" section in the Secondary Colour Grading chapter. |

| Step: | Refer to: |
|---|---|
| 2. Exclude a key that you do not want to appear in a secondary. | See the "Excluding Keys from Secondaries" section in the Secondary Colour Grading chapter. |

# Accessing the Diamond Keyer

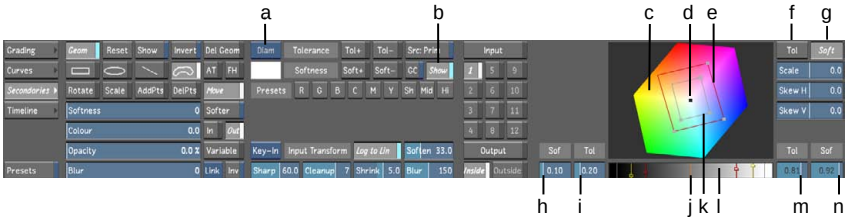
Use the comprehensive controls in the Diamond Keyer to extract a key.

**To access the Diamond Keyer:**

➤ In the Secondaries menu, toggle the Keyer option box to access the Diamond Keyer.

The Diamond Keyer interface appears.

**NOTE** Disable the Show button to display the Shape Tracker, Schematic, Notes, Flags, Pixel, Animation, Group, and Selector menus.




**(a) Keyer option box (b) Show Diamond Keyer (c) Hue cube (d) Sampled pixel (e) Chrominance Softness Diamond (f) Chrominance Tolerance Diamond selector (g) Chrominance Softness Diamond selector (h) Minimum Luminance slider for softness (i) Minimum Luminance slider for tolerance (j) Luminance level of sampled pixel (k) Chrominance Tolerance Diamond (l) Luminance gradient (m) Maximum Luminance slider for tolerance (n) Maximum Luminance slider for softness**

The Diamond Keyer interface is made up of the following elements.

**Keyer option box** Toggles to display the HLS Keyer or the Diamond Keyer. The default keyer is configured in the user settings.

**Show** Displays the Diamond Keyer. Disable to display the Shape Tracker, Schematic, Notes, Flags, Pixel, Animation, Group, and Selector menus.

**Hue cube** Representation of the colour space in which you perform colour isolation for the extraction of a key.

**Sampled pixel** Black dot represents the sampled colour on the hue cube.

**Chrominance Softness Diamond** Used to set the chrominance range for softness.

**Chrominance Tolerance Diamond selector** Selects the chrominance Tolerance Diamond for scaling and skewing.

**Chrominance Softness Diamond selector** Selects the chrominance Softness Diamond for scaling and skewing.

**Minimum Luminance slider for softness** Used to set the minimum luminance levels for softness.

**Minimum Luminance slider for tolerance** Used to set the minimum luminance levels for tolerance.

**Luminance level of sampled pixel** Orange bar represents the luminance level of the sampled pixel in the Luminance gradient.

**Chrominance Tolerance Diamond** Used to set the chrominance range for tolerance.

**Luminance gradient** Displays the level of luminance for the sampled pixel and the Minimum and Maximum luminance levels for tolerance and softness.

**Maximum Luminance slider for tolerance** Used to set the maximum luminance level for tolerance.

**Maximum Luminance slider for softness** Used to set the maximum luminance level for softness.

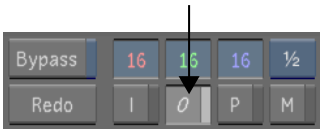
## Sampling a Colour in the Diamond Keyer

The typical way to extract a key is to sample a pixel or an average colour in the image using the colour picker. Lustre also provides colour presets as a starting point for the key. You can also use previously saved keyer presets.

**To sample a colour:**

1 Set the view mode to Output. You can click the O button or press **F12**.

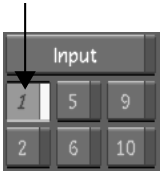
**NOTE** Pressing **F12** to set the view mode to Output only works from Matte view.




**2** Right-click the Keyer option box to enable the Diamond Keyer.

The letters in the Keyer option box turn bright white indicating that the Diamond Keyer is enabled.

**3** Click a secondary button to select a layer.

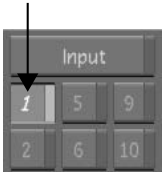



You can also use one of the following hotkeys.

| **Press:** | **To enable:** |
|---|---|
| **1** to **9** | Secondaries one to nine. |
| **0** | Secondary ten. |
| - (minus sign) | Secondary eleven. |
| = (equal sign) | Secondary twelve. |

**TIP** To toggle a secondary on or off, press \ (backslash).

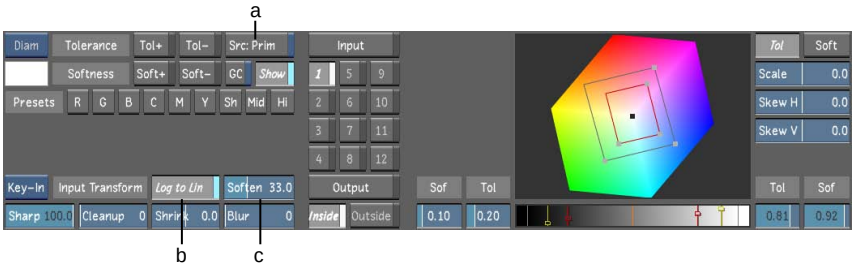
**4** Right-click the secondary button to enable the layer.




**NOTE** If you do not enable the secondary layer, the colour pot will not be updated with your colour sample.

**5** Enable the Primary button to use primary grading results as the input to a key.

**NOTE** When Src: Prim is disabled, the raw scan is used as the input to the keyer, effectively bypassing any input LUTs and primary grading that have been applied to your shot.




**(a) Primary button (b) Log to Lin button (c) Soften slider**

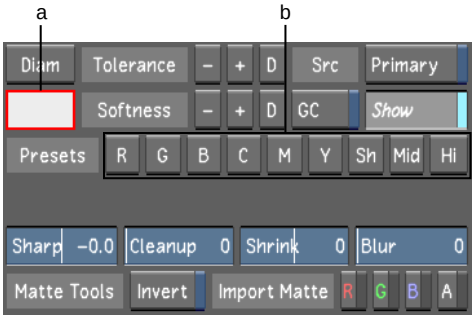
6 Enable the Log to Lin button.

7 Adjust the Soften slider.

8 To sample a colour, do one of the following:

- Click the colour pot.
  The colour pot is outlined in red.

- Click a Presets option.
  The colour presets allow you to quickly select a starting point for your key. The R, G, B, C, M, and Y colour presets position the chrominance Tolerance and Softness Diamonds in the corresponding regions of the hue cube. The Sh (shadow), Mid (midtones), and Hi (highlights) presets select luminance ranges along the luminance axis.




**(a) Colour pot (b) Presets options**

9 Sample the image:

- To sample a single pixel, click and drag in the image until you locate the pixel you want to sample. As you drag, the colour of the current pixel appears in the colour pot. When you locate the pixel you want to sample, release the mouse.
- To sample an average taken from a range of colours in the image, **Alt**-drag the image in the Player.

The cursor changes to a colour picker when you move it over the image in the Player. When you release the mouse, the initial chrominance range is set for softness and tolerance on the hue cube, and the colour pot displays the sampled colour.

---

**NOTE** The chrominance of the sampled colour is represented by a black dot on the hue cube and the luminance of the sampled colour is represented by an orange bar in the Luminance gradient.

---

10 If the colour pot is enabled, click it again to finish defining the colour.

# Viewing Secondaries in the Diamond Keyer

Once you have sampled a colour for the key, you can view the resulting secondary in the Player. You can view the key in Secondary view or Matte view by toggling the **F11** key. Secondary view displays the keyed out colour as is; unsampled colours are overlayed with a uniform colour by default. Matte view displays the alpha channel, a black and white template indicating which parts of the image are transparent (black), and which are opaque and selected (white). The white parts of the image can be colour graded.

**To view a secondary:**

1 Select the secondary you want to view.

2 Display the image in Secondary view by pressing **F11**.

In Secondary view, the colour that is keyed out in the current secondary is unchanged; unsampled colours are overlayed with a uniform colour by default.

3 Press **F11** to display Matte view. See the Mask Type option box in the Display & Interface Settings section in the Project Management chapter.

In Matte view, the white parts of the matte represent the selected colours that can be colour graded. The black parts represent the unselected colours in the secondary. Greys indicate the zone of softness.

## Setting the Tolerance Range in the Diamond Keyer

You can set the tolerance for a range of colours to be fully keyed (transparent) and to remove unwanted greys from the key. You can modify the chrominance and luminance levels for tolerance across the entire image or just in the shadows, midtones, and highlights. The Tolerance Diamond defines the range of colours included in the secondary.

To set the chrominance range for tolerance, you can manipulate the Tolerance Diamond or sample the chrominance and luminance of the image using the Add Tolerance and Remove Tolerance buttons. You can also use the Minimum and Maximum Luminance sliders to set the luminance levels for tolerance.

**To set the chrominance range for tolerance by moving and modifying the Tolerance Diamond:**

1 View the secondary in the Player. Press **F11** to toggle to Secondary view.

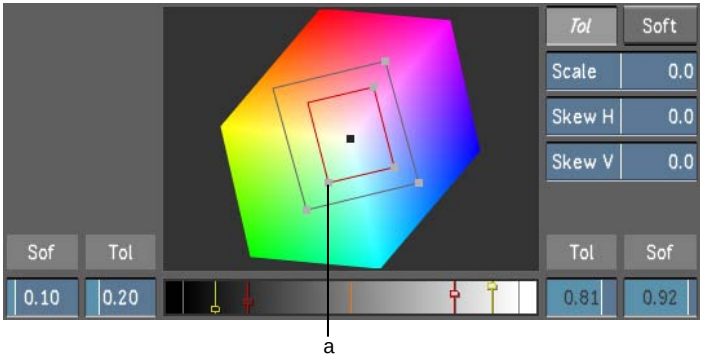
In Secondary view, you can see the effect of the modifications you make to the chrominance range for tolerance while you fine-tune the key.

2 Click and drag the Tolerance Diamond or click and drag a vertex of the Tolerance Diamond.

---

**NOTE** If the Tolerance Diamond vertex is too small to drag with the mouse, you can use the scale and skew controls to expand the diamond. You can also zoom in and out on the hue cube. Right-click and drag to the right to zoom in or drag to the left to zoom out. The Tolerance Diamond is red when selected and grey when unselected.

---



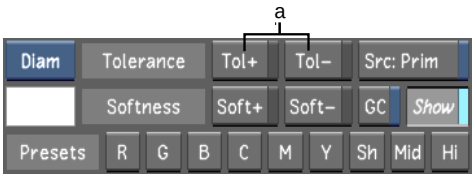

**(a) Tolerance Diamond vertex**

The chrominance range for tolerance is modified.

**To set the luminance levels and chrominance range for tolerance using the Add/Remove Tolerance buttons:**

1 View the secondary in the Player. Press **F11** to toggle between Secondary view and Matte view.

2 In the Secondaries menu, enable the Add Tolerance or Remove Tolerance button to increase or decrease the chrominance and luminance levels for tolerance.




**(a) Add Tolerance and Remove Tolerance buttons**

3 Click or drag in the image. **Alt**-drag in the image to select a larger area.

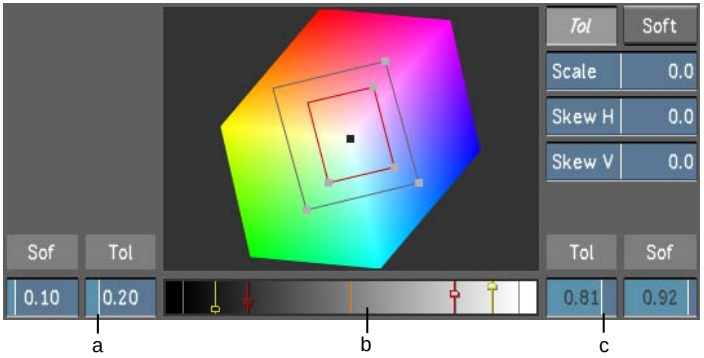
The chrominance range and luminance levels for tolerance are modified.

**To set the luminance levels for tolerance using the Minimum and Maximum Luminance sliders:**

1 View the secondary in the Player. Press **F11** to toggle to Matte view.

In Matte view, you can see the effect of the modifications you make to the luminance levels for tolerance while you fine-tune the key.

2 Drag the Minimum and Maximum Luminance sliders (next to the Luminance gradient) to set the luminance levels for tolerance.




**(a) Minimum Luminance slider for tolerance (b) Luminance gradient (c) Maximum Luminance slider for tolerance**

**NOTE** As you move the Minimum and Maximum Luminance sliders for tolerance, the luminance levels are represented in the Luminance gradient by corresponding red markers.

The luminance levels for tolerance are modified.

# Setting the Softness Range in the Diamond Keyer

Once you have set the tolerance range, you can then set the softness range. Softness sets the range of colours to make semi-transparent and creates a softer key. Use softness to create a more natural and softer look when applying secondary colour correction.

To set the chrominance range for softness, you can manipulate the chrominance Softness Diamond. You can use the Add Softness and Remove Softness buttons to set the chrominance range and luminance levels for softness. You can also use the Minimum and Maximum Luminance sliders to set the luminance levels for softness.

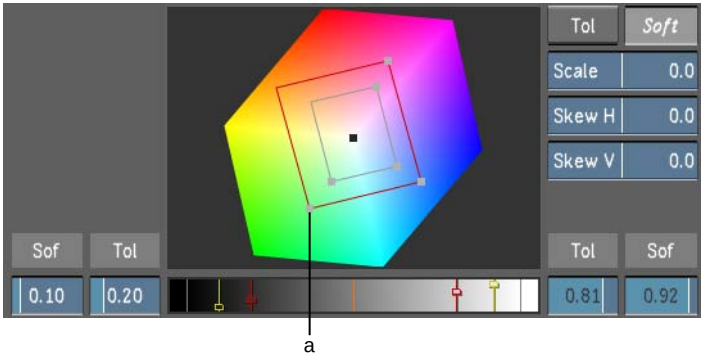
**To set the chrominance range for softness by moving and modifying the Softness Diamond:**

1. View the secondary in the Player. Press **F11** to toggle to Secondary view.

   In Secondary view, you can see the effect of the modifications you make while you fine-tune the key.

2. Click and drag the Softness Diamond or click and drag a vertex of the Softness Diamond.

**NOTE** If the Softness Diamond vertex is too small to drag with the mouse, you can use the scale and skew controls to expand the diamond. You can also zoom in or out on the hue cube. Right-click and drag to the right to zoom in or drag to the left to zoom out. The Softness Diamond is red when selected and grey when unselected.



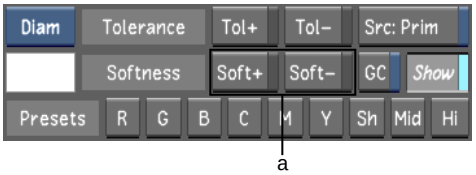

**(a) Softness Diamond vertex**

The chrominance range for softness is modified.

**To set the chrominance range and luminance levels for softness using the Add Softness and Remove Softness buttons:**

1 View the secondary in the Player. Press **F11** to toggle between Secondary view and Matte view.

2 In the Secondaries menu, enable the Add Softness or Remove Softness button to increase or decrease the chrominance range and luminance levels for softness.




**(a) Add Softness and Remove Softness buttons**

3 Click or drag in the image. **Alt**-drag in the image to select a larger area.

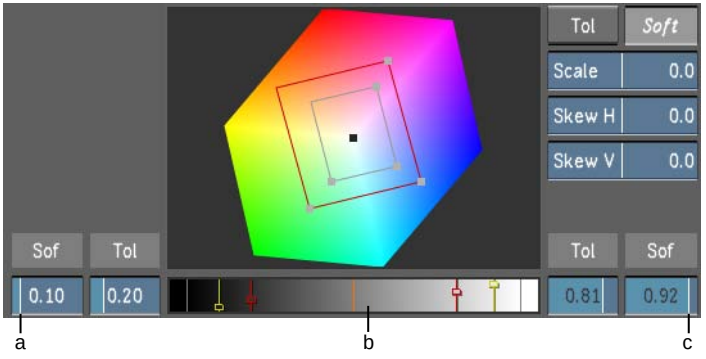
The chrominance and luminance levels for softness are modified.

**To set the luminance levels for softness using the Minimum and Maximum Luminance sliders:**

1 View the secondary in the Player. Press **F11** to toggle to Matte view.

In Matte view, you can see the effect of the modifications you make while you fine-tune the key.

2 Drag the Minimum and Maximum Luminance sliders (next to the Luminance gradient) to adjust the luminance levels for softness.




**(a) Minimum Luminance slider for softness (b) Luminance gradient (c) Maximum Luminance slider for softness**

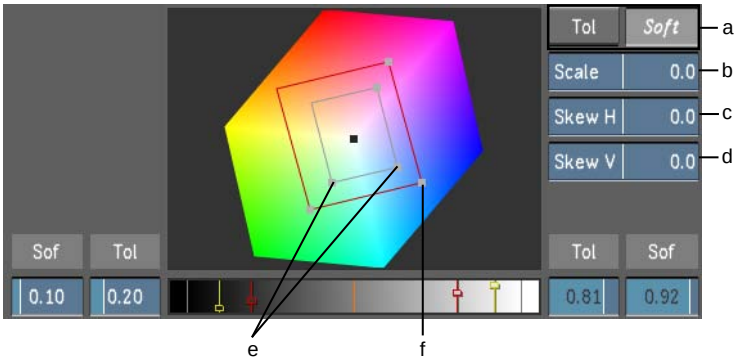
**NOTE** As you move the Minimum and Maximum Luminance sliders for softness, the luminance levels are represented in the Luminance gradient by corresponding yellow markers.

The luminance levels for softness are modified.

# Using the Scale and Skew Controls in the Diamond Keyer

With the Scale control, you can scale the chrominance Softness and Tolerance Diamonds to increase or decrease the range of colour to isolate. With the Skew controls, you can skew the chrominance Softness and Tolerance Diamonds horizontally and vertically relative to the orientation of the selected diamond to increase or decrease the range of colour to isolate.

**NOTE** To zoom in or out on the hue cube, right-click and drag to the right to zoom in or drag to the left to zoom out.




**(a) Tolerance and Softness selectors (b) Scale slider (c) Skew Horizontal slider (d) Skew Vertical slider (e) Horizontal control vertices (f) Vertical control vertex**

**To scale the range of colour:**

1. View the secondary in the Player. Press **F11** to toggle to Secondary view.

   In Secondary view, you can see the effect of the modifications you make while you fine-tune the key.

2. Click the Tolerance button or Softness button to select the Tolerance Diamond or Softness Diamond.

3 Drag the Scale slider to the left or to the right to decrease or increase the range of colour to isolate.

**To skew the range of colour horizontally:**

1 View the secondary in the Player. Press **F11** to toggle to Secondary view.

In Secondary view, you can see the modifications you make to the chrominance range while you fine-tune the key.

2 Click the Tolerance button or Softness button to select the Tolerance Diamond or Softness Diamond.

3 Depending on the orientation of the diamond, drag the Skew slider to the left to horizontally decrease the range of colour to isolate or to the right to horizontally increase the range of colour to isolate.

**To skew the range of colour vertically:**

1 View the secondary in the Player. Press **F11** to toggle to Secondary view.

In Secondary view, you can see the modifications you make to the chrominance range while you fine-tune the key.

2 Click the Tolerance button or Softness button to select the Tolerance Diamond or Softness Diamond.

3 Depending on the orientation of the diamond, drag the Skew slider to the left to vertically decrease the range of colour to isolate or to the right to vertically increase the range of colour to isolate.

# Extracting Keys using the Diamond Keyer

Use the Navigation panel to:

- Enable the Diamond Keyer.
- Select a secondary layer.
- Sample the image.
- Extract a key.

Use the Function panel to:

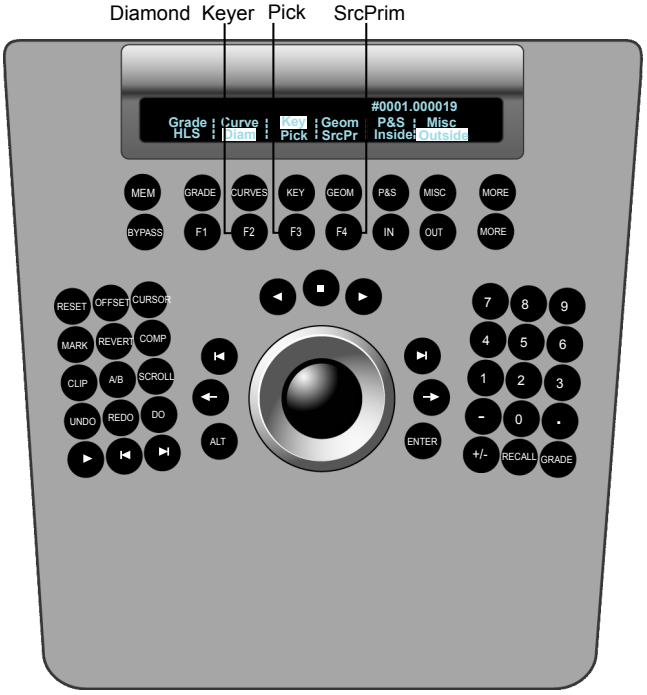
Adjust the key by setting softness and tolerance ranges, modifying key edges, inverting the key, and linking layers.

**To enable the Diamond Keyer in the Navigation panel:**

➤ Press the Key button once to activate the Key menu, and then press F2 to select the Diamond Keyer.

The Diamond Keyer is enabled.

**NOTE** To hide/show the hue cube, press Alt+Show.




**To select a secondary layer in the Navigation panel:**

➤ Use the numeric keys to select and enable a secondary layer. Press the number key once to select the layer, and then double-press to enable it. To enable layer 10, press the minus button (-). To enable layer 11, press 0. To enable layer 12, press the c button.

**To sample the image in the Navigation panel:**

➤ Press F3 (pick). The trackball on the Navigation panel is activated as a picker, allowing you to move through the image. Press F3 again to pick

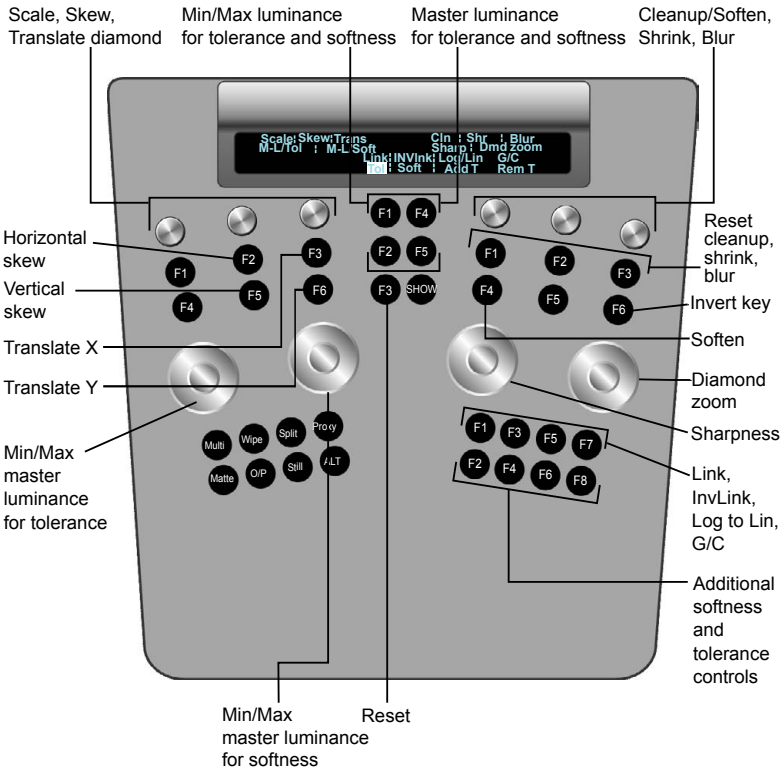
the current pixel for the sample. To sample an area of the image, hold down the ALT button while in picker mode and draw, with the trackball, a rectangular area of the image, and then release the ALT button.

**To extract a key in the Navigation panel:**

➤ To extract a key after input primary grading has been performed and the input LUT has been applied, press F4. To switch back to the primary-graded result, press F4 again.

**To adjust a key in the Function panel:**

➤ Use the following controls listed in the table below to adjust the key for the sampled colour.




| Use: | To: |
|---|---|
| Wheels | Adjust tolerance, softness, and sharpness around the picked colour. Zoom in (left) and zoom out (right).<br>Wheel 1=Tolerance<br>Wheel 2=Softness<br>Wheel 3=Sharpness<br>Wheel 4=Zoom in/out |
| Knobs at top left | Scale, skew, or translate (move) the chrominance Softness and chrominance Tolerance Diamonds.<br>Knob 1=Scale<br>Knob 2=Skew<br>Knob 3=Translate |

| Use: | To: |
|---|---|
| Upper left F2 and F5 buttons | Skew the chrominance Tolerance or chrominance Softness Diamonds horizontally and vertically.<br>F2=Horizontal skew<br>F5=Vertical skew |
| Upper left F3 and F6 buttons | Move the Softness Diamond or Tolerance Diamond left or right, up or down.<br>F3=X-axis (left or right)<br>F6=Y-axis (up or down) |
| Buttons in centre column | Enable master luminance for tolerance and softness and minimum/maximum luminance levels for tolerance and softness.<br>F1=Master luminance for tolerance<br>F2=Minimum/maximum for luminance for tolerance<br>F4=Master luminance for softness<br>F5=Minimum/maximum luminance for softness |
| Knobs at top right | Modify key edges and remove stray pixels from a key. Reduce image grain and noise, and keep edges intact prior to keyer input processing.<br>Knob 4=Cleanup/Soften toggle<br>Knob 5=Shrink<br>Knob 6=Blur |
| Upper right buttons | Press F1 to enable cleanup (Key-out filter), shrink, and blur. Press F4 to enable soften (Key-in filter).<br>F1=Cleanup<br>F2=Shrink<br>F3=Blur<br>F4=Soften<br>Single-press F2 and F3 to reset shrink and blur, respectively. Double-press F1 and F4 to reset cleanup and soften, respectively. |
| Upper right F6 button | F6=Invert the key |
| First row of buttons at bottom right | Press F1 to cycle through add, intersect, subtract, or link layers.<br>F1=Add, intersect, subtract, or link<br>F3=Invert link |

| Use: | To: |
| --- | --- |
| | F5=Log to Lin<br>F7=GPU Compatibility (G/C) |
| Second row of buttons at bottom right | Add softness/tolerance and remove softness/tolerance.<br>F2=Tolerance<br>F4=Softness<br>F6=Add softness/tolerance<br>F8=Remove softness/tolerance<br>Press F3 on the Navigation panel to change the cursor into a picker prior to using any of the above buttons. When done defining tolerance and softness, press F3 again. |
| ALT+SHOW buttons | Toggle the hue cube on or off. |

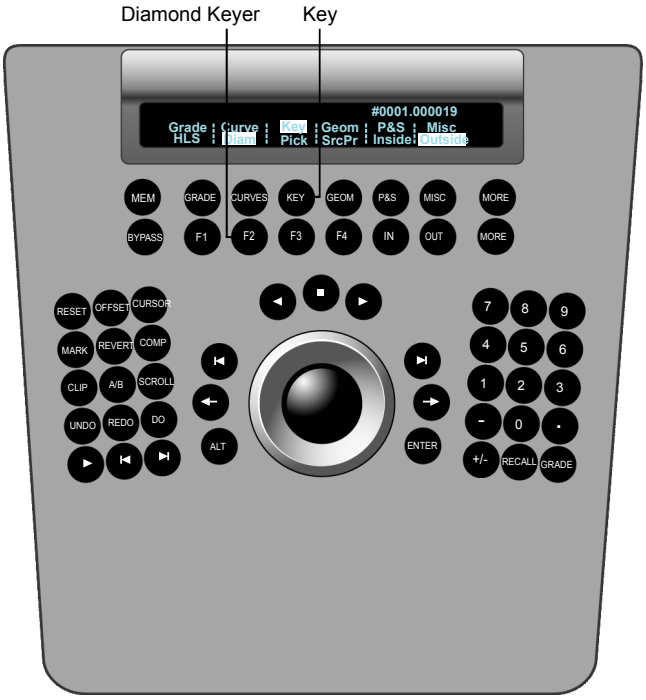
# Toggling the Diamond Keyer Button On and Off

Users can toggle the on or off status of the Diamond Keyer button visible on the Navigation panel.

**To make the Diamond Keyer status visible on the Navigation panel:**

1. Press the Key button once to activate the Key menu, and then press F1 to enable the Diamond Keyer and activate backlighting to show its enabled status.
2. Double-press the F1 button to disable the Diamond Keyer.

   The Diamond Keyer is disabled in the Lustre application.


Diamond Keyer
Key
#0001.000019
Grade
HLS
Curve
Diam
Key
Pick
Geom
SrcPr
P&S
Inside
Misc
Outside
MEM
GRADE
CURVES
KEY
GEOM
P&S
MISC
MORE
BYPASS
F1
F2
F3
F4
IN
OUT
MORE
RESET
OFFSET
CURSOR
MARK
REVERT
COMP
CLIP
A/B
SCROLL
UNDO
REDO
DO
ALT
ENTER
7
8
9
4
5
6
1
2
3
-
0
.
+/-
RECALL
GRADE

# Matte Overlay

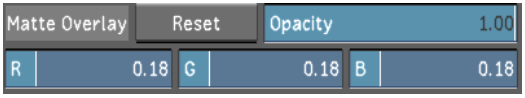
# 5

**Topics in this chapter:**



## Matte Overlay Settings

When you perform secondary colour grading, whether with a geometry, a key, or an external matte, it is important to see what part of the image is being affected by the matte. The Matte Overlay feature displays the matte in its original colour, while overlaying the unselected region of the matte with a uniform colour, allowing you to see the precise area of your image that will be colour corrected.




**Opacity** Sets the opacity of the unselected region of the matte between fully transparent (0) and fully opaque (1).

**RGB** Set the intensity of the red, blue, and green colours for the unselected region of the matte.

**Reset button** Resets the Matte Overlay parameters to default values.

You can modify the Matte Overlay settings at any time when you are performing secondary colour grading without affecting the image output. See Adjusting the Colour and Opacity of a Matte Overlay on page 44.

**NOTE** Matte Overlay settings are saved per user; therefore, any changes are saved to the current user profile.

# Adjusting the Colour and Opacity of a Matte Overlay

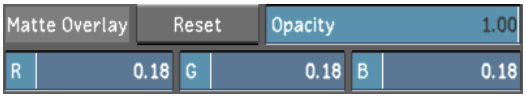
You can change the way a matte is displayed to help you easily view the isolated colour. The colour and opacity of the unselected region in a matte can be easily modified by adjusting the Matte Overlay parameters.

**To adjust the colour and opacity of a matte overlay:**

**NOTE** This procedure will not affect the output image.

1. Select and then right-click a secondary on which a matte is present.
2. Depending on your user settings, press **F11** once or twice to enable the Matte view. For more information about matte overlay settings, see the "Display & Interface Settings" section in the Project Management chapter.
3. In the Setup menu, select Interface to display the Matte Overlay panel.

   **NOTE** The default values are displayed.




4. Drag the Opacity slider as well as the R, G, and B sliders to adjust the opacity and colour of the unselected region. See Matte Overlay Settings on page 43.

Secondary view (default) Secondary view (adjusted)

**TIP** Click Reset twice if you wish to reset the sliders to their default values.

# Video Capture

# 6

**Topics in this chapter:**



## Capturing Media with Timecode Breaks

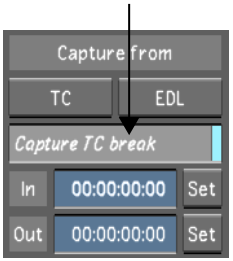
Prior to Lustre 2009 Extension 1, if you were capturing from a tape that contained timecode breaks, you would have to browse the tape for breaks and capture according to the in and out points you set. The Capture with Timecode Breaks feature allows you to capture all the content of a tape, regardless of the number of timecode breaks. When you use this option, Lustre begins capturing from the given in point until the duration point has been reached. A file sequence is created for each continuous timecode section.

To use this feature properly, you need to make sure you are entering the correct values for the in and out point. The in point is the source timecode of where you want the capture to begin. In the following procedure, the in point is set at 10:00:00:00 (as an example). The out point is used to compute the duration of capture. In the procedure, the out point is set at 10:10:00:00. This represents that ten minutes of footage will be captured, regardless of the number of timecode breaks within this time frame.

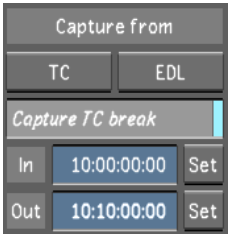
**NOTE** The pulldown removal option and audio capture feature are not supported when capturing with timecode breaks.

**To capture media that contains timecode breaks:**

1. Click Editing, and then click Capture to display the Capture menu.
2. Enable the Capture TC break button.




3. Make sure the video track button is enabled.
4. In the timecode in point field, enter the point of where you want the capture to begin (e.g., 10:00:00:00).
5. In the timecode out point field, enter a timecode that is used to compute the duration of the capture (e.g., 10:10:00:00, to represent ten minutes of capture).




6. Click TC. When the button turns red, click it again to confirm the action. The capture starts.

# Audio

# 7

**Topics in this chapter:**



## About Audio

There are a few ways you can hear audio during a timeline playback:

- You can import audio files to the system.
- You can capture audio from a video tape recorder (VTR) or audio tape recorder (ATR).
- You can have an external device chase the audio timecode by using the longitudinal timecode (LTC) chase option.

The audio signal is captured and played back from the DVS or AJA breakout box (BOB). For information on connecting the external audio devices, refer to your

hardware guide. When you are capturing, playing back, or playing out audio tracks, you can select up to 16 tracks (eight tracks of DVS/AJA AES audio, or 16 tracks of embedded AJA audio) from the track selector at a sampling rate of 48 kHz (16-bit or 24-bit).

**NOTE** To monitor the audio from the DVS/AJA BOB, the AES audio needs to be converted to an analog audio signal. To do this, use a digital audio mixer or a digital to analog converter (e.g., the Lucid converter). Refer to your hardware guide for information about the Lucid converter.

# Audio Workflow

Use the following typical workflow to add audio to your video playback.

| Step: | Refer to: |
|---|---|
| 1. Import or capture the audio file. | Importing an Audio File on page 50, Importing Audio From Wiretap on page 51, or Capturing an Audio File on page 52. |
| 2. Playback the selected audio file/tracks with the video. | Playing Back Audio with the Timeline on page 54 or Playback Using the LTC Chase Option on page 57. |
| 3. Playing out the audio file/tracks with the video. | Playout of Audio and Video on page 58. |

# Importing an Audio File

Lustre can use the audio files that you import into the scene's *sacc_data\audio* directory.

**NOTE** The audio folder is automatically created when you create a scene.

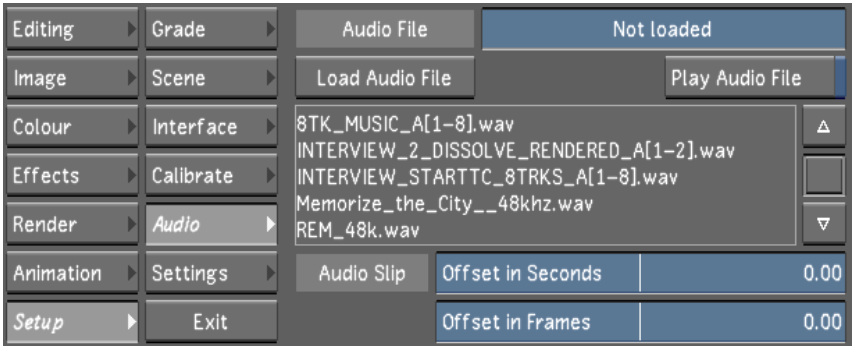
The imported audio file can comprise of a single track or up to 16 interleaved tracks.

There are two ways to import audio into Lustre:

- Copying an audio file into the audio folder.
- Importing audio through the Wiretap server.

**To import an audio WAV or AIFF file:**

➤ Copy the audio WAV or AIFF file into the scene's *sacc_data\audio* folder. If using the Linux version of Lustre, the filename uses forward slashes.




The audio now appears in the Audio menu audio file list.

**NOTE** If you imported the audio file after launching Lustre, press **Ctrl+R** to refresh the audio file list.

# Importing Audio From Wiretap

You have the option of including audio tracks when you import content containing audio from the Wiretap server. Since the content contains raw audio, you can import the audio tracks as a WAV or AIFF file (the bit depth of the file is preserved and the Single File Capture option is not applicable). To set audio file type, refer to the “Capture Menu Option” in the “Video Capture and Video Playout” chapter.

**NOTE** You cannot import audio tracks through Wiretap from a non-EDL file.

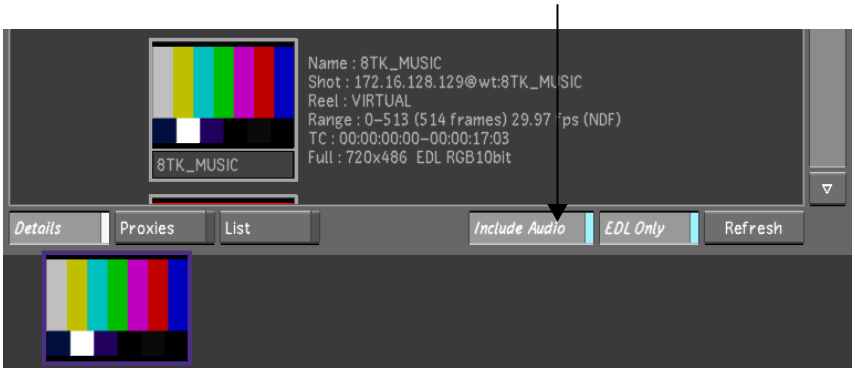
**To import audio files using Wiretap:**

**NOTE** All audio soft effects and dissolves must be rendered on a Visual Effects and Finishing application prior to being imported into Lustre.

1 Click Editing in the Main menu, and then click Browse.

2 In the file browser, use the Wiretap server to navigate to a media file that contains audio.

3 Make sure Include Audio is enabled, then select the file and drag it to the Storyboard.




4 Click Setup in the Main menu, and then click Audio.

The audio file from the Wiretap media has been imported and is automatically loaded and ready to play. If multiple tracks were imported, the tracks are grouped together under the same file name. For example, if the name of the media is **8TK_MUSIC**, Lustre displays the file as **8TK_MUSIC_A[1-8].wav** (where [1-8] represents the number of tracks within the file).


**NOTE** You can only import audio tracks from Wiretap. The audio tracks cannot be rendered back.

# Capturing an Audio File

You can capture an audio signal of up to 16 tracks as a single 48 kHz (16-bit or 24-bit), interleaved WAV or AIFF file. The audio is saved in the scene's *sacc_data\audio* folder. If using the Linux version of Lustre, the filename uses forward slashes.

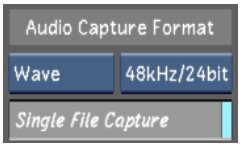
**NOTE** The audio folder is automatically created when you create a scene.

**To capture an audio WAV or AIFF file:**

1 Click Editing in the main menu, and then click Capture.

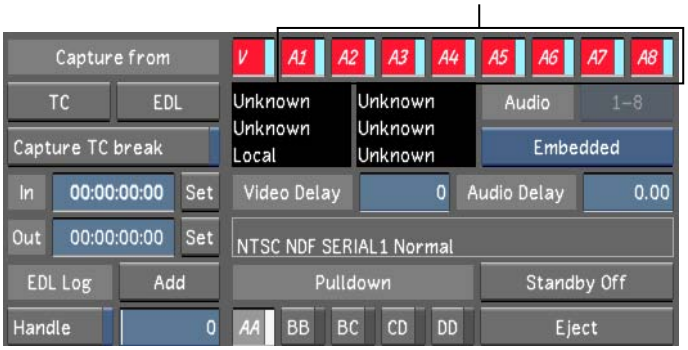
2 Select the appropriate raster.

3 Select the audio file type, bit depth, and determine if you want to capture the audio tracks as a single or multiple files. Single File Capture is enabled by default.




4 Enable the audio track(s) you want to capture.

**NOTE** You have the option of capturing the video along with the audio. For more information, refer to "Capturing from Timecode" in the "Video Capture and Video Playout" chapter.




5 Click the TC button to start the capture.

If the audio you are capturing is on numerous tracks and the Single File Capture option is enabled, Lustre groups all the tracks with the same name and displays them as a single file (e.g., **file_name.wav**). If Single File Capture is disabled, each track is saved separately but grouped together in the audio file list. For example, the audio file name will be **file_name_A[#-#].wav**, where the numbers within the brackets represent the number of tracks within the file.

**NOTE** When you capture a broken selection (e.g., tracks A1, A3, and A5) and Single File Capture is enabled, the resulting single audio file contains three tracks. Therefore, in the Playout menu, tracks A1, A2, and A3 are enabled. If Single File Capture is disabled, the three tracks are saved as three separate files and in the Playout menu, tracks A1, A3, and A5 are enabled.

# Playing Back Audio with the Timeline

Once the audio file is in the audio folder, you can play it back at the same time as your timeline.

**To play back an imported audio file with the timeline:**

1 Click Setup in the main menu, and then click Audio.

The Audio menu is displayed.


2 Select a file from the audio file list.

**NOTE** Only one audio file can be associated with the timeline.

3 Click Load Audio File.

The selected audio file is displayed in the Audio File field and the Play Audio File button is automatically enabled.


**NOTE** When you capture an audio file, it is automatically loaded.

4 Select a Monitoring option. See Audio Monitoring Options on page 55.

5 (Optional) Set an audio offset if the audio is to begin at a certain time before, or after, the video has begun. See Offsetting the Audio File on page 56.

6 (Optional) Select a Sync option. See Sync Options on page 56.

Now when you play the timeline, the audio file is played as well.

**NOTE** Disable the Play Audio File button if you do not want to hear the audio during playback.

While the audio file is playing back, you can scrub the audio.

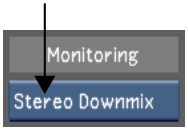
| Press: | To: |
|---|---|
| **Alt**+click location in the shot/scene timebar | Scrub the audio to the location you selected. |
| **Ctrl**+**Alt**+drag in the shot/scene timebar | Scrub the audio forward or backward quickly. |

# Audio Monitoring Options

When you are playing back audio with your video, you need to make sure your playback settings correspond to your audio configuration. Typically, each track is played through a corresponding port (e.g., track 1 passes through port 1, track 2 passes through port 2, etc.), but your system might be configured to have multiple tracks going through a single port (e.g., tracks 1, 3, and 5 pass through port 1). The Monitoring option allows you to set how the tracks are played back.

**NOTE** If you disable any audio tracks in the Playout menu, it will not be heard during playback.

To select a monitoring option, click the Monitoring option box to select the monitoring option you want.




| Select: | Audio Device: | When: |
|---|---|---|
| Stereo Down-mix | DVS or AJA | There are only two audio tracks that are supported on the audio monitoring device. All the odd numbered tracks (e.g., 1, 3, 5, etc.) go through port 1 and all the even numbered tracks go through port 2. |
| 4-Track Downmix | DVS or AJA | There are only four audio tracks that are supported on the audio monitoring device. |
| 8 Tracks | DVS only | There are up to eight tracks and each track is supported on the audio monitoring device. |

| Select: | Audio Device: | When: |
|---|---|---|
| 8-Track Downmix | AJA only | There are only eight tracks that are supported on the audio monitoring device. |
| 16 Tracks | AJA only | There are up to 16 tracks and each track is supported on the audio monitoring device. |

**NOTE** The audio monitoring option can also be set within the Engineering settings tab of the project configuration settings. .

# Offsetting the Audio File

When you playback the audio with the timeline, both the audio and video begin at the same time. If you want your audio to play before, or after, the video has begun, you need to enter an offset for the audio file. Use the Audio Slip option to offset the audio file. For example, if the audio file starts two seconds after the start of the timeline, create a two second offset.

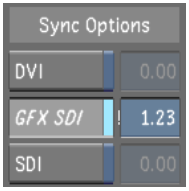
**To offset the audio:**

➤ Do one of the following:

- Click and drag the Audio Slip sliders to offset the audio. If the audio starts before the video, drag right to set a positive offset. If the audio starts after the video, drag left to set a negative offset. You can use one or both sliders to set the duration of the offset.
- Right-click within the slider to display the calculator and enter the frames and/or seconds offset to align your audio and video.


# Sync Options

Depending upon the output device you are using to view the timeline, the audio and video might not be in sync. Use the Sync Options feature to sync the audio and video. When you enable a sync option, a pre-calculated default is already applied. You only need to enter a value if the audio and video are still not in sync.




**DVI** Syncs the audio to the video that is displayed on the monitor (DVI).

**GFX SDI** Syncs the audio to the video that is displayed on an external device (e.g., projector, broadcast monitor, etc.)

**SDI** Syncs the audio to the video that is displayed on an external device connected to the DVS/AJA BOB.

**To sync the audio and video:**

1. In the Audio menu enable the Sync Options button corresponding to your output viewing device.

   **NOTE** Your system can be connected to multiple viewing outputs, but the sync is only applied to the option that is enabled.

2. (Optional) Click within the field and drag the mouse left or right to set the frame value for the sync. Enter a negative number if the audio plays after the video has begun and enter a positive number if the audio plays before the video has begun.

# Playback Using the LTC Chase Option

The LTC Chase Option allows you send the timeline's timecode through the DVS BOB to an audio device that can chase the LTC timecode. By default, the LTC timecode is the same as the record time (REC TC). For example, if the start timecode for the timeline is 10:00:00:00, the LTC will be 10:00:00:00. When you move the shot positioner to a further position in the timeline and press play, the LTC value is also updated so it is in sync with the record timecode.

**NOTE** Your LTC Chase Option settings are saved in the *context.config* file.

**To play back the audio track using the LTC Chase Option:**

1. Click Editing in the main menu, and then click Capture.

2 Select the appropriate raster to observe the audio and video files together. For more information on selecting a raster, refer to the “Selecting a Raster for Playout” section in the “Video Capture and Video Playout” chapter.

3 Make sure the audio device is set to chase.

Now when you play back the timeline, the audio track is played at the same time.

## Use Explicit Timecode

If the audio device has a different timecode than the timeline, you can set a different timecode by enabling the Use Explicit TC button. For example, if your source timecode starts at 10:00:00:00 and your audio timecode begins at 11:00:00:00, you can enable the Use Explicit TC option and create an offset of 1:00:00:00.

**To play back an audio track with a different timecode:**

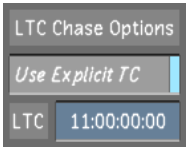
1 Click Editing in the main menu, and then click Capture.

2 Select the appropriate raster. .

3 Click Setup in the main menu, and then Audio to display the Audio menu.

4 Enable Use Explicit TC.

5 In the timecode field, enter the timecode of when you want the audio track to begin.




Now when you move the shot positioner, the audio and video are in sync.

# Playout of Audio and Video

Once you have verified the playback of your audio file/track(s) and timeline, you can play out the timeline to tape. For more information, see “Playing Out to a VTR” in the “Video Capture and Video Playout” chapter.