RAPTOR

DIGITAL VIDEO ASSIST

User Manual

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Playback Technologies, Inc.
Burbank, CA

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Introduction

Today's Raptors use the same proven technology base as earlier Raptor decks that total almost 500 in use around the world. The deck can be operated from a 12VDC battery for easy integration into smaller carts and more run-and-gun systems used by commercial video assist operators. The input voltage range is 10-16VDC with a current draw of about 6 amps during normal operation; the deck can draw up to 9 amps during start-up.

The Raptor 3D and HD+ products use a single 3.5-inch fixed internal 3TB hard drive, which can hold over 100 hours of high quality HD material. The Raptor records .avi files using a highly efficient Motion-JPEG codec that has a variable quality setting, balancing picture quality and recording time to best suit the job requirements.

The Raptor was designed to be operated primarily with an attached VGA monitor and USB keyboard & mouse, but run-and-gun operation is possible using the front panel controls.

The Raptor 3D and HD+ are designed around a robust and reliable platform running a custom version of Windows 7 Embedded; the system has a boot-up time of about 60 seconds. We recommend that the Raptor be powered from a UPS (uninterruptable power supply), if using the factory-supplied AC to DC power supply. This can help prevent sudden reboots, since power can be interrupted frequently in the hectic production environment.

Common Tasks

This section shows how to complete common tasks. Please refer to the Main Interface section for details concerning specific controls and features.

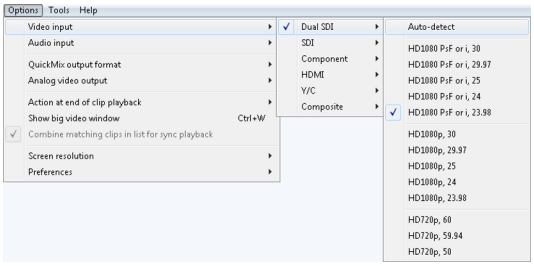
Connections

Please refer to Appendix C, page 43 for information on the various connectors and I/O ports on the Raptor. Also, the Raptor ships with a breakout cable; see page 44.

Video Input

It is necessary to set the video input in the software application. If you know exactly what your input signal is (interface, resolution, framerate), you can set it directly. Otherwise, the Raptor provides a mechanism to detect the resolution and framerate for a given input. The Raptor must be set to "Live" to allow video input to be set.

Auto-detection



Simply pull down the ***Options*** menu, open the ***Video Input*** sub-menu, open the sub-menu corresponding to your video input, and select **Auto-detect**.

Auto-detection for SDI is shown to the left.

Auto-detection can also be activated via the Front Panel: `OPTION + RECORD + >>`.

For more information, see Auto detection on page 22.

Changing Input Manually

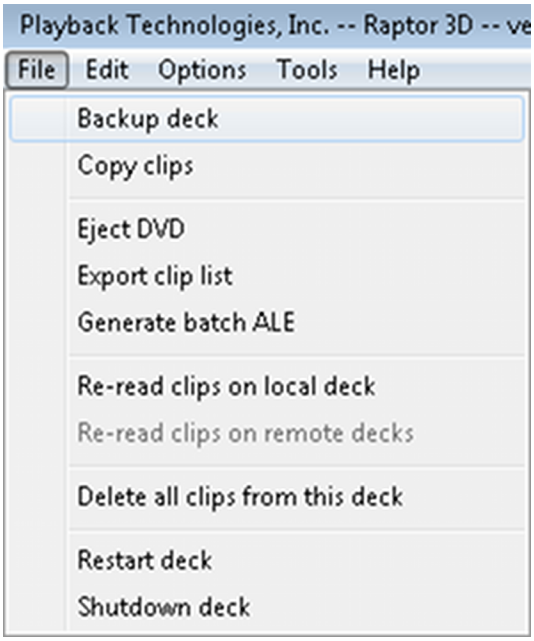
The Raptor supports a wide variety of formats for video input. These are accessed via the ***Options > Video Input*** menu. Please see Video Input on page 22 for more information.

Audio Input

The Raptor supports both XLR analog audio input and Embedded audio. These can be selected in the ***Options > Audio Input*** menu (see page 24).

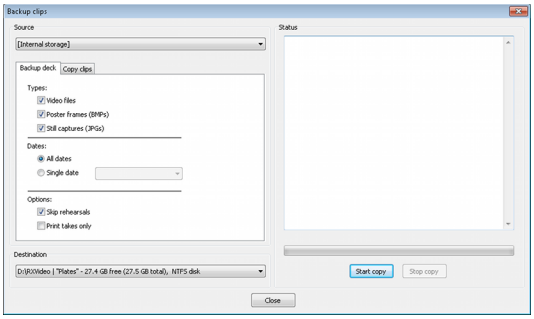
Backup Clips

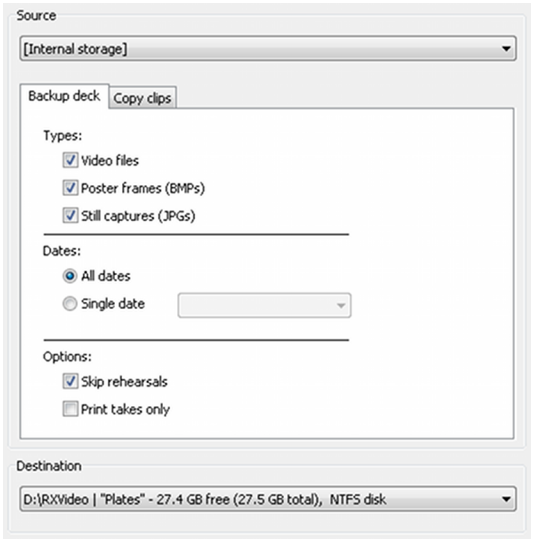
The Raptor provides a mechanism for copying the data on the internal drive to an external storage device, in such a way that it can be restored to the deck in the event of data loss.



1. Plug in your external drive (***must be formatted FAT32, not HFS or NTFS***).
2. Pull down the ***File*** menu.
3. Select **Backup deck**.

The following window will appear.



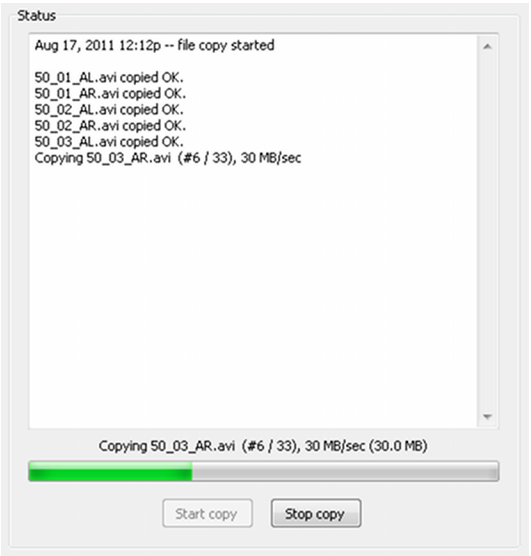


On the left side of this window,

4. In Source, select **[Internal storage]**.
5. In Destination, select your external drive by its drive letter (probably F).
   If it is not listed, close this window and return to step 1.
6. Choose the **Backup deck** tab to copy everything, or choose the **Copy clips** tab to copy individual clips (hold CTRL and left-click clips to select multiple clips at a time).

If it is uncertain how much time is available to perform the backup operation, consider checking the box to skip very large files (larger than 5GB), which is located on the right side of the window. Generally, the backup can be interrupted with the **Stop copy** button; however, once the deck starts backing up a large file, it cannot be interrupted.

Finally, click the **Start copy** button.



The status will be shown in the large pane on the right side of the window.

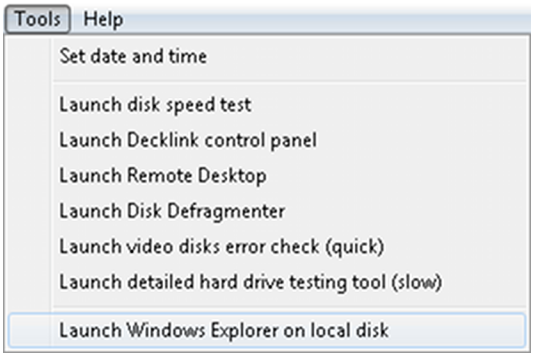
If the copy must be stopped, simply click the **Stop copy** button, which is enabled when a copy operation is in progress.

When everything is finished, close the Backup window.

Delete Clips

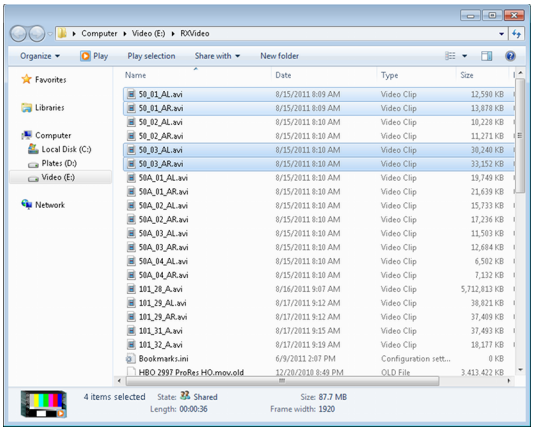
There are two ways to delete clips – manually select clips to delete using Windows, or delete all clips using the application. There are safeguards in place to avoid accidental deletion.

Selecting Clips Manually using Windows



First, open Windows Explorer on the Local Disk:

1. Open the ***Tools*** menu.
2. Select the last item, "**Launch Windows Explorer on local disk.**"



This opens to E:\RXVideo, which contains all of the video recorded on the deck.

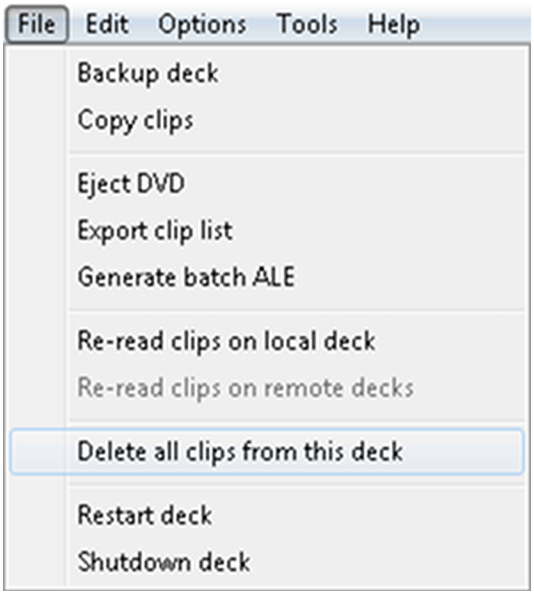
Simply delete the `.avi` files representing the video you wish to delete. The file names follow the following format: *Scene_Take_Camera*`.avi`

After deleting the files, close Windows Explorer and return to the Raptor software.

Since clips were deleted, it is advisable to force the software to re-read the clips from disk (see page 12).

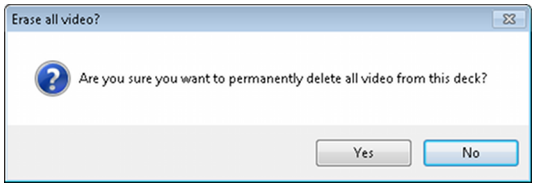
Deleting All Clips

This section describes the procedure to delete all clips from the deck using the software application. This is useful when starting a new job and reclaims all available storage on the deck. Note that it is also possible to delete all clips via the manual method described above.

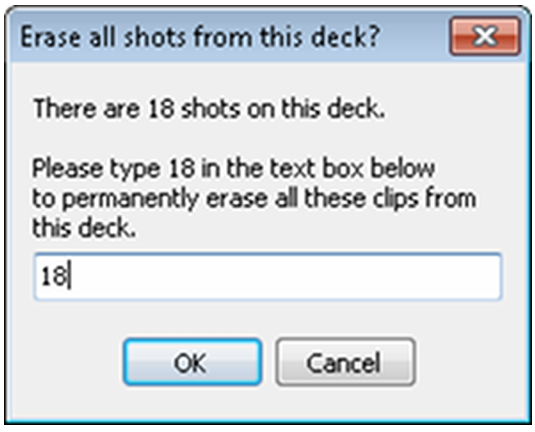


1. Open the ***File*** menu.
2. Select **Delete all clips from this deck.**

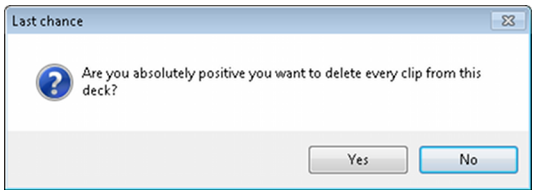
This produces the following dialog box.



To continue with the process of deleting all clips on the deck, you must select "**Yes**" – if you select "**No**" the process will be aborted immediately.



Upon selecting "**Yes**" in the previous dialog, this dialog appears. This is your final confirmation – enter the number of clips on the deck to confirm deletion. Then select "**OK**" – if you select "**Cancel**" the process will be aborted immediately.

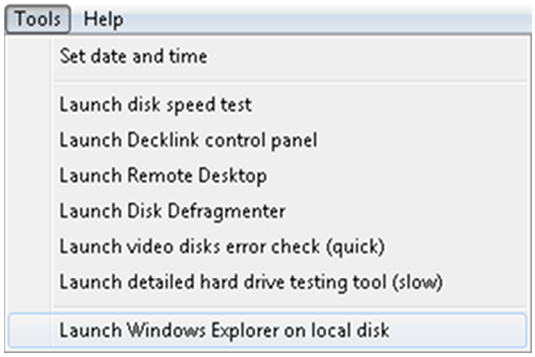


This dialog is the last chance to abort the delete process. Select "**Yes**" to delete all clips or "**No**" to return to the application.

A final dialog will show the progress of the delete process, which could take some time, depending on the number and size of clips on the deck.

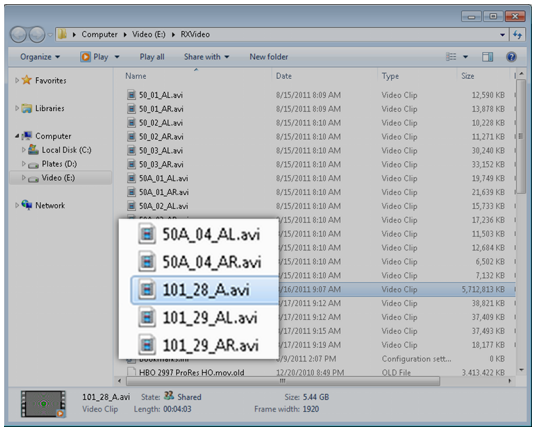
Rename Clips

There is currently no feature within the application software that allows the renaming of recorded clips. If you wish to rename recorded clips, follow these instructions.



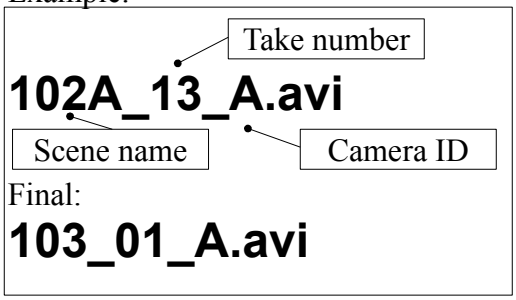
1. Open the ***Tools*** menu.
2. Select "Launch Windows Explorer on local disk."

This opens My Computer at the video folder, E:\RXVideo. This folder contains `.avi` video files, as well as `.txt` and `.ini` files that are used to store clip attributes.



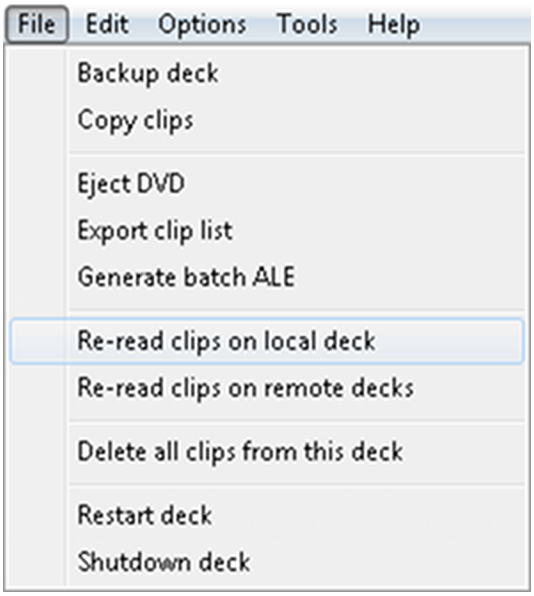
3. Locate the video file that represents the clip you wish to rename. The naming convention is: *Scene_Take_Camera*`.avi`
4. Click the file name once to edit it, and follow the same naming convention.
   The filename may **not** contain spaces, and you must use the underscore character to separate scene, take, and camera ID.
   The *take* should be a number.
   The *camera ID* should be a capital letter matching the camera ID of the deck.
   "L" and "R" appear after the camera ID on clips that were recorded simultaneously in Dual SDI mode.
   Also, do not remove the *.avi* at the end of the file name.
5. Close Windows Explorer (red X button in upper right corner).
6. Notify the application of the new name by Re-reading clips (instructions below, page 12).

Example:



Re-Read Clips on Local Deck

It is necessary for the deck to re-read clips if they are copied directly to the video folder or moved, renamed, or deleted.



1. Open the ***File*** menu.
2. Select "Re-read clips on local deck."

This can take some time (up to a couple minutes), and the main status block will show a rough count of how many clips have been processed during the re-read process.

Technical Specifications

Supported Modes

- High Definition:
  - 720p @ 50, 59.94 and 60
  - 1080PsF, 1080i or 1080p @ 23.98, 24.00, 25.00, 29.97, 30.00
- Standard Definition: NTSC and PAL

Video I/O

- Digital HD-SDI, HDMI
- Analog: Component, Composite, Y/C

Audio I/O

- Two-channel balanced XLR analog
- Two-channels of HD-SDI & HDMI embedded audio

Storage

- 3TB Internal Hard drive

Standard I/O

- USB 2.0 (4)
- USB 3.0 (2)
- eSATA port

Power

- 10-16VDC (9A @ 12VDC)

Weight and Dimensions

- 2U chassis (8.5” W × 3” H × 13” D / 21.59 cm W × 7.62 cm H × 33.02 cm D)
- Weight: 8 lb. (3.63 kg)

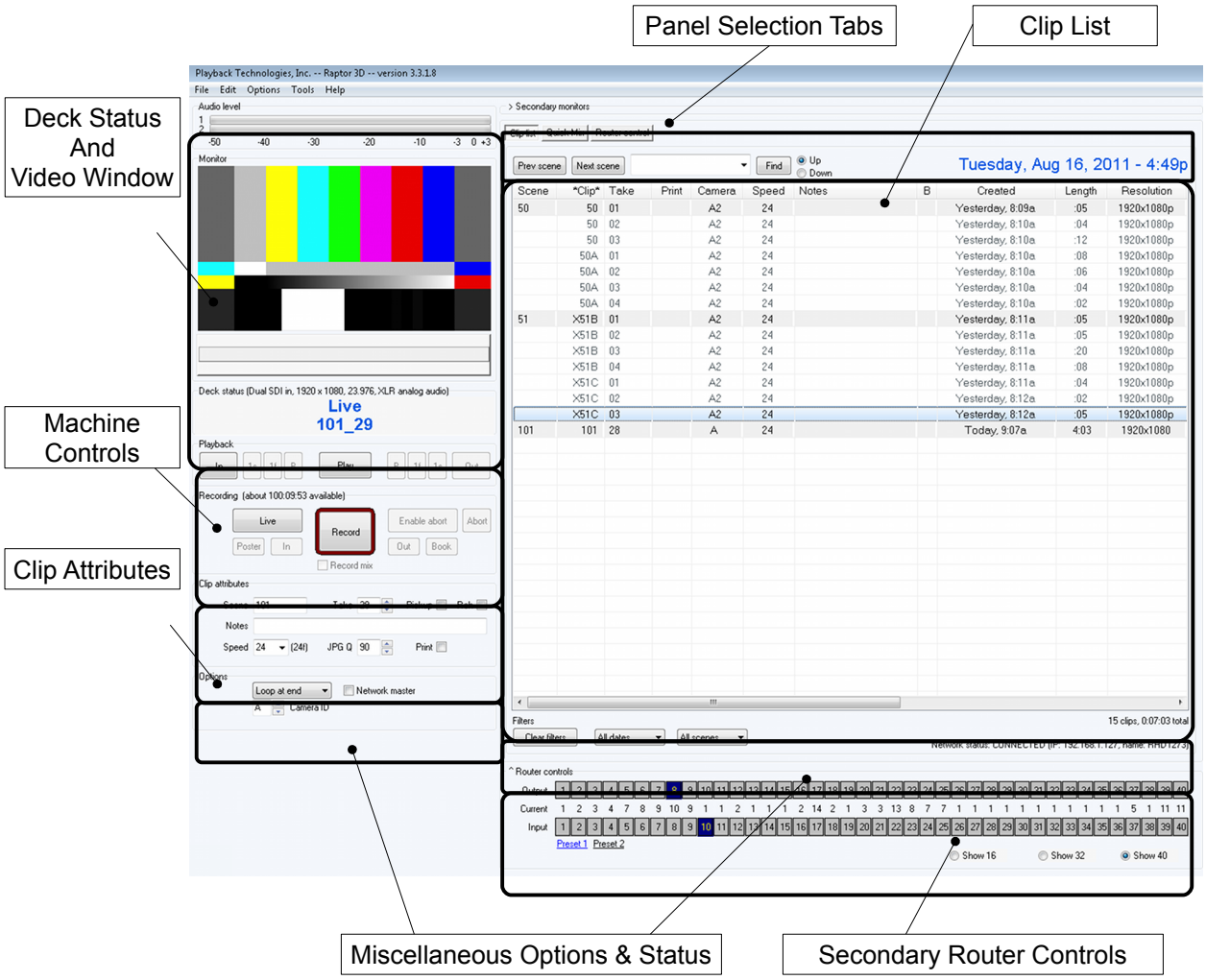
Recommended Accessories

- 15-pin VGA Monitor, USB keyboard (US layout) & mouse
- Gigabit router (Linksys RVS4000 or equivalent) and Cat5 cables
- HD-SDI Reclocking Distribution Amplifier (suggested AJA model HD10DA)
- 3rd Party HD-SDI capable video monitor

A PTI Breakout box, which replaces the breakout cable, is also available for purchase with deck.

Main Interface

This is the main application window. The sections that follow detail its contents and operation.



Deck Status

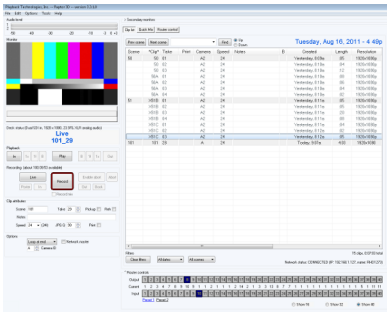
Audio Level Meters

The audio level meters measure the audio levels in both channels of audio, scaled logarithmically from -50dB on the far left to +3dB on the far right.

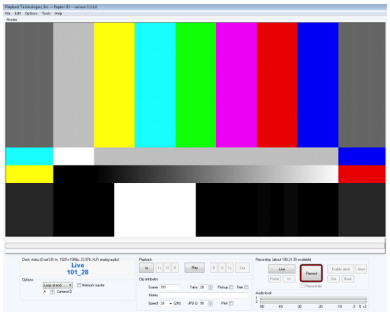
Monitor (Video Window)

The video window shows the video corresponding to the current state of the deck. In Live and Record, it shows a passthrough of the input. In any of the playback states, it shows the video accordingly (play, pause, scrubbing).

Double-click anywhere on the video window to change to an enhanced view, in which the video window takes up the majority of the screen. Double-click again to return to normal view.



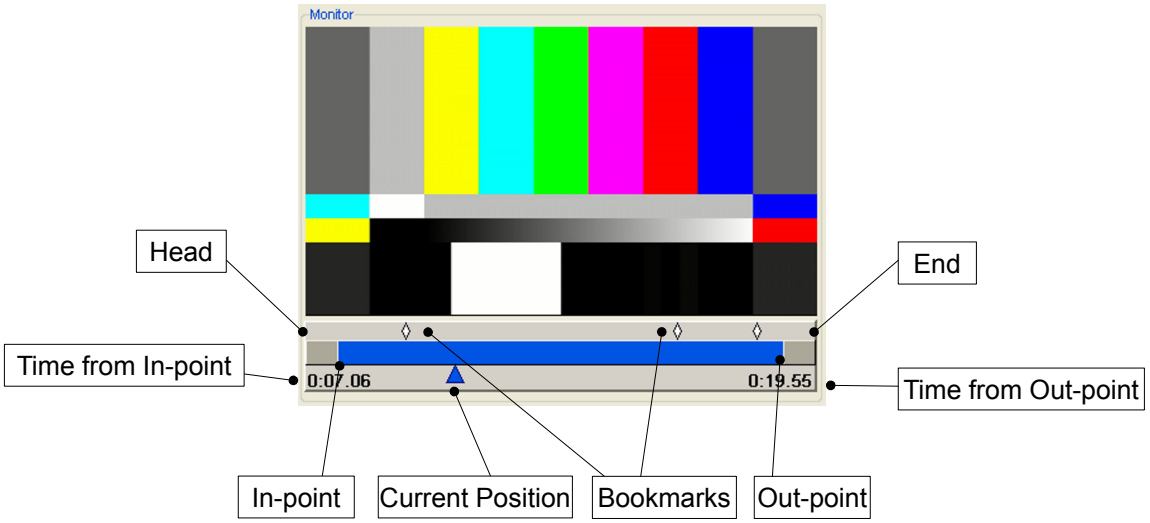
Normal video window



Enhanced video window

Timeline

The timeline shows information about the clip currently cued (it is blank in Live):



Deck Status block

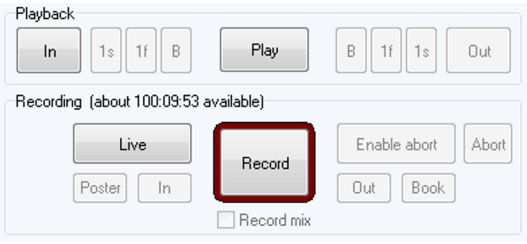
The title of the **Deck Status** block contains information about the current video format (see Deck Status screenshot above). This includes the interface (e.g. Dual SDI), resolution (e.g. 1920x1080), frame rate (e.g. 23.98), and audio input (e.g. XLR analog audio).

The first main line of the status block displays the current motion state, which can be Live, Recording, Play, and will also show special operations during startup, when copying clips, and when an error occurs.

Finally, the status block shows the current clip name. In Live, this will be the name of the next recorded clip; in playback mode, this is the name of the cued clip.

The remaining recording time is displayed in the Machine Controls area (see page 16).

Machine Controls



Playback: Play

Press the ***Play*** button to play/pause the cued clip. (Keyboard shortcut: `SPACE`)

Playback: In & Out

Press ***In*** or ***Out*** to seek to the In-point or Out-point of the clip. If these have not been specified, they are the first and last frames, respectively. (Keyboard shortcut: `I / O`)

Playback: 1s

Press ***1s*** (on the left side of ***Play)*** to move one second toward the head of the clip (if the current location is less than one second from the first frame, it will move to the first frame). Likewise, press ***1s*** (on the right side of ***Play)*** to move toward the last frame of the clip (again, if one second past the current location is beyond the last frame, it will move to the last frame).
(Keyboard shortcut: `Ctrl + Left arrow / Ctrl + Right arrow`)

Playback: 1f

Similar to ***1s***, ***1f*** moves in frame increments.
(Keyboard shortcut: `Left arrow / Right arrow`)

Playback: B

Press ***B*** to navigate backward (left of ***Play*** button) or forward (right of ***Play*** button) between bookmarks. Bookmarks are represented by a small diamond above the timeline (see page 16).
(Keyboard shortcut: `Tab` (forward) / `Shift + Tab` (backward))

Recording: Time Available

In the heading area of the recording controls, an estimate of the remaining recording time is displayed in *hh:mm:ss* format. This is based on remaining disk space and the data rate of the current video format.

Recording: Live

Press ***Live*** to get ready to record. In Live, the deck passes the input to its outputs, including the Monitor video window. (Keyboard shortcut: `Ctrl + L`)

Recording: Record

Once in Live, the ***Record*** button is enabled. Press it to begin recording immediately. Its border will flash to indicate that the deck is recording. (Keyboard shortcut: `Ctrl + R`)

Recording: Abort

During record, it is possible to abort a recording. As a safeguard against an accidental abort, you must first enable the ***Abort*** button by pressing ***Enable abort***; after this, you can abort the recording with no further confirmation by pressing ***Abort***.

Recording: In, Book, Out

During record or playback, these three buttons can be used to place markers in a clip's timeline. ***In*** marks the current frame as the in-point of the clip; ***Book*** places a bookmark at the current frame; ***Out*** marks the current frame as the out-point of the clip. See also Timeline, page 16. Note that a clip can only have one in-point and one out-point, but an unlimited number of bookmarks.
(Keyboard shortcuts for In, Book, Out: `I / B / O`)

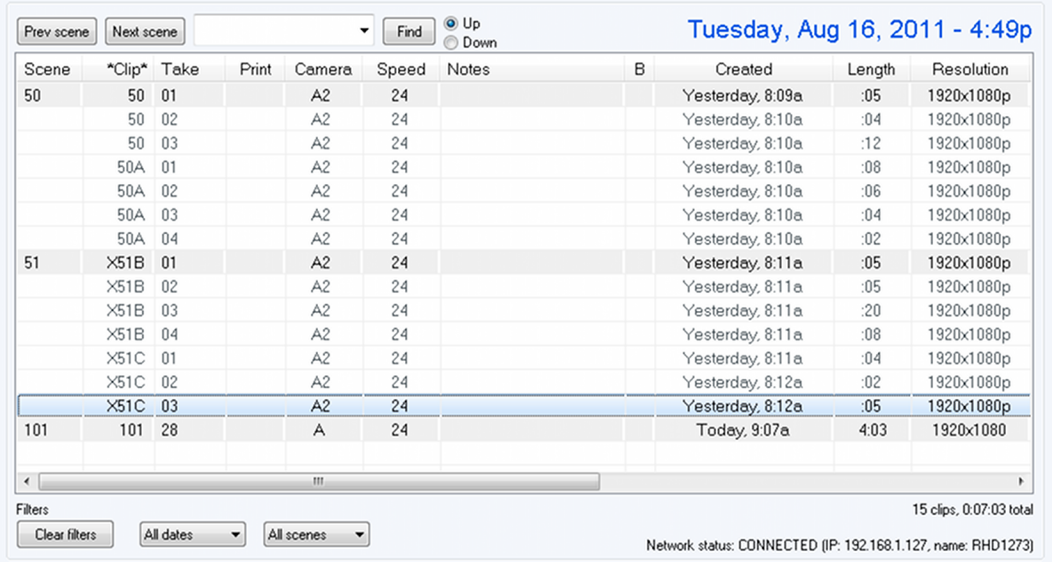
Recording: Poster

Click this button to export the current frame as a poster frame to represent this clip. (*future feature*)

Recording: Record mix

Check this box to record the current Quick Mix output.

Clip List



The **Clip List** maintains the list of clips on the deck. To refresh the listing, use the Re-read clips function (see page 12). The various columns present the information that can be set in the **Clip Attributes** area (described below), in addition to the date and time of the recording and its length. In the lower right corner, the total number of clips present is shown along with their combined length.

Sorting

The list may be sorted by clicking the column header (**Scene-Clip-Take**, **Print**, **Speed**, **Notes**, **Created**, **Length**, **Resolution**, and **Rate**).

Searching

The list may also be searched, using the controls in the upper-left corner of the list:

1. Enter your query in the text box.
2. Select a direction to search, starting at the currently-selected clip (**Up** or **Down**).
3. Press the **Find** button. Successive presses will continue searching through the list until the end is reached. (Keyboard shortcuts: `Ctrl + F` and `F3`)

It is also possible to jump from scene to scene using the **Prev scene** and **Next scene** buttons.

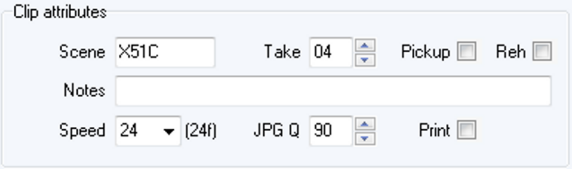
Filters

In the lower-left corner of the clip list are controls for filtering the list. You can select either a date or scene, or both, and only show clips that match these criteria.

Press **Clear filters** to return to a full list of all clips present on the deck.

Clip Attributes

This information area, located in the lower left portion of the application window, displays information regarding the current clip (in cued/playback state) or the clip about to be recorded (in Live).



The **Scene** and **Take** may be set.

Any **Notes** may be added to help identify or describe the clip. In some cases, additional information may be reported in the Notes field of a clip.

The **Speed** setting allows for off-speed playback and recording; the base framerate is given as a reference to the right of the box (see also Preferences: normal camera rate, p. 27).

The **JPG Q** setting allows fine-tuning of the quality of the Motion JPEG recording (this is a number, from 45-90). A higher **JPG Q** number causes recordings to occupy more space on the disk, which reduces the remaining recording time available.

The **Rehearsal** and **Print take** checkboxes allow you to mark clips accordingly; these do not affect the recording itself.

Miscellaneous Options & Status

Network Master

For networked operation, this box may be checked to declare that this deck is the master deck. It will then list all the other decks on the local network, and allow this deck to synchronize their operation. If the deck is connected to the network, the text may change to "**Another deck is master**" to indicate that a network master is already present. See Network Operation, page 34.

Loop Playback

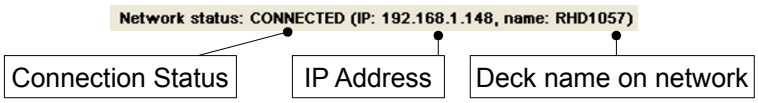
If checked, when a clip is played and the out-point (could be the end of the clip) is reached, the deck will locate to the in-point of the clip (if not specified, then the first frame) and continue playback.

Camera ID

This feature is useful for multi-camera operation, with a deck capturing the output of each camera. The decks can be connected together in networked and synchronized operation, or operated independently. The Camera ID is saved in the file name of the clip, so it is very easy to identify them later, even if the clips are all consolidated into the same location for review or editing.

Network Status

In the lower-right corner of the application window, the network status is displayed. It consists of the following components:



Connection Status will read “CONNECTED” or “DISCONNECTED.”

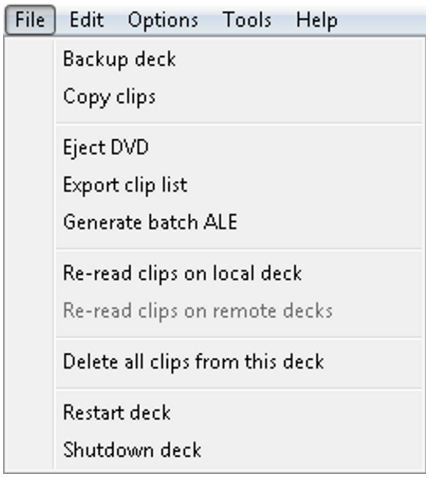
IP Address shows the current IP address (if connected), or 127.0.0.1 (if disconnected).

Network Name is “RHD” followed by a 4-digit serial number.

This entire status line is shown in boldface when the deck is part of a networked setup (see page 34).

File Menu

The ***File*** menu contains operations that apply to the deck and the clips on it.



Backup deck & Copy clips — Provides clip backup and clip copying to external media (see Backup Clips, page 8).

Eject DVD — Provides a convenient way to eject any disc in an external DVD drive, if present.

Export Clip List — Saves a simple text file containing all of the information in the Clip List (see page 18) to a location of your choosing.

Generate batch ALE — Generates an ALE file to ease import of Raptor clips into Avid editing systems.

Re-read clips on local deck — Scans the video folder, recognizing clips and refreshing the clip list. (see also Clip List, page 18; and Re-read clips, page 12)

Re-read clips on remote decks — Tells the other network-connected decks to re-read their list of clips.

Delete all clips from this deck — Restores the deck to an empty state, reclaiming its full capacity and removing all video.

Restart deck — A soft reboot of the operating system and application software.

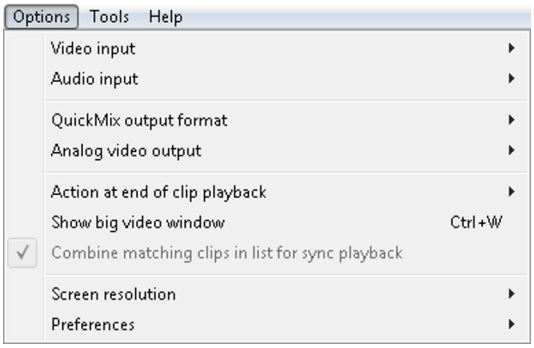
Shutdown deck — Shuts down the deck gracefully. The deck must then be powered up by disconnecting and reconnecting the power supply.

Edit Menu

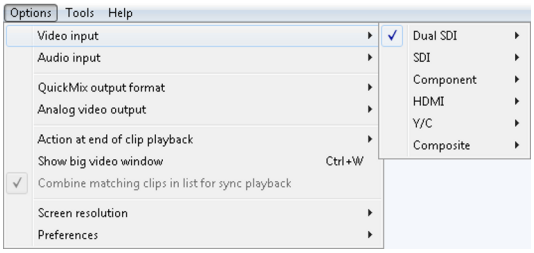
Delete Current Bookmark

When a clip has been cued and there is a bookmark at the current location, this menu item will be enabled. Click to remove the bookmark at the current frame.

Options Menu

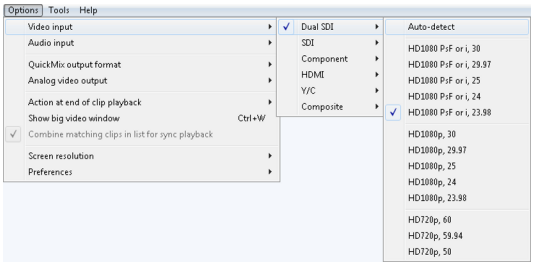


Video Input Sub-Menu



The ***Video input*** menu. Subsequent instructions will refer to the sub-menus contained in the ***Video input menu.***

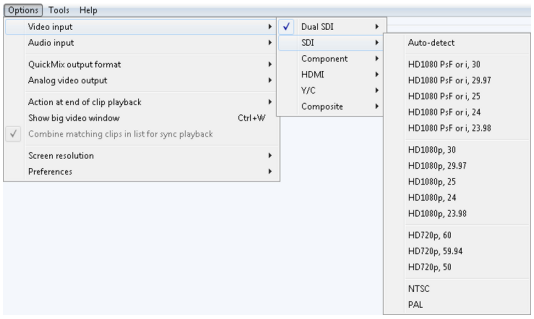
Auto-detect video input (all)



Each input video type supports auto-detection of the input video format. Simply choose **Auto-detect** from the appropriate sub-menu.

An example for Dual SDI Auto-detection is shown to the left.

SDI & Dual SDI

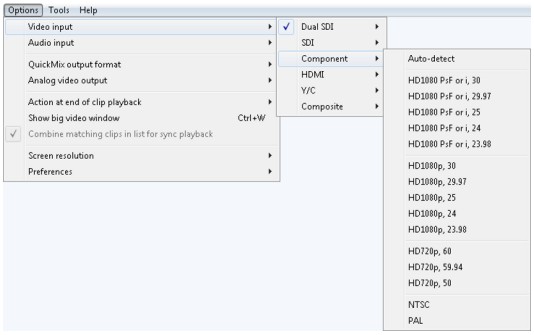


SDI (Serial Digital Interface) can carry multiple signal formats, both in high definition and standard definition.

Select the desired input resolution and framerate to change the input video format.

Dual SDI input is only available on the Raptor 3D.

Component

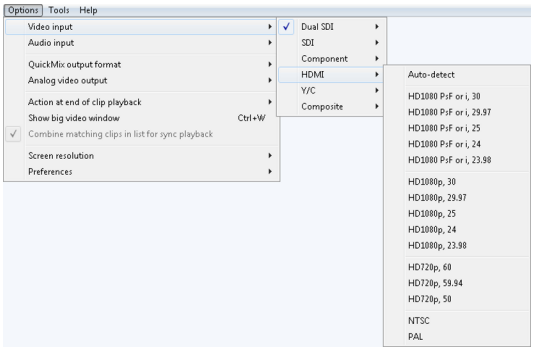


The Raptor supports component video.

Select the desired input resolution and framerate to change the Raptor video format.

Connect an analog component signal to the Y, U, and V (in) connectors on the breakout cable (see page 44).

HDMI

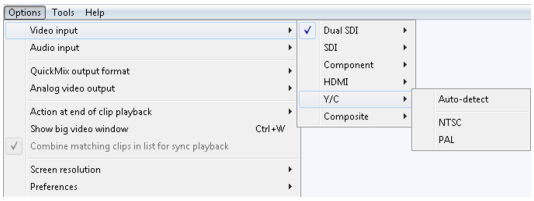


The Raptor supports HDMI input.

Select the desired input resolution and framerate to change the Raptor video format.

The Raptor supports HDCP (High-bandwidth Digital Content Protection) and will not accept input signals with copy protection, which are common on the outputs of game consoles and commercial Blu-ray video discs.

Y/C

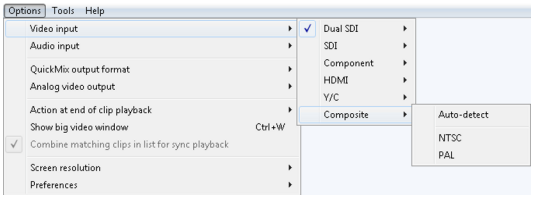


The Raptor supports Y/C input.

Select the desired input resolution and framerate to change the Raptor video format.

Use “Y-in” and “B-Y in” connectors on the breakout cable (see page 44).

Composite



The Raptor supports composite input.

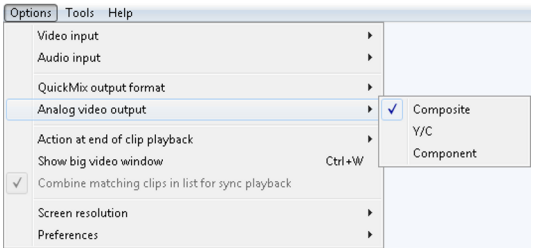
Select the desired input resolution and framerate to change the Raptor video format.

When you select composite video input, use “Y-in” and “Y-out” connectors on the breakout cable (see page 44).

Audio Input Sub-Menu

The ***Audio Input*** sub-menu allows you to choose between **XLR analog audio** and **Embedded audio**. Default: **XLR analog audio**.

Analog video output Sub-Menu



The Raptor application controls which type of analog signal is sent over the breakout cable: Component, Y/C, or Composite.

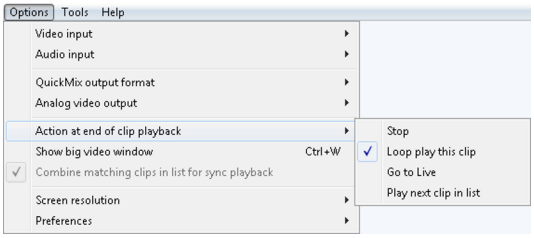
Simply select the desired format.

The Raptor will only allow one type of analog video output at a time.

For Composite output, use “Y out” on the breakout cable (see page 44).

For Y/C output, use “R-Y out” and “B-Y out” on the breakout cable (see page 44).

Action at end of clip playback



The Raptor application allows you to select between simply stopping, looping the entire clip, switching into Live to prepare for recording, or playing the next clip in the list once a clip is done playing.

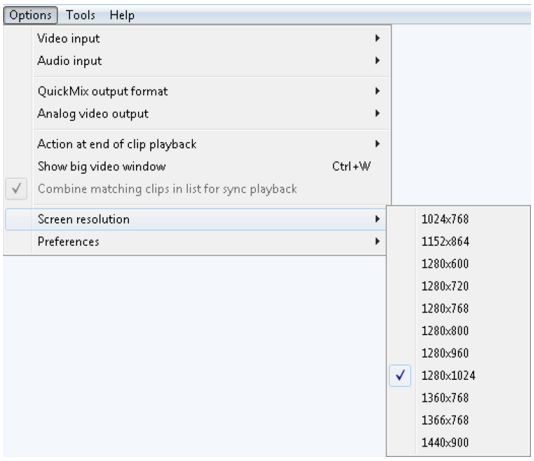
Show Big Video Window

Select this menu item to enable the enhanced video window display. This feature is equivalent to double-clicking on the Monitor window and is also accessible via the `Ctrl+W` keyboard shortcut. Please see page 15 for more information.

Combine matching clips in list for sync playback

This feature applies only to networked operation. When checked, it will consolidate the source list (see page 18) to account for clips that were recorded in sync on different cameras during previous networked operation. It will then be possible to have synchronized playback of these clips across multiple decks. See page 34 for a more complete description of networked operation.

Screen Resolution



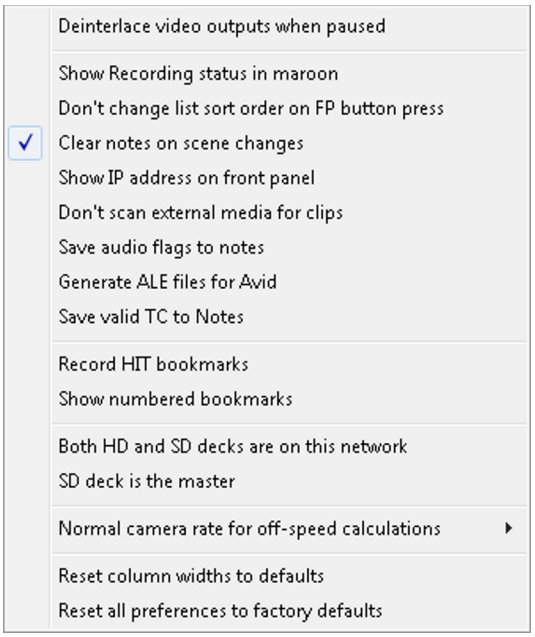
To change the screen resolution:

1. Open the ***Options*** menu.
2. Open the ***Screen resolution*** sub-menu.
3. Select the desired resolution from the list.

Only resolutions supported by the currently-attached monitor are listed.

If a resolution is selected that cannot be displayed, press `Ctrl+Alt+Shift+S` to force output to "safe mode," 1024x768.

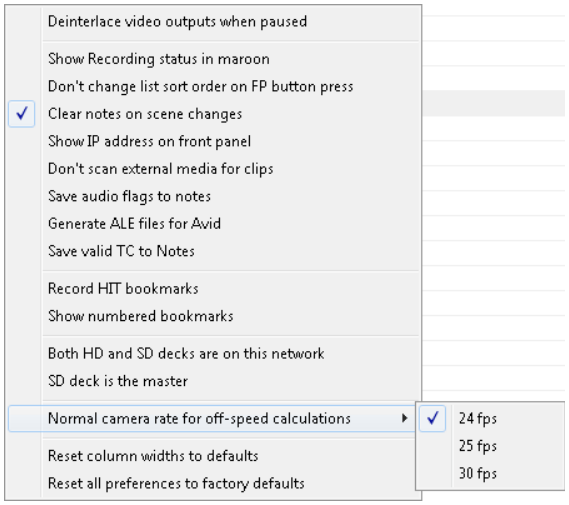
Preferences



Deinterlace video outputs when paused	Enable to avoid motion jitter in pause mode from video outputs.
Show recording status in maroon	Change text color of "Recording (00:00.00)" in Status Block to a dark red color (when un-checked, the text is blue). See Deck Status Block, page 16.
Don't change list sort order on FP button press	Normally, doing playback using the front panel causes the source list to sort by date created. This option allows you to avoid that behavior.
Clear notes on scene changes	If checked, when the "scene" text box contents change, the notes field will be cleared. Default: checked.
Show IP address on front panel	This causes the IP address to be displayed on the front panel `Pause + Out` keypress instead of the deck name. This is useful if you manage the deck using Remote Desktop for Mac.
Don't scan external media for clips	Suppress scanning external media when they are attached. Default: scan external media. Note: this prevents clip backup to USB hard drives.
Record HIT bookmarks	Changing HIT values during recording will create "H" bookmarks, and adjust HIT values during playback.

Show numbered bookmarks	First bookmarks will show a number inside a square, instead of a diamond. During playback, press the corresponding number key to jump to it.
Both HD and SD decks are on this network	Enable if SD Raptor X and HD Raptor decks are being controlled by one master deck.
SD deck is the master	Enable if SD Raptor X is controlling this deck.
Reset column widths to defaults	Sets all column widths to factory default values.
Reset all preferences to factory defaults	Sets all preferences to factory default values.

Normal camera rate for off-speed calculations



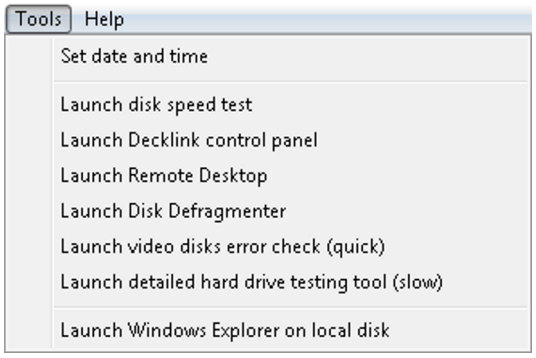
Select the base rate of the camera for calculations of off-speed operation. Three rates are supported: 24, 25, and 30fps.
Once set, the base rate is shown in the ***Clip Attributes*** area next to the **Speed** box (see p. 19).

This setting is basically “What fps value do you want to consider 'normal' speed?”

To use 24 fps to mean normal speed playback (1x video playback), please select 24. However, if you want 25 fps or 30 fps to mean 1x video playback, select that. If you set this to 25 fps, and enter 50 fps for the playback speed of a clip, that clip will play at 1/2 speed. However, if you set this to 24, a clip would need to be set to 48 fps to play at half speed. Likewise, a 30fps setting here means that a clip set to 60 fps would play at half speed.

The speed you select here has nothing to do with the actual frame rate of the video. This only impacts the way that playback speeds are interpreted.

Tools Menu



Set Date and Time — This opens the Windows dialog to set the system date and time.

Launch disk speed test — This utility tests the data transfer rate of the internal disk(s).

Launch Decklink control panel — This utility allows configuration of the video card.

Launch Remote Desktop — This starts the Windows Remote Desktop client, which can be used to directly control other decks on the network.

Launch Disk Defragmenter — This is not normally needed.

Launch video disks error check (quick) — Provides basic drive diagnostics. This check closes the application. After the check is complete, the deck will restart. After selecting this menu item, there is a warning and confirmation to proceed.

Launch detailed hard drive testing tool (slow) — This is a thorough disk check (not repair). It closes the application, performs the testing, then restarts the deck. After selecting this menu item, there is a warning and confirmation to proceed.

Launch Windows Explorer on local disk — Opens My Computer in the video folder (E:\RXVideo).

Help Menu

The first item, Keyboard Shortcuts, provides the identical resource as is available in Appendix A, page 39.

The remainder of the Help Menu displays information concerning the version of the application and system. This information may be requested when contacting support.

Quick Mix

The **Quick Mix** panel allows you to mix streams in real-time in various ways. The Raptor supports video mixing, and green and blue keying, from either a live background or a pre-recorded background plate present on the deck. Select **None** on the **Quick Mix** panel to disable all mixing and return to the live feed. Mixes may be viewed live via a dedicated HDMI output, and they may be recorded onto the deck.

Quick Mix can also be set to output a side-by-side 3D muxed image, for display on a 3D monitor.

Inputs

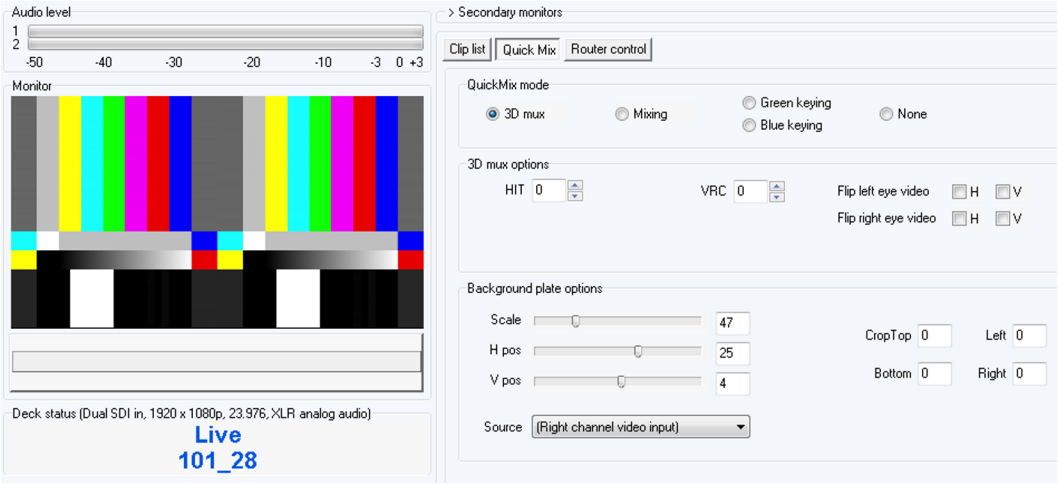
The standard "left eye" input is the foreground plate. The background plate comes either from the "right eye" input (for a live background) or from a video file stored on the D drive.

If you are using a stored video file for the background plate, it must be located in the RXVideo folder on the D drive, which is labeled "Plates"). You may use a USB drive or the network to transfer the file to the deck (see Network access to video files, page 37 and Launch Windows Explorer, page 28).

3D mux

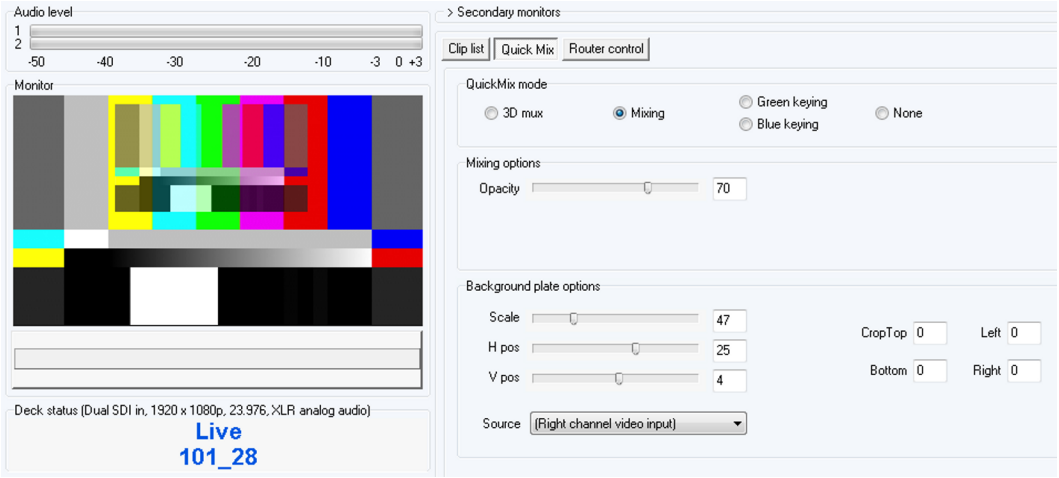
With Quick Mix in **3D mux** mode, the two input feeds will be shown side-by-side. Quick Mix provides **HIT** (Horizontal Image Translation) correction and **VRC** (Vertical Rig Correction) to adjust the eyes horizontally and vertically. Simply increase or decrease the value in each box. Also, each input may be flipped horizontally and/or vertically independently of the other; check the appropriate boxes.

In **3D mux** mode, the **Background plate options** do not apply.



Mixing

In Mixing mode, Quick Mix allows you to set the opacity of the overlaid background plate as well as crop, scale, and position it. Simply enter values in the boxes or adjust the sliders.



Keying

Quick Mix provides both **Green keying** and **Blue keying**. When these are selected, the following controls are available to control the keying on the foreground plate.

Level

This setting varies the intensity of the color used for the key.

Range

This setting varies the range of green or blue values (centered around the **Level** setting) that are used for the key.

Tolerance

This setting allows the deck to key on colors other than just pure green/blue. Lower values exclude more colors; higher values include more colors in the key.

Background plate options

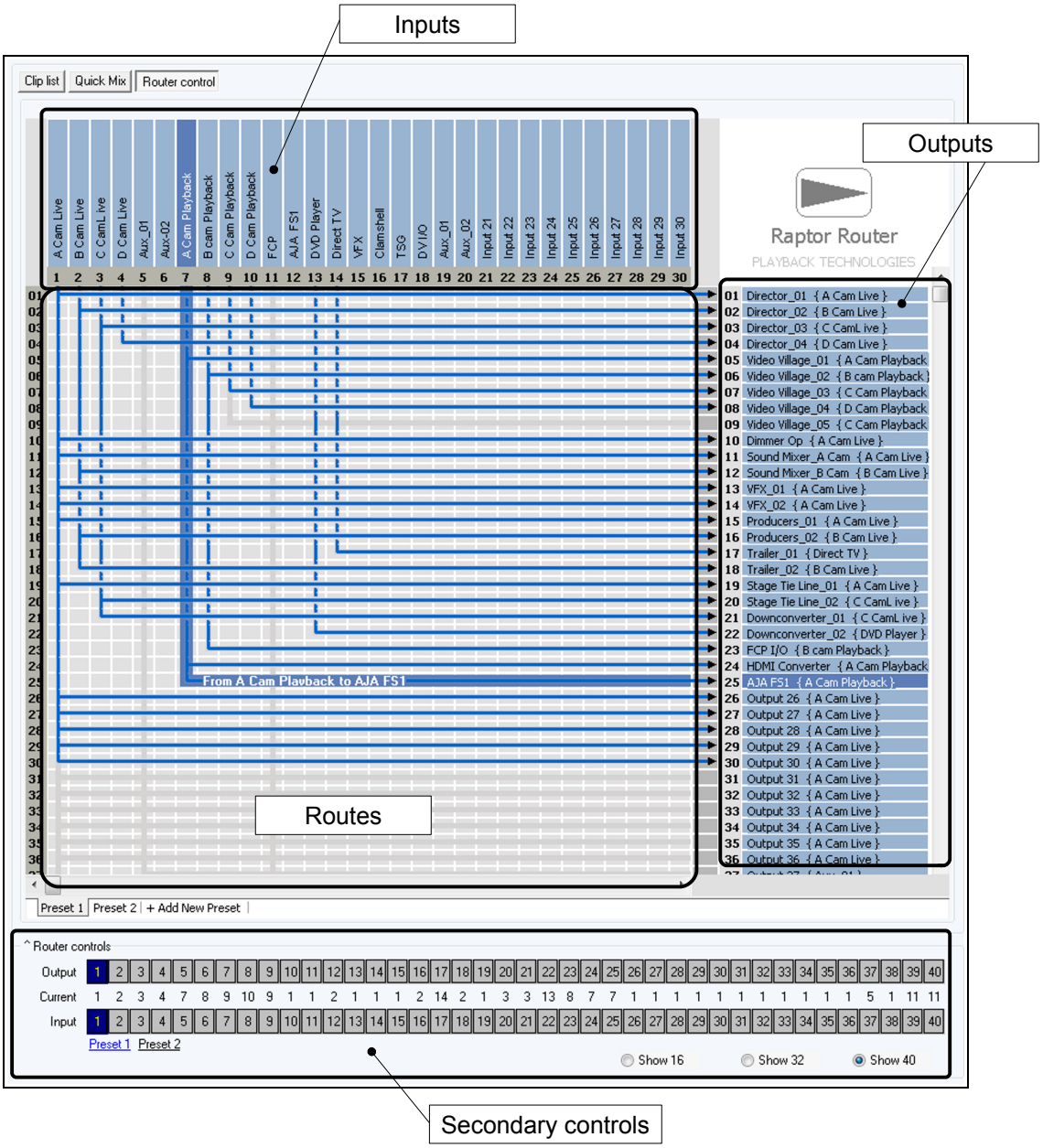
The same options are present for the background plate as in Mixing, above.

Video Router Control

Raptor decks may be used to control the Black Magic Devices Videohub series of video routers using a standard USB A/B cable.

User Interface Overview

The Raptor graphical application provides a full-feature control panel as well as a secondary set of controls for managing an attached video router. The secondary controls are available in the normal display when the **Clip List**, **Quick Mix**, or **Router control** panels are visible.



Features

The **Router control** interface supports naming inputs and outputs and storing defined routes in named presets. It is easy to create additional presets and toggle between them.

Presets

Right-click on the preset tab to rename, clear (delete all routes) or delete it. Left-click a preset tab to make it active and make changes to it.

Naming Inputs & Outputs

Simply click on the blue area adjacent to the desired number of the input (top) or output (right side) you would like to name. Enter the name in the resulting dialog box, and press “OK.” There are scroll bars along the bottom and right edges of the grid.

Coloring Inputs

Inputs may be colored for ease of tracing routes. Simply click the input number and select a color from the resulting dialog box.

Routes

To create a new route, left-click in the grid at the intersection of an input and an output. As you move the mouse cursor over the grid, the current potential route will be highlighted.

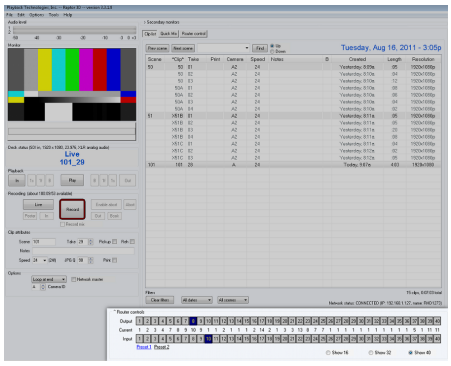
To remove a route, left-click the arrow pointing to an output.

The name of the selected input is shown in braces next to the name of each output.

Secondary Router Controls

On the secondary control panel, use the router preset links at the bottom left to change between presets. Use the radio buttons at the bottom-right to change how many inputs and outputs are displayed in the panel.

First choose an output from the top row. Its assigned input will be highlighted and may be changed by left-clicking the new one. Every output's assigned input is printed immediately below it, between the rows of outputs and inputs.



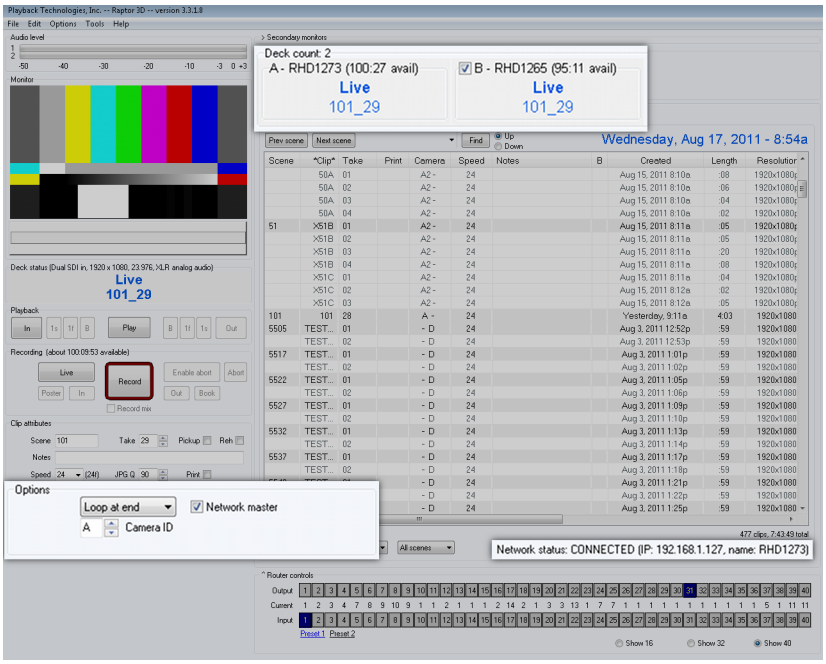
Networked Operation

Equipment and Wiring

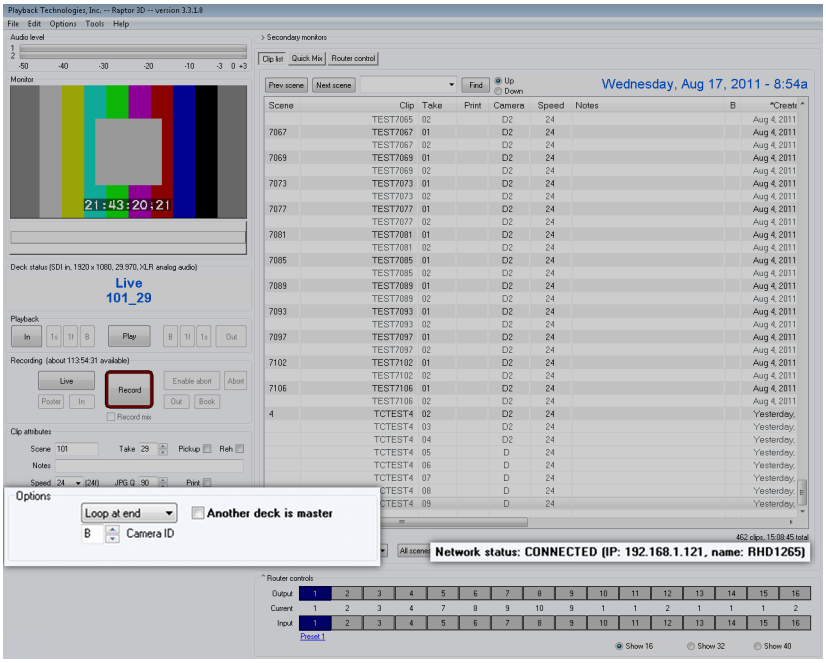
It is recommended to use a single Gigabit (10/100/1000) router (such as the Linksys RVS4000), and one (1) Cat5 cable for each deck connected. It is not recommended to connect the router to the Internet, or to connect Raptor decks to an existing router that is used by other computers and to access the Internet.

Setup

1. Connect all the cables to the router.
2. Choose one deck to be the central point of control for all decks' recording and playback and set its Camera ID (see page 20) to **A** (this is just a convention, not a requirement).
3. On the remaining decks, set the Camera IDs to all different letters (**B**, **C**, **D**, etc).
4. Verify that all the decks are connected to the network (see Network Status, page 20).
5. Set the A deck to be the Network Master, either via the **Network Master** checkbox in the Options area (page 19) or the Front Panel (page 41). At this point, the Master will scan the network and the other decks will respond. All the decks will synchronize their source lists; the Camera column will specify which decks the clips were recorded on, by Camera ID.
6. Once this process is complete, the Master should show a small status block (above the source list) showing the other decks, including their Camera IDs (page 20) and Network Names (page 20), their current clip name, and their current motion state (Live, Play, etc). Make sure that all of their boxes are checked and that there is no red text in any box. (A common cause for red text is different clip names. Change or re-type the clip name for the next recording on the Master and all remotes will be updated).



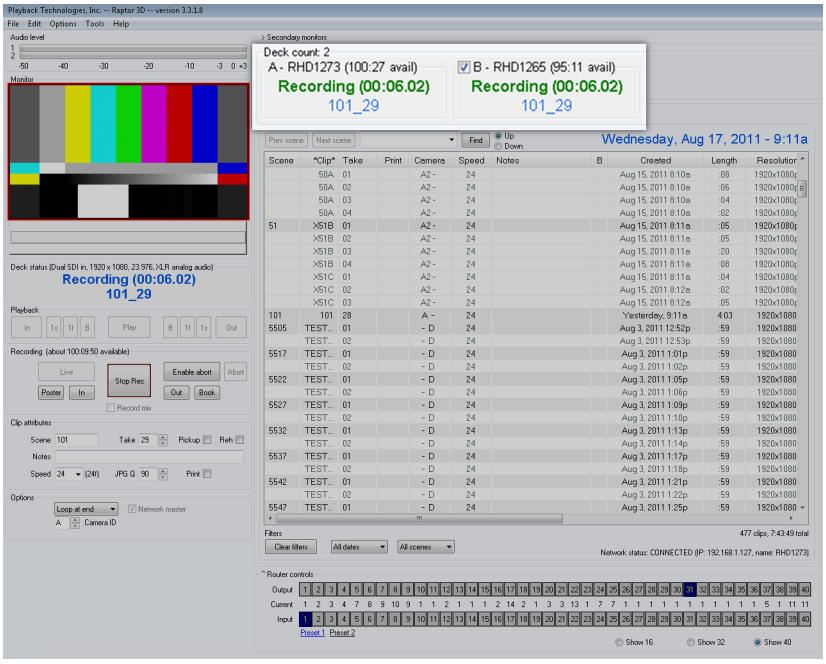
VGA screen of Network Master (A) with one other connected deck



VGA screen of remote deck (B) connected to Master

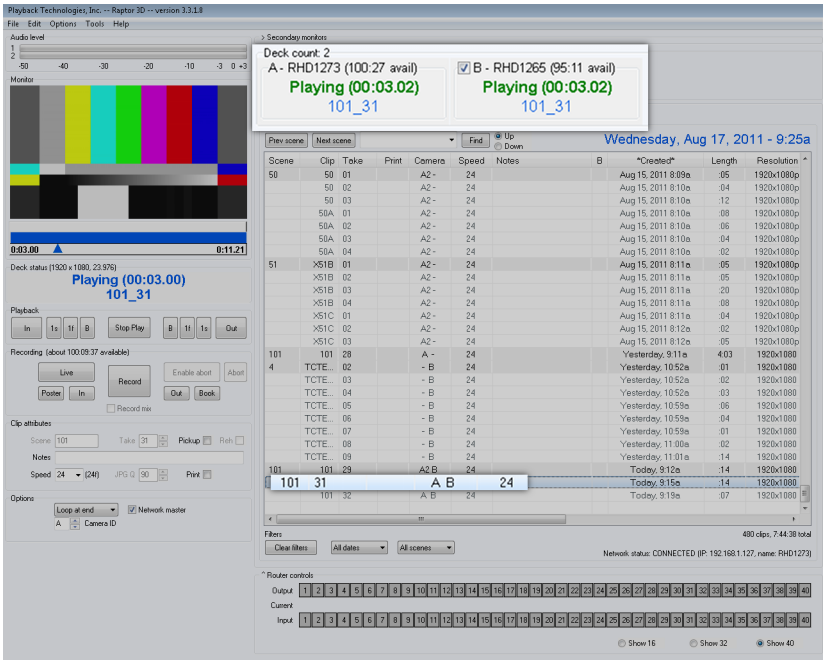
Synchronized Recording

Once all the decks are connected, any operation done on the Master will be passed to each of the other connected decks. They will begin and end recording simultaneously, place in-points, out-points, and bookmarks in a synchronized fashion, and record scene and clip names together.



Synchronized Playback

Similarly, properly-connected decks will cue clips and perform all playback commands in synchronized fashion, provided the clips are shared amongst them (note the **A B** camera ID).

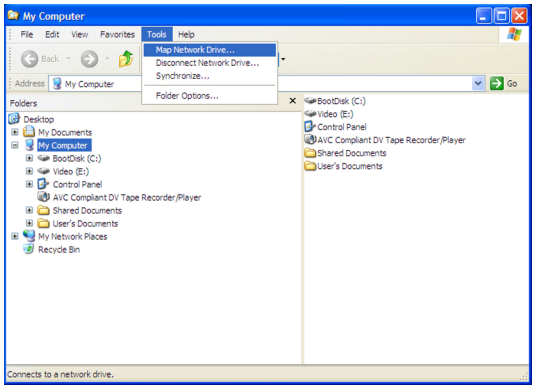


Network access to video files

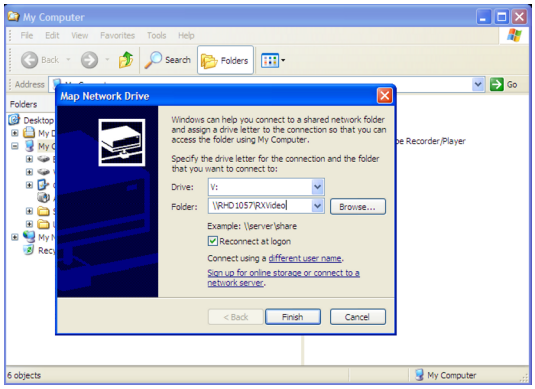
When a Raptor is connected to a local network, it provides easy access to the video recorded on the deck, for backup and editing. You will need to know the network name of the deck, once it is connected to the network (lower-right corner of the application window; see page 20). Connect both the Raptor and the computer you will be working on to the same LAN for this to work.

For Windows users

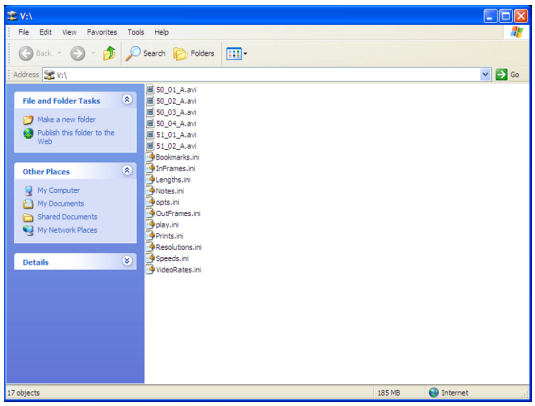
In order to work with the video stored on the deck, you need to map a network drive from a PC (desktop or laptop) to the Raptor.



1. On the PC, Open My Computer.
2. From the ***Tools*** menu, select **Map Network Drive...**



3. For **Drive**, choose an available letter.
4. Then, for **Folder**, enter the network name of the deck (like *RHD1057*) followed by *RXVideo*, like this: `\\RHD1057\RXVideo`
5. You may choose to leave the **Reconnect at logon** box checked so that you do not have to complete this process at the beginning of every session.
6. Click the link labeled “different user name” (on Windows 7, check the box labeled “Connect using different credentials”).
7. Enter the user name “raptor” and password “password.”
8. Click Finish to complete the process.

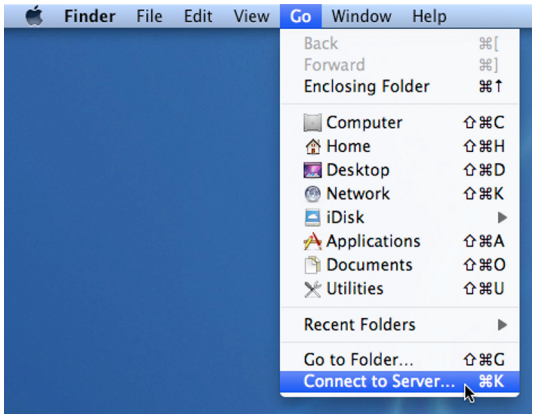


A new window should appear, showing the contents of the video folder on the deck.

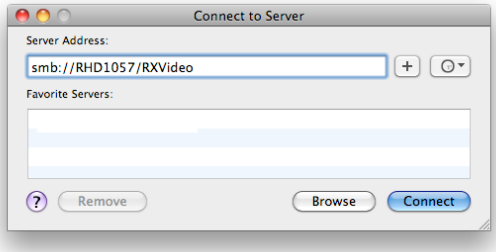
You may now use the video files that are stored on the deck directly on your PC.

For Macintosh users

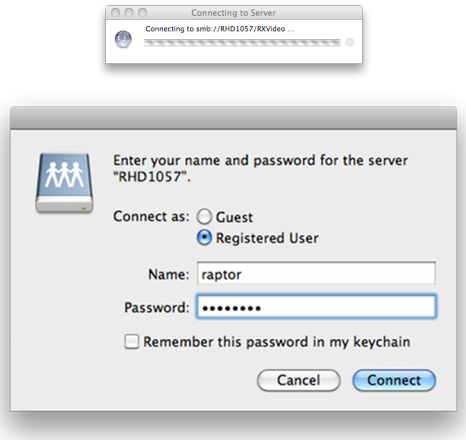
In order to work with the video stored on the deck, you need to connect to the Raptor as a Windows server.



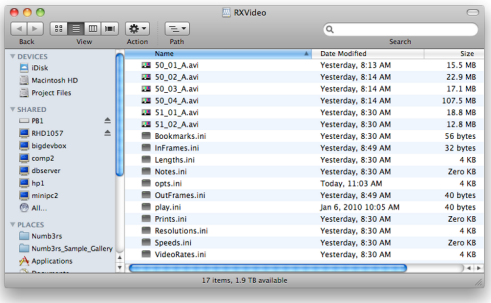
1. From the Finder's ***Go*** menu, select **Connect to Server...**



2. For **Server Address**, enter an address similar to the following:
   `smb://RHD1057/RXVideo`
   You will need to replace *RHD1057* with the network name of your deck, found in the lower right corner of the application (see Network Status block, page 20).



3. You will be prompted for a password – choose “Registered User.”
   Enter the login name “raptor” and the password “password.”
   Then click “Connect.”



4. A new Finder window will open, showing the contents of the video folder on the deck. After this point, the deck will appear by name (e.g. rhd1057) in the Finder's sidebar under “Shared.”

Now you can use the files on the deck as though they were stored on your local computer. The special folder in /Volumes will be created to represent the deck, and it will be listed in the left pane of the Finder window. Any changes made in this folder will be made directly on the deck.

Appendix A. Application Keyboard Shortcuts

This reference is accessible via the ***Help*** menu – choose **Keyboard Shortcuts**.

Key Combination	Function
Ctrl+R	Start recording
Ctrl+L	Go to Live
Enter	In Live, starts recording. In Record, stops recording. When selecting clips in list, cues clip immediately.
B	Place bookmark at current frame
I	In Record, marks current frame as in-point. In Play/Pause, seeks to in-point.
O	In Record, marks current frame as out-point. In Play/Pause, seeks to out-point.
Up arrow	Cue in-point / head / previous clip
Down arrow	Cue next clip
Ctrl+Up arrow	Go to previous scene
Ctrl+Down arrow	Go to next scene
Spacebar	Toggle play/pause. After typing in search box, executes search. When selecting a clip in list, cues clip immediately.
Left arrow	Seek back one frame
Ctrl+Left arrow	Seek back one second
Right arrow	Seek forward one frame
Ctrl+Right arrow	Seek forward one second
Tab	Go to next bookmark in current clip
Shift+Tab	Go to previous bookmark in current clip
Ctrl+F	Selects text in find box – press enter to execute search
F3	Repeat last find
Ctrl+P	Toggle “Print Take”
Ctrl+G	Clicks “Grab Plate” button
Ctrl+M	Toggles “Enable mixer” checkbox on or off
Ctrl+S	Select “Scene” text box
Ctrl+T	Select “Take” text box
Ctrl+N	Select “Notes” text box
Ctrl+D	Select “Speed” combo box
Ctrl+W	Toggle normal/enhanced video window
Ctrl+Alt+Shift+S	Change monitor resolution to “Safe mode” - 1024x768

Appendix B. Front Panel Keystrokes

The keystrokes listed below correspond to the 12 buttons and the knob on the front panel. The keys must be pressed in the order indicated.

Keystrokes

Key 1	Key 2	Key 3	Notes
`Record`			If in Live, starts recording. If not in Live, goes to Live. Press twice to start recording from Play or Pause.
`Play`			If paused, starts playing. If playing, pauses.
`Play`	`<<`		Scans backward at -4x
`Play`	`<`		Scans backward at -2x
`Play`	`>`		Scans forward at 2x
`Play`	`>>`		Scans forward at 4x
`Pause`			If in playback: pauses the DDR. If in Record: stops recording.
`Pause`	`<<`		Decrease next playback speed: used for setting variable speed playback. **** see notes***
`Pause`	`>>`		Increase next playback speed: used for setting variable speed playback. **** see notes***
`Pause`	`<`	`>`	Asks to confirm, then deletes current clip ******future feature***
`In, Out`			If in Play or Pause, locates to In-point or Out-point. If in Record, saves current frame as In-point or Out-point
`Next, Prev`			If in Play or Pause, locates to Bookmarks: `Next` or `Prev`. If in Record, `Next` places a bookmark at the current frame.
`Option`	`In, Out, Next, Prev`		Save current frame: `In`, `Out`, and Bookmark (`Next`). `Option + Prev` deletes a bookmark, if one has been set at the current frame.
`<`			Frame steps backward
`>`			Frame steps forward
`<<`			Locates to In-point or head of current clip, or cues previous clip. If in Live, locates to most recently recorded clip.
`>>`			Locates to head of next clip.
`Jog/ shuttle push`			Pause deck if in Play or Record. Toggles between clip or scene mode.

Key 1	Key 2	Key 3	Notes
Option	Play		Loop-plays between In & Out
Option	<		Locates back one second
Option	>		Locates forward one second
Option	<<		Locates to first frame of video on deck ****** future feature***
Option	>>		Locates to last frame of video on deck ****** future feature***
Option	<	>	Asks to confirm, then deletes all video from the hard disk (must hold for about 1 second).
Option	Pause		In Live, names next clip. Otherwise, renames current clip. ***** see notes***
Pause	In		Displays internal temperature
Pause	Out		Displays system information (Versions, Network Name and IP Address)
Pause	Next		Asks to confirm, then shuts down Raptor
Pause	Prev		Asks to confirm, then toggles network master
Option	Record	Prev	Cycles through available VGA screen resolutions (at least 1024x768)

* Reverse Play

Use the “decrease next playback speed” command. After you select the fastest variable playback speed, the display will show a series of "-" speeds.

** Clip Naming

The Raptor does not currently support renaming existing clips from the front panel.

To name the next recording, the deck must be in Live. This is when the deck is stopped and the `REC` button's LED is lit (not flashing). Press `Option` and `Pause`. Follow the on-screen menu to delete, select and change characters.

Use the << and >> keys to select characters, and the < and > keys to modify the current character. `Next` inserts a blank space and `Prev` deletes the current character. Press `Play` to save and exit.

Turning the `Jog/Shuttle` wheel will let you quickly select characters. Pushing the `Jog/Shuttle` knob will move the cursor one character to the right.

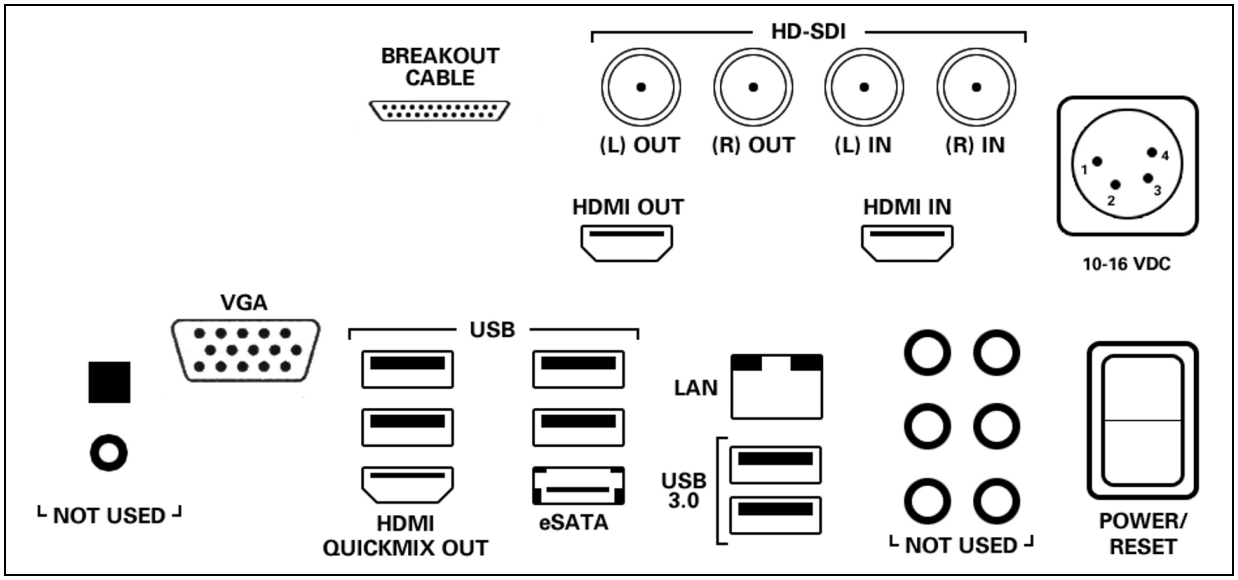
*** Future Feature

Keystrokes for future features are listed because they are reserved for those functions. These features are not yet included in Raptor shipments.

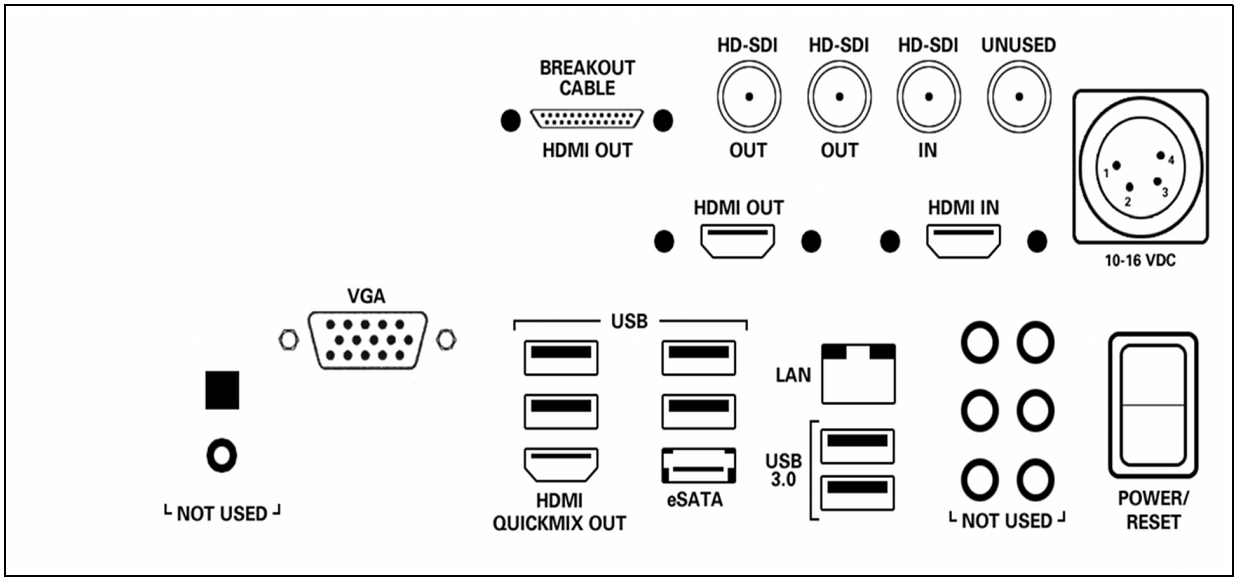
Appendix C. Rear Panel I/O Diagram

The following diagram shows the purpose of each I/O port on the rear panel of the Raptor 3D and HD+.

Raptor 3D



Raptor HD+



Appendix D. Breakout Cable

The Raptor utilizes a breakout cable for all analog audio and analog video I/O. HD-SDI and HDMI in and out are part of the rear panel connectors (see page 43).

Some of the connectors on the breakout cable are not used in the current product design. This includes the RS-422 Deck Control 9-pin D-SUB, the two AES audio in/out BNC's and the External Reference BNC.

The remaining 6 BNC's are “multiplexed” or switched between the desired analog video format you need to record and playback. The BNC's are marked *Y in*, *Y out*, *R-Y in*, *R-Y out*, *B-Y in*, and *B-Y out*.

To record and playback composite NTSC/PAL, use the *Y in* & *Y out* connectors. This requires setting the analog video output to **Composite** (see page 24).

Two channels of balanced audio in/out are also in the breakout cable.

The following table describes each connector.

Connector Type	Function	Notes
9-pin D-SUB-F (2)	*Deck Control*	*RS-422, Unused*
BNC-M (3)	R-Y In	R-Y of *Y, R-Y, B-Y* input
BNC-M (4)	Y In	Composite; or Y of *Y, R-Y, B-Y*; or Y of Y/C input (see page 24)
BNC-M (5)	B-Y In	B-Y of *Y, R-Y, B-Y* input; C of Y/C input
BNC-M (6)	*Ref In*	*Unused*
BNC-M (7)	R-Y Out	R-Y of *Y, R-Y, B-Y* output; Y of Y/C output
BNC-M (8)	Y Out	Composite or Y of *Y, R-Y, B-Y* output (see page 24)
BNC-M (9)	B-Y Out	B-Y of *Y, R-Y, B-Y* output; C of Y/C output
BNC-M (10)	*AES/EBU Out*	*Unused*
BNC-M (11)	*AES/EBU In*	*Unused*
XLR-M (12)	Audio Out Left	Always available as output (including when embedded audio is selected with HD-SDI or HDMI, page 24).
XLR-M (13)	Audio Out Right	
XLR-F (14)	Audio In Left	Available if analog audio input is selected (see Audio Input, page 24).
XLR-F (15)	Audio In Right	

Appendix E. Further Support

Warranty

Playback Technologies, Inc. warrants that each Raptor will be free from defects in materials and workmanship, covering parts and labor for a period of one year from the date of purchase.

Email Support

Steve Irwin: steve24@playbacktech.com

Steve Sexton: steves@playbacktech.com

Phone Support

Call Playback Technologies at +1-818-556-5030, Monday-Friday 9am-5pm except U.S. holidays.

If you call when the office is closed, please leave a voicemail message including your contact information; we are sometimes able to respond outside of normal business hours.

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