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M-Series
INTELLIGENT VIDEO DIGITAL RECORDER

User Manual

SOFTWARE VERSION 1.6

071-8322-00
19 MARCH 2004

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Revision Status

Rev Date	Description
September 11, 2004	IInitial release of the M-Series User Manual — 071-8228-00
March 19, 2004	Updated to include features in version 1.6 — 071-8322-00

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Finding Information

About this manual

This user manual describes the M-Series iVDR and provides instructions for installing and operating the product in a variety of applications.

How this manual is organized

This manual is organized around the tasks required to install, configure, and operate the M-Series iVDR. The following describes the chapters included in this manual:

Chapter 1, *Installing the M-Series iVDR* — Describes how to make rear panel connections and configure the iVDR for basic operation.

Chapter 2, *Quick Start Procedures* — Use these procedures to learn the basics the iVDR user interface to accomplish key tasks— recording, playing, trimming, and creating playlists.

Chapter 3, *Product Description* — Provides the product functional description and an introduction to AppCenter, the main user interface.

Chapter 4, *Modifying Configuration* — Describes how to modify the M-Series iVDR configuration settings using the Configuration dialog box.

Chapter 5, *Using the Monitor Pane* — Provides information for using the Monitor pane and for customizing it to suit your workflow.

Chapter 6, *Recording Clips* — Describes how to use the Recorder application to record clips.

Chapter 7, *Playing and Editing* — Describes how to use the Player application to play clips, trim clips, and create subclips.

Chapter 8, *Working With Playlists* — Describes how to use the PlayList application to create and manage playlists.

Chapter 9, *Managing Media Using Clips Pane* — This chapter describes how to use the Clips pane to manage media. Learn how to move, delete, copy, import/export assets, and to create and manage bins (directories) to organize media.

Chapter 10, *Using Remote Control Protocols* — Describes how to setup and industry standard remote control protocols to control the M-Series iVDR.

Appendix A, *Specifications* — Describes the mechanical, environmental, and electrical specifications of the iVDR.

Appendix B, *Rack-mounting and Connector Pin-outs* — Contains step-by-step rack-mount procedures and information about rear panel connector pin-outs.

Other printed manuals

This manual is part of a full set of support documentation you received with your M-Series iVDR.
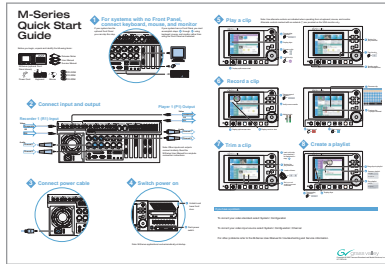
•**M-Series iVDR Quick Start Guide** — This guide provides step-by-step installation instructions for basic installation and operation, including recording and playing clips, trimming clips, and making a playlist.

•**M-Series iVDR Release Notes** — Contains the latest information about the M-Series iVDR software shipped on your system. The information in this document includes software upgrade instructions, software specifications and requirements, feature changes from the previous releases, and any known problems.

•**M-Series iVDR Service Manual** — Contains information for solving common setup problems, as well as information on servicing and maintenance.

Getting more information

In addition to the printed manuals, information is available in the following locations.

On-line Help

To access online help:

- In the main user interface toolbar, select **Tools,** then choose **Help** from the pop-up menu. The M-Series Help home page is displayed.

  - or -

- In any M-Series application or tool, select the context menu, then choose **Help**. Online help for the application is displayed.

Printed manuals in PDF format

All printed manuals are available in the Acrobat file format (pdf) on the *M-Series iVDR* System *Software* CD-ROM. The manuals are located in the CD-ROM *Documentation* directory.

Thomson Grass Valley Web site

This public Web site contains all the latest manuals and documentation, and additional support information. Use the following URL.

http://www.thomsongrassvalley.com.

Grass Valley Product Support

To get technical assistance, check on the status of problems, or report new problems, contact Grass Valley Product Support via e-mail, the Web, or by phone or fax.

Web Technical Support

To access support information on the Web, visit the product support Web page on the Grass Valley Web site. You can download software or find solutions to problems by searching our Frequently Asked Questions (FAQ) database.

World Wide Web: http://www.thomsongrassvalley.com/support/
Technical Support E-mail Address: gvgtechsupport@thomson.net.

Phone Support

Use the following information to contact product support by phone during business hours. Afterhours phone support is available for warranty and contract customers.

United States	(800) 547-8949 (Toll Free)	France	+33 (1) 34 20 77 77
Latin America	(800) 547-8949 (Toll Free)	Germany	+49 6155 870 606
Eastern Europe	+49 6155 870 606	Greece	+33 (1) 34 20 77 77
Southern Europe	+33 (1) 34 20 77 77	Hong Kong	+852 2531 3058
Middle East	+33 (1) 34 20 77 77	Italy	+39 06 8720351
Australia	+61 3 9721 3737	Netherlands	+31 35 6238421
Belgium	+32 2 3349031	Poland	+49 6155 870 606
Brazil	+55 11 5509 3440	Russia	+49 6155 870 606
Canada	(800) 547-8949 (Toll Free)	Singapore	+656379 1390
China	+86 106615 9450	Spain	+ 34 91 512 03 50
Denmark	+45 45968800	Sweden	+46 87680705
Dubai	+ 971 4 299 64 40	Switzerland	+41 (1) 487 80 02
Finland	+35 9 68284600	UK	+44 870 903 2022

Authorized Support Representative

A local authorized support representative may be available in your country. To locate the support representative for your country, visit the product support Web page on the Grass Valley Web site.

Safety Summaries

General Safety Summary

Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it.

Only qualified personnel should perform service procedures.

While using this product, you may need to access other parts of the system. Read the *General Safety summary* in other system manuals for warnings and cautions related to operating the system.

Injury Precautions

Use Proper Power Cord

To avoid fire hazard, use only the power cord specified for this product.

Ground the Product

This product is grounded through the grounding conductor of the power cord. To avoid electric shock, the grounding conductor must be connected to earth ground. Before making connections to the input or output terminals of the product, ensure that the product is properly grounded.

Do Not Operate Without Covers

To avoid electric shock or fire hazard, do not operate this product with covers or panels removed.

Do Not operate in Wet/Damp Conditions

To avoid electric shock, do not operate this product in wet or damp conditions.

Do Not Operate in an Explosive Atmosphere

To avoid injury or fire hazard, do not operate this product in an explosive atmosphere.

Avoid Exposed Circuitry

To avoid injury, remove jewelry such as rings, watches, and other metallic objects. Do not touch exposed connections and components when power is present.

Product Damage Precautions

Use Proper Power Source

Do not operate this product from a power source that applies more than the voltage specified.

Provide Proper Ventilation

To prevent product overheating, provide proper ventilation.

Do Not Operate With Suspected Failures

If you suspect there is damage to this product, have it inspected by qualified service personnel.

Battery Replacement

To avoid damage, replace only with the same or equivalent type. Dispose of used battery according to the circuit board manufacturer's instructions.

Safety Terms and Symbols

Terms in This Manual

These terms may appear in this manual:

WARNING: Warning statements identify conditions or practices that can result in personal injury or loss of life.

CAUTION: Caution statements identify conditions or practices that may result in damage to equipment or other property, or which may cause equipment crucial to your business environment to become temporarily non-operational.

Terms on the Product

These terms may appear on the product:

DANGER indicates a personal injury hazard immediately accessible as one reads the marking.

WARNING indicates a personal injury hazard not immediately accessible as you read the marking.

CAUTION indicates a hazard to property including the product.

Symbols on the Product

The following symbols may appear on the product:

DANGER high voltage

Protective ground (earth) terminal

ATTENTION – refer to manual

Service Safety Summary

⚠️ *WARNING: The service instructions in this manual are intended for use by qualified service personnel only. To avoid personal injury, do not perform any servicing unless you are qualified to do so. Refer to all safety summaries before performing service.*

Do Not Service Alone

Do not perform internal service or adjustment of this product unless another person capable of rendering first aid and resuscitation is present.

Disconnect Power

To avoid electric shock, disconnect the main power by means of the power cord or, if provided, the power switch.

Use Care When Servicing With Power On

Dangerous voltages or currents may exist in this product. Disconnect power and remove battery (if applicable) before removing protective panels, soldering, or replacing components.

To avoid electric shock, do not touch exposed connections

Certifications and Compliances

Canadian Certified Power Cords

Canadian approval includes the products and power cords appropriate for use in the North America power network. All other power cords supplied are approved for the country of use.

FCC Emission Control

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Changes or modifications not expressly approved by Grass Valley can affect emission compliance and could void the user's authority to operate this equipment.

Canadian EMC Notice of Compliance

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A préscrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

**EN55103 1/2
Class A Warning**

This product has been evaluated for Electromagnetic Compatibility under the EN 55103-1/2 standards for Emissions and Immunity and meets the requirements for E4 environment.

This product complies with Class A (E4 environment). In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

FCC Emission Limits

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesirable operation.

Laser Compliance

Laser Safety Requirements

The device used in this product is a Class 1 certified laser product. Operating this product outside specifications or altering its original design may result in hazardous radiation exposure, and may be considered an act of modifying or new manufacturing of a laser product under U.S. regulations contained in 21CFR Chapter 1, subchapter J or CENELEC regulations in HD 482 S1. People performing such an act are required by law to recertify and reidentify this product in accordance with provisions of 21CFR subchapter J for distribution within the U.S.A., and in accordance with CENELEC HD 482 S1 for distribution within countries using the IEC 825 standard.

Laser Safety

Laser safety in the United States is regulated by the Center for Devices and Radiological Health (CDRH). The laser safety regulations are published in the "Laser Product Performance Standard," Code of Federal Regulation (CFR), Title 21, Subchapter J.

The International Electrotechnical Commission (IEC) Standard 825, "Radiation of Laser Products, Equipment Classification, Requirements and User's Guide," governs laser products outside the United States. Europe and member nations of the European Free Trade Association fall under the jurisdiction of the Comité Européen de Normalization Electrotechnique (CENELEC).

Safety Certification

This product has been evaluated and meets the following Safety Certification Standards:

Standard	Designed/tested for compliance with:
ANSI/UL60950, CAN/CSA C22.2 No. 60950-00 12/01/2000	Safety of Information Technology Equipment, including Electrical Business Equipment (Third edition).
IEC 950	Safety of Information Technology Equipment, including Electrical Business Equipment (Third edition, 1999).
EN60950	Safety of Information Technology Equipment, including Electrical Business Equipment (Third Edition 2000).

Installing the M-Series iVDR

Procedures in this chapter include:

- "Making connections for basic operation"
- "VGA Display 'hot-key' sequence"
- "Powering on and shutting down"
- "Configuring for basic operation"
- "Verifying basic operation"
- "Setting up the Ethernet network"
- "Connecting RS422"
- "Connecting GPI"

Making connections for basic operation

Connect as shown for recording and playing under local control. Refer to sections later in this chapter for other connections, such as those for networking and remote operation.

Recorder 1 (R1) and Recorder 2 (R2) input connections
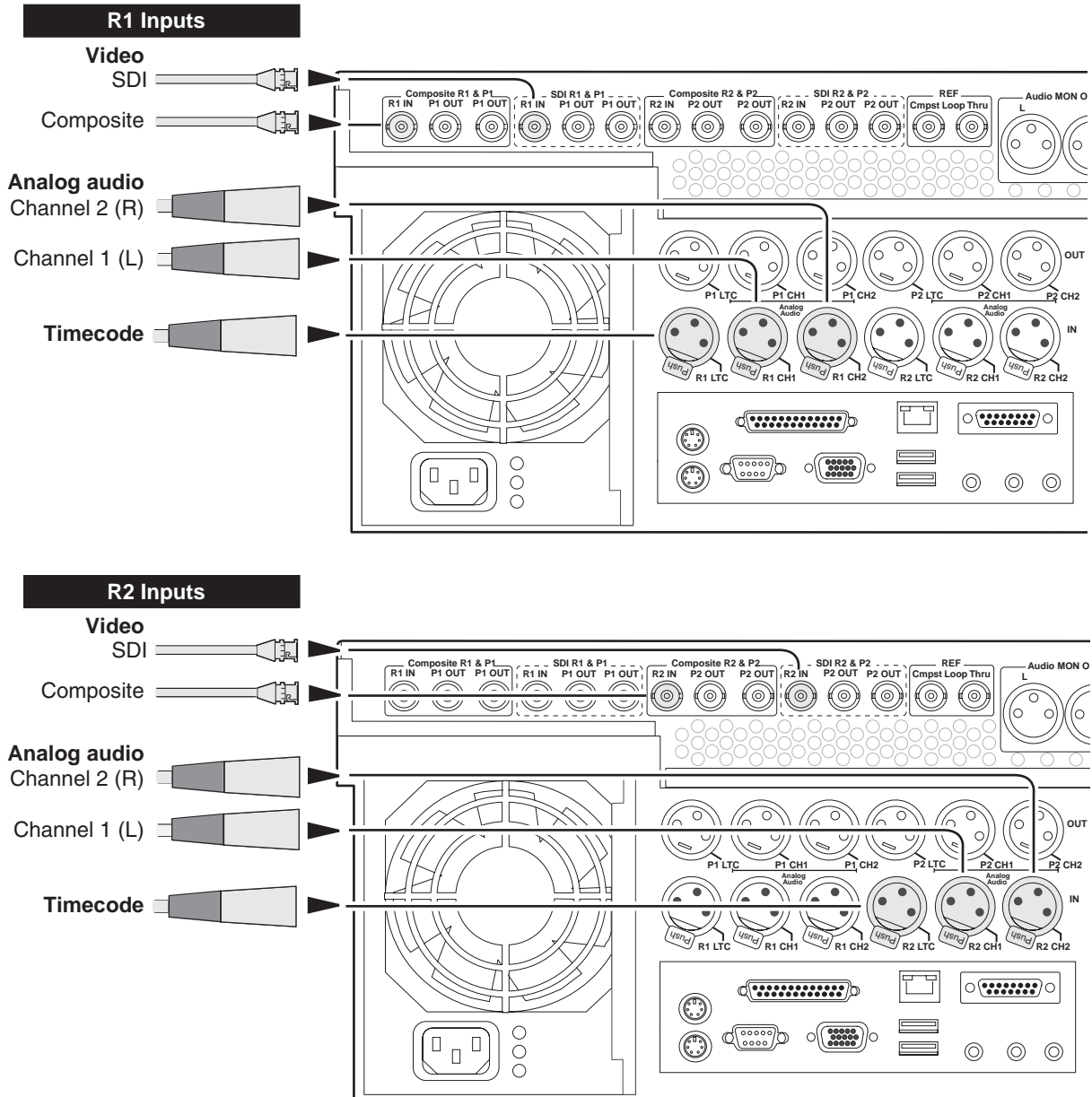
Player 1 (P1) and Player 2 (P2) output connections

P1 Outputs

Video
Composite
SDI

Timecode

Analog audio
Channel 1 (L)
Channel 2 (R)

Composite R1 & P1 — R1 IN   P1 OUT   P1 OUT
SDI R1 & P1 — R1 IN   P1 OUT   P1 OUT
Composite R2 & P2 — R2 IN   P2 OUT   P2 OUT
SDI R2 & P2 — R2 IN   P2 OUT   P2 OUT
REF — Cmpst Loop Thru
Audio MON O   L

OUT

P1 LTC   P1 CH1   P1 CH2   P2 LTC   P2 CH1   P2 CH2

Analog Audio

IN

R1 LTC   R1 CH1   R1 CH2   R2 LTC   R2 CH1   R2 CH2

Push

P2 Outputs

Video
Composite
SDI

Timecode

Analog audio
Channel 1 (L)
Channel 2 (R)

Composite R1 & P1 — R1 IN   P1 OUT   P1 OUT
SDI R1 & P1 — R1 IN   P1 OUT   P1 OUT
Composite R2 & P2 — P2 OUT   P2 OUT
SDI R2 & P2 — R2 IN   P2 OUT   P2 OUT
REF — Cmpst Loop Thru
Audio MON O   L

OUT

P1 LTC   P1 CH1   P1 CH2   P2 LTC   P2 CH1   P2 CH2

Analog Audio

IN

R1 LTC   R1 CH1   R1 CH2   R2 LTC   R2 CH1   R2 CH2

Push

Keyboard, mouse, and VGA monitor connections

If your M-Series iVDR does not have the optional Front Panel, these connections are required for local operation.

If your M-Series iVDR has the optional Front Panel these connections are not required. However, keyboard, mouse, and monitor provide an alternate means to operate your M-Series iVDR. For example, if you need to enter extensive text or number sequences you might find the keyboard easier to use.

Do not connect monitor

USB mouse
(Supplied with iVDR)

USB keyboard
(Supplied with iVDR)

VGA monitor
(Not supplied with iVDR)
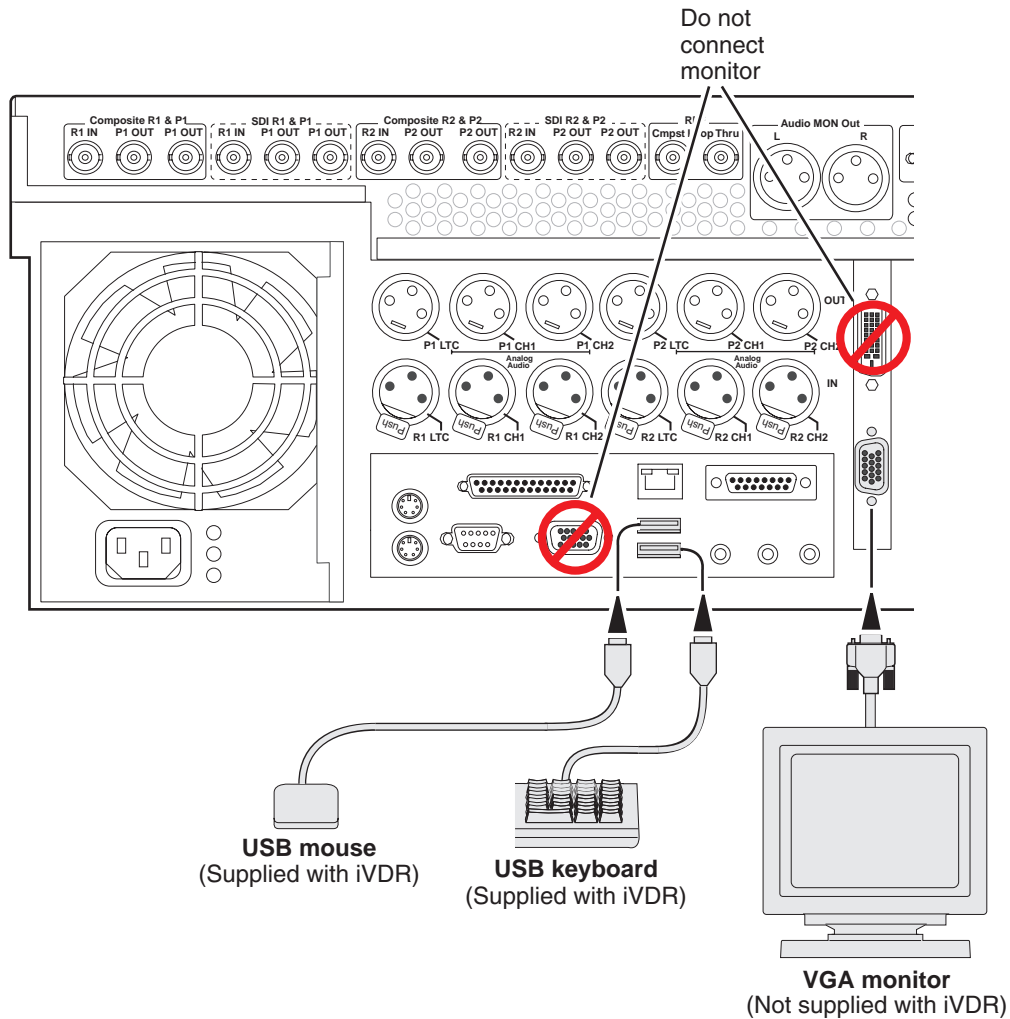
Audio monitoring connections

Connect audio monitor as shown.

Left (Channel 1)

Right (Channel 2)
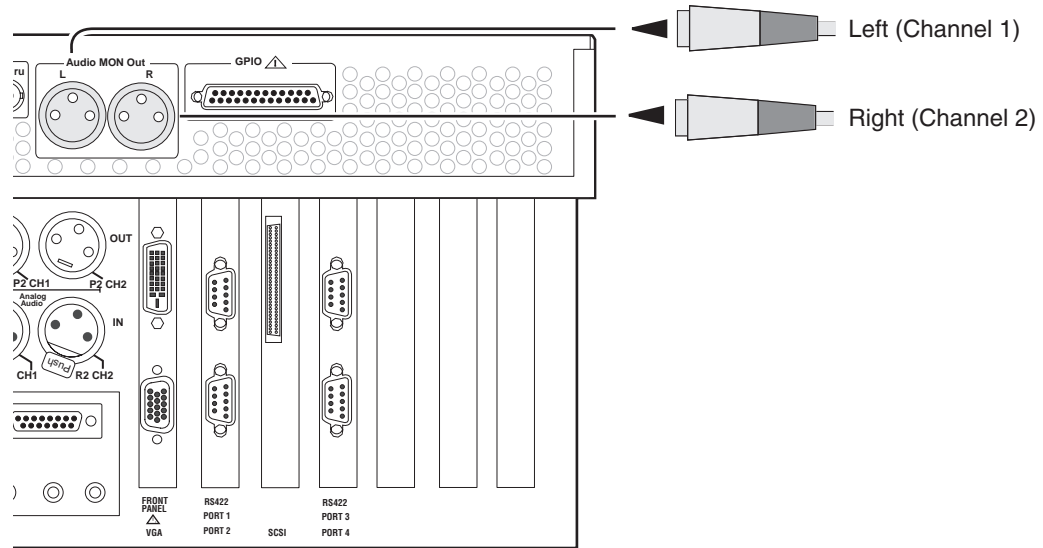
Reference Video connections

Connect a reference video signal as shown. The reference signal must be an analog composite signal. You must terminate the signal if you are not connecting the loop-through to another device.

Reference in/out

Reference in/out

-OR-

75 Ω terminator
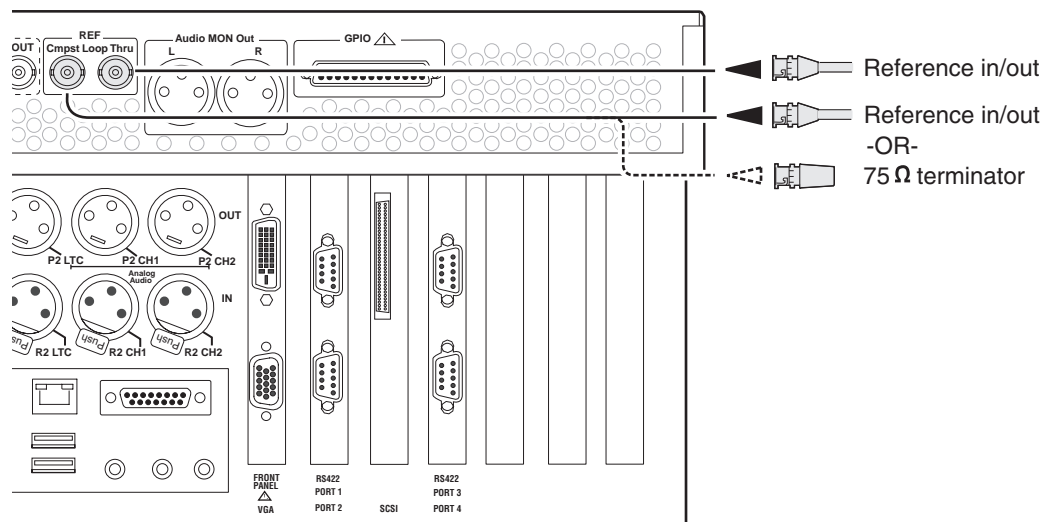
Power connection

Connect the power cable as shown.
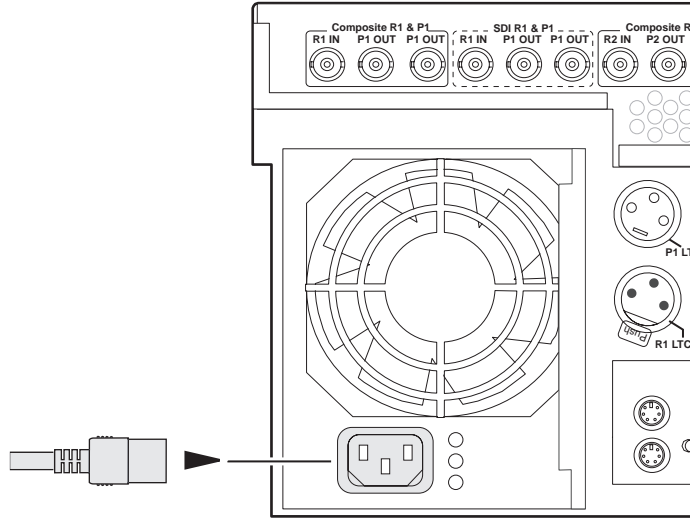
VGA Display 'hot-key' sequence

On systems without the optional Front Panel installed, the Windows desktop is oversized at power-up and scrolls as you move the mouse. This is because the display adapter card in the iVDR always starts in 640x480 mode even though the Windows screen size is set to 800x600.

To easily change the display adapter settings, press the **CTRL+ALT+C** hot-key sequence when AppCenter is fully initialized after power-up to switch the display adapter card to 800x600 display settings. If you inadvertently select this key sequence on an iVDR with a front panel, press the **CTRL+ALT+L** hot-key sequence to return to 640x480 display settings which is required for front panel operation.

IMPORTANT: On systems without the optional front panel, press the Ctrl+Alt+C hot-key sequence when AppCenter is fully initialized after power-up to set the correct display settings.
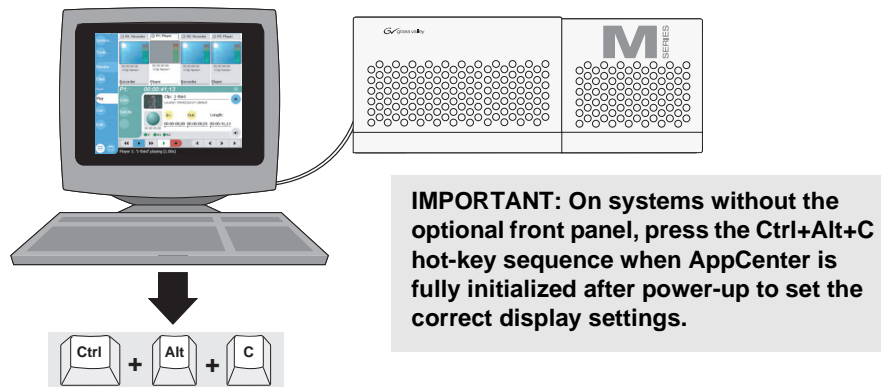
Powering on and shutting down

The following sections provide procedures for power on and shutdown.

To power on

1 Unlatch and
lower the drive
bay door.

2 **Push the standby switch.**
Wait for the Windows
operating system to
startup, then the iVDR
applications start
automatically.
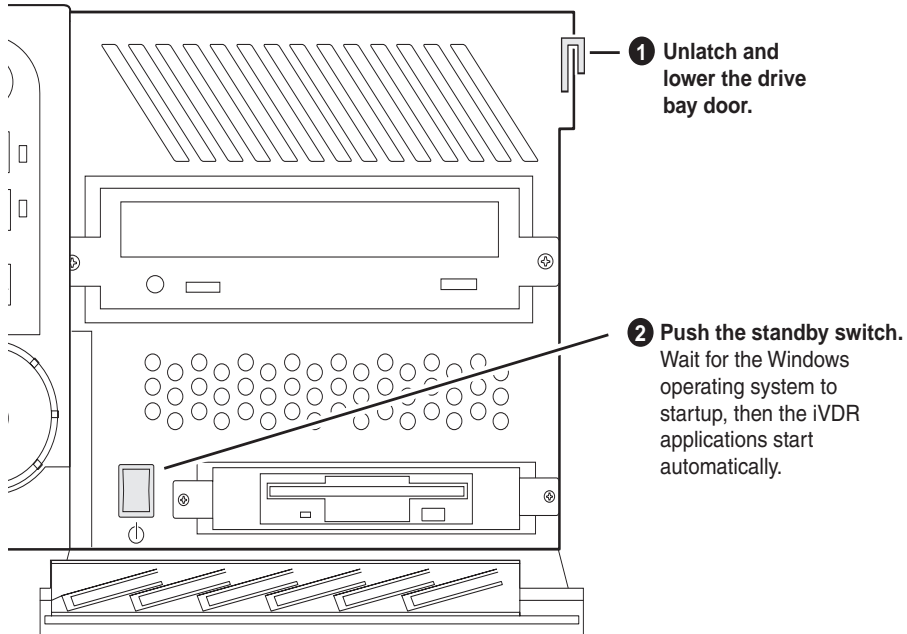
To shutdown or restart

1. In the AppCenter toolbar, select **System**, then choose **Shutdown** in the pop-up menu.

   The Shutdown dialog box appears.

2. In the Shutdown dialog box, choose a shutdown mode using the drop-down list, then select **OK**.
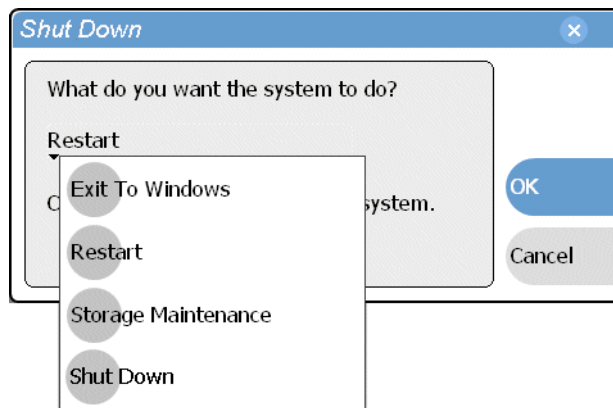
Dialog box shutdown modes:

Shutdown Mode	Description
Exit to Windows	Exit AppCenter and display the Windows desktop. Use the desktop shortcut to restart AppCenter.
Restart	Exit AppCenter and restart the Windows operating system. AppCenter will restart automatically.
Storage Maintenance Mode	Exit AppCenter and restart the iVDR in storage maintenance mode to allow maintenance on the media disk subsystem. Refer to the *M-Series Service Manual* for procedures.
Shutdown	Shutdown the Windows operating system and power-off the iVDR.

NOTE: If you believe your iVDR is "hung" in an unresponsive state, you can perform a forced shutdown by pressing and holding the standby button for approximately five seconds.

⚠️ *WARNING: The power standby switch does not turn off power to the system. The system must be disconnected from the power source.*

Accessing the Windows desktop

For some tasks, such as configuring for Ethernet networking, you must access the Windows operating system. Use the following procedure to minimize AppCenter.

To access the Windows desktop do the following:

• In the Toolbar select **System**, then choose **Minimize**.

AppCenter minimizes and the Windows desktop appears.

To maximize, select the maximize button on the AppCenter title bar.

⚠️ *CAUTION: The M-Series is not a general purpose Windows workstation. The Windows configuration on the iVDR has been specifically set for use as a real time device. The M-Series iVDR is configured for automatic logon allowing unattended booting. To avoid partial or total system failure, do not modify any operating system settings unless approved by Grass Valley, including but not limited to the following:*
— Do not use the User Manager
— Do not use the Disk Administrator
— Do not load any third party software
— Do not install any Windows updates other than "critical updates" without contacting Grass Valley Product Support

Configuring for basic operation

Use the following procedures to configure the iVDR for basic record and play operations under local control.

For complete configuration procedures refer to Chapter 4, *Modifying Configuration*. You can also view a listing of all configuration settings on the inside front cover of this manual.

Configuration tasks:

•

•

•

Select system settings

1. On the Toolbar, select **System** and choose **Configuration**.

The Configuration dialog opens.

2. On the Configuration dialog select **System**.

The System configuration page appears. The settings on this tab apply system-wide to all record and play channels.

Configuration for iVDR-1

System

What is your system video standard?

Channel

♦ NTSC (525 Line)

⦿ PAL (625 Line)

GPI

🟢 Reference source is present
🟢 System is locked to reference

Panel

What is the default (unity) audio level?

Hosts

⦿ 0 dB

♦ +4 dB

⦿ +8 dB

OK

Cancel
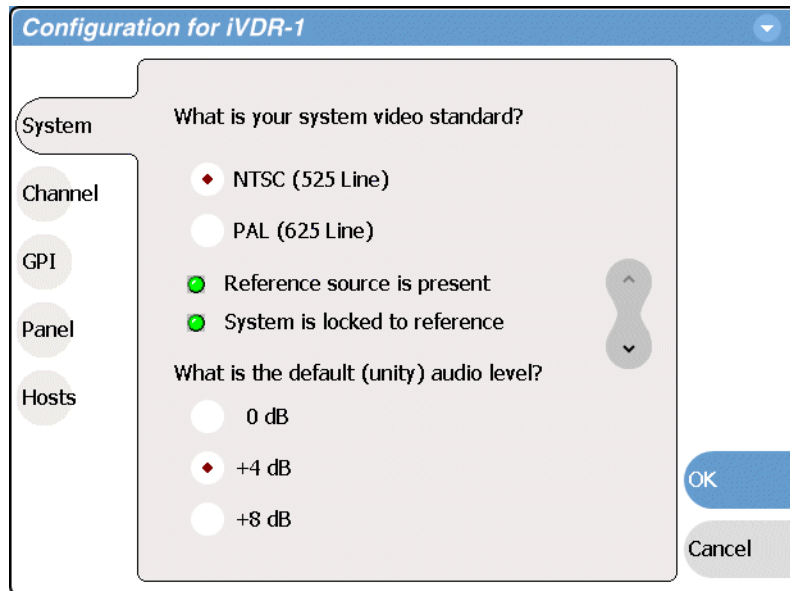
3. Select the video standard for the iVDR.

   The iVDR must be restarted for video standard changes to take effect. You'll be prompted to restart when you exit the Configuration dialog box.

4. Set the audio reference level for the iVDR.

5. Scroll down and identify the question "What is your channel compression type?".

Configuration for iVDR-1

System

What is your channel compression type?

Channel

♦ DV25

Panel

⦿ MPEG I-frame

Hosts

OK

Cancel
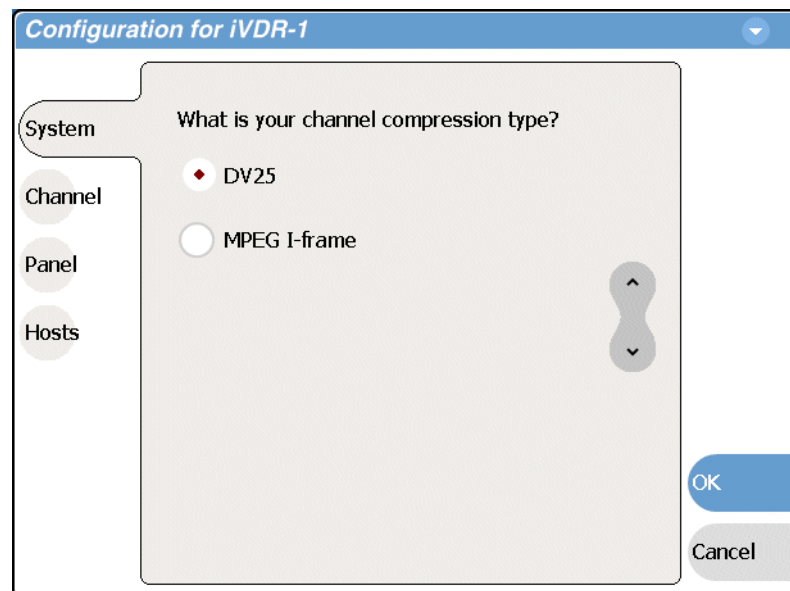
6. Select one of the following compression types:

   • DV25 — When you make this selection, no further compression settings are available or necessary. However, you must select **OK** and save this setting before the iVDR configuration actually changes. When prompted, restart the iVDR. Restarting is required for the video compression changes to take effect.

- MPEG I-frame — When you make this selection, additional settings are available. Proceed to step 7 to complete the MPEG I-Frame settings. *NOTE: MPEG I-frame compression is not available in the M-Series iVDR model M-122A.*

7. Make sure **MPEG I-frame** is selected as instructed previously and then scroll down to display the additional MPEG settings.
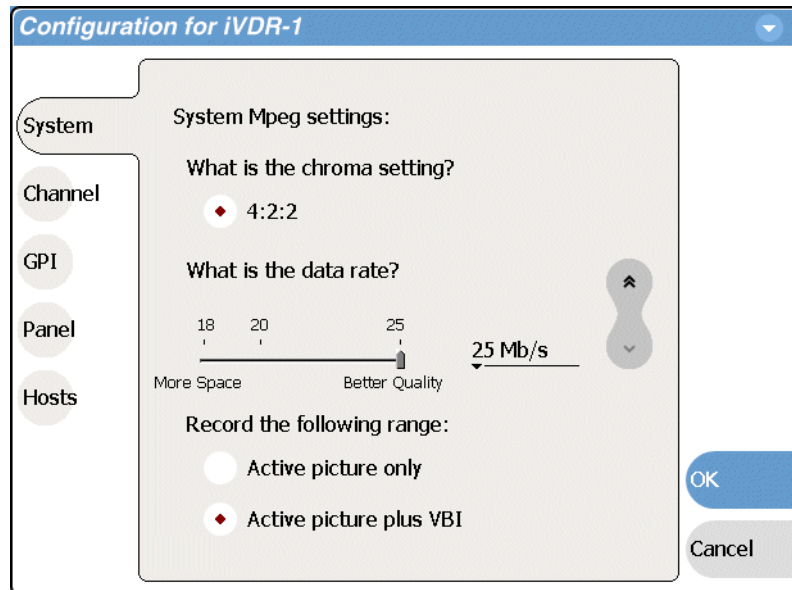
8. Select Data Rate, and VBI settings.

   Select the **Active picture plus VBI** option if you need to record signals or data inserted in the vertical blanking interval (VBI). Otherwise, you should select **Active picture only** option. The VBI information is compressed along with the picture content. You may need to increase the data rate if you have trouble with the integrity of the VBI signals during playback.

9. Select **OK** to save all changes at once.

10. When prompted, restart the iVDR. The restart is required to put the video compression or video standard change into effect.

Select the video input

To select the video input of each record channel:

1. Select **System** and choose **Configuration**, then select the **Channel** button.

2. Select the **R1** or **R2** tab, and open the **Video Input** link.

   Close other links or use the scroll button if necessary to locate the link.

3. Locate the question "What is your video input type?".
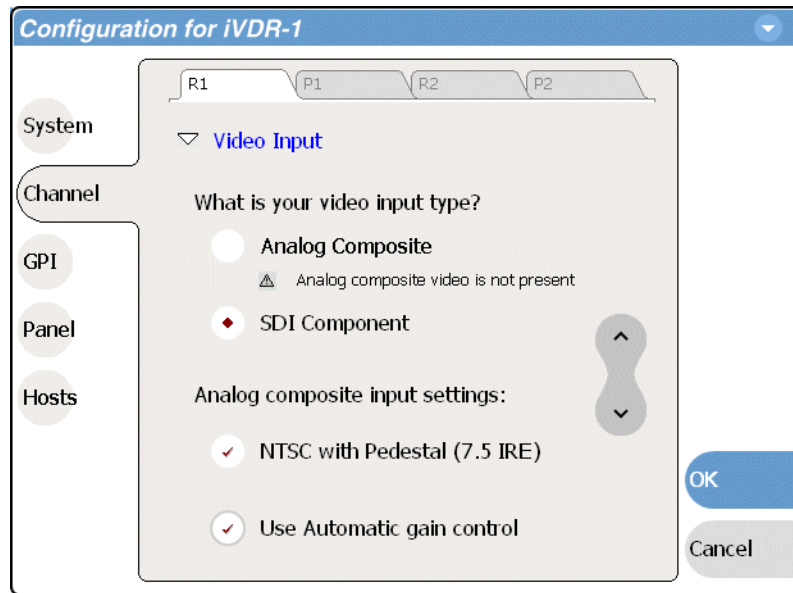
4. Make selections as follows:

- Analog Composite — Make this selection to record analog composite video connected to the record channel's *Composite* input. If a warning message is displayed about composite signal not present, verify that and composite signal is connected. When you select Analog composite additional video input settings are available as explained in "Record channel settings" on page 101.

- SDI Component — Make this selection to record SDI component video connected to the record channel's *SDI* input. If a warning message is displayed about SDI not present, verify that and SDI signal is connected.

Select timecode source

The timecode source for each record channel is selected in the Recorder application running on the channel. Refer to "Changing the timecode source" on page 140.

Verifying basic operation

Record and play a short clip to confirm that your connections and system setup are correct.

Refer to the Chapter 2, *Quick Start Procedures* for record and play procedures.

Setting up the Ethernet network

Refer to the following list of procedures, then perform the ones required to set up the Ethernet network for your application.

- "Connecting the Ethernet network cabling"
  Shows how to connect the iVDR to an Ethernet network using the standard 100BaseT port or the optional 1GBaseT port.

- "100BaseT Configuration: Data and streaming between iVDRs" Contains instructions for configuring the 100BaseT network connection to provide standard data network capability and for streaming media transfers between iVDRs.

- "1GBaseT Configuration: Data and streaming between iVDRs" Contains instructions for configuring the 1GBaseT network connection to provide standard data network capability and for streaming media transfers between iVDRs.

- "Operating with both 100BT and 1GBT network connections"
  Describes how to set up both networks so that you can use the low speed network for standard data network tasks, and the high speed network for streaming transfers between iVDRs.

- "100BaseT Configuration: iVDR and Profile XP streaming". Follow these instructions if you use the network for streaming media transfers to non-M-Series devices such as the Profile XP Media Platform.

Connecting the Ethernet network cabling

Connect as illustrated. The high-speed (1 Gb) connection is available only if you have the optional card installed.
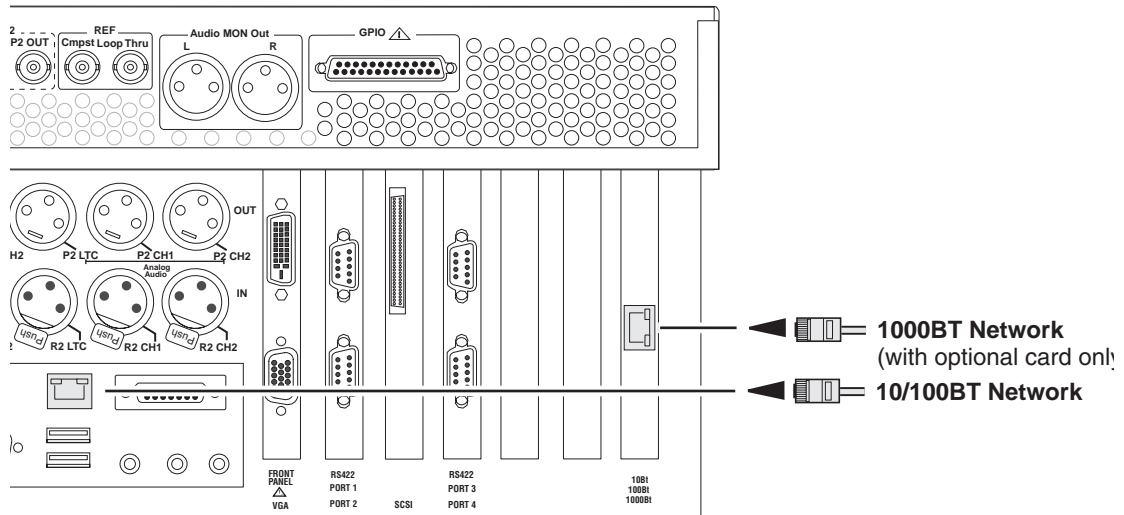
100BaseT Configuration: Data and streaming between iVDRs

After making 100BaseT network connections as described in "Connecting the Ethernet network cabling" on page 33, use the following procedure to configure the network settings. Once configured, you can perform the following tasks:

- General networking tasks such as file sharing and mapping network drives.

- Remote control of the iVDR using devices and applications software developed for the M-Series iVDR that use industry standard remote control protocols over Ethernet.

- Streaming media transfers between iVDRs.

This procedure guides you to relevant settings, but does not instruct you on the specific settings required for your network. It is assumed that you understand Ethernet networks in general and your particular network needs and that you can apply that understanding to make the required settings using standard Windows procedures. If you need help with these procedures, contact your network administrator.

Procedure summary:

- "Configure Windows network settings" on page 34
- "Add network hosts names for streaming" on page 35

Configure Windows network settings

1. If you normally operate your M-Series iVDR using the optional Front Panel touch-screen, you should connect keyboard and mouse before proceeding. Refer to "Keyboard, mouse, and VGA monitor connections" on page 24 for instructions. You will likely find it easier to configure your network using a keyboard and mouse rather than the touch-screen. You may need to restart Windows to make the mouse and keyboard operational.

2. Shut down AppCenter as follows:

   a. In the AppCenter toolbar, select **System**, then choose **Shutdown** in the pop-up menu.

      The Shutdown dialog box appears.

   b. Using the drop-down list, choose **Exit to Windows**, then select **OK**.

      AppCenter shuts down and the Windows desktop appears.

   ⚠ *CAUTION: The M-Series is not a general purpose Windows workstation. The Windows configuration on the iVDR has been specifically set for use as a real time device. The M-Series iVDR is configured for automatic logon allowing unattended booting. To avoid partial or total system failure, do not modify any operating system settings unless approved by Grass Valley, including but not limited to the following:*
   — Do not use the User Manager
   — Do not use the Disk Administrator
   — Do not load any third party software
   — Do not install any Windows updates other than "critical updates" without contacting Grass Valley Product Support

3. In the Windows taskbar, select **Start | Settings | Network and Dial-up Connections** and continue with standard Windows procedures to configure the TCP/IP protocol properties on each M-Series iVDR on the network. You can setup the network using DHCP, DNS, WINS, or other standard networking mechanisms.

NOTE: For a small network, without a DHCP server or domain name server (DNS), you can set up a static IP address and create a Host file on each iVDR. The Host file specifies a device name for each IP address used on the network. Refer to the Windows documentation or your network administrator for more information.

4. Shutdown and restart Windows.

5. If you are going to stream video between iVDRs, proceed to "Add network hosts names for streaming" on page 35, otherwise, the iVDR is ready for standard data networking tasks.

Add network hosts names for streaming

You must add the host names of all peer iVDRs on the network that support streaming transfers. Adding host names is required to allow selection of networked iVDRs in the AppCenter user interface and to provide a successful network connection for streaming. The host names added will appear in the "Import" and "Send to" dialog boxes.

NOTE: By default, the iVDR host name is the same as the Windows computer name. To determine the iVDR computer name, right-click My Computer on the Windows desktop, then properties. Select the Network Identification tab and look for the "Full computer name".

In addition, if you are using remote protocol to perform video network transfers, you'll need to assign a unique Controller ID number for each host name. If you are not using remote protocol for network transfers, you can leave the Controller Id blank.

To add a network host names:

1. Start AppCenter, if it is not already running, using the desktop shortcut.

2. In AppCenter toolbar, select **System**, then choose **Configuration**.

3. Select the **Hosts** button.

   The network host names are displayed.

4. Select **Add**, to open the Add Host dialog box, then do the following:

   a. Select the "Enter host name:" text entry control, then enter the computer name of a peer iVDR.

   Make sure to enter the exact computer name. Any differences will result in being unable to connect to the iVDR.

   b. If you are using remote protocols to perform video network transfers, you must use the following steps to add a unique Controller ID for each host, otherwise, you can ignore this step and proceed to step c.

   - Select the "Enter controller ID:" text entry control.

   - Enter the controller ID of the iVDR, then select **OK**.

   Make sure to enter a number between 1 and 255 that is unique to the iVDR.

   c. Select **OK** in the Add Host dialog box.

5. Repeat step 4 for the remaining iVDRs.

6. In the Configuration dialog box, select **OK** to save settings.

Once the host names are added, the iVDR is ready for streaming operation. Refer to "Importing assets from another iVDR or Profile XP system" on page 246, and "Sending assets to another machine" on page 251 for procedures on transferring media.

NOTE: If you have trouble, try using the ping utility in the Windows command prompt using either the IP address or host name. Troubleshoot as needed. Also, refer to the M-Series Service Manual for troubleshooting procedures.

1GBaseT Configuration: Data and streaming between iVDRs

After making 1GBaseT network connections as described in "Connecting the Ethernet network cabling" on page 33, use the following procedure to configure the network settings.

Once the 1GBaseT network configured, you can perform the following tasks:

- General networking tasks such as file sharing or importing/exporting from networked devices using standard media file formats (AVI DV25/GXF).

- Remote control of the iVDR using devices and applications software developed for the M-Series iVDR that use industry standard remote control protocols over Ethernet.

- Stream media transfers between iVDRs using the General Exchange Format (GXF) as described in SMPTE 360M. GXF streaming transfers allow loading and playing a clip before the transfer is complete.

  Setting up the 1GBaseT network for streaming transfer support has the following network requirements:

  - No DHCP and WINS, DNS, etc. Do not use automatic mechanisms for network settings. Static IP addresses must be used on the iVDRs. All name resolution must be through *hosts* files located on each networked device.

  - The host name of all peer iVDRs must be added to a host registry using the iVDR Configuration tool.

Procedure summary:

- "Set the static IP address"

- "Set up hosts files"

- "Add network hosts names for streaming"

Set the static IP address

This procedure guides you to relevant settings. It is assumed that you understand Ethernet networks in general and your specific network needs and that you can apply that understanding to make the settings required for a streaming network using standard Windows procedures. If you need help with these procedures, contact your network administrator.

To set up the static IP address on the 1GBaseT adapter:

1. If you normally operate your M-Series iVDR using the optional Front Panel touch-screen, you should connect keyboard and mouse before proceeding. Refer to "Keyboard, mouse, and VGA monitor connections" on page 24 for instructions. You will likely find it easier to configure your network using a keyboard and mouse rather than the touch-screen. You may need to restart Windows to make the mouse and keyboard operational.

2. Shut down AppCenter as follows:

   a. In the AppCenter toolbar, select **System**, then choose **Shutdown** in the pop-up menu.

      The Shutdown dialog box appears.

b. Using the drop-down list, choose **Exit to Windows**, then select **OK**.

AppCenter shuts down and the Windows desktop appears.

⚠️   *CAUTION: The M-Series is not a general purpose Windows workstation. The Windows configuration on the iVDR has been specifically set for use as a real time device. The M-Series iVDR is configured for automatic logon allowing unattended booting. To avoid partial or total system failure, do not modify any operating system settings unless approved by Grass Valley, including but not limited to the following:*
— Do not use the User Manager
— Do not use the Disk Administrator
— Do not load any third party software
— Do not install any Windows updates other than "critical updates" without contacting Grass Valley Product Support

3. In the Windows taskbar, select **Start | Settings | Network and Dial-up Connections** and continue with standard Windows procedures to set up the M-Series iVDR static IP address.

Be sure to select the optional 1GBaseT adapter, not the standard 100BaseT adapter.

Set up *hosts* files

Name resolution for the 1GBaseT adapter cannot be set to DNS or WINS. You must set up a *hosts* file located in *c:\winnt\system32\drivers\etc\hosts* on each iVDR. If you include the names and addresses of all the iVDRs on the network, then you can create one file and copy it to all the machines instead of editing the *hosts* file on each machine.

On each iVDR, set up the *hosts* files as follows:

1. Open the following file using Notepad, or some other text editor.

c:\winnt\system32\drivers\etc\hosts

2. Enter text in a single line for each iVDR, including the local iVDR.

The text format is simple. First type the IP address, then use the TAB key or Space bar to insert a few spaces. Now type the machine name, such as **iVDR-1** followed by the characters _he0 to specify network type as 1GBT. Be sure to use the zero character, not the letter 'o'.
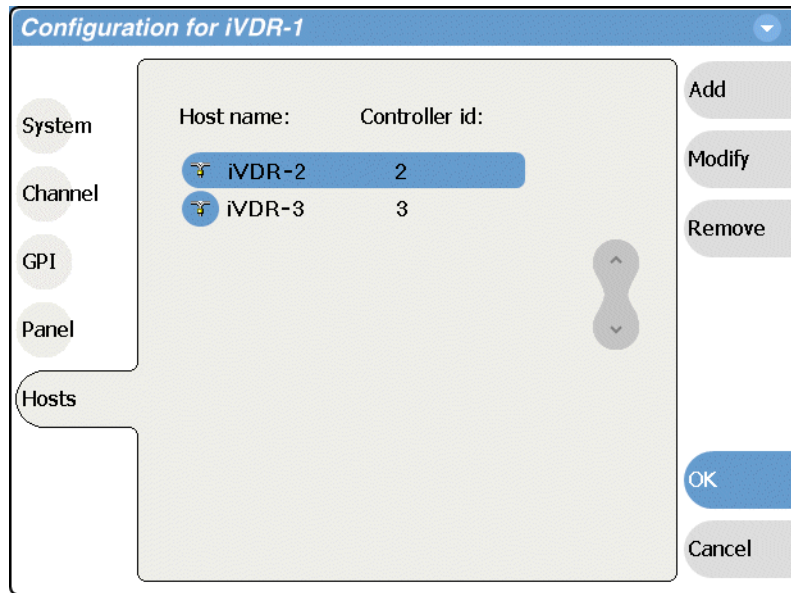
NOTE: By default, the iVDR host name is the same as the Windows computer name. To determine the iVDR computer name, right-click My Computer on the Windows desktop, then properties. Select the Network Identification tab and look for the "Full computer name".

Example host file for three iVDRs on a 1Gb Ethernet network:

```
192.168.99.11  iVDR-1_he0
192.168.99.12  iVDR-2_he0
192.168.99.13  iVDR-3_he0
```

As an example, the following shows the content of a default Windows *hosts* file with the new lines added. All lines beginning with a # are comments and can be ignored or deleted.

Copyright (c) 1993-1995 Microsoft Corp.

#

This is a sample HOSTS file used by Microsoft TCP/IP for Windows.

#

This file contains the mappings of IP addresses to host names. Each

entry should be kept on an individual line. The IP address should

be placed in the first column followed by the corresponding host name.

The IP address and the host name should be separated by at least one

space.

Additionally, comments (such as these) may be inserted on individual

lines or following the machine name denoted by a '#' symbol.

#

For example:

#

102.54.94.97   rhino.acme.com   # source server

38.25.63.10   x.acme.com   # x client host


```
    127.0.0.1         localhost
    192.168.99.11     iVDR-1_he0
    192.168.99.12     iVDR-2_he0
    192.168.99.13     iVDR-3_he0
```

3. Save the file and exit the text editor.

4. Reboot your machine.

5. Copy the new *hosts* file onto all the other machine to save you editing it again.

6. Proceed to "Add network hosts names for streaming".

Add network hosts names for streaming

You must add the host names of all peer iVDRs on the network that support streaming transfers. Adding host names is required to allow selection of networked iVDRs in the AppCenter user interface and to provide a successful network connection for streaming. The host names added will appear in the "Import" and "Send to" dialog boxes.

NOTE: By default, the iVDR host name is the same as the Windows computer name. To determine the iVDR computer name, right-click My Computer on the Windows desktop, then properties. Select the Network Identification tab and look for the "Full computer name".

In addition, if you are using remote protocol to perform video network transfers, you'll need to assign a unique Controller ID number for each host name. If you are not using remote protocol for network transfers, you can leave the Controller Id blank.

To add a network host names:

1. Start AppCenter, if it is not already running, using the desktop shortcut.

2. In AppCenter toolbar, select **System**, then choose **Configuration**.

3. Select the **Hosts** button.

    The network host names are displayed.

4. Select **Add**, to open the Add Host dialog box, then do the following:

    a. Select the "Enter host name:" text entry control, then enter the computer name of a peer iVDR.

    Make sure to enter the exact computer name. Any differences will result in being unable to connect to the iVDR.

    b. If you are using remote protocols to perform video network transfers, you must use the following steps to add a unique Controller ID for each host, otherwise,

you can ignore this step and proceed to step c.

- Select the "Enter controller ID:" text entry control.

- Enter the controller ID of the iVDR, then select **OK**.

Make sure to enter a number between 1 and 255 that is unique to the iVDR.

c. Select **OK** in the Add Host dialog box.

5. Repeat step 4 for the remaining iVDRs.

6. In the Configuration dialog box, select **OK** to save settings.

Once the host names are added, the iVDR is ready for streaming operation. Refer to "Importing assets from another iVDR or Profile XP system" on page 246, and "Sending assets to another machine" on page 251 for procedures on transferring media.

NOTE: If you have trouble, try using the ping utility in the Windows command prompt using either the IP address or host name. Troubleshoot as needed. Also, refer to the M-Series Service Manual for troubleshooting procedures.

Operating with both 100BT and 1GBT network connections

If you want to use both the 100BaseT and the 1GBaseT Ethernet connections, each adapter can be set up as described in "100BaseT Configuration: Data and streaming between iVDRs" on page 34 and "1GBaseT Configuration: Data and streaming between iVDRs" on page 38. The low speed adapter and high speed adapter are configured independently, and each must have its own unique IP address and network setup.

Dual network adapters can create parallel network paths. Parallel network paths occur when the iVDR is networked with other devices with dual network adapters, and those devices are connected to the same 100BaseT and 1GBaseT networks.

The following describes how the iVDR handles parallel network paths:

• **Video networking** – When AppCenter request a streaming transfer, the iVDR will automatically select the highest speed adapter, the 1GBaseT adapter, for streaming.

• **Windows networking** – If parallel paths exist between the iVDR and another networked device, the 100BaseT adapter is used for standard windows networking tasks, such as, file sharing and mapping network drives. This means if you are using 'Send to' file or 'Import from' a file on a network drive, you will experience transfer speeds typical for the 100BaseT network. However, you can reconfigure the iVDR Windows network to use the 1GBaseT network adapter to connect to network drives. Refer to the Windows documentation more information. Using the 1GBaseT network adapter will provide a faster connection to the mapped drive, however, the extra network traffic could affect the bandwidth available for streaming network transfers.

100BaseT Configuration: iVDR and Profile XP streaming

The iVDR supports streaming transfers with other devices such as the Profile XP Media Platform, or any device that supports the General Exchange Format (GXF) as described in SMPTE 360M. The Profile XP system must have the optional 100BaseT adapter installed and configured for streaming transfers.

The iVDR user interface does not support browsing a non-M-Series device, such as a Profile XP Media Platform. In the **Send To** or **Import** user interface, you must select the non-M-Series device, then specify the target manually by entering the disk volume and bin name, e.g. *EXT:\default*. (Note that the target path is case sensitive.) In addition, Media Manager does not support the iVDR which means you cannot browse media on the iVDR or initiate transfers from Media Manager running on the Profile XP Media Platform. All transfers are initiated in the iVDR user interface.

Setting up the iVDR for streaming transfer with Profile XP Media Platforms has the following network requirements:

- No DHCP and WINS, DNS, etc. Do not use automatic mechanisms for network settings. Static IP addresses must be used on the iVDRs and Profile XP systems. All name resolution must be through *hosts* files located on each networked device.

- The host name of all peer iVDRs and Profile XP systems must be added to a host registry using the iVDR Configuration tool.

Summary of network setup tasks:

- "Make 100BaseT network connections"

- "Configure the iVDR static IP address"

- "Set up iVDR hosts files"

- "Add network hosts names for streaming"

- "Configure the Profile XP static IP address"

- "Test the network"

Make 100BaseT network connections

Make 100BaseT network connections for both the iVDR and the Profile XP system as shown in the following illustration. Refer to "Connecting the Ethernet network cabling" on page 33 to locate iVDR rear panel network connectors. Refer to the *Profile XP System Guide* to locate network connections on the Profile XP rear panel.

Refer to the *Profile XP System Guide* to make cable connections.
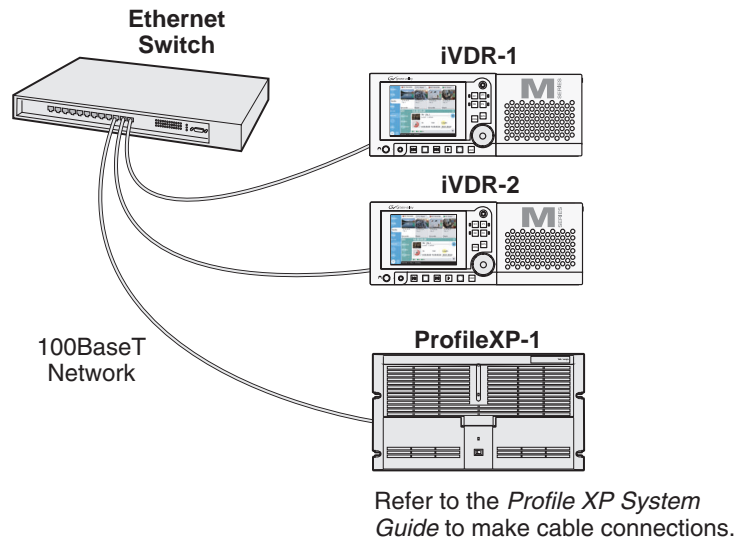
Configure the iVDR static IP address

This procedure guides you to the relevant steps to configure a static IP address on the iVDR. It is assumed that you understand Ethernet networks in general and that you can apply that understanding to configure this network setting using standard Windows tools. If you need help with these procedures, contact your network administrator.

To set up the static IP address on the 100BaseT adapter:

1. If you normally operate your M-Series iVDR using the optional Front Panel touch-screen, you should connect keyboard and mouse before proceeding. You will likely find it easier to configure your network using a keyboard and mouse rather than the touch-screen. Refer to "Keyboard, mouse, and VGA monitor connections" on page 24. You may need to restart Windows to make the mouse and keyboard operational.

2. Shut down AppCenter as follows:

    a. In the AppCenter toolbar, select **System**, then choose **Shutdown** in the pop-up menu.

      The Shutdown dialog box appears.

    b. Using the drop-down list, choose **Exit to Windows**, then select **OK**.

      AppCenter shuts down and the Windows desktop appears.

⚠ *CAUTION: The M-Series is not a general purpose Windows workstation. The Windows configuration on the iVDR has been specifically set for use as a real time device. The M-Series iVDR is configured for automatic logon allowing unattended booting. To avoid partial or total system failure, do not modify any operating system settings unless approved by Grass Valley, including but not limited to the following:*

— Do not use the User Manager
— Do not use the Disk Administrator
— Do not load any third party software
— Do not install any Windows updates other than "critical updates" without contacting Grass Valley Product Support

3. In the Windows taskbar, select **Start | Settings | Network and Dial-up Connections** and continue with standard Windows procedures to set up the static IP address for the M-Series iVDR 100BaseT adapter.

After setting the iVDR static IP address, proceed to the next procedure, "Set up iVDR hosts files".

Set up *iVDR hosts* files

Name resolution for the 100BaseT adapter cannot be set to DNS or WINS. You must set up a *hosts* file located in *c:\winnt\system32\drivers\etc\hosts* on each iVDR. If you include the names and addresses of all the iVDRs on the network, then you can copy the same file onto all these machines instead of editing the *hosts* file on each machine.

On each iVDR, set up the *hosts* files as follows:

1. Open the following file using Notepad or some other text editor.

   c:\winnt\system32\drivers\etc\hosts

2. Enter text in a single line for each machine, including the local machine. Entering the name of the local machine allows you to copy and use the same file on all iVDRs.

   The text format is simple. First type the IP address, then use the TAB key or Space bar to insert a few spaces. Now type the host name of each iVDR, for example **iVDR-1** and **iVDR-2**.

   Example:

   ```
   192.168.99.11  iVDR-1
   192.168.99.12  iVDR-2
   192.168.99.13  iVDR-3
   ```

NOTE: By default, the iVDR host name is the same as the Windows computer name. To determine the iVDR computer name, right-click My Computer on the Windows desktop, then properties. Select the Network Identification tab and look for the "Full computer name".

3. Enter the host name of each Profile XP Media Platform followed by the characters _le0 to specify network type as 100BT. Be sure to use the zero character, not the letter 'o'. This is only required for the Profile XP systems.

   Example host file for one Profile XP Media Platform and three iVDRs on a 100BT

Ethernet network:

```
192.168.99.11  iVDR-1
192.168.99.12  iVDR-2
192.168.99.13  iVDR-3
192.168.99.14  ProfileXP-1_le0
```

4. Add the IP address and host name of any other device on the video network that supports the General Exchange Format (GXF).

5. Save the file and exit the text editor.

6. Reboot the iVDR.

7. Copy the new *hosts* file onto all the other iVDRs and networked devices to save you editing it again.

NOTE: It is not required to set up a host file on the Profile XP Media Platform since all transfers are initiated from the iVDR. The Profile XP Media Platform does not need to resolve host names.

After configuring the host file, proceed to the next procedure, "Add network hosts names for streaming".

Add network hosts names for streaming

You must add the host names of all peer iVDRs on the network that support streaming transfers. Adding host names is required to allow selection of networked iVDRs in the AppCenter user interface and to provide a successful network connection. The host names added appear in the "Import" and "Send to" dialog boxes.

In addition, if you are using remote protocol to perform video network transfers, you'll need to assign a unique Controller ID number for each host name. If you are not using remote protocol for network transfers, you can leave the Controller Id blank.

To add a network host name:

1. Start AppCenter, if it is not already running, using the desktop shortcut.

2. In AppCenter toolbar, select **System**, then choose **Configuration**.

3. Select the **Hosts** button.

   The network host names are displayed.

4. Select **Add**, to open the Add Host dialog box, then do the following:

a. Select the "Enter host name:" text entry control, then enter the computer name of a peer iVDR.

Make sure to enter the exact computer name. Any differences will result in being unable to connect to the iVDR.

b. If you are using remote protocol to perform video network transfers, you must use the following steps to add a unique Controller ID for each host, otherwise, you can ignore this step and proceed to step c.

   - Select the "Enter controller ID:" text entry control.

   - Enter the controller ID of the iVDR or other networked device, then select **OK**.

   Make sure to enter a number between 1 and 255 that is unique to the iVDR.

c. Select **OK** in the Add Host dialog box.

5. Repeat step 4 for the remaining iVDRs or other networked devices.

6. In the Configuration dialog box, select **OK** to save settings.

7. Proceed to .

Configure the Profile XP static IP address

Use standard Windows tools and procedures to configure the IP address on the Profile XP Media Platform or other non-M-Series device that supports General Exchange Format (GXF) streaming transfers. You must use static IP address, and not some automated method of setting IP address, such as DHCP.

Refer to the *Profile XP System Guide* or the appropriate manual for your non-M-Series device to setup the network address.

After configuring the Profile XP IP address, proceed to the next procedure, "Test the network".

Test the network

Refer to , and for procedures on transferring media.

NOTE: If you have trouble, try using the ping utility in the Windows command prompt using either the IP address or host name. Troubleshoot as needed. Also, refer to the M-Series Service Manual for troubleshooting procedures.

Connecting RS422

You can use remote control devices and applications software developed for the iVDR that use industry-standard serial protocols. You can connect up to four RS422 cables to control iVDR channels depending on your remote control needs. Connect the RS422 cabling as required, then refer to "Using Remote Control Protocols" on page 263 to configure the iVDR for remote control.
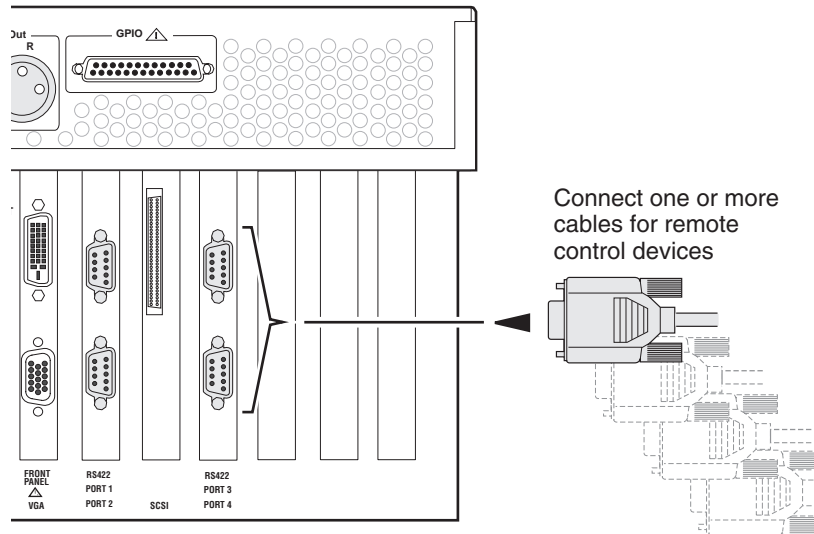
Connecting GPI

The iVDR provides 12 GPI inputs, and 12 GPI outputs on a single DB-25 rear panel connector.
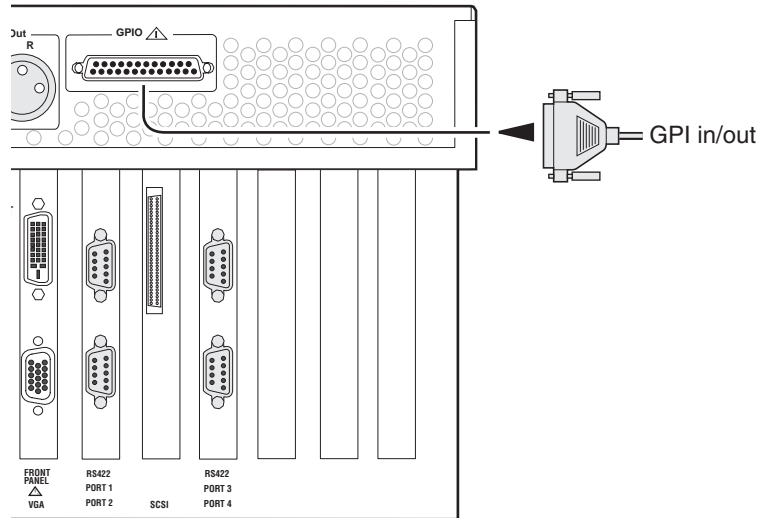
Also see the following related sections of this manual:

- "GPI I/O connector pinouts" on page 300
- "GPI I/O specifications" on page 290
- "Configuring GPI inputs/outputs" on page 112
- "Using GPI output triggers in playlists" on page 188

Chapter **2**

Quick Start Procedures

Quick start procedures in this chapter include:

- *"To record a clip"*
- *"To play a clip"*
- *"To trim a clip"*
- *"To create a playlist"*

To record a clip

If your system has no Front Panel, you must use a keyboard, mouse, and monitor rather than the touch panel as illustrated. Alternate controls for keyboard, mouse, and monitor are marked with an asterisk (*) and are provided on the VGA monitor only.

3 Choose record channel 1

4 Verify video source

5 Adjust audio

1 Display split-screen view

2 Select **Monitor**

8 Rename clip

9 Load and play the clip as explained in "To play a clip"

6 Begin record

7 Stop record
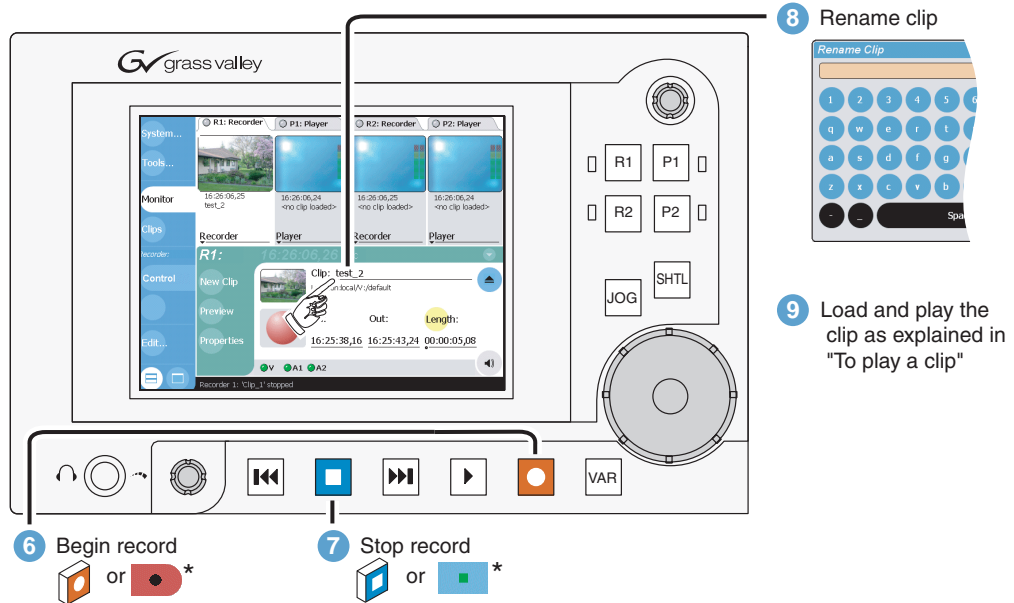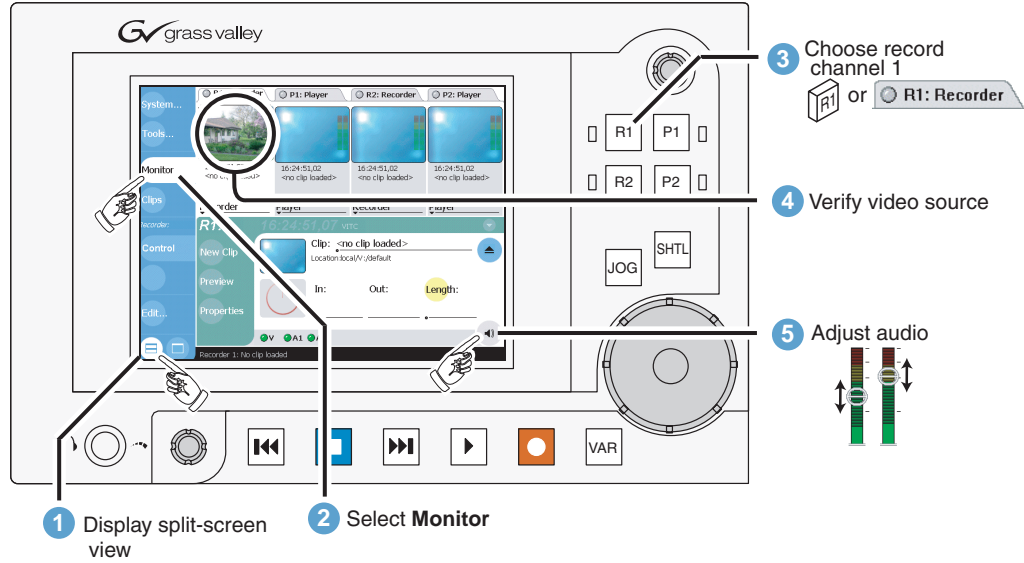
To play a clip

If your system has no Front Panel, you must use a keyboard, mouse, and monitor rather than the touch panel as illustrated. Alternate controls for keyboard, mouse, and monitor are marked with an asterisk (*) and are provided on the VGA monitor only.
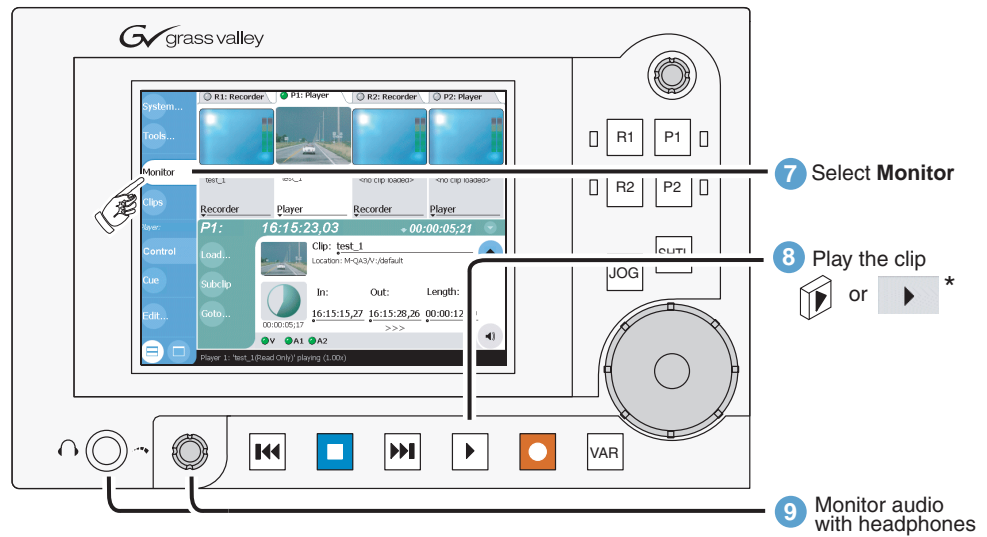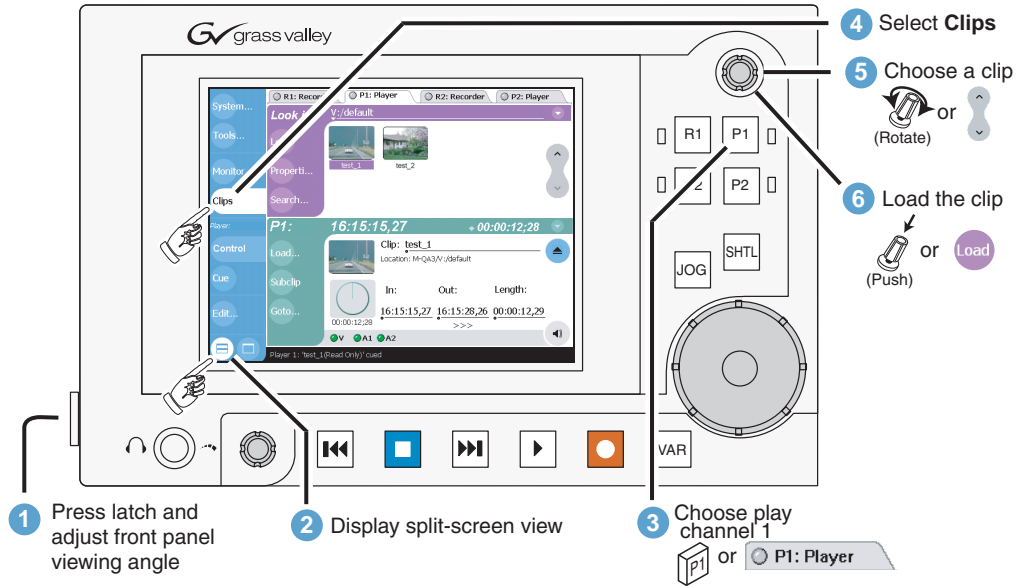
To trim a clip

If your system has no Front Panel, you must use a keyboard, mouse, and monitor rather than the touch panel as illustrated. Alternate controls for keyboard, mouse, and monitor are marked with an asterisk (*) and are provided on the VGA monitor only.

1 Load a clip into play channel 1 as explained in "To play a clip"

2 Select **Monitor**

3 Locate a frame

or

4 Set in or out mark to current timecode
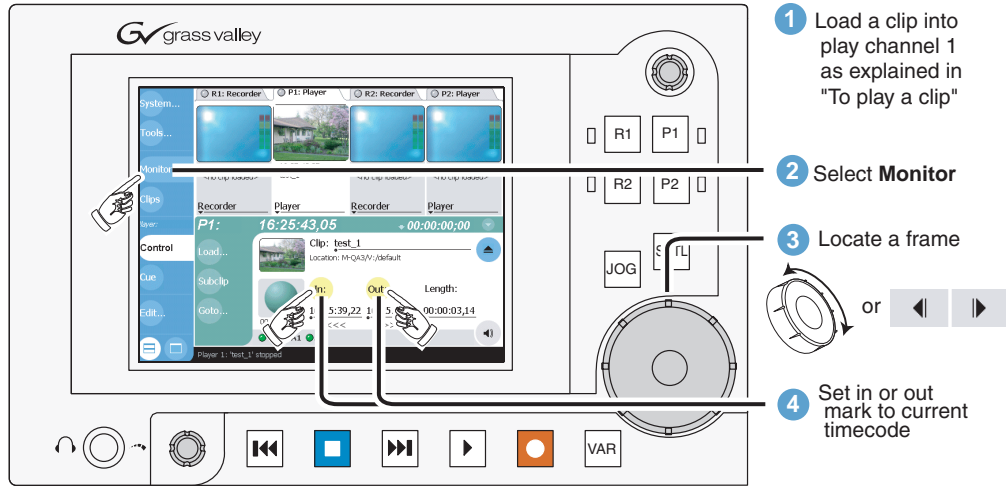
To create a playlist

If your system has no Front Panel, you must use a keyboard, mouse, and monitor rather than the touch panel as illustrated. Alternate controls for keyboard, mouse, and monitor are marked with an asterisk (*) and are provided on the VGA monitor only.

1 Select **Monitor**

2 Choose channel P2 or ○ P2: **Player**

3 Select Playlist on P2
- Player
- **Playlist**
- Remote AMP

4 Select **Clips**

5 Drag clips to list

6 Play the list or ▶ *
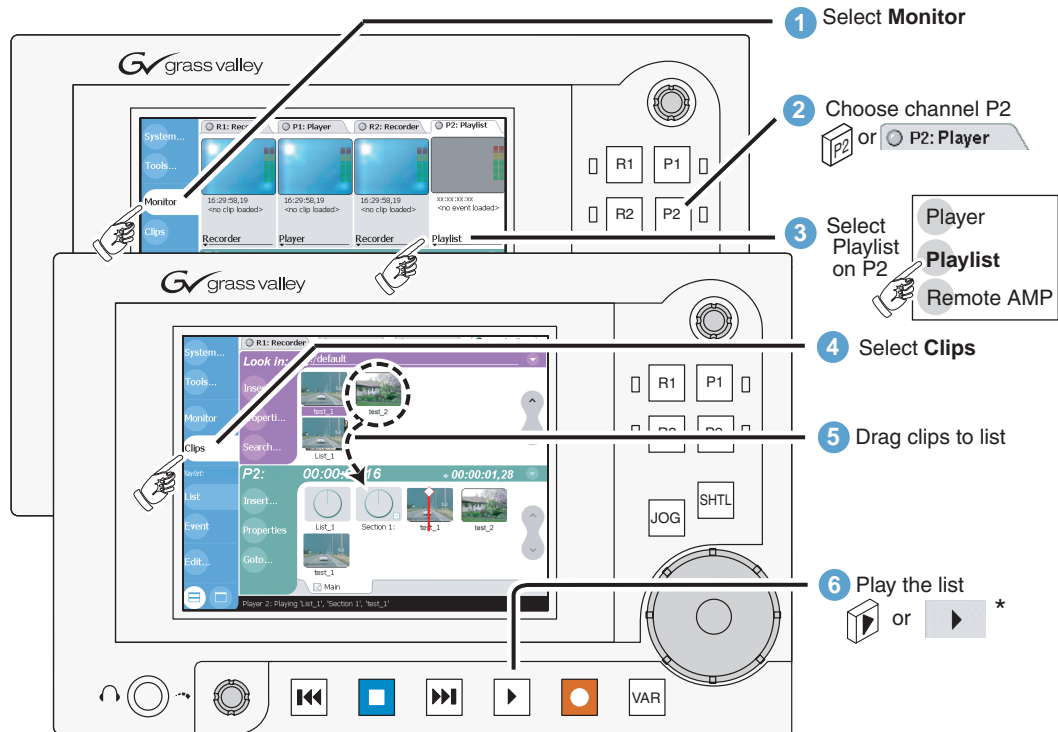
Product Description

Information in the chapter includes:

- "Product overview"
- "Determining storage capacity"
- "Front view with optional Front Panel"
- "Front view of the standard product"
- "Rear panel view"
- "Guide to using AppCenter"
- "Using Keyboard shortcuts"
- "Guide to using the Front Panel"
- "Monitoring the system using the StatusBar"
- "Using the StatusPane"
- "Writing data to the CD-R/RW and DVD drives" on page 87

Product overview

The M-Series iVDR is a multi-channel video digital recorder that allows four channels of simultaneous record and playback. Media is stored on internal disk drives. Storage capacity depends on the disk option installed and the video compression settings selected. See "Determining storage capacity" on page 61. The iVDR includes a built in digital recorder application that handles essential tasks— record, edit, play, and create/play event lists. The optional front panel includes an TFT display with touch screen, and transport controls to allow easy operation and monitoring with minimal external connections.
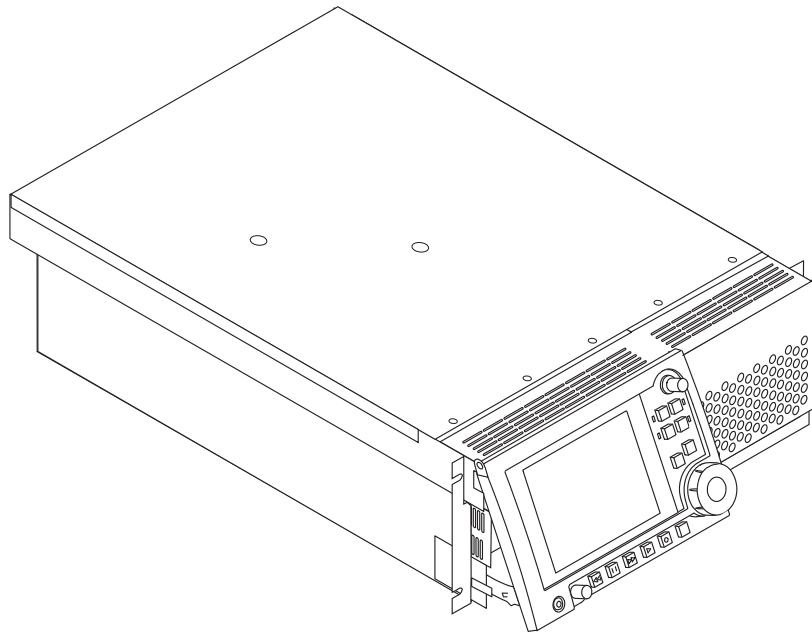
Key features[1]

Simultaneous access to common storage – Simultaneous access to common storage by all four channels means that you can play a clip that is still being recorded, and that the a clip can be played simultaneously and independently on multiple channels.

Optional Front Panel – The optional front panel features 640 by 480 TFT display with touch screen and VTR-like transport controls. The front panel can be tilted to a convenient operating angle, or removed and operated as a desktop device using an optional 15 foot extension cable and cradle. The user interface provides an on-screen keyboard for text entry (entering names and timecode), or you can connect a keyboard to the USB port on the front panel. The keyboard also provides for keyboard shortcuts for transport control.

Integrated control applications software – The standard control application not only enables a number of simple manual and semi-automatic operations previously available with tape, but also takes advantage of the capabilities of a disk based recorder, e.g. simultaneous record/play, list playout, clip trimming.

---

1. Features may change with new software releases. Be sure to consult the release notes for your software version.

Remote control support – You can use remote control devices and applications software developed for the M-Series iVDR that use industry-standard serial protocols. For each supported protocol, the iVDR provides a protocol-specific application. Supported protocols includes VCDP or AMP protocols over RS422 or Ethernet.

GPI triggers – GPI input triggers can be assigned to channels to control actions such as record, play, stop, and skip a playlist event. GPI output triggers can be defined for channels and inserted in playlists to control external equipment as the list is played.

Convenient monitoring – The front panel display includes on-screen video for monitoring the selected channel. A front panel headphone jack and rear panel audio monitor output are provided for audio monitoring. Both follow the front panel channel selection.

Media transfer to other devices– The iVDR supports media transfers over the standard Ethernet port or optional network adapters. Supported devices for media transfers include other M-Series iVDRs, the Grass Valley Profile XP Media Platform, or any device that supports SMPTE 360M streaming transfers. You must configure the iVDR network settings prior to attempting media transfers.

Media file exchange using standard media file formats– You can exchange media with other devices by importing and exporting files using standard file formats such as AVI (DV) and General Exchange Format (*.GXF) as described in SMPTE 360M. Files can be exchanged over a network connection or common forms of removable media such as CD-RW, DVD-RW (optional).

Selectable video compression formats– The following table describes the video compression types available in the M-Series iVDR models.

Model	Compression Types	Description
M-122A	DV25	SMPTE 314M-1999
M-222A	DV25 MPEG2 I frame only	SMPTE 314M-1999 4:2:2, data rate up to 25Mbs. Selectable encode range includes active picture or active picture plus VBI.

Functional description

The diagram illustrates how the four iVDR channels operate independently, but share a common internal disk storage area. This gives all channels, two record channels for recording media and two play channels for playing media, simultaneous random access to the same media files. This means that you can play a clip that is still recording on one of the record channels. Each channel handles one video track, two audio tracks, and one timecode track.
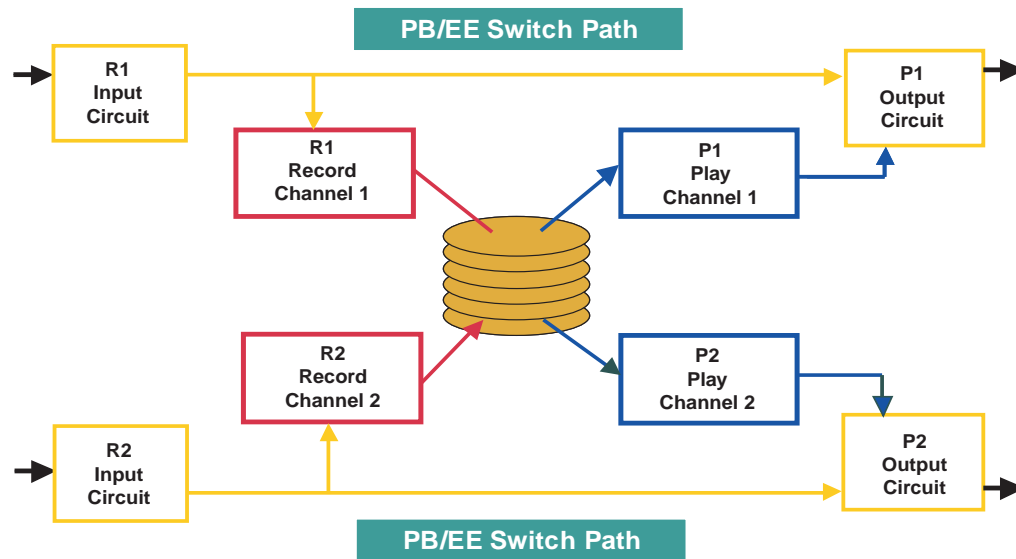
Note that an E to E path is provided for monitoring purposes. When E to E mode is enabled, the play channel video and audio outputs are switched to the corresponding record channel inputs when the play channel is in stop mode or when no clip is loaded. The following table describes play channel operation depending the E to E selection.

E to E Setting	Play channel mode	Play channel output
Disabled	Play, FF, Rewind	Show clip
	Stop	Show clip
	Eject	Show black
Enabled	Play, FF, Rewind	Show clip
	Stop	Show input[a]
	Eject	Show input[a]

[a]   Output is black if no video input is connected.

E to E considerations

If E to E mode is enabled, you can connect an external reference signal which is synchronous to the video input. This will eliminate artifacts on the play channel output (periodic vertical shift) due to routing an asynchronous signal through the iVDR. However, this is not required for recording, the iVDR can record asynchronous signals.

NOTE: E to E is provided for monitoring the record channel, and is not intended as a program switch.

Determining storage capacity

Internal media storage can be configured with three or six disk drives depending on the storage option installed. A storage option adds three disk drives. Storage options available include of 36GB, 73GB, and 146GB disk drives. These storage options can be mixed, for example the iVDR can contain the three 36GB disk option with the three 146GB disk option.

The following tables show the storage capacity estimates based on the number of disk drives installed and the video data rate. The estimates in the table are based on use of two audio channels and one time code channel per video channel using the 525 video format.

NOTE: Storage capacity will increase as larger disk sizes become available.

Storage capacity estimates in hours using 36 GB drives:

Video Data Rate[a]	Number of Drives	
	3	6
18 Mbs	13 hrs	26 hrs
20 Mbs	12 hrs	24 hrs
25 Mbs	8 hrs	16 hrs

[a]. Calculated using 1 video track, 2 audio tracks, 1 timecode track, and the 525 video standard.

Storage capacity estimates in hours using 73 GB drives:

Video Data Rate[a]	Number of Drives	
	3	**6**
18 Mbs	27 hrs	54 hrs
20 Mbs	24 hrs	48 hrs
25 Mbs	16 hrs	32 hrs

a. Calculated using 1 video track, 2 audio tracks, 1 timecode track, and the 525 video standard.

Storage capacity estimates in hours using 146 GB drives:

Video Data Rate[a]	Number of Drives	
	3	**6**
18 Mbs	53 hrs	107 hrs
20 Mbs	48 hrs	97 hrs
25 Mbs	32 hrs	64 hrs

a. Calculated using 1 video track, 2 audio tracks, 1 timecode track, and the 525 video standard.
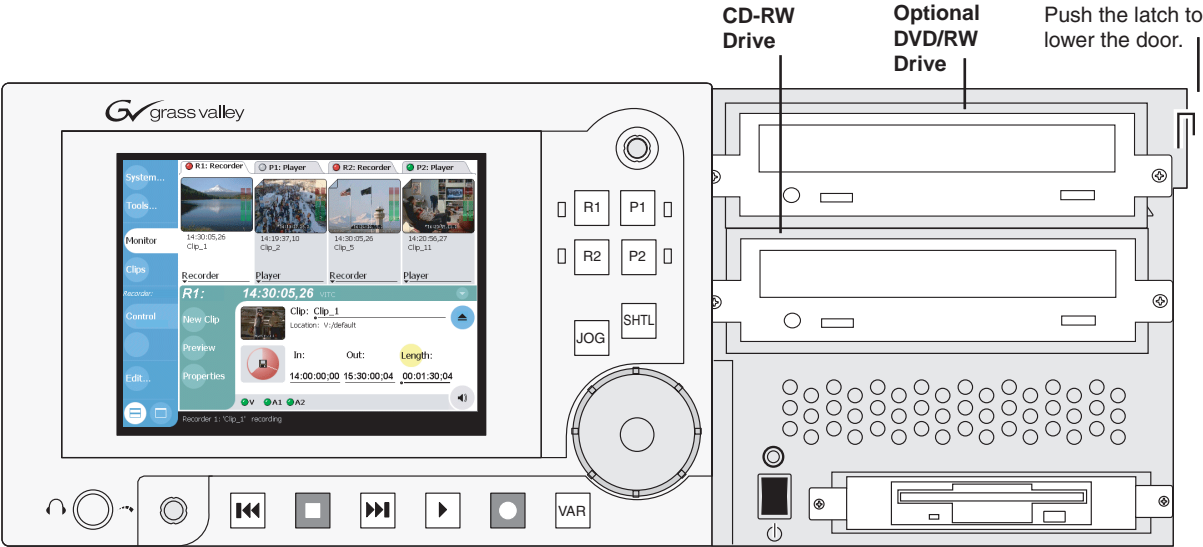
Front view with optional Front Panel

The following illustrations show the front view of the M-Series iVDR with the optional Front Panel installed.

**Optional
Front Panel**

Drive Bay Door

**CD-RW
Drive**

**Optional
DVD/RW
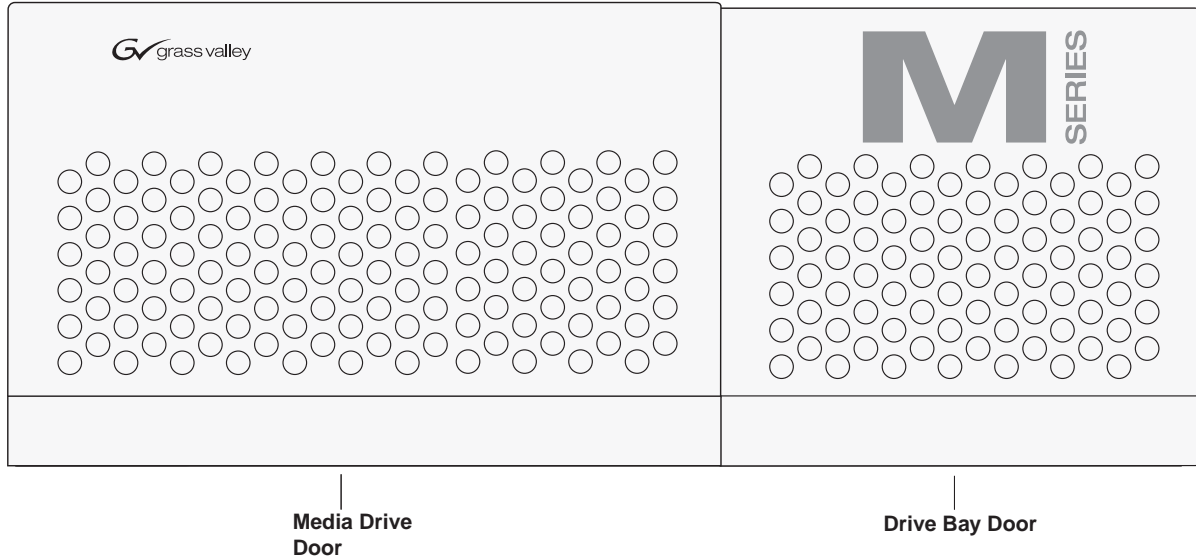Drive**

Push the latch to
lower the door.

**Standby
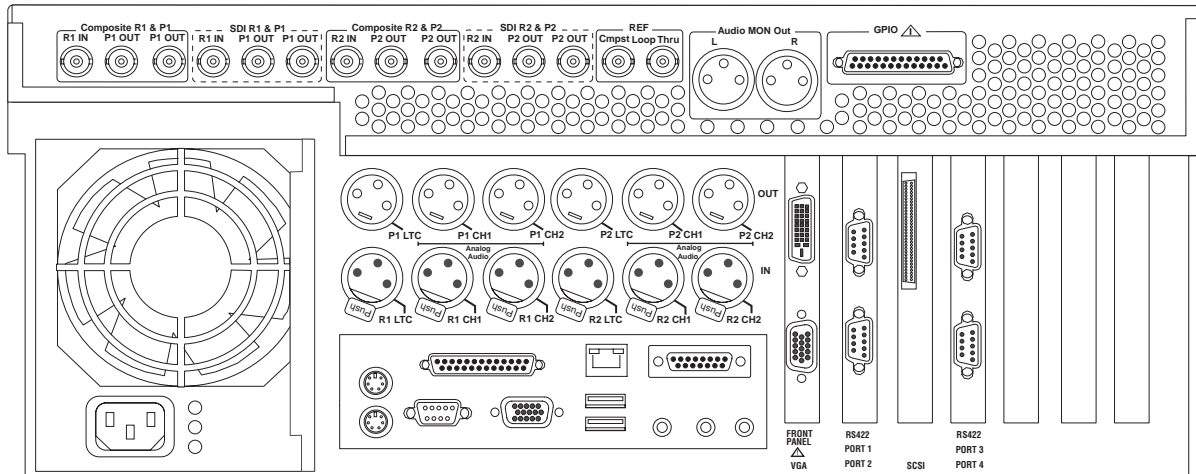Switch**

**Floppy
Drive**

**Drive Bay Door
Lowered and
In Open Position**

Front view of the standard product

The illustration shows the front view of the standard product without the optional Front Panel.
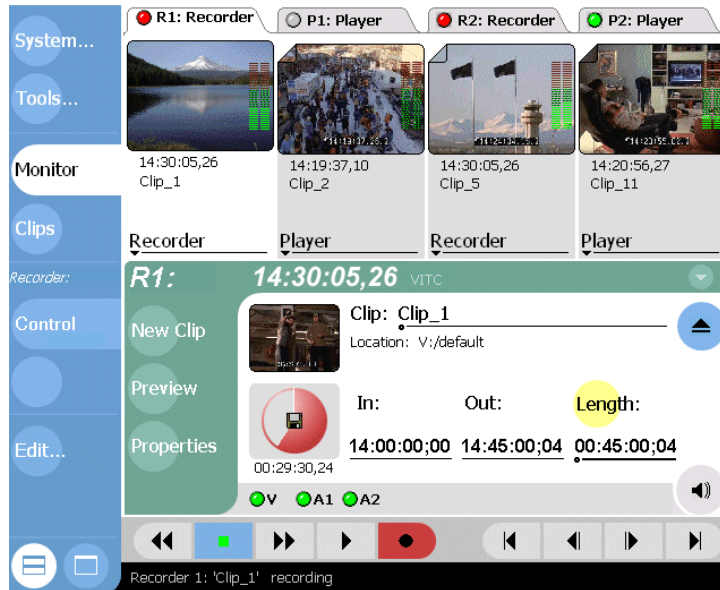

Media Drive Door

Drive Bay Door

Rear panel view

Guide to using AppCenter

At power-up, the Windows operating system starts, automatically logs on, and then automatically launches AppCenter, the main user interface. AppCenter is a built-in video disk recorder application that provides a single interface for tasks such as: configuration, clip management, media transfers, channel monitoring, system monitoring, and record and playback control.
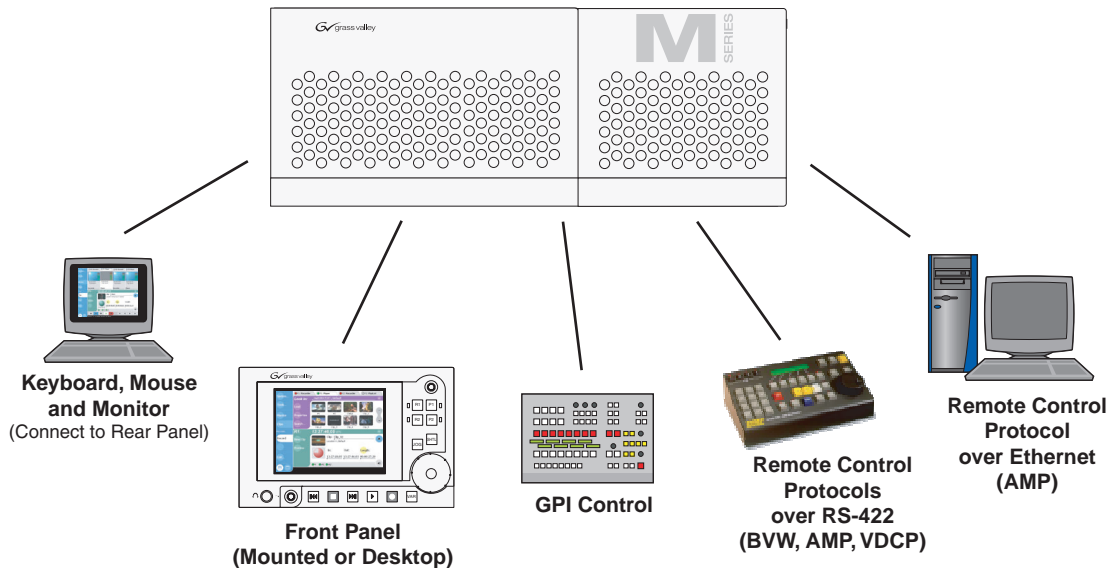

Starting AppCenter

There are two ways of restarting AppCenter.

- At power-up, the Windows operating system starts, automatically logs on using the *mseries* user account *(password = mseries),* and then automatically launches AppCenter.

- Double-click the AppCenter shortcut on the Windows desktop.

AppCenter control options

Keyboard, Mouse and Monitor (Connect to Rear Panel)

Front Panel (Mounted or Desktop)

GPI Control

Remote Control Protocols over RS-422 (BVW, AMP, VDCP)

Remote Control Protocol over Ethernet (AMP)

Local Control

Keyboard, mouse, and monitor – Connecting a keyboard, monitor and mouse to the iVDR rear panel provides access to AppCenter. You can use a mouse and keyboard shortcuts to control the iVDR.

Front Panel – The optional Front Panel comes mounted on the front of the chassis, however, it can be removed and operated remotely using an optional front panel accessory kit which includes a 15 foot extension cable and front panel cradle. See "Guide to using the Front Panel" on page 78. USB connectors on the edge of the Front Panel allow you to connect a USB device, such as, a disk, memory stick, mouse, keyboard, or transport control device. The keyboard is used for text entry and provides keyboard shortcuts to control the iVDR. A transport control device that emulates a keyboard can be used to control the iVDR through keyboard shortcuts.

Remote Control

GPI I/O – GPI input triggers can be assigned to channels to control actions such as record, play, stop, and skip a playlist event. GPI output triggers can be defined for channels and inserted in playlists to control external equipment as the list is played. See "Configuring GPI inputs/outputs" on page 112.

Serial Control Protocols over RS-422 – The iVDR can be controlled by devices and applications software developed for the M-Series iVDR that use serial control protocols over the RS-422 serial port. See "About remote control protocol support" on page 264.

Remote Control Protocols over Ethernet – The iVDR can be controlled by devices and applications software developed for the iVDR that use serial control protocols over the Ethernet network. See "About remote control protocol support" on page 264.

AppCenter user interface overview
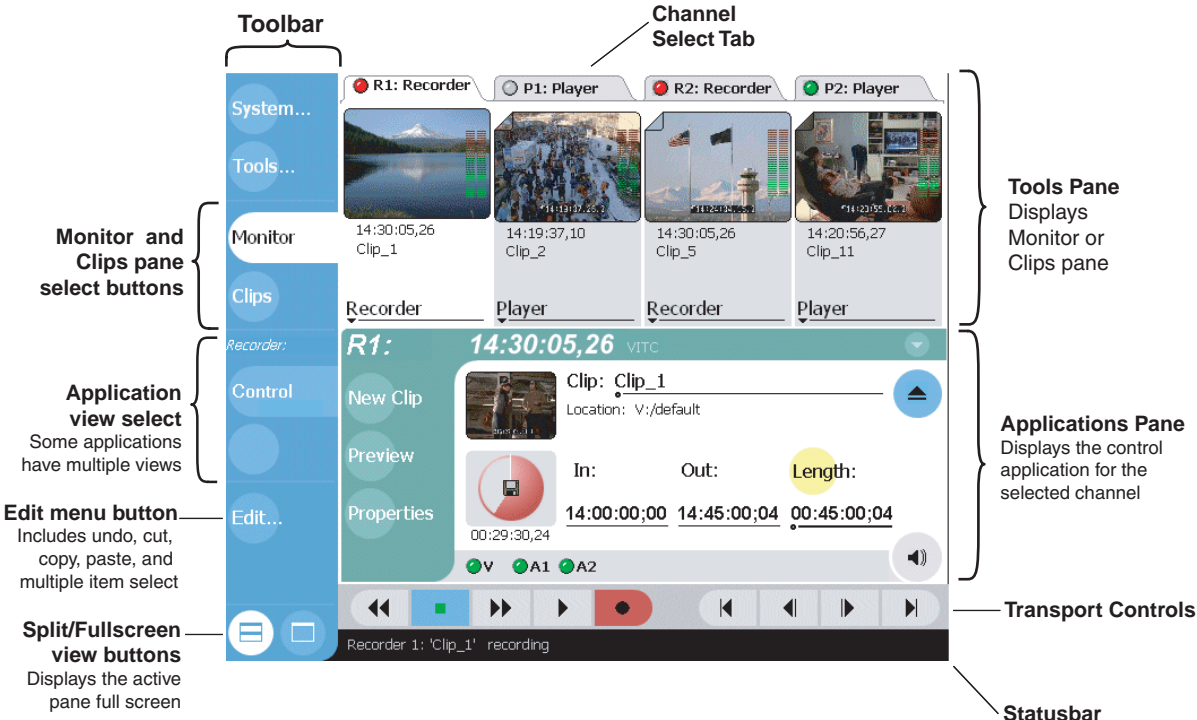
Main components in the AppCenter user interface

The following describes the main components in AppCenter's split screen view.

AppCenter Component	Description
Tools Pane	Displays either the Clips pane or Monitor, determined by selecting the corresponding button in the toolbar. Can be viewed full screen, hiding the Applications pane.
Applications Pane	Displays the control application for the active channel. The active channel is determined by selecting the corresponding channel tab, or channel select button on the Front Panel. Can be viewed full screen, hiding the Tools pane.
Toolbar	Contains the buttons used to control AppCenter.
Channel Select Tabs	Used to select the active channel. The active channel receives input from the touch screen/front panel controls, or mouse and keyboard.
Transport Controls	Used to control record and playback. Transport controls do not appear when the front panel is used.
StatusBar	Displays status and error messages, and includes tool buttons for opening Transfer Monitor, StatusPane, or the Protocol Monitor dialog box.

Moving the AppCenter window

When the iVDR display resolution is set to 800x600 or larger, you can reposition the AppCenter window as needed on the Windows desktop. To reposition the AppCenter window, click the StatusBar or an open space on the Toolbar, and then drag the window to a new position.
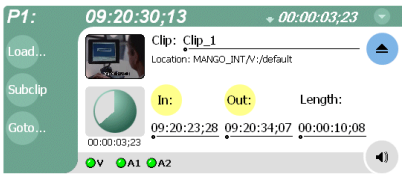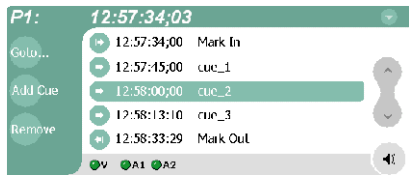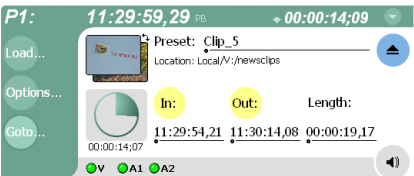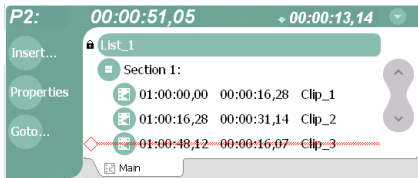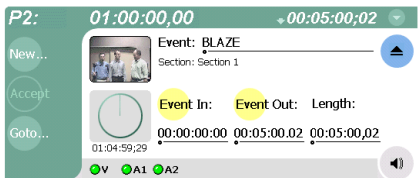
Toolbar button descriptions

Toolbar button	Description
System...	Opens a pop-up menu containing items for managing the iVDR– configuration dialog, shutdown dialog, and to minimize AppCenter.
Tools...	Opens a pop-up menu containing the Transfer Monitor and Help menu selections.
Monitor	Displays the monitor application in the Tools pane which allows you to monitor one channel of video– input video on record channels, or playback on play channels. The rear panel audio monitor output and front panel headphone jack is automatically switched to follow the video channel monitored.
Clips	Displays the media management application in the Tools pane which allows you to manage media stored on the iVDR– move, delete, copy, import/export.
Application View Buttons **List Event**	View buttons appear in the AppCenter toolbar for channel applications that have more than one view. The view buttons for Playlist are shown here.
Edit	Opens the edit pop-up menu which includes: Undo, Redo, Cut, Paste, Copy, and Multiple item select. An infinite level of undo is provided for: Clip name, mark in, mark out, length, or cue points. Unloading or loading clears the undo lists. Cannot undo any operations after the clip is ejected.
Split Screen and Full Screen Buttons	Toggles the active pane between full and split screen views. Split screen displays the Tools and Applications pane allowing interaction between panes, such as, drag and drop. Selecting full screen displays the active pane in full screen, allowing the application to display more information. The transport controls still effect the control application even though it is hidden in full screen mode.
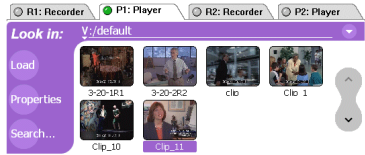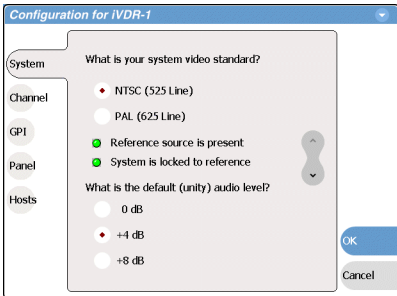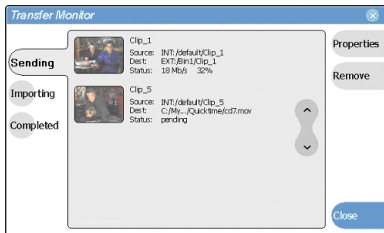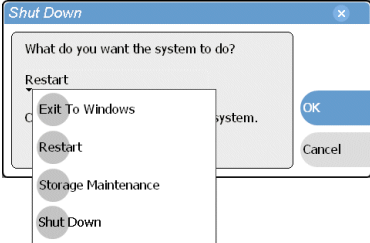
Standard channel applications included in AppCenter

AppCenter includes standard channel control applications for performing essential tasks. When AppCenter starts, a control application is started for each channel. (See "Selecting the channel application" on page 73.)

Standard Application Name	User Interface	Channel Type Required	Essentials Tasks
Recorder		Recorder	Recording clips
Player	Control View Cue View	Player	Play clips, edit and trim clips, create sub-clips, and playout using cue points.
Protocol Applications including Player and Recorders		Player	Operate remotely using industry standard serial control protocols over RS-422 or Ethernet. Protocol-specific recorder and player applications are provided for each supported protocols.
Playlist	List View Event View	Player	Create and play event playlists; Lists include clips recorded in Recorder or imported using the Clips pane.

Tools included in AppCenter

AppCenter includes the following tools for managing the iVDR and its assets.
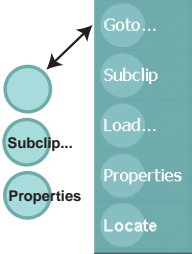
Tools	User Interface	Essentials Tasks
Clips Pane		Managing media stored in the media file system, including: view properties, move, copy, delete, transfer, and import/export
Monitor Pane		Monitoring channel input or output, and selecting channel control applications
Configuration Manager		Configuring system settings
Transfer Monitor		Monitoring media transfers, including network transfers and file import/export
Shutdown Dialog Box		Power-off or restart the iVDR
Online Help		Select Tools, then Help in the AppCenter Toolbar

Conventions used in the AppCenter interface

The following table describes the graphical conventions used for the user controls in the AppCenter interface. These graphical elements are used throughout the interface to indicate such items as drop-down lists, and context menus.
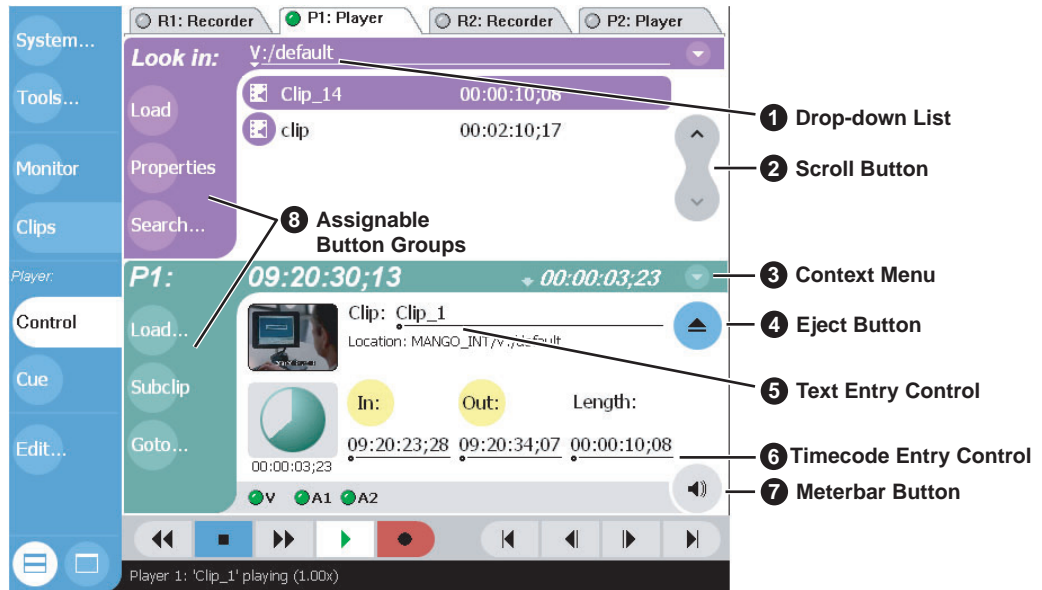
	Convention	Graphical Description and User Action
❶	**Drop-down list**	A horizontal line and arrowhead. Select and choose from a list of items in the drop-down list.
❷	**Scroll Button**	Scroll by selecting the up or down arrow on the button. At the end of the list, the direction arrow is disabled.
❸	**Context Menu Button**	All channel applications have a context menu button. Select to choose items from the context menu.
❹	**Eject Button**	Select to eject the current clip
❺	**Text Edit Control**	A horizontal line and small dot. Select to open the text entry dialog which includes an on-screen graphical keyboard for entering text, or use the external keyboard.
❻	**Timecode Entry Control**	A horizontal line and small dot. Select to open the timecode entry dialog box which includes an on-screen graphical keypad for entering timecode, or use the external keyboard.

	Convention	Graphical Description and User Action
❼	**Meterbar Button** ◀))	Select to toggle between the Meterbar and the application interface. The Meterbar contains video and audio meters, and the audio level controls.
❽	**Assignable Button Groups**	Some button groups are assignable. (The Play view button group is shown here.) Holding down a button longer than one second opens a pop-up menu which lists the alternative button choices. This allows you to customize the user interface to suit you workflow.

Terms and concepts used in AppCenter

Active channel – Of the four channels, there is always one active channel. When a channel is active, the application controlling the channel is displayed in the Applications pane, and the front panel transport controls, or keyboard, if connected, are delegated to controlling that channel. There are three ways to select the active channel: pressing a channel select button on the front panel, selecting a channel tab in the tools pane, or pressing a keyboard shortcut. Changing the active channel does not disrupt other channels, they continue to operate in the background.

Active pane – One of the two panes in AppCenter, the Tools or Applications pane, is always active. The active pane receives input from the front panel or keyboard and mouse. The active pane is indicated by the color of the application or tool button in the toolbar. White designates the active pane.

Channel application– When AppCenter starts, an application is opened to control each channel. The channel application for the active channel is displayed in AppCenter's Applications pane. See "Selecting the channel application" on page 73

Assignable buttons – Some buttons are assignable meaning you can change the order that buttons appear in some button groups to better suit your workflow. Selecting a button for longer than approximately one second causes a pop-menu to appear which lists the alternative button choices for that button.

Clip Thumbnail – Used for visual identification of a clip in channel applications and Clips pane. By default, the thumbnail is generated from the 16th frame of video. You can select a new thumbnail using Player (see "Changing the clip thumbnail image" on page 164). If no thumbnail is available, an icon is displayed showing there is no thumbnail.

Volume – The set of media drives that functions as a single physical disk in the iVDR. The volume name used in the iVDR is 'V:' for the internal drives.

Bin – A bin is a container used to organize assets like clips and lists in the same way as directories or folders are used on a typical computer system. A bin is associated with a single disk volume.

Current Bin – The current bin functions as the target bin when recording clips or creating playlists. It is also the source bin used to load clips and lists.

Selecting the channel application

When the M-Series iVDR is started, an application is launched for each channel. From the factory, Recorder starts on both record channels, and Player starts on both play channels. Use the following steps to change the application running on a channel.

1. In the AppCenter toolbar, select **Split Screen** ⊟ , and then **Monitor**.
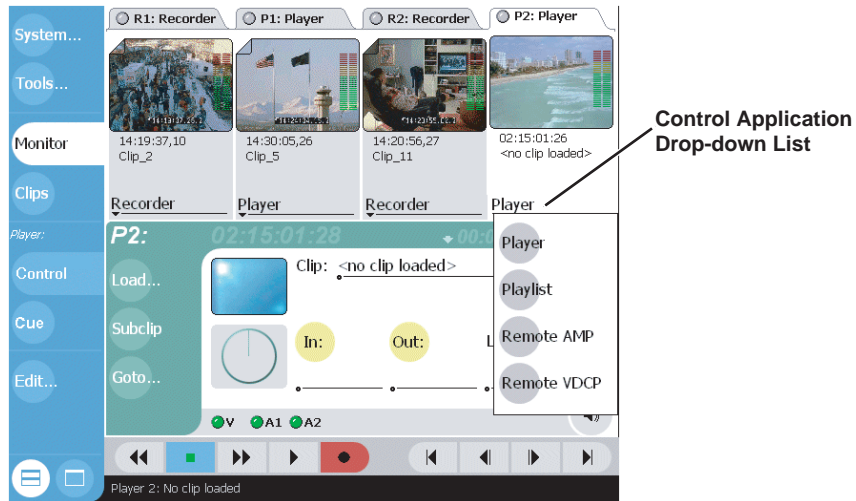
2. In the Monitor pane, select the control application drop-down list Player for the channel, then choose an application.

   The current applications closes, and the selected application opens and appears in the Applications pane which becomes the active pane.

Using the on-screen transport controls

On-screen transport controls are provided for all AppCenter applications when the optional Front Panel is not installed.
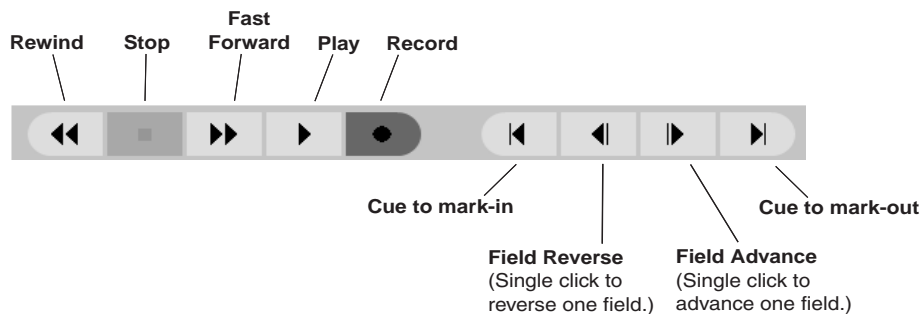
Transport controls are displayed depending on the VGA display setting of the iVDR when AppCenter starts.

•If the display setting is 640x480 when AppCenter starts, the onscreen transport controls *are not* displayed.

•If the display setting is greater than 640x480 when AppCenter starts, the onscreen transport controls *are* displayed.

Using Keyboard shortcuts

A keyboard can be connected along with a mouse and VGA monitor to operate AppCenter and channel applications. A keyboard can also be used with the front panel. The following describes the keyboard shortcuts available for AppCenter. Keyboard shortcuts are disabled when text entry dialog boxes are open.
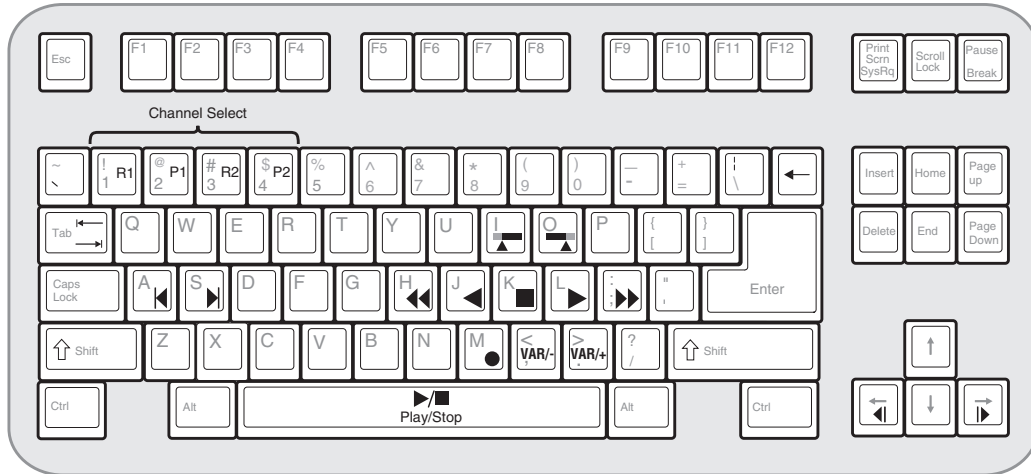
Channel select
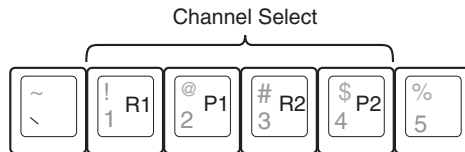
Basic transport controls
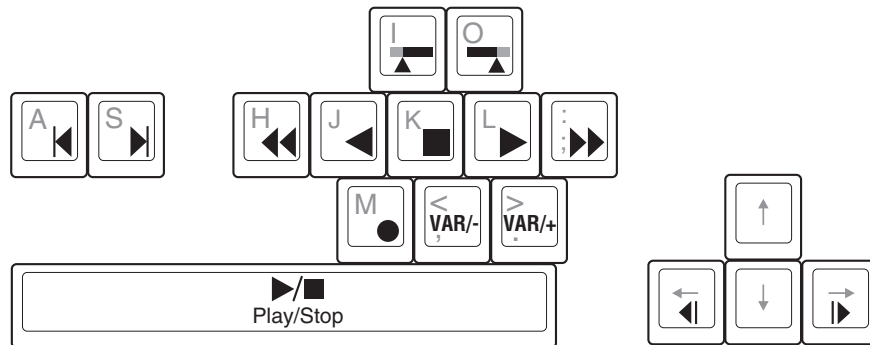
Off-speed play controls

For this action...	Press
Play faster	Shift + L (Repeat this key sequence to increment the play speed up to the maximum forward shuttle speed.)
Play slower	Shift + J (Repeat this key sequence to decrement the play speed up to the maximum reverse shuttle speed.)
VAR/speed increment	period (.) (Press for VAR play mode, then repeat to increment VAR speed.)
VAR/speed decrement	comma (,) (Press for VAR play mode, then repeat to decrement VAR speed.)

Stop-Mode transport controls

For this action...	Press
Cue to mark-in	A, Shift + I
Cue to mark-out	S, Shift + O
Next frame	Arrow-right
Previous frame	Arrow-left
Go forward 1 second	Shift + Arrow-right
Go back 1 second	Shift + Arrow-left

Mark-Point controls

For this action...	Press
Set mark-in	I
Set mark-out	O
Clear mark-in	Ctrl + I
Clear mark-out	Ctrl + O

Miscellaneous controls

Action	Press
Copy	Ctrl + C
Cut	Ctrl + X
Paste	Ctrl + V

Action	Press
Display split screen mode with Monitor pane.	~ `
Display split screen mode with Clips pane.	↑ Shift **+** ~ `
Open online help	F1

List controls

The following shortcuts are used to control lists such as text view in Clips pane, or Playlist's List view.

Action	Press
Select previous item in list	Up arrow
Select next item in list	Down arrow
Scroll to previous page	Page Up
Scroll to next page	Page Down
Scroll to top of list	Home
Scrolls to bottom of list	End
Delete current selection	Delete, Backspace

Playlist controls

Action	Press
Next event	Shift +S, Ctrl + S, Ctrl + Arrow-right
Previous event	Shift +A, Ctrl + A, Ctrl + Arrow-left
Next section	Shift + Ctrl + S, Shift + Ctrl + Arrow-right
Previous section	Shift + Ctrl + A, Shift + Ctrl + Arrow-left
Goto an event	Hold down the Alt key while clicking the event

Accessing the Windows desktop

You can minimize AppCenter interface when you need access to the Windows desktop.

- To minimize AppCenter, select **System** in the AppCenter toolbar, then choose **Minimize**.

- To maximize AppCenter, select the **Maximize** button in the AppCenter title bar.

Windows Taskbar default settings

To ensure that AppCenter displays properly when using the optional Front Panel, do not modify the factory default Windows Taskbar settings— both **Autohide** and **Always on top** should be disabled. Otherwise, the Taskbar will hide a portion of the AppCenter interface.

Guide to using the Front Panel

The Front Panel consists of three main components: the VGA display and touch screen, the channel select buttons, and transport controls including the Jog/Shuttle knob.

This section includes the following topics:

- "Using Front Panel controls"

- "Tilting the front panel"

- "Cleaning the touch screen"

- "Calibrating the front panel touch screen"

- "Adjusting front panel display brightness"
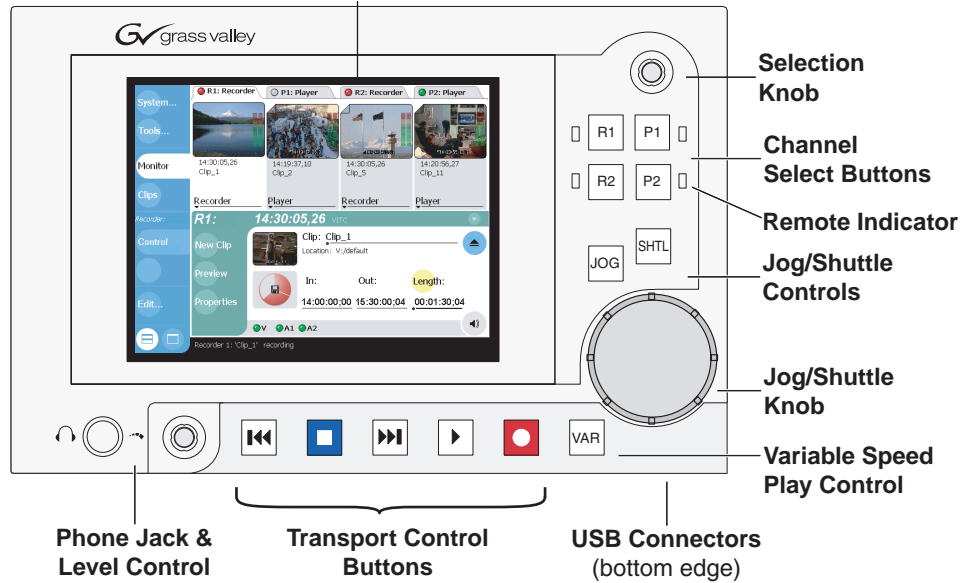
Note: Refer to display brightness control, and touch panel calibration procedures in this manual as needed.

Using Front Panel controls

The following table describes how to use the Front Panel to perform simple tasks.

Front Panel Control	Task	Customized Operation
VGA display and touch screen	Used to operate AppCenter, the M-Series iVDR graphic user interface.	Without the optional front panel, the iVDR can be operated using a VGA monitor, mouse, and keyboard.
Brightness Control	Adjust VGA display brightness. Located on the back of the front panel module.	
●	**Record** – Hold down PLAY, then press REC.	You can change to pressing Record only.
■	**Stop** – Press STOP to stop Record/Play.	
▶	**Play** – Press PLAY to start playback.	
◀◀	**Rewind** – Hold down REW, then release the button to cause the clip to return to the previous mode.	Selectable rewind speed.
▶▶	**Fast Forward** – Hold down FF, then release the button to cause the clip to return to the previous mode.	
◀◀ + ■	**Cue to beginning** – Hold down STOP, then press REW.	
■ + ▶▶	**Cue to end** – Hold down STOP, then press FF.	
▶▶	**Frame advance** – Tap and release the FF button.	
◀◀	**Frame reverse** – Tap and release the REW button.	
Jog/Shuttle Knob[a]	**Jog** – Press JOG, then turn knob. Playback corresponds to the direction and rotational speed of the knob.	Range of jog speeds can be set for ±1x or ±3x.
	Shuttle – Press SHTL, then rotate the knob for -32x to +32x normal playback speed.	Range of shuttle speeds ±16x or ±32x.
	Variable Speed Play – (slo-mo) Press VAR. Off-speed play begins. You can rotate the knob to set the play speed (RANGE: ±1x normal playback speed), otherwise, speed remains at the preset play speed or the last variable play speed used. Variable play speed is implemented using interpolated line and field smoothing.	Preset can be set to .25x, .5x or .75x. Initial play speed can be set to start at either the preset speed, or the last play speed set by the Jog/Shuttle knob.
Selection Knob	Rotate the knob to scroll through lists that appear on the VGA display. Select items by pressing in on the knob.	
Phone Jack & Level Control	Connect headphones and adjust level control to monitor the audio of the selected channel. Headphone level control also adjusts rear panel monitor level unless disabled in Configuration Manager.	Disable control of rear panel audio monitor. Rear panel audio monitor gain is set to unity.

a. Scrub audio is provided at Shuttle/Jog speeds between +3x to -3x. Outside this range, audio defaults to burst audio at a fixed window size similar to audio CD behavior.

Tilting the front panel

The following diagram illustrates how to tilt the front panel to the optimal working angle for your installation.
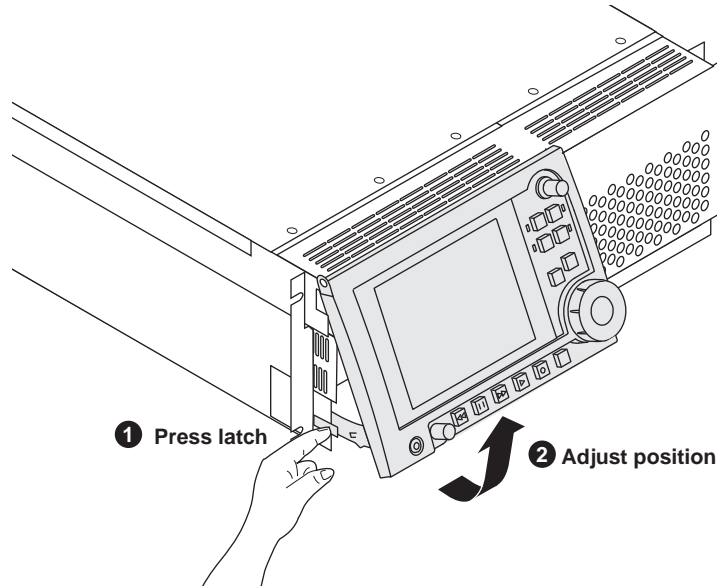
Cleaning the touch screen

The front surface of the touch screen should be kept free of dirt, dust, finger prints and other materials that could degrade optical properties. Long term contact with abrasive materials will scratch the front surface, and image quality will be detrimentally affected. For best results, use a clean (damp) non-abrasive cloth towel and any commercially available window cleaner to regularly clean the surface. The cleaning solution should be applied to the towel rather than the surface of the touch screen. Many touch screens have air vents and are not designed with water tight bezels. Fluid ingress may occur from behind the panel if it is not cleaned properly.

Calibrating the front panel touch screen

You can calibrate the touch screen to optimize its performance. The front panel can be tilted to a convenient operating angle, or removed and operated as a desktop device using an optional 15 foot extension cable and cradle. Calibration may enhance operation after the angle of the touch panel is changed, or when the front panel has been removed and extended to operate as a desktop device using the optional 15 foot extension cable and front panel cradle.

To calibrate the touch screen:

1. In the AppCenter toolbar, touch **System**, then choose **minimize** in the pop-up menu.

   The Windows desktop appears.

2. In the Windows taskbar, touch **Start | Settings | Control Panel**.

3. In Control Panel, find and double-click the **Touch Screen Calibration** applet.

The Calibration Applet window opens.

4. On the Calibration tab, touch **Calibration**, then follow onscreen instructions to calibrate the touch panel.

⚠️ *CAUTION: Do not modify any other settings in the Calibration Applet window. These are factory set for optimal performance.*

5. Touch **OK** in the Calibration Applet window to exit.

6. Close Control Panel.

7. Click the maximize button in the AppCenter title bar and test the touch panel.

Adjusting front panel display brightness

You can adjust front panel display brightness for best display depending on ambient light conditions. The brightness control is located on the back side of the front panel.

Enabling the VGA monitor output

You can display AppCenter on the VGA monitor output and the optional Front Panel at the same time. This allows you to monitor iVDR operations on a larger display. The rear panel VGA monitor connector is disabled at the factory when the optional front panel is installed. With an external keyboard connected, you can use the display mode hot-keys to enable the VGA output. The following table shows the VGA monitor output hot-key sequences for switching between display modes.

Monitor Mode	Hot-key sequence to use
Front panel only	Ctrl + Alt + L
VGA output only	Ctrl + Alt + C
Front panel and VGA output[a]	Ctrl + Shift + C

a. Configure screen resolution in Windows for 640x480 for full screen display.

Monitoring the system using the StatusBar

The StatusBar, located across the bottom of the AppCenter window, is used to display system and applications messages. In addition, the StatusBar includes several tool buttons as described in the following table.

Player 2: Playing 'List_10', 'Section 1', 'Clip_2'

Status Messages

Protocol Monitor Button

Transfer Monitor Button

StatusPane Button

	Tool Name	Description
	Protocol Monitor	This button appears when a channel is configured for remote control using a remote control protocol application. The Protocol Monitor button flashes when any protocol application is successfully receiving serial control protocol commands. Clicking on the Protocol Monitor button opens the Protocol Monitor dialog box which shows the specific channel(s) receiving messages. "Monitoring remote control communications" on page 283.
	Transfer Monitor	Appears during a file transfer or import/export operation. Selecting the button opens the Transfer Monitor pane. See "Guide to using the Transfer Monitor" on page 253.
	StatusPane	Always appears on the StatusBar, however, the button symbol changes depending on the system status. See "Interpreting StatusPane button icons" on page 82.

Interpreting StatusPane button icons

The StatusPane button always appears in the StatusBar. The button icon changes depending on the status of the trap messages. Selecting the StatusPane button opens the StatusPane which is used to view and manage status messages logged on the system.

Icon	Name	Description
	Default	All warnings and alert messages have been cleared
	Warning	There is at least one warning message, and no alert messages.
	Alert	There is at least one uncleared alert message.

Message types displayed in the StatusBar

The following table describes the message types that appear in the StatusBar. Typically, the StatusBar message area displays application status messages for the active channel, however, if a problem develops with the software application or hardware subsystem, an error message is momentarily displayed and the symbol for the StatusPane button changes.

Message Type	Example Message
Application Status Message	Clip loaded, clip recording, no clip loaded.
Application Error Message	Media disks are full. Cannot record the clip.
Trap Summary Message	The system drive at full capacity. Disk recorder operations will fail. Delete unused or temporary assets, and restart disk recorder.

Using the StatusPane

The StatusPane is used to view detailed system messages including status, warning, and error messages. The StatusPane provides a central message area where status messages are listed as they are continually read from a logging database on the iVDR system drive. The StatusPane also includes subsystem status indicators, and the StatusPane menu button. The subsystem status indicators display a red X when an alert message for the subsystem is listed in the StatusPane. A yellow X is displayed when a warning messages is listed. (Refer to the *M-Series Service Manual* for more information about the iVDR database.)

StatusPane Topics:

- "Opening the StatusPane"
- "Showing iVDR software versions"
- "Copying messages to the clip board"
- "Clearing messages"
- "Closing the StatusPane"
- "Exporting the logging database to a log file"

Opening the StatusPane

- To open the StatusPane, click the StatusPane button ![i] in the AppCenter StatusBar.

  The StatusPane is displayed where you can view messages.
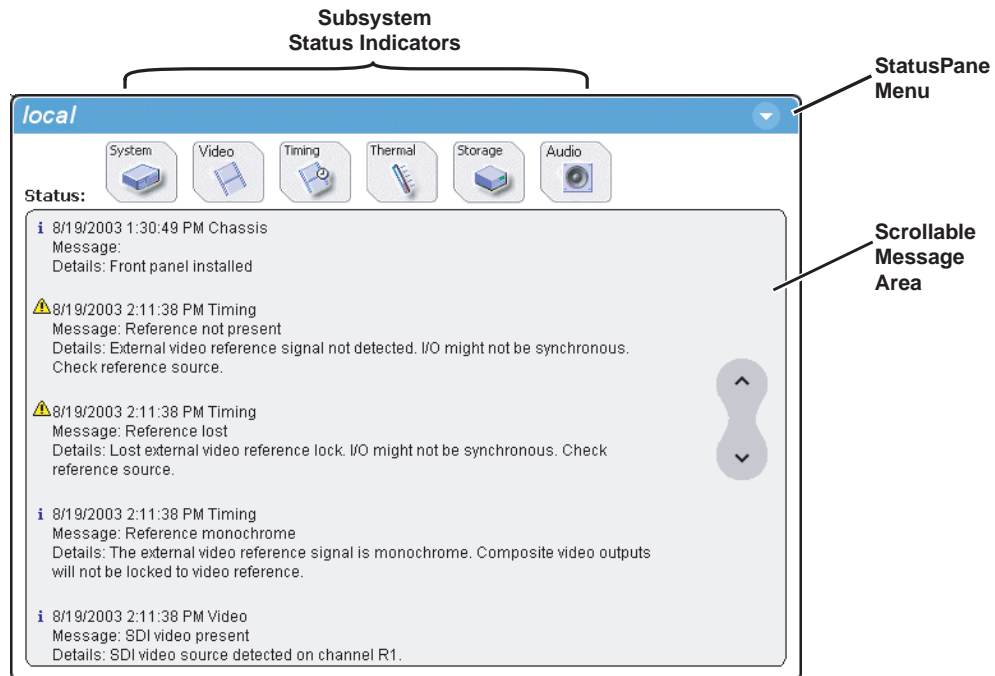
Showing iVDR software versions

- Select the StatusPane menu button ⏷, then choose **Show Versions**.

  Software versions are displayed.

Copying messages to the clip board

1. Select the message in the StatusPane.

2. Select the StatusPane menu button ⏷, then choose **Copy Message**.

   After copying the message, it can be pasted using standard Windows techniques.

Clearing messages

Clearing messages from the StatusPane removes them from the logging database and the StatusPane. This also clears the state of the subsytem indicators so they no longer display the alert and warning symbols.

- Select the StatusPane menu button ⏷, then choose **Clear Log**.

  All messages are removed from the StatusPane and logging database.

Closing the StatusPane

- Select the StatusPane menu button ⏷, then choose **Exit**.

Exporting the logging database to a log file

The procedures in this section describe how to export the entire iVDR logging database to a file. The logging database includes all applications messages, the Windows Event Log, and messages related to managing the media file system. The exported log file can be sent to Thomson Grass Valley product support where it can be examined to analyze the operation of your iVDR.

NOTE: Export Log does not export StatusPane messages. To capture StatusPane messages, refer to .

Use one of the following procedures to export the logging database to a file.

Exporting the log database using the StatusPane

1. Click the StatusPane button [i] in the AppCenter StatusBar to open the StatusPane.

2. Select the StatusPane menu button ⏷, then choose **Export Log**.

   The ExportLog dialog box is displayed.

3. In the ExportLog dialog box, browse to locate the destination directory.

4. Select the **File Name** edit control, then enter a file name for the exported log file.

5. Use the **Date**, **Type**, and **Logs** tabs to set up export options, if needed.

6. Select **Export**.

7. When the export confirmation message appears, click **OK**.

8. Retrieve the log file, and send it to Thomson Grass Valley support for analysis.

Exporting the log database using the Windows command line

This procedure allows you to export the log database to a file even if AppCenter does not start properly. It uses the Windows command prompt.

1. If you have not already done so, connect a mouse and keyboard to the iVDR using the rear panel ports, or the ports on bottom edge of the Front Panel.

2. In the Windows task bar, select **Start | Run**.

3. Type the following in the Run dialog box, then click **OK**.

   ```
   c:\profile\exportlog
   ```

   The ExportLog dialog box is displayed.
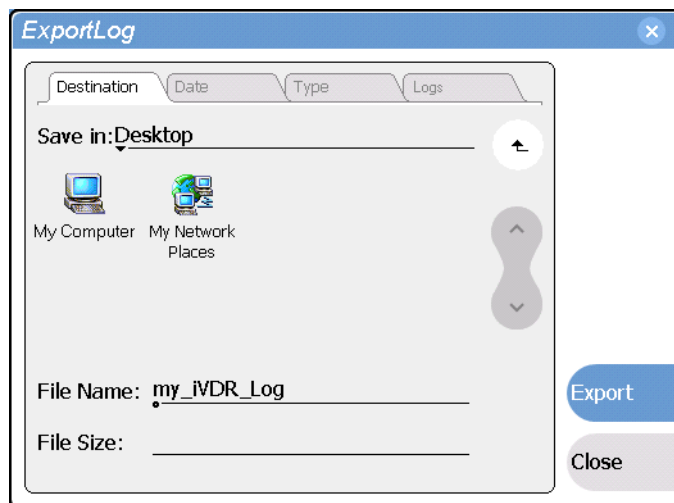
4. In the ExportLog dialog box, browse to locate the destination directory.

5. Select the **File Name** edit control, then enter a file name for the exported log file.

6. Use the **Date**, **Type**, and **Logs** tabs to set up export options, as needed.

7. Select **Export**.

8. When the export confirmation message appears, click **OK**.

9. Retrieve the log file, and send it to Thomson Grass Valley support for analysis.

Writing data to the CD-R/RW and DVD drives

The following procedures explain how to use the iVDR CD-ROM drive or the optional DVD drive to store and transport data on removable media disks. The DVD drive supports DVD-R, DVD+R, DVD+RW, DVD-RW, and CD-R/RW disk formats.

This section includes:

- "Formatting CD-R/RW and DVD disks"
- "Reading CD-ROMs and DVDs in other iVDRs or computers"

Formatting CD-R/RW and DVD disks

You must format the CD-R/RW or DVD disk media before you can use it in the iVDR disk drives. The iVDR includes the software for doing this formatting.

NOTE: Transferring iVDR assets using the Clips pane "Send To File" feature will fail if the disk media is not formatted. Be sure to format the disk media before using the "Send To File" feature.

To format a CD-R/RW or DVD disk:

1. Connect an external keyboard, if needed.

   If you normally operate your iVDR using the optional Front Panel touch-screen, you should connect keyboard and mouse before proceeding. The keyboard is required if want to name the CD-R/RW or DVD disk, and you will likely find it easier to make selections using a keyboard and mouse rather than the touch-screen. You might need to restart Windows to make the mouse and keyboard operational.

2. In AppCenter, select **System | Minimize**.

   The Windows desktop appears.

3. Insert a blank disk in the CD-ROM or DVD drive.

4. In Windows Explorer, open the CD-ROM or DVD drive. A message appears.

5. Answer **Yes** to format the disk. A dialog appears.

Format F: - Stomp DLA

Volume Label:

Start

Cancel

Format type
- Quick (erase)
- Full

Explain

6. Accept **Quick** as the format type. You can optionally enter a volume name. Select
   Start to begin the format operation. A message appears.

Stomp DLA

WARNING: You are about to format the media. All data on the
media will be lost.

Are you sure you want to format the media?

Yes   No

7. Answer **Yes** to confirm the format. A progress dialog appears.

Format F: - Stomp DLA

Settings
Format name: UDF
Format type: Quick
Label:
Compression: None

Cancel

Status
Formatting

Elapsed Time: 0:00:04
Estimated Remaining Time: 0:00:18
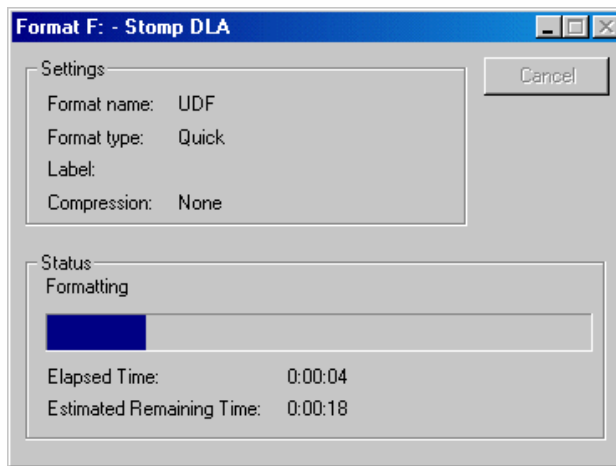
When formatting is complete a message appears.

Stomp DLA

Format complete.

OK

8. Select OK to complete the process. The disk is ready for use.

Reading CD-ROMs and DVDs in other iVDRs or computers

After writing data to CD-R/RW or DVD disks in the iVDR, you must make the disk compatible before you can use it in another computer or device. Making the disk compatible effectively "closes" the disk and it becomes read-only. You will not be able to write any more data to the disk so make sure you are finished storing data on the disk before making it compatible.

You can exchange disks between iVDRs without making the disk compatible if you read the disk with the same type drive used to burn the disk. For example, use the DVD drive to read a CD-R/RW that was burned using the DVD drive. If the destination iVDR doesn't have the optional DVD drive, you must make the CD-R/RW compatible before inserting it in the iVDR CD-ROM drive.

To make a CD-R/RW or DVD disk compatible with other computers:
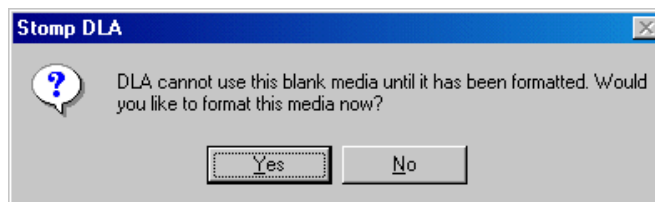
1. Connect an external keyboard, if needed.

   If you normally operate your iVDR using the optional Front Panel touch-screen, you should connect keyboard and mouse before proceeding. Refer to "Keyboard, mouse, and VGA monitor connections" on page 24 for instructions. You will likely find it easier to make selections using a keyboard and mouse rather than the touch-screen. You might need to restart Windows to make the mouse and keyboard operational.
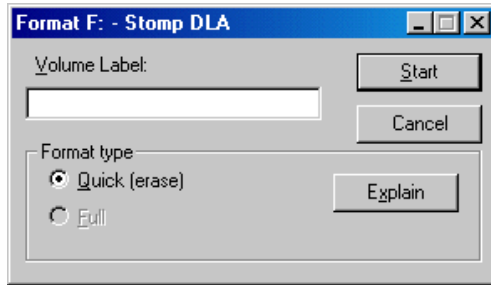
2. Insert the disk you want to make compatible into the CD-ROM or DVD drive.

3. In AppCenter, select **System | Minimize**. The Windows desktop appears.

4. Do one of the following:

   • Select the CD-ROM or DVD drive in Windows Explorer, then click
     File | *<CD-ROM or DVD drive letter>* **| Make Compatible**.

     - or -

   • In Windows Explorer, right-click the drive, and select **Make Compatible** in the shortcut menu.
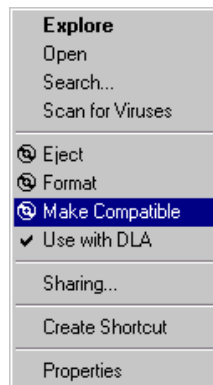
A dialog appears.
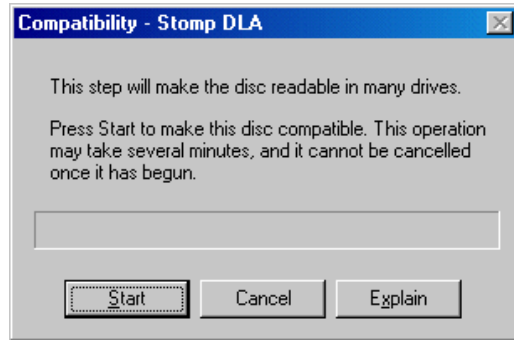
NOTE: This operation makes the disk read-only. If you proceed you can no longer add or modify anything on the disk.

5. Select **Start** to make your disk compatible.

   Depending on the amount of data on the disk, this operation may take a few minutes to complete and should not be cancelled once it has begun. When the operation completes a message appears.
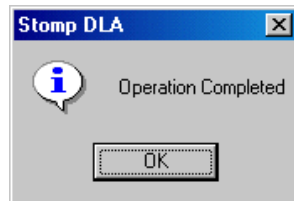
6. Select **OK** to complete the process.

   You can now use the disk in other devices.

Chapter **4**

Modifying Configuration

Information in this chapter includes:

- "Using Configuration Manager"
- "Selecting the video standard"
- "Setting the audio reference level"
- "Selecting Time-of-day source for event scheduling"
- "Selecting video compression"
- "Record channel settings"
- "Play channel settings"
- "Configuring GPI inputs/outputs"
- "Configuring the Monitor pane display"
- "Front Panel settings"
- "Adding and removing network host names"

Using Configuration Manager

Configuration Manager is the primary configuration tool for the iVDR. It makes settings that apply to the overall iVDR system as well as settings that apply to individual channels.

Configuration Manager settings are stored in a database. The iVDR's current configuration is always based on the settings saved in the database. When the iVDR starts up it reads the settings from the database and configures itself accordingly. When you modify a setting in Configuration Manager you must save the setting in order to update the database and reconfigure the iVDR.

You can also save Configuration Manager settings as configuration files. Configuration files are generated by the Configuration Manager application as stand-alone XML files. You can save settings out of Configuration Manager into a configuration file. Likewise, you can load settings into Configuration Manager from a configuration file. However, you must use Configuration Manager as the means to save the settings to the database before the settings actually take effect. Configuration files are not linked directly to the database.

You can use configuration files as a means to back up your settings. You can also use configuration files to save several different groups of customized settings, each with a unique name, so that you can quickly load settings for specialized applications. Refer to "Saving and loading settings as configuration files" on page 94.

Refer to the inside front cover of this manual for a quick guide to finding configuration settings.

The following topics provide instructions on using Configuration Manager:

- "Opening and closing Configuration Manager"
- "Saving and loading settings as configuration files"
- "Restoring default settings"

Opening and closing Configuration Manager

1. On the Toolbar, click **System**.

   The System menu opens.

2. On the System menu choose **Configuration**.
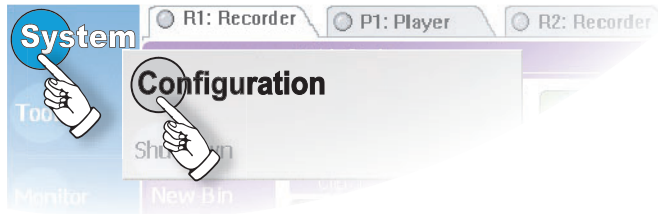
   Configuration Manager opens.
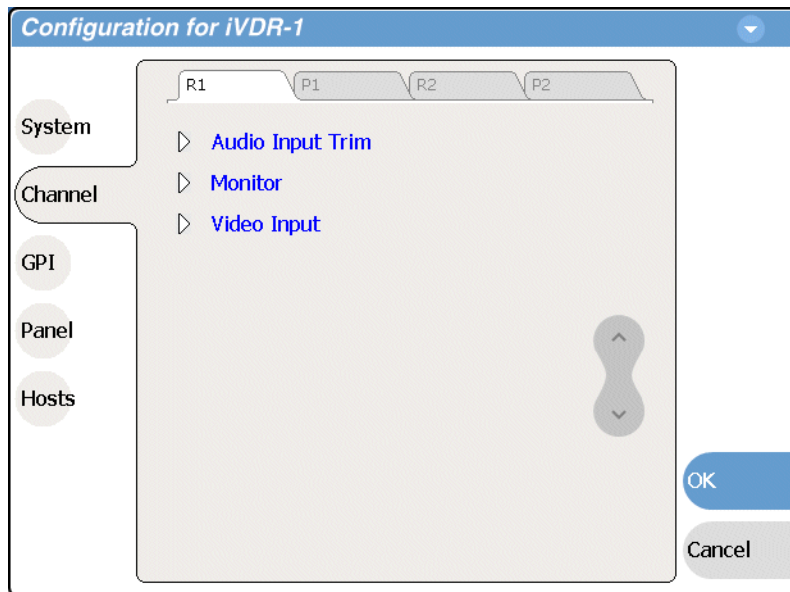
3. Select buttons, tabs, and links to find settings. The Front Panel selection knob can be used to make selections in Configuration Manager.

4. Close Configuration Manager as follows:

   • To save changes, complete all your modifications on all Configuration Manager screens, then select **OK**. In this way, you can put all the changes into effect at once. When prompted to change the system settings, select **Yes**. Observe progress as the settings are saved to the database and the iVDR is reconfigured. This can take several seconds.

   • To discard changes, select **Cancel**. When prompted to discard the changes and exit, select **Yes**.

Saving and loading settings as configuration files

Settings can be saved as a configuration file as explained in "Using Configuration Manager" on page 92. You can save any number of uniquely named custom configuration files. By loading a custom configuration file you can modify all settings in Configuration Manager at once according to the values in the file.

To save custom settings:

1. On the Configuration Manager dialog select the context menu ⊙ and choose **Save A Copy**.

   The Save As dialog opens.
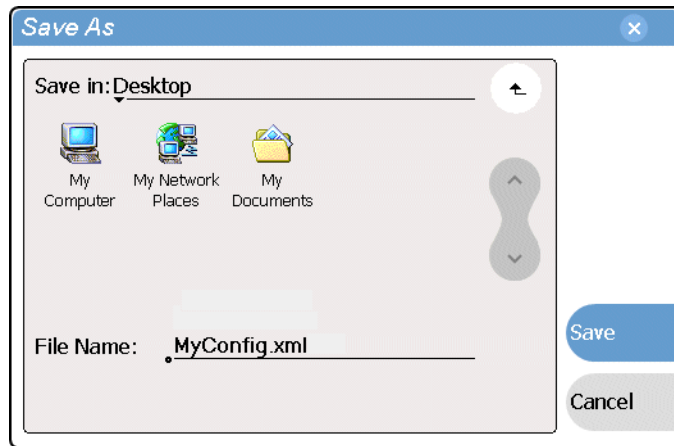
2. Use the up arrow or select folders to navigate to the folder in which you want to save the configuration file.

3. Enter a name for the configuration file. Do not name the file *DefaultConfig.xml*, as this name is reserved for the factory default configuration file. Otherwise, standard Windows 2000 and up file naming restrictions apply.

4. Select **Save** and **Close**.

To load custom settings:

1. If you want to save current settings, you should save them as a configuration file before continuing.

   When you load custom settings from a configuration file, the custom settings replace those currently in Configuration Manager. Then, when you close Configuration Manager and save the custom settings to the database, your previous settings are lost.

2. On the Configuration Manager dialog select the menu button ⊙, then choose **Open**.

   The Open dialog opens.
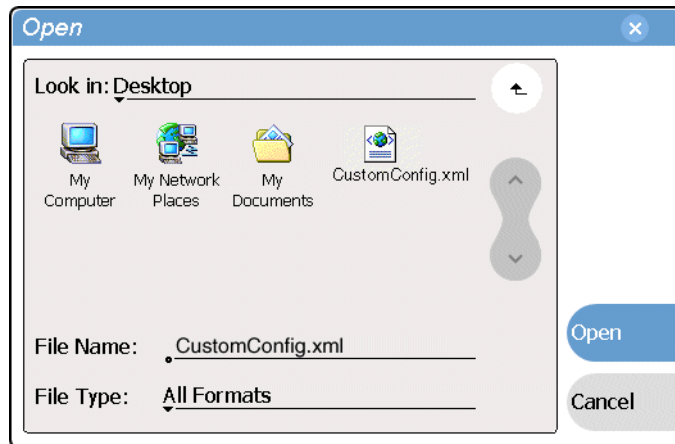
3. Use the up arrow or select folders to navigate to the custom configuration file.

4. Select the custom configuration file.

5. Select **Open**.

   The custom settings are loaded into Configuration Manager, but they are have not been saved and put into effect.

6. Click **OK** to save and apply settings, and to close Configuration Manager.

Restoring default settings

You can restore settings to their factory default values as follows:

• You can restore some individual settings or groups of settings by selecting the **Default** button which appears below the settings in the configuration screen.

• You can restore all the settings in Configuration Manager at once to their default values as explained in the following procedure. This is useful for test purposes or for removing site-specific settings when re-installing at a new site. Restoring default settings replaces current settings.

To restore all settings at once to their default values:

1. If you want to save current settings you should work through the previous procedure "Saving and loading settings as configuration files" before proceeding.

2. On the Configuration Manager dialog, select the context menu button ⊙, then choose **Restore Defaults**.

   The default settings are loaded into Configuration Manager, but they have not yet been saved and put into effect.

3. Click **OK** to save settings and close Configuration Manager.

Selecting the video standard

The video standard setting applies to all record and play channels.

1. On the Toolbar, select **System** and choose **Configuration**.

   The Configuration Manager dialog opens.

2. On the Configuration Manager dialog select **System**.

   The System configuration settings appear.
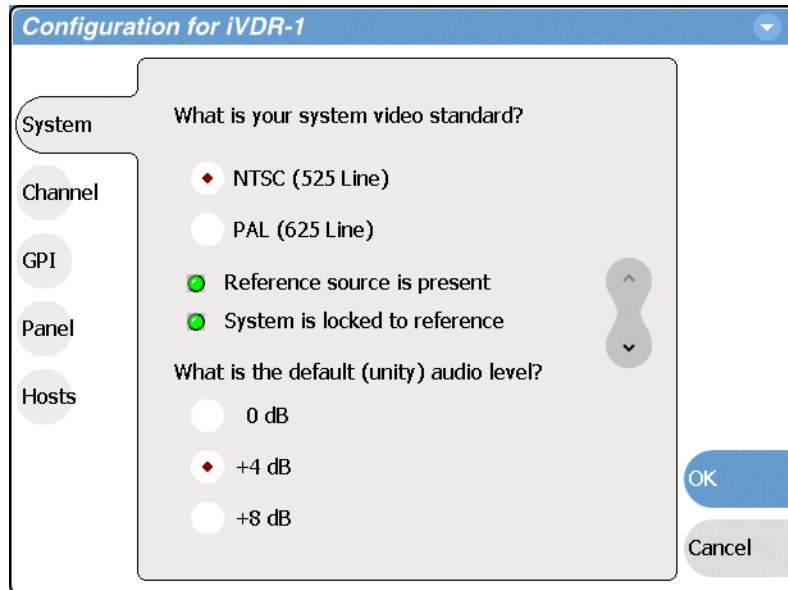
3. Select the video standard for your system, either **NTSC (525 Line)** or **PAL (625 Line)**.

   This setting applies to all channels.

4. Change other settings as necessary in the Configuration dialog box, then select **OK** to save and apply all changes at once.

5. When prompted, restart the iVDR. The restart is required to put the video standard change into effect.

Setting the audio reference level

The audio reference level setting applies to all record and play channels.

1. On the Toolbar, select **System** and choose **Configuration**.

   The Configuration Manager dialog opens.

2. On the Configuration Manager dialog select **System**.

   The System configuration settings appear.
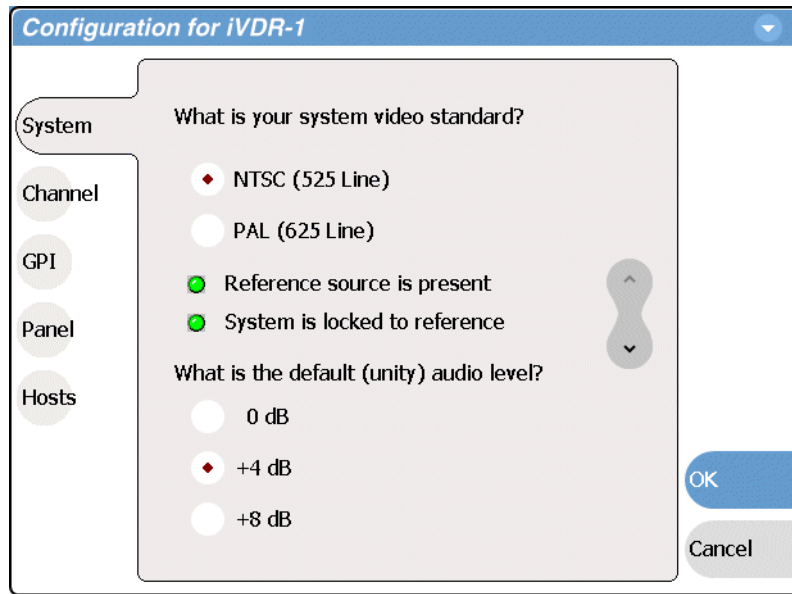
3. Set the default audio reference level for your system.

   This setting applies to all channels.

4. Change other settings as necessary in the Configuration dialog box, then select **OK** to save and apply all changes at once.

Selecting Time-of-day source for event scheduling

You can set the time-of-day source used for event scheduling, such as automatic play and record events.

To select the timecode source for recording a clip, refer to *"Changing the timecode source" on page 140*.

To set the time-of-day source:

1. Select **System** and choose **Configuration**

2. Select **System**, then open the **Time of Day** link. Close other links or use the scroll button if necessary to locate the link.
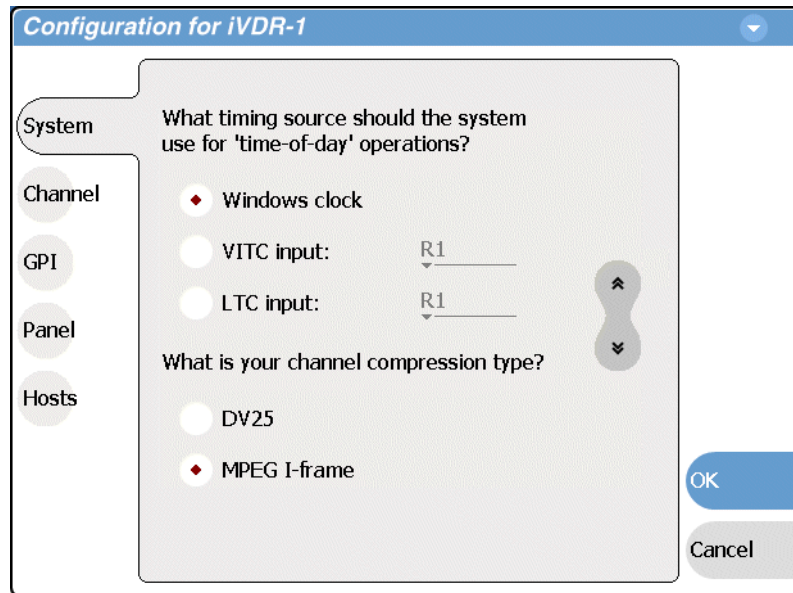
3. Select one of the following sources:

- Windows clock — This is the local Windows operating system clock. If you select this source you should verify that the clock's time is correct. To do this follow the procedure "Accessing the Windows desktop" on page 29 and use standard Windows procedures.

- VITC input — This is the VITC timecode embedded in the selected record channel's video input. Select the drop-down list, then choose one of the record channels:

  - R1

  - R2

  If a warning message about missing VITC is displayed, make sure your rear panel connection and source video are correct before proceeding.

- LTC input — Select the drop-down list, then choose one of the record channel LTC inputs:

  - R1

  - R2

4. Change other settings as necessary in the Configuration dialog box, then select **OK** to save and apply all changes at once.

Selecting video compression

The video compression selection is a system wide setting. When video compression is set to one type, you cannot load and play clips recorded previously using the other compression type. You can only play clips recorded using the system compression type currently selected.

To select the video compression type:

1. On the Toolbar, select **System**, then choose **Configuration**.

    The Configuration Manager dialog opens.

2. On the Configuration Manager dialog select **System**.

    The System configuration settings appear.

3. Identify the question "What is your channel compression type?".
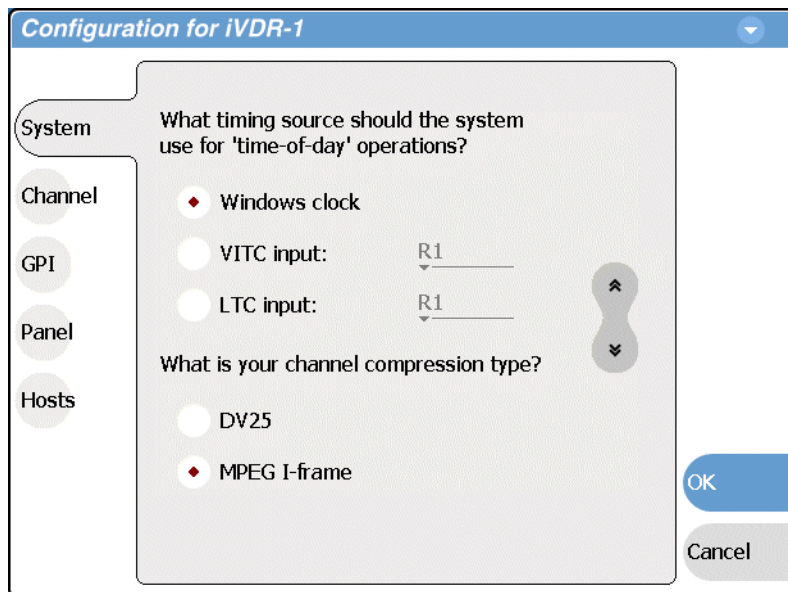
    Use the scroll button if necessary to locate the question.

4. Select one of the following compression types:

    • DV25 — When you make this selection, no further compression settings are available or necessary. However, you must select **OK** and save this setting before the iVDR configuration actually changes. When prompted, restart the iVDR. Restarting the iVDR is required to change video compression type.

    • MPEG I-frame — When you make this selection, additional settings are available. Continue with the next step.

NOTE: MPEG I-frame compression is not available in the M-Series iVDR model M-122A.

5. Make sure **MPEG I-frame** is selected as instructed in the previous step, then scroll down to display the additional MPEG settings.
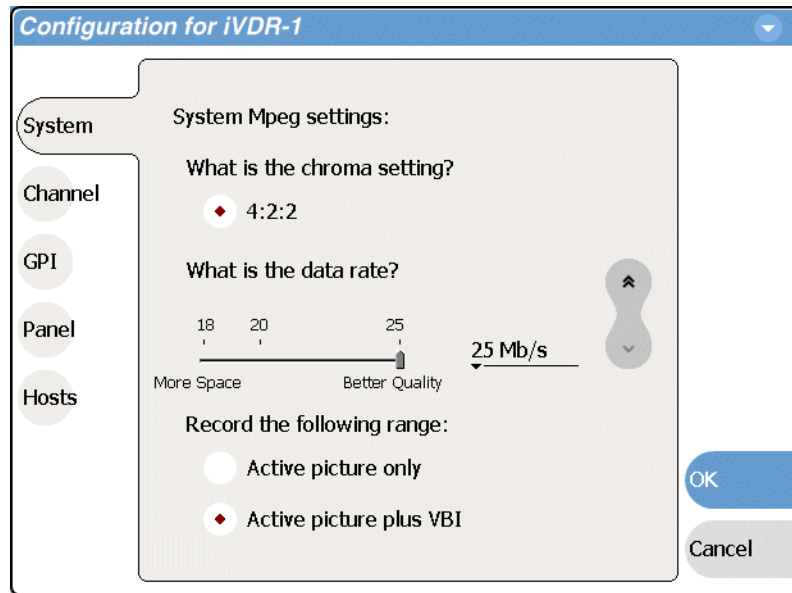
6. Select an MPEG compression data rate using the drop-down menu.

NOTE: If you only modify the data rate setting, you must restart AppCenter after closing the Configuration dialog box for the new data rate to take effect.

7. Select record range settings.

   Select the **Active picture plus VBI** option if you need to record signals or data inserted in the vertical blanking interval (VBI). Otherwise, you should select **Active picture only** option. When the VBI information is recorded, it is compressed along with the picture content. You may need to increase the data rate if you have trouble with the integrity of the VBI signals during playback. See also "Vertical blanking interval compression" on page 291.

8. Change other settings as necessary in the Configuration dialog box, then select **OK** to save all changes at once.

9. You'll may be prompted to do one of the following:

   • If you changed compression type, you'll be prompted to reboot the iVDR for changes to take effect.

   • If you changed the data rate setting, you'll be prompted to restart AppCenter for the data rate changes to take effect.

Record channel settings

Use the following procedures to configure each of your record channels, R1 and R2. Topics are as follows:

- "Selecting the video input type" on page 101
- "Adjusting the audio input trim" on page 105

Configuring the video input

The settings for video input are displayed on a continuous, scrolling page within the Configuration Manager dialog box. To work through all the settings simply start at the top and scroll down, answering the questions as you go. The following procedures explain each setting.

- "Selecting the video input type" on page 101
- "Setting record channel NTSC pedestal" on page 102
- "Setting analog video automatic gain control" on page 103
- "Configuring the VITC reader" on page 104

Selecting the video input type

1. Select **System** and choose **Configuration**, then select the **Channel** button, select the **R1** or **R2** tab, and open the **Video Input** link. Close other links or use the scroll button if necessary to locate the link.

2. Locate the question "What is your video input type?".
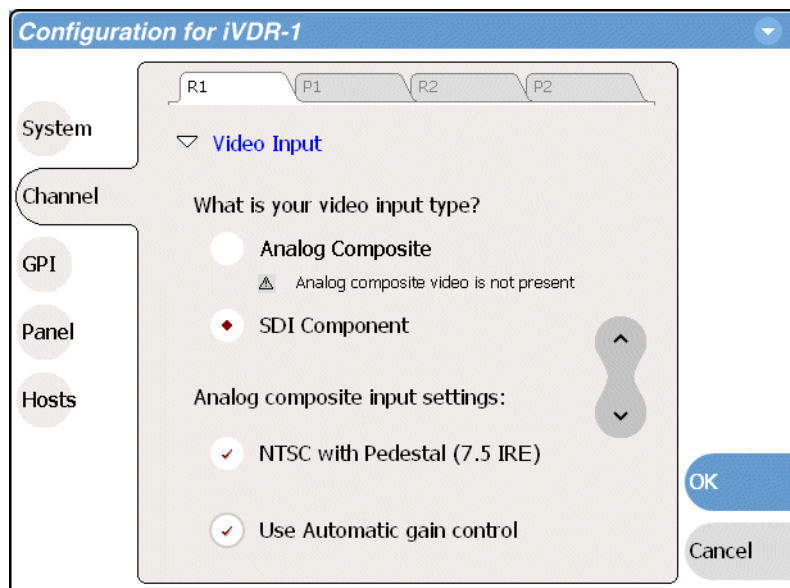
Use the scroll button if necessary to locate the question.

3. Select a video input. Your selection takes effect immediately without closing the Configuration dialog box.

   • SDI component — Make this selection to record SDI component video connected to the record channel's *SDI* input. If a warning message is displayed about SDI not present, verify that and SDI signal is connected. When you select SDI component video, there are no other configuration options available. Proceed to "Configuring the VITC reader" on page 104.
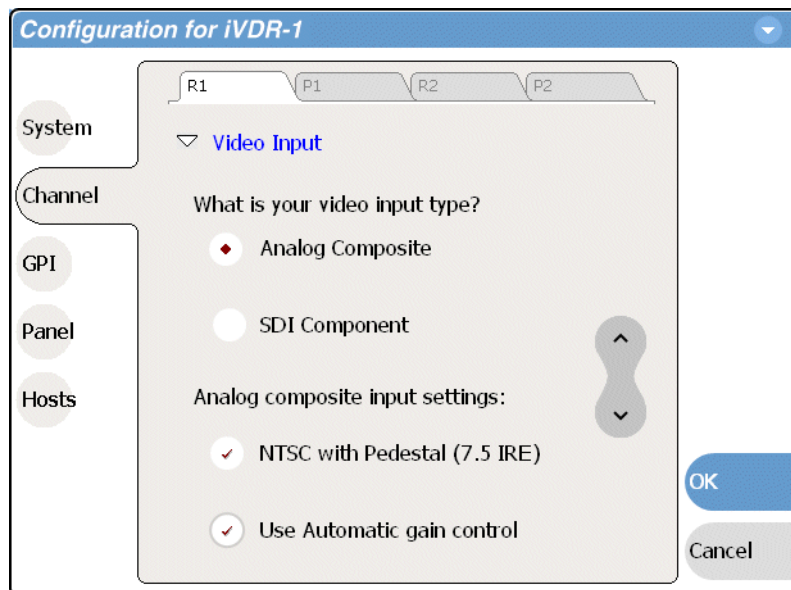
   • Analog composite — Make this selection to record analog composite video connected to the record channel's *Composite* input. If a warning message is displayed about composite signal not present, verify that and composite signal is connected. When you select Analog composite additional input settings are available as explained in the next procedure "Setting record channel NTSC pedestal".

Setting record channel NTSC pedestal

1. Make sure NTSC is selected as instructed in the previous procedure "Selecting the video standard" on page 96. If NTSC is not selected the pedestal setting is not available.

2. Select **System** and choose **Configuration**, then select the **Channel** button, select the **R1** or **R2** tab, and open the **Video Input** link. Close other links or use the scroll button if necessary to locate the link.

3. Locate the statement "Analog composite input settings:".

4. If you are operating with a standard NTSC input signal with 7.5 IRE setup, then select the pedestal check box. You must make this selection for both record channels.

   For play channel settings refer to "Adjusting analog composite output levels" on page 106.

5. Change other settings as necessary in the Configuration dialog box, then select **OK** to save and apply all changes at once.
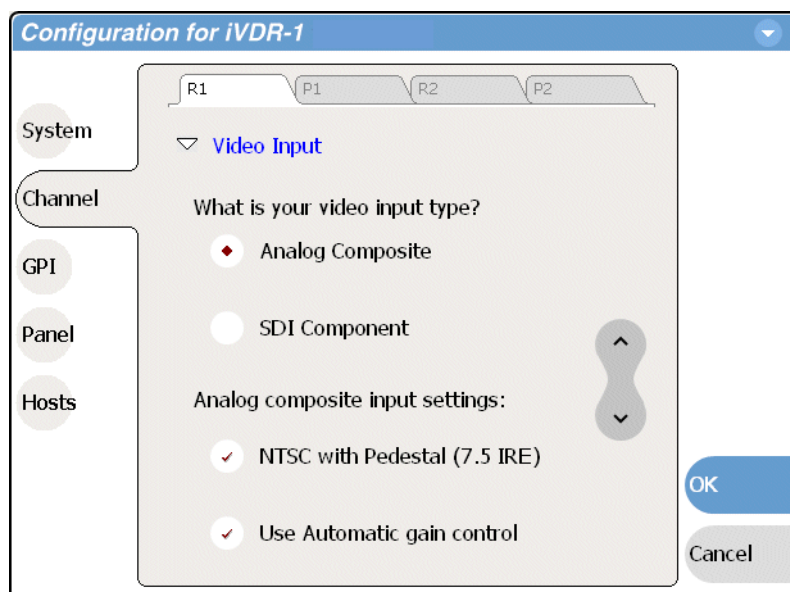
Setting analog video automatic gain control

The automatic gain control (AGC) feature automatically adjusts the chrominance and luminance on the video input signal to the proper levels by monitoring the sync and color burst portions of the signal. Automatic gain control is enabled by default. This is the best practice for most applications.

You may need to disable AGC in systems where sync and burst are reinserted in the video path several times, or in any case where the sync and burst signals do not correlate or track the active picture portion of the signal. Also, if there is excessive hum riding on the video input signal, the AGC circuits will tend to modulate the picture level at that frequency in an attempt to compensate for the problem. If you think you are experiencing one of these problems, try turning off AGC while monitoring the record channel in E to E mode (no clip loaded in Recorder).

To enable/disable automatic gain control:

1. Select **System** and choose **Configuration**, then select the **Channel** button, select the **R1** or **R2** tab, and open the **Video Input** link. Close other links or use the scroll button if necessary to locate the link.

2. Locate the statement "Analog composite input settings".

3. Make your automatic gain control setting.

4. Change other settings as necessary in the Configuration dialog box, then select **OK** to save and apply all changes at once.

Configuring the VITC reader

Use the following procedure if you have VITC timecode embedded in the video signal. If you use LTC timecode exclusively, this procedure does not apply.

To configure VITC reader:

1. In the AppCenter toolbar, select **System | Configuration**, then **Channel** and either the **R1** or **R2** tab.

2. Open the **Video Input** link.

3. Scroll to locate the question "What lines should be used to read VITC timecode?".
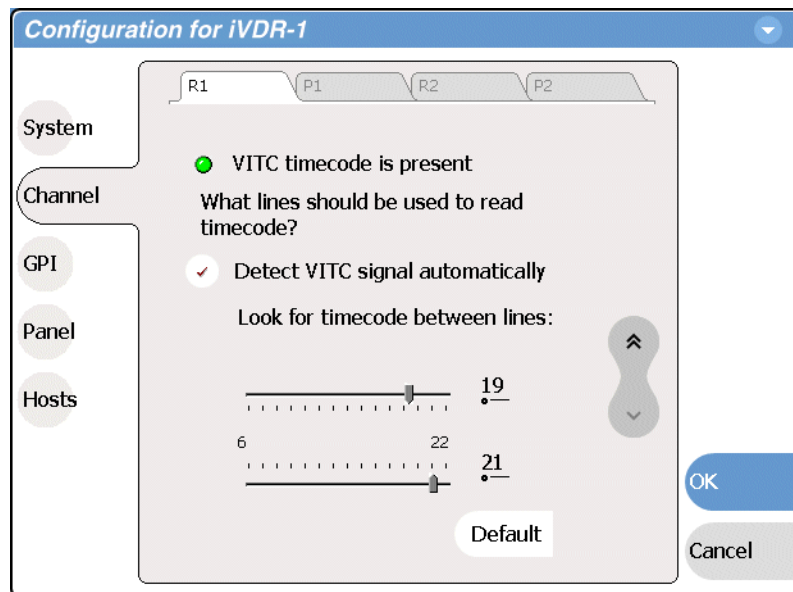
4. Select the VITC reader setting as follows:

   • **Detect VITC signal automatically** — Select this option, then use the sliders or number entry controls to enter the range of lines you want the system to search for VITC. Automatic detection works in most cases unless two pairs of VITC signals are present and possibly interleaved.
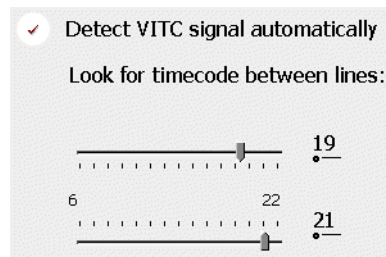
   • **Look for timecode on lines:** — Clear the "Detect VITC signal automatically" option, then use the sliders or number entry controls to specify the line numbers where the VITC pair can be found. When two pairs of VITC signals are present, you can use this mode to specify the lines on which to find the matched set.
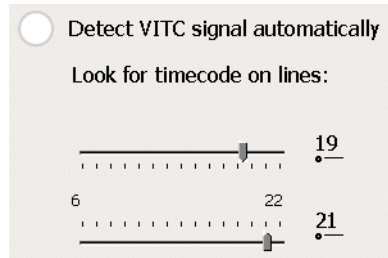
- You can select **Default** to return VITC settings to their factory default values.

NOTE: VITC reader adjustments are immediate. You do not need to close to save settings. The VITC present indicator will light when the VITC reader is configured properly.

5. Select **OK** to close.

Adjusting the audio input trim

Use the following procedure to adjust the audio input trim for a record channel. See "Setting the audio reference level" on page 96 and "Guide to using Recorder" on page 132 for other audio settings.

To adjust the audio input trim for the channel:

1. Select **System** and choose **Configuration**, select **Channel**, select the **R1** or **R2** tab, and open the **Audio Input Trim** link. Close other links or use the scroll button if necessary to locate the link.
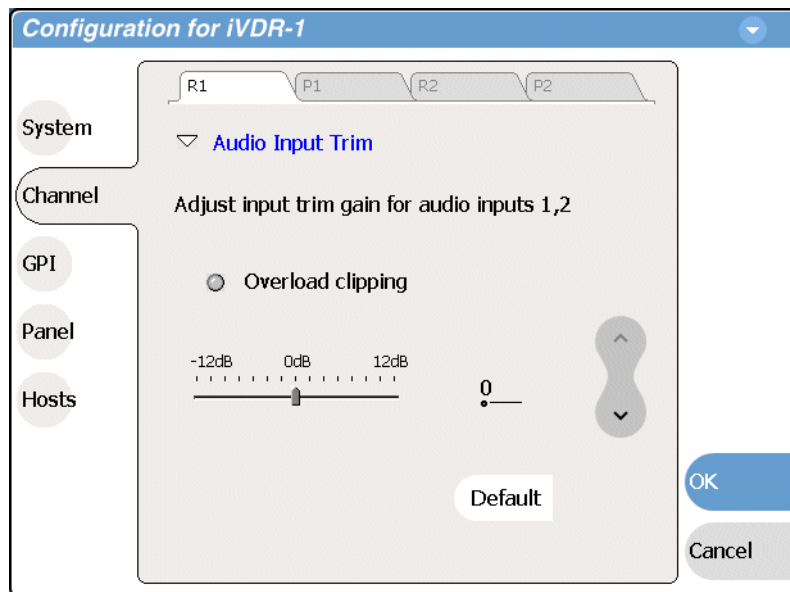
2. Use the slider control to adjust the audio input trim gain.

The slider control adjusts both audio inputs (1 & 2) for the selected record channel. You can also select **Default** to return the setting to its factory default value.

3. Select **OK** to save and apply all changes at once.

Play channel settings

Use the following procedures to configure each of your play channels, P1 and P2.

Adjusting video output

The settings for video output are displayed on a continuous, scrolling page within the Configuration Manager dialog box. To work through all the settings simply start at the top and scroll down, answering the questions as you go. The following procedures explain each setting.

Adjusting analog composite output levels

1. Select **System** and choose **Configuration**, then select the **Channel** button, select the **P1** or **P2** tab, and open the **Video Output** link. Close other links or use the scroll button if necessary to locate the link.
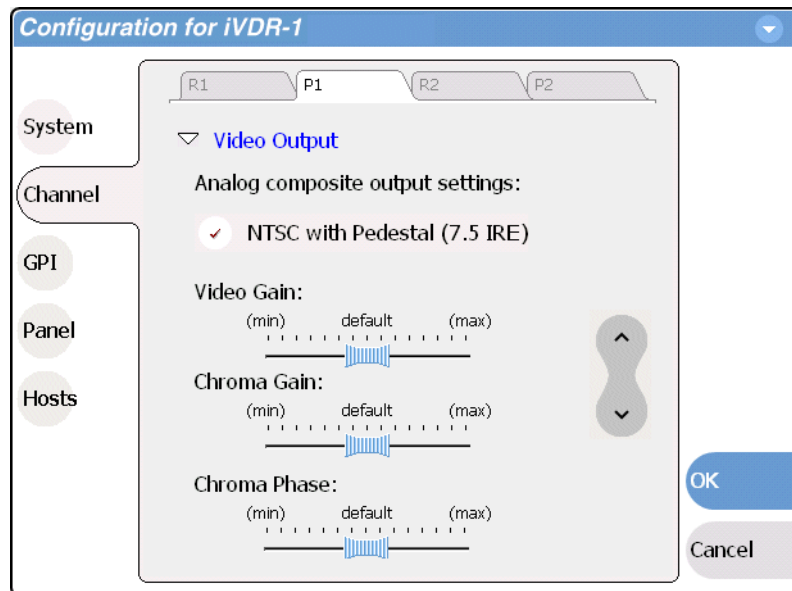
Use the scroll button to view all the settings.
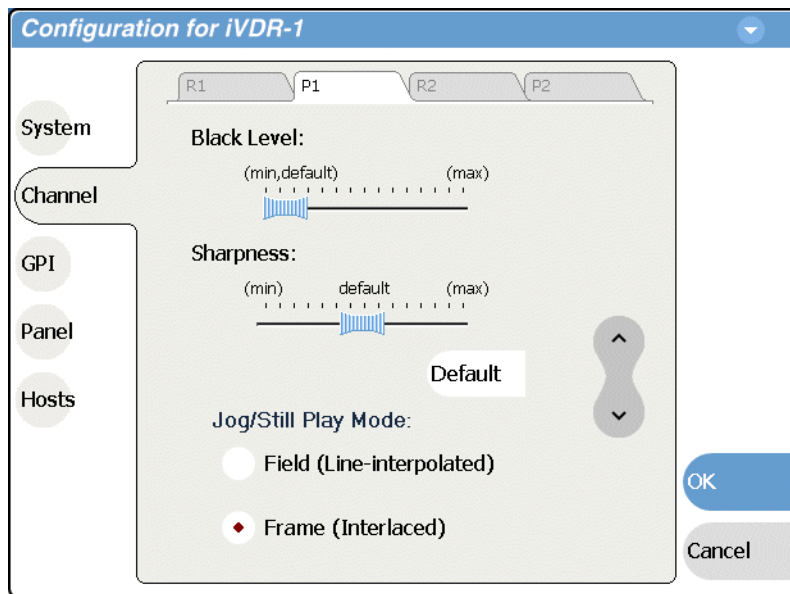
2. Make your video output adjustments or select **Default** to return all video output settings to their factory default values. See also "Setting record channel NTSC pedestal" on page 102 for related record channel settings.

   These composite analog video output settings are active and can be monitored on the video output without closing the Configuration dialog box.

3. Change other settings as necessary in the Configuration dialog box, then select **OK** to save and apply all changes at once.

Selecting the Jog/Still-Play mode setting

Jog/Still-Play mode settings determine how to generate the still-play signal for the play channel when it is setup to freeze on last frame of video in stop mode. You can select line interpolated, or interlaced. Note that in normal play mode, the play channel can be setup for E to E mode instead of displaying freeze frame in stop mode. E to E mode is enabled/disabled in the application running on the channel. Refer to the "Guide to using Player: Play View" on page 148, or "Guide to using Playlist: List View" on page 176.

1. Select **System** and choose **Configuration**, then select the **Channel** button, select the **P1** or **P2** tab, and open the **Video Output** link. Close other links or use the scroll button if necessary to locate the link.

2. Locate the still play mode settings.
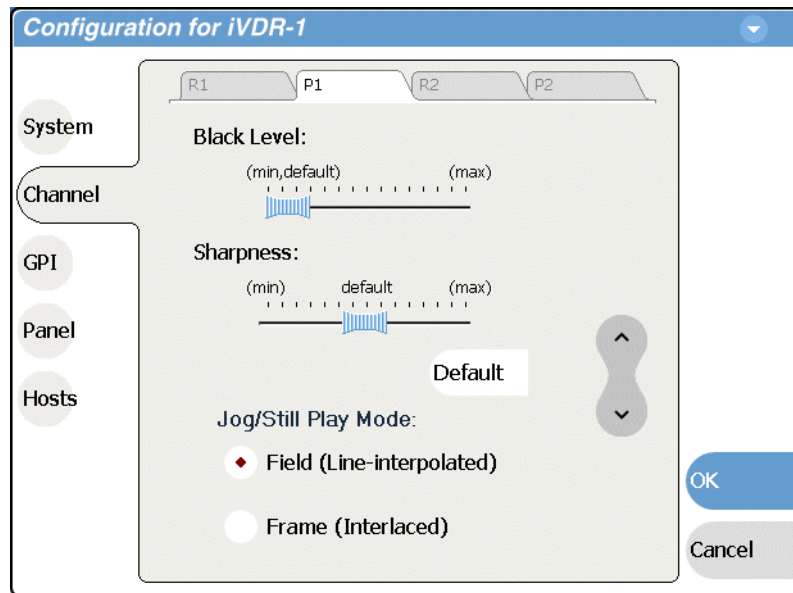
Use the scroll button if necessary to locate the settings.

3. Set the still-play mode as follows:

   - Field — This is the default setting and uses the content of one field for both fields during still-play for a one field freeze. This mode eliminates the motion jitter that can be present in Interlaced mode.

   - Frame — This mode displays two fields in still play mode for a two field freeze. With this mode you might see some motion jitter in still-play.

4. Change other settings as necessary in the Configuration dialog box, then select **OK** to save and apply all changes at once.

Generating VITC

You can specify the lines on which VITC timecode is generated as follows:

1. Select **System** and choose **Configuration**, select **Channel**, select the **P1** or **P2** tab, and open the **Video Output** link. Close other links or use the scroll button if necessary to locate the link.

2. Locate the question "What lines should be used when generating VITC timecode".
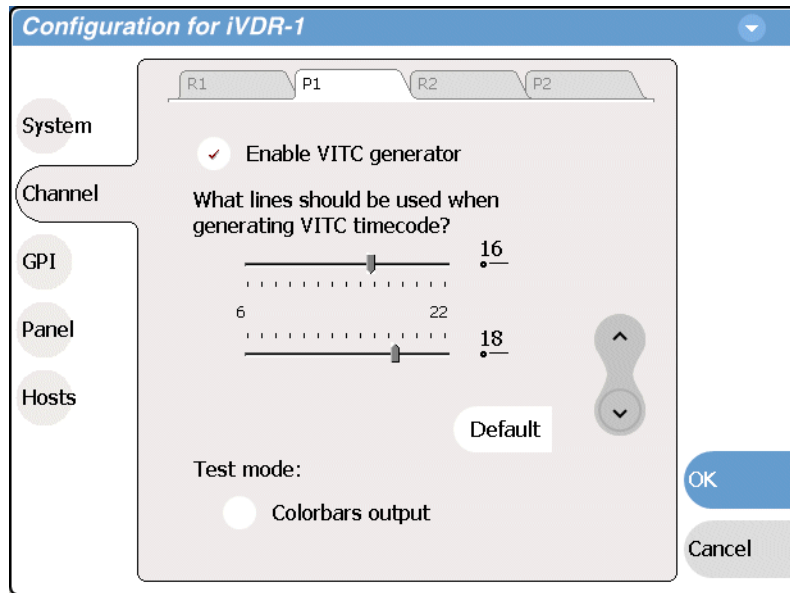
Use the scroll button if necessary to locate the question.

3. Enable the VITC generator.

4. Select the lines for VITC timecode or select **Default** to return the settings to their factory default values.

   Changes to VITC generator settings take effect immediately without closing the Configuration dialog box.

5. Select **OK** to close and save changes.

Displaying colorbars

You can temporarily display 75% colorbar signal as a test as follows:

1. Make sure the channel is not already in use.

2. Select **System** and choose **Configuration**, select **Channel**, select the **P1** or **P2** tab, and open the **Video Output** link. Close other links or use the scroll button if necessary to locate the link.

3. Locate the Test Mode setting.
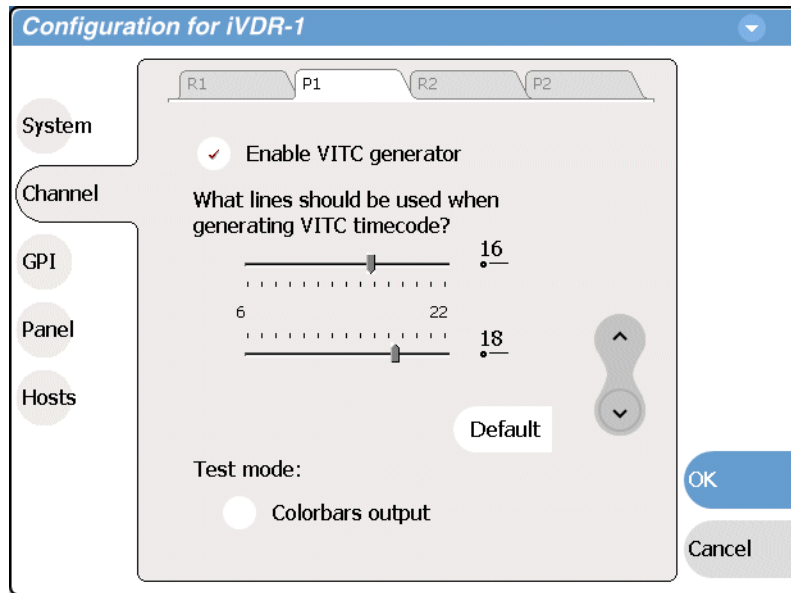
Use the scroll button if necessary to locate the setting.

4. Select **Colorbars output**.

The selection is displayed immediately. You can monitor the channel output to see the 75% colorbar signal. This setting is for test purposes only, so it is not saved. When you select **OK** to close Configuration Manager, or clear the colorbar check box, the video output returns to normal.

Adjusting video output timing

Some playout timing adjustment may be required to satisfy downstream timing requirements in your system. If so, adjust playout timing as follows:

1. Select **System** and choose **Configuration**, select **Channel**, select the **R1** or **R2** tab, and open the **Video Output Timing** link. Close other links or use the scroll button if necessary to locate the link.
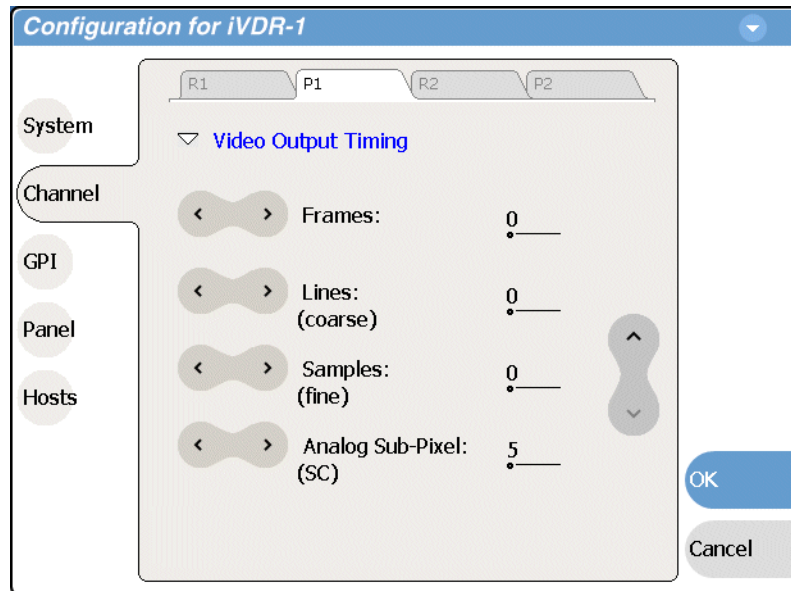
2. Adjust video output timing using the controls as described:

- Frames — delays video output. Range: NTSC 0-1 frames, PAL 0-3 frames.

- Lines (coarse)— delays the video output. Range: NTSC (525 lines) 0-524 lines, PAL (625 lines) 0-624 lines.

- Samples (fine)— delays the video output. Range: NTSC (525 lines) 0-1715 clock samples, PAL (625 lines) 0-1727 clock samples.

- Analog sub-pixels (SC)— This setting applies to analog video only. Delays the timing within one sample interval.

Output delay adjustments affect the SDI and composite analog outputs together. The analog sub-pixel adjustment is only a "fine" trim on the composite output with respect to the current SDI timing.

Video output timing adjustments take effect immediately without closing the Configuration dialog box.

3. Select **OK** to close and save changes.

Configuring GPI inputs/outputs

The iVDR provides 12 GPI inputs, and 12 GPI outputs on a single DB-25 rear panel connector. The following sections describe how to configure the GPI inputs and outputs.

Also refer to these related topics:

- "GPI I/O specifications" on page 290
- "GPI I/O connector pinouts" on page 300
- "Connecting GPI" on page 50
- "Using GPI output triggers in playlists" on page 188

Configuring GPI input

You can assign the GPI inputs to control one or more channels and the action you want the iVDR channel(s) to take. The iVDR channel can be set to respond to active high or low GPI signals.

To configure GPI input signals:

1. Select **System** and choose **Configuration**, then select the **GPI** button.

2. Select the **Input** tab.

   The GPI Input settings open.
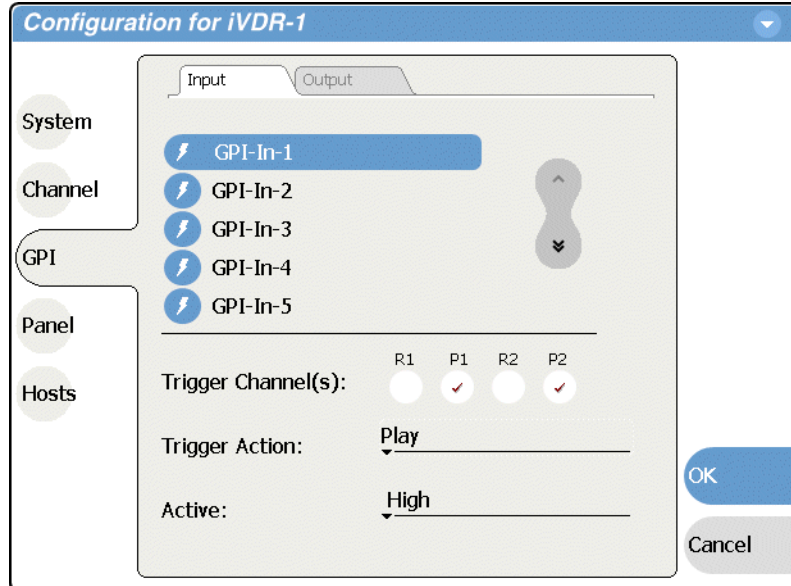
3. Select a GPI input (1 - 12).

   Use the scroll control as necessary.

4. Select the channel or channels that you want triggered by the input signal.

5. Select the action drop-down list and choose a pre-defined action from the list.

Actions include the following:

Trigger Action	Description
Play	Play current loaded clip or playlist in assigned Player channel.
Record	Start recording a clip in assigned Recorder channel.
Stop	Stop playback or record of assigned channel.
Rewind	Rewind playback of assigned channel. Channel will stay in rewind mode until the beginning of clip is reached or another transport action is taken.
Fast forward	Fast forward playback of assigned channel. Channel will stay in the fast forward mode until the end of clip is reached or another transport action is taken.
Cue start	Cue to start of clip loaded in Player or Playlist channel.
Cue next event	Goes to next event in Playlist and stops.
Cue next section	Goes to next section in Playlist and stops.
VAR playback	Plays loaded clip in VAR mode with pre-set speed as set in Configuration Manager.

6. Select the active signal (high or low) required.

   This is determined by the external equipment connected to the GPI input.

7. Repeat step 3 through step 6 for the remaining GPI inputs.

8. Select **OK** on the Configuration dialog and **Yes** to save settings and close the dialog, or leave the Configuration Manager open to configure other iVDR settings.

Configuring GPI outputs

You can assign GPI outputs to channels in the iVDR. Once GPI outputs are assigned to a channel, you can use them in playlists to trigger external equipment. Further configuration is available in the Playlist application to assign the GPI output to an event or section. Refer to "Using GPI output triggers in playlists" on page 188.

NOTE: If you want to play a list that was created on another play channel, you must ensure that GPI triggers assigned to the play channels use the same names, otherwise the GPI triggers will not occur.

To configure GPI output signals:

1. Select **System** and choose **Configuration**, then select the **GPI** button.

2. Select the **Output** tab.

   The GPI Output settings open.
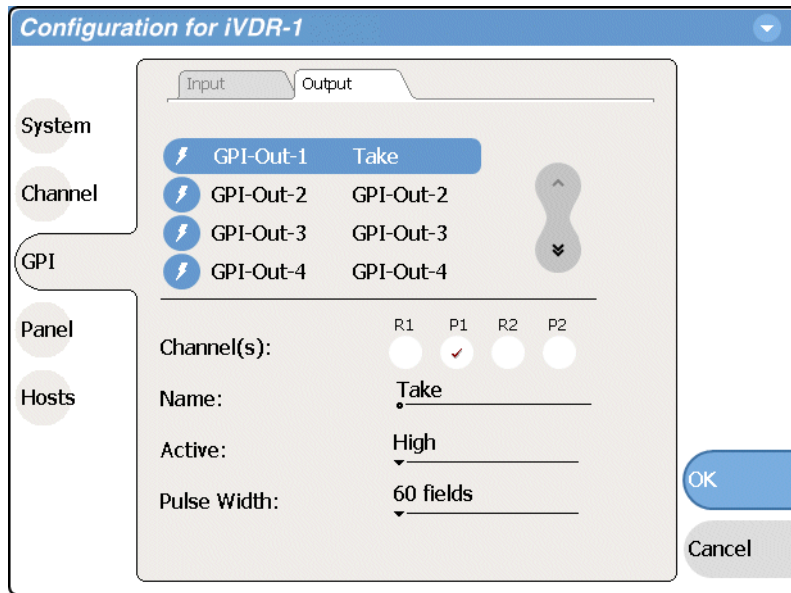
3. Select a GPI output signal (1 - 12). Use the scroll control as necessary.

4. Select the channel you want to trigger the GPI output.

5. Select the **Name** text entry control and enter a name for the action.

6. Set the active signal (high/low) and pulse width (60/100 fields) required.

   This is determined by the external equipment connected to the GPI output.

7. Repeat step 3 through step 6 for the remaining GPI outputs.

8. Select **OK** on the Configuration dialog and **Yes** to save settings and close the dialog, or leave the Configuration Manager open to configure other iVDR settings.

Configuring the Monitor pane display

You can configure the way the Monitor pane displays information for record and play channels as follows:

1. Select **System**, **Configuration,** then **Channel**.

2. Select a channel tab (R1, P1, R2, or P2), then open the **Monitor** link. Close other links or use the scroll button if necessary to locate the link.
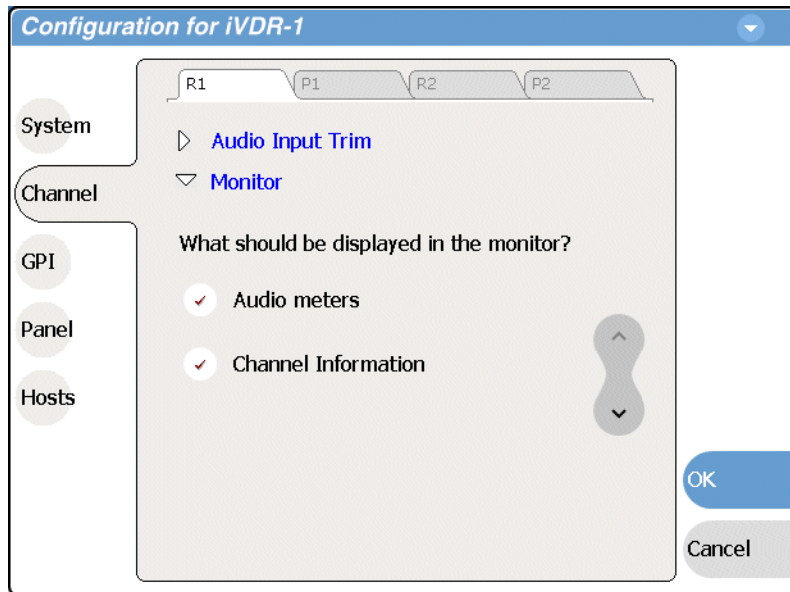
Use the scroll button to view all the settings.
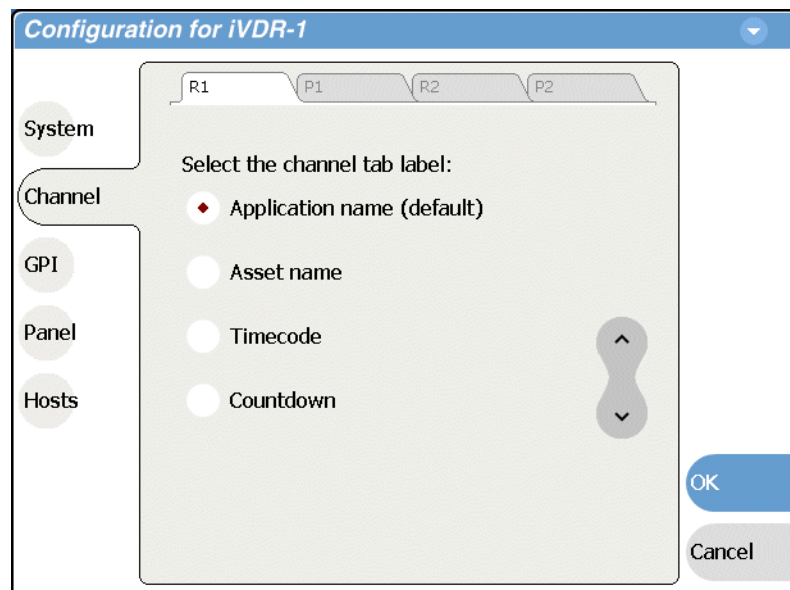
3. You can modify the way information is displayed for the currently selected channel

as follows:

- Show/Hide audio meters

- Show/Hide channel information.

- Change the information displayed on the channel tab label– you can display application name, asset name, timecode, or countdown.

4. Repeat the previous steps for the other channels.

5. Change other settings as necessary in the Configuration dialog box, then select **OK** to save and apply all changes at once.

Front Panel settings

You can modify the operation of the Front Panel controls. The controls you can modify are:

- "Adjusting the jog/shuttle knob ranges" on page 117
- "Enabling rear panel audio monitor volume control" on page 118
- "Setting start record button sequence" on page 118
- "Selecting full screen monitor mode" on page 119

Adjusting the jog/shuttle knob ranges

1. Select **System**, choose **Configuration**, and select the **Panel** button.

   The Front Panel settings are displayed.
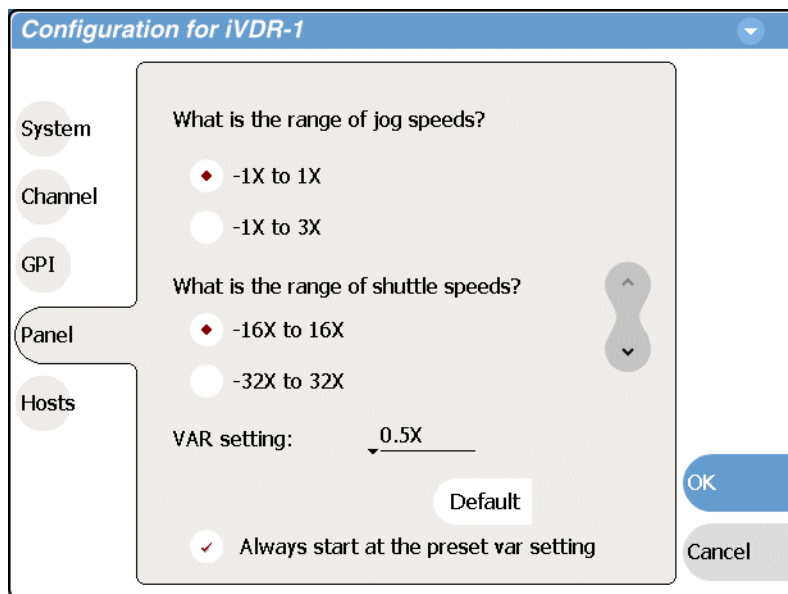
2. Make jog, shuttle, and VAR (variable speed play) settings to control the sensitivity of the Jog/Shuttle knob and the initial play speed used when variable speed play is selected.

   The **Always start at the preset var setting** option determines the initial play speed when the variable speed play is started. When this option is selected, initial play speed is determined by the **VAR setting**, then you can adjust the play speed using the Jog/Shuttle knob (RANGE: ±1x normal playback speed). When this option is cleared, the initial play speed is determined by the play speed last set by the Jog/Shuttle knob.

   You can select **Default** to return the settings to their factory default values. Refer to "Using Front Panel controls" on page 79 for more information on these settings and how they affect front panel operation.

3. Change other settings as necessary in the Configuration dialog box, then select **OK** to save and apply all changes at once.

Enabling rear panel audio monitor volume control

If the optional front panel is installed on your iVDR, selecting this check box allows you to use the headphone volume knob to control the rear panel audio monitor level. If the optional front panel is not installed or this selection is cleared, the rear panel audio monitor gain is unity.

1. Select **System**, choose **Configuration**, and select the **Panel** button.

   The Front Panel settings are displayed.

2. Scroll down and locate the "Rear panel audio monitor output setting", then select the **Controlled by front panel volume knob** check box.
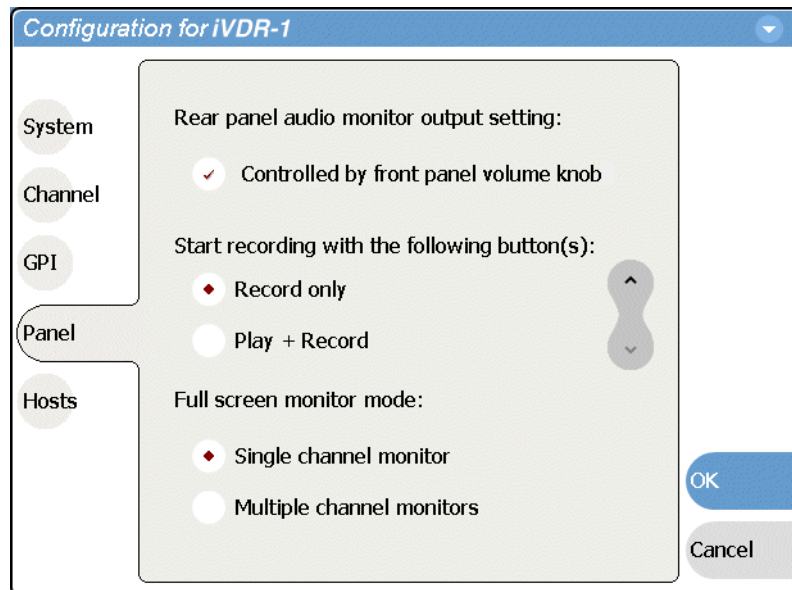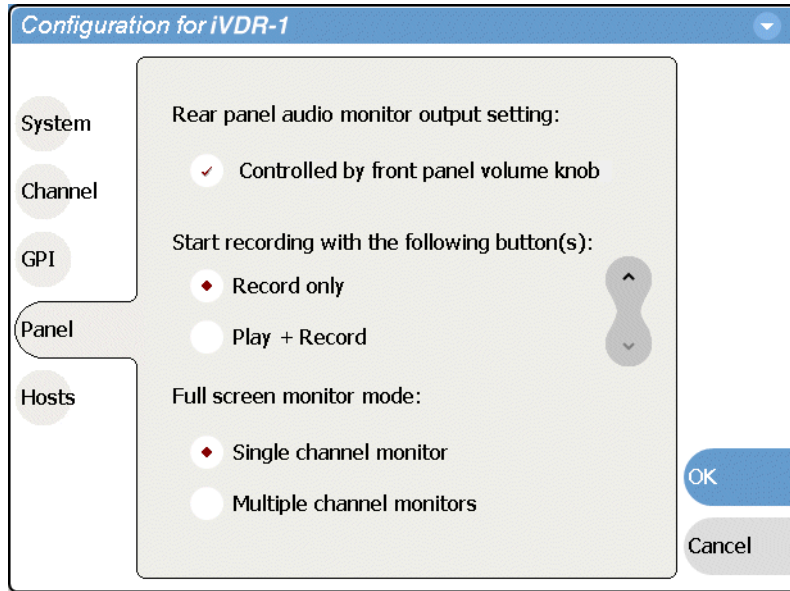

3. Change other settings as necessary in the Configuration dialog box, then select **OK** to save and apply all changes at once.

Setting start record button sequence

You can configure which front panel buttons you have to press to start recording a clip.

To set the record button sequence:

1. Select **System**, choose **Configuration**, then select the **Panel** button.

   The Front Panel settings are displayed.

2. Scroll down and locate the record button settings.

3. Specify the buttons to start recording.

4. Change other settings as necessary in the Configuration dialog box, then select **OK** to save and apply all changes at once.

Selecting full screen monitor mode

This setting specifies how AppCenter's Monitor pane is displayed in full screen mode, either single channel, or four channel display. See also "Split Screen and Full Screen Buttons" on page 68.

1. Select **System**, choose **Configuration**, and select the **Panel** button.

The Front Panel settings are displayed.

2. Scroll down and locate the full screen monitor mode settings.
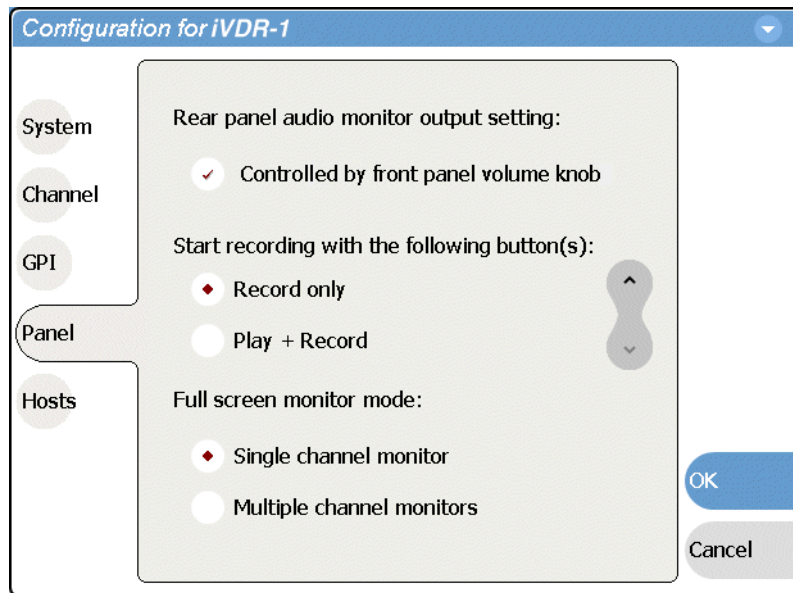
3. Set the full screen monitor mode.

   • **Single channel monitor** — Active video for the selected channel is displayed full screen filling the entire display area.

   • **Multiple channel monitors** — All four channels are displayed. The selected channel monitor displays active video. The remaining channel monitors display a still image which updates periodically if there is active video on the channel output.

4. Change other settings as necessary in the Configuration dialog box, then select **OK** to save and apply all changes at once.

Adding and removing network host names

When you select **Hosts** the following screen is displayed.
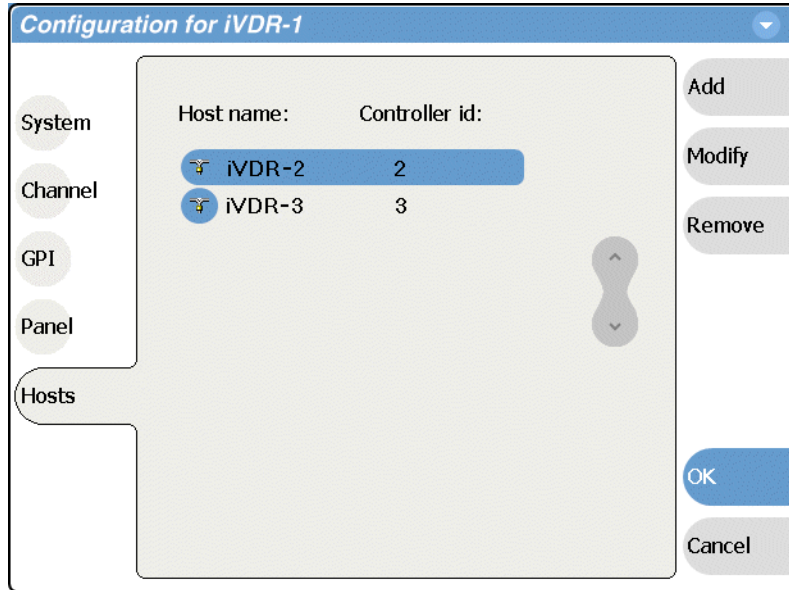
These settings are used only to configure the iVDR for streaming media over the network, as explained in the procedure . Do not modify these settings unless you are doing so as part of that procedure.

Chapter **5**

Using the Monitor Pane

Information in this chapter includes:

- "Monitor pane overview"
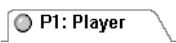- "Viewing the Monitor pane in full screen mode"
- "Selecting the active channel"

Monitor pane overview
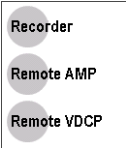
The Monitor pane allows you to monitor channel status and the video and audio on the record and play channels. It also allows you to launch control applications, such as Recorder, Player, and Playlist on the channels. The Monitor pane has two display modes: split-screen and full screen.

- To view the monitor pane, press **Monitor** in the AppCenter toolbar.
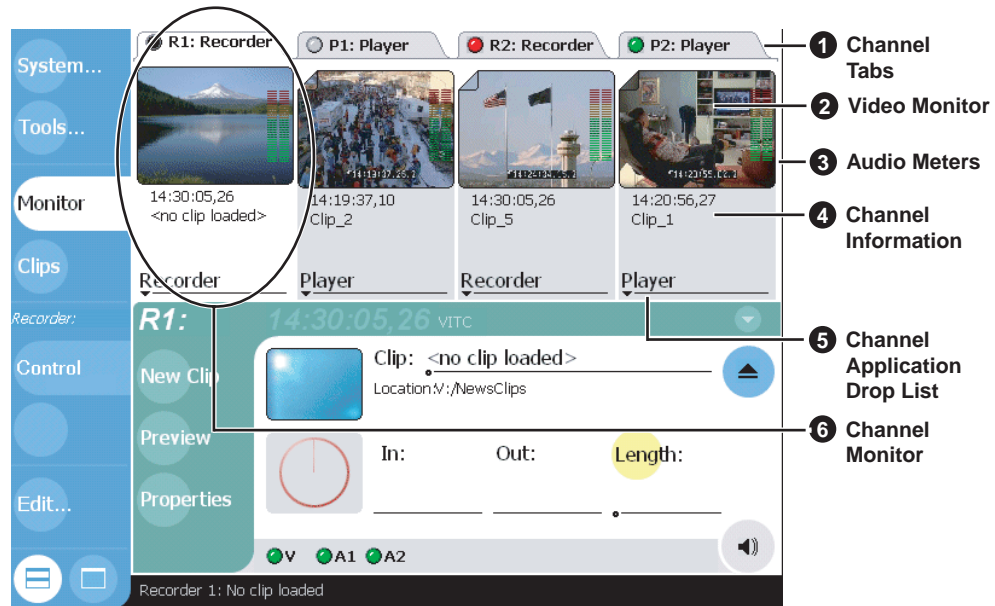
The Monitor pane is composed of four channel monitors, which represent the two record channels and the two play channels. The channels are named R1, P1, R2, P2. The selected channel monitor is highlighted, which indicates the active channel. In split-screen, the four channels are displayed side by side in the upper pane. The following table describes the controls and indicators used in the Monitor pane.

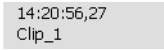|	Control or Indicator	Description and User Operation
❶	**Channel Tab** ⚪ P1: Player	Channel tabs are always displayed in the upper pane, even when the pane is switched to the Clips pane. This allows quickly switching to the desired channels. The tab labels always display channel names (R1, P1, R2, P2). In addition, the tab can display one of the following: - Current Application Name - Current Asset Name - Current Timecode - Countdown Timecode: To change the channel tab label, refer to "Configuring the Monitor pane display" on page 115 The color of the LED beside the channel name indicates the channel status as shown: ⚪ Gray = An asset is loaded, but neither playing or recording ⚫ Black = No asset loaded 🔴 Red = Recording 🟢 Green = Playing

Control or Indicator	Description and User Operation
❷ **Video Monitor**	The Video Monitor is used to monitor the video running a selected channel. Only the channel monitor of the active channel displays active video. The monitors of all other channels display the thumbnail image of the asset loaded.
❸ **Audio Meter**	The audio meter bars are displayed at the lower right corner of the Video Monitor. They indicate the audio input level and remain active when the monitor is not the selected channel. Each bar meter represents one audio track. You can choose to show or hide the audio meters using Configuration Manager. See "Configuring the Monitor pane display" on page 115.

❹ **Channel Info**
 14:20:56,27
 Clip_1
	In split screen view, a brief description of the channel status is always displayed underneath the Video Monitor.
	 This information includes:
	   - The asset name - If no asset loaded, "\<no clip loaded\>" is displayed.
	   - Current timecode
	   - Next clip name - Only available in Playlist.
	   - Countdown timecode - Only available in Playlist.
	 In full screen views, the same information can be displayed below, or on top of the video monitor area at the lower left corner. You can choose to show or hide channel information using Configuration Manager. See "Configuring the Monitor pane display" on page 115.

❺ **Control Application Drop-down List** Recorder Remote AMP Remote VDCP	In split-screen view, you can launch other control applications for a channel. The current application will be stopped and closed. The new application is launched afterwards. See "Selecting the channel control application" on page 128.
❻ **Channel Monitor** R1: Recorder 14:30:05,26 \<no clip loaded\> Recorder	Displays the active video of the active channel. The monitors of all other channels display the thumbnail image of the asset loaded.

Viewing the Monitor pane in full screen mode

Full screen mode expands the Monitor pane to cover the applications pane enlarging the monitor pane area for easier viewing. Full screen mode has two views: multiple channel view, or single channel view.

To view the Monitor pane in full screen mode:

1. In the AppCenter toolbar, select **Monitor**.

2. In the AppCenter toolbar, select the full screen button at the bottom of the toolbar.

3. The Monitor pane expands to fill the AppCenter window.

4. Double-click anywhere in the Monitor display to switch between single channel and multiple channel display mode.

Full screen multiple channel view
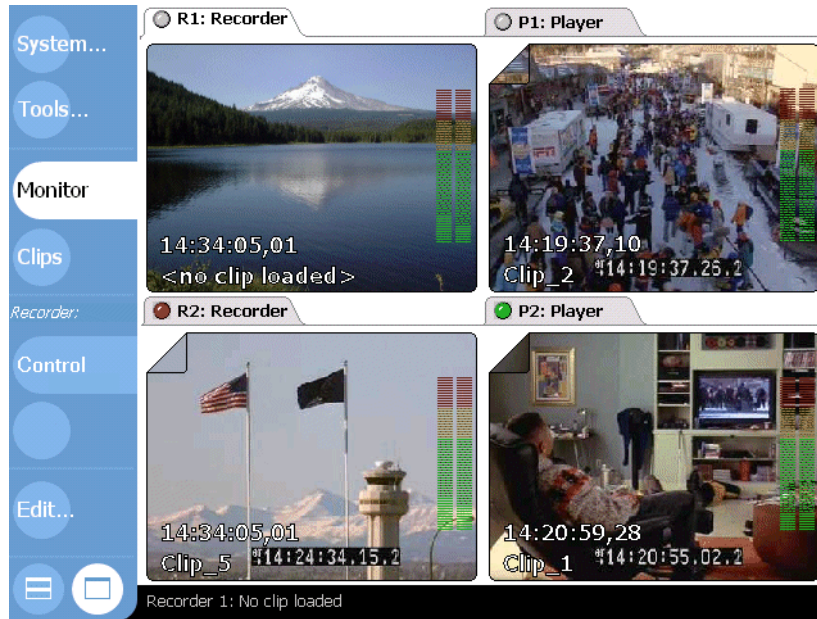
Full screen single channel view

Selecting the default full screen view

The default full screen view is the view used by in the Monitor pane when you first select the Full Screen button [icon]. You can set the default view to either *multiple channel view*, or *single channel view*. Refer to "Front Panel settings" on page 117 to configure the default full screen view.

Toggling between multiple and single channel views

To toggle between views do one of the following:

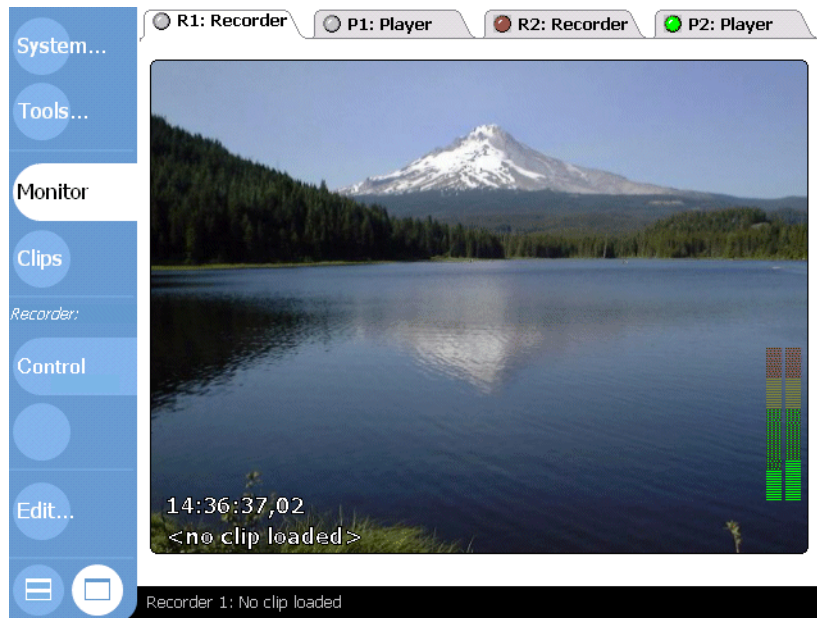• In multiple channel view, double-click (or double-touch) one of the channel monitors. That channel is displayed in the single channel view.

• In single channel view, double-click anywhere in the channel monitor. The multiple channel view is displayed.

Displaying channel information in full screen mode

In both split-screen and full screen monitor mode, you can show or hide channel information. In full screen mode, channel information is overlayed at the lower left corner on the video monitor image. You can choose to show or hide channel information using Configuration Manager. To Show/Hide channel information. Refer to "Configuring the Monitor pane display" on page 115. Channel information includes:

• The asset name (If no asset loaded, "<no clip loaded>" is displayed.)

• Current timecode

• Next clip name (Only available in Playlist.)

• Countdown timecode (Only available in Playlist.)

Selecting the channel control application

When the M-Series iVDR is started, an application is launched for each channel. Use the following steps to change the application running on a channel.

1. In the AppCenter toolbar, select **Split Screen** ⊟ , and then **Monitor**.
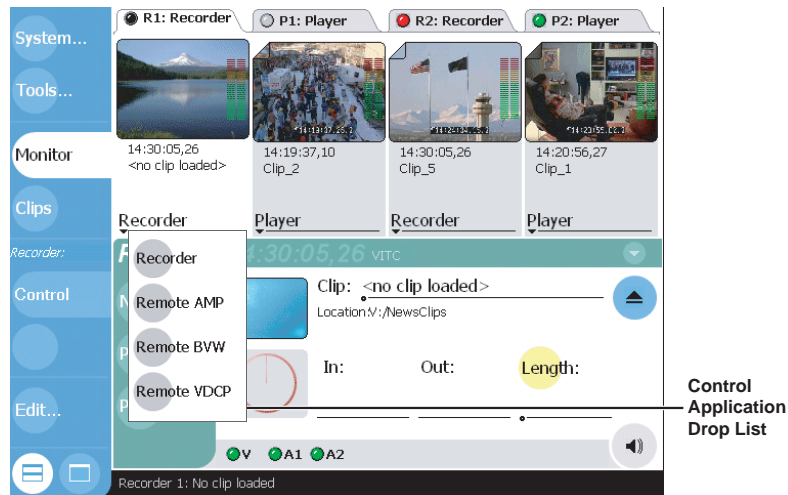
2. In the Monitor pane, select the control application drop-down list Recorder for a channel, then choose an application.

   The current applications closes, and the selected applications opens. The application appears in the applications pane.

Selecting the active channel

- Click or touch any place within the desired channel monitor, including the channel tab to select that channel and make it the active channel.

Recording Clips

Information in this chapter includes:

- "Before using Recorder"
- "Starting Recorder"
- "Guide to using Recorder"
- "Recording clips"
- "Using Continuous Record mode" on page 137
- "Changing video compression settings"
- "Changing the timecode source"
- "Changing the current bin"
- "Previewing a clip"
- "Renaming a clip"
- "Viewing clip properties"
- "Locating a clip"
- "Displaying available storage space"

Before using Recorder

Select record channel video/timecode inputs – Before you start recording, you may need to check that you have the right record channel signal sources selected.

- See "Selecting the video input type" on page 101 to select the record channel video source.

- See "Changing the timecode source" on page 140 to select the record channel timecode source.

Missing or intermittent timecode - If the selected timecode source is missing, i.e. LTC not connected, or VITC is not detected, the current timecode display shows XX:XX:XX:XX. Also, clips recorded without timecode will show no mark-in/mark-out timecode after recording. When LTC is detected, but the signal is intermittent, the last valid timecode is displayed anytime the LTC signal disappears. Clips with missing or intermittent timecode will show this behavior during playback in a play channel. If external timecode is intermittent or missing, try one of the following solutions:

- Use the internal timecode generator as the timecode source for recording. See "Changing the timecode source" on page 140.

- Stripe the timecode after the clip is recorded using the Player application. See "Striping timecode (replacing the timecode track)" on page 165.

Re-recording and appending clips is not supported through the user interface – You cannot record over a previously recorded clip. To replace the unwanted clip, delete it and record a new one. Also, appending previously recorded clips is not supported, that is, once the recording is stopped, you cannot start the recording again using the same clip. If a clip is currently loaded when record is selected, the clip is ejected, and a new clip is created before recording begins.

NOTE: Appending previously recorded clips is supported through serial control protocol using either AMP or VDCP Protocol Recorder applications. Contact Thomson Grass Valley for more information on control devices available.

Starting Recorder

When the iVDR boots, an application is launched for each channel. From the factory, each record channel is configured to run Recorder, but if someone has changed this configuration, you can use the following steps to reselect Recorder. Selecting the Recorder application causes the current record channel application to exit when Recorder is started.

To start Recorder on a record channel:

1. In the AppCenter toolbar, select **Split Screen** 　.

2. In the AppCenter toolbar, select **Monitor**.
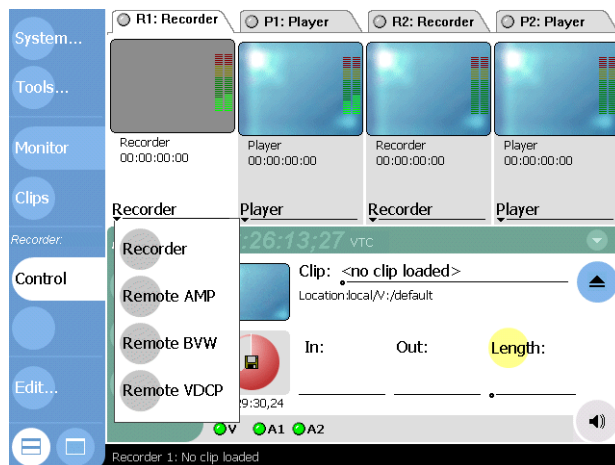
3. In the Monitor pane, select the control application drop-down list **Recorder** for the record channel, then choose **Recorder**.

   Recorder appears in the Applications pane and becomes active.

Guide to using Recorder

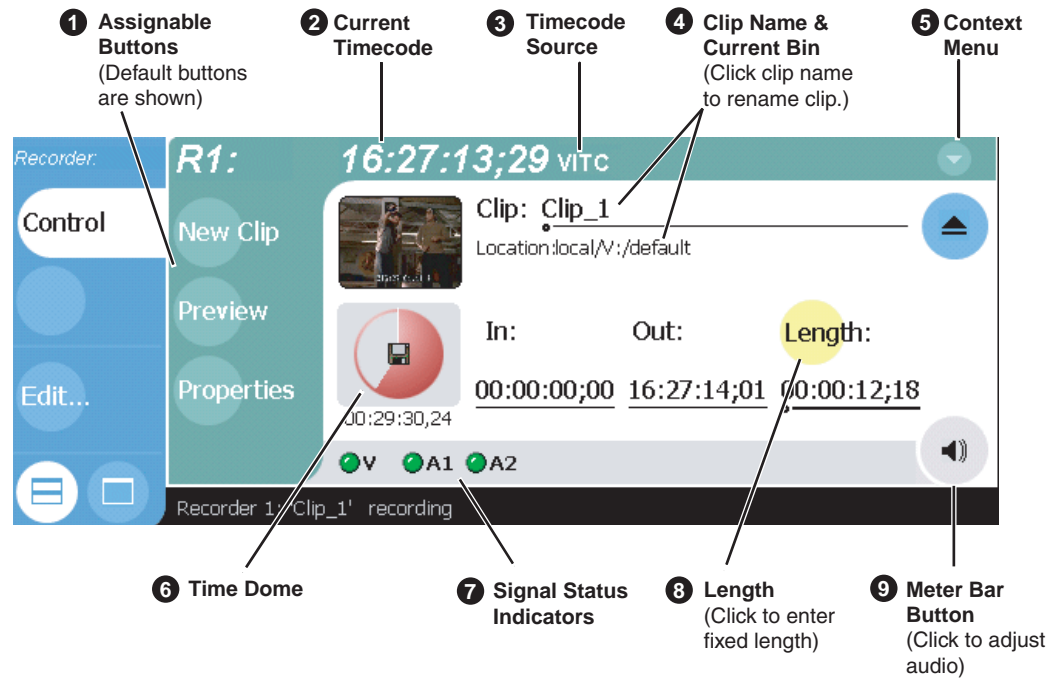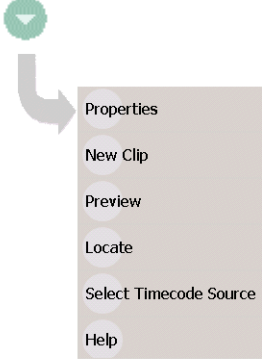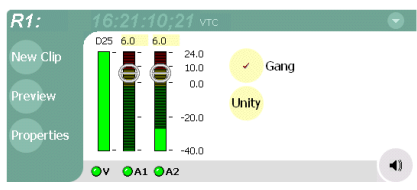The following describes the basic controls in the Recorder user interface.

❶ Assignable Buttons (Default buttons are shown)
❷ Current Timecode
❸ Timecode Source
❹ Clip Name & Current Bin (Click clip name to rename clip.)
❺ Context Menu

❻ Time Dome
❼ Signal Status Indicators
❽ Length (Click to enter fixed length)
❾ Meter Bar Button (Click to adjust audio)

Control	Description and User Operation
❶ Assignable Buttons	Assignable buttons allow you to modify the button assignments to best suit your workflow. Holding down a button longer than one second opens the button pop-up menu which lists the alternative button choices. **Properties**– Same as selecting the Properties menu item. **New Clip**– Same as selecting the New Clip menu item. **Preview** – Same as selecting the Preview menu item. **Locate** – Same as selecting the Locate menu item
❷ Current Timecode	Indicates the current timecode of the timecode source selected for the channel. Text color is white during record, and dimmed at other times. The timecode value of *XX:XX:XX:XX* is displayed when the timecode source is not present or is invalid. See "Changing the timecode source" on page 140.
❸ Timecode Source	The text displayed to the right of current timecode indicates the timecode source: VITC, LTC, or INT (internal generator). See "Changing the timecode source" on page 140
❹ Clip Name Edit Control	Displays the clip's name and location in the media storage system. To rename the clip, touch or click the Clip Name, then use the onscreen or external keyboard to enter text. To change the current bin, i.e. the target location for recording clips, refer to "Changing the current bin" on page 142. You can use the Clips pane to manage and organize clips stored on the iVDR. Refer to "Guide to using the Clips pane" on page 208.

| Control	Description and User Operation
❺ **Context Menu** Properties New Clip Preview Locate Select Timecode Source Help	**Properties**– Opens the Properties dialog for the currently loaded clip. See "Viewing clip properties" on page 143. **New Clip**– Used to create and name clip prior to starting the recording. A default clip name is generated by incrementing some seed name, for example, Clip_2 if the last clip created was Clip_1. To rename the clip after or during record, select the clip name and enter new name using the onscreen or external keyboard. Renaming the clip creates a new seed name. For example, if you rename 'Clip_1' to 'Promo', subsequent clips will be named 'Promo-1', 'Promo-2', and so on. If a clip is already loaded, selecting New Clip ejects the current clip and creates a new one. See "To record a clip using New Clip:" on page 134. **Preview**– Used to load the current clip in a play channel for playback while the clip is still recording. After record is started, select Preview to load the clip into the next available play channel, then select Play. See "Previewing a clip" on page 142. **Locate**– Locates the currently loaded clip in the Clips pane. See "Locating a clip" on page 144 **Select Timecode Source** – Opens the Timecode Source Select dialog. See "Changing the timecode source" on page 140 **Help** – Opens online help.
❻ **Time Dome** **Progress Only** 00:29:30,24 **Available Storage** 00:29:30,24 **Available Storage and Continuous Record Mode**	This multi-function indicator displays either record progress only, or available storage and record progress. The Time Dome also indicates when the record channel is in Continuous Record mode. Available storage is estimated using the amount of free disk space and the video compression settings for the channel. The record progress indicator makes one revolution every 10 seconds in normal record, or one revolution during a fixed length recording. To change the Time Dome function, select and hold the Time Dome, then choose a mode from the pop-up menu.
❼ **Signal Status Indicators** ●V ●A1 ●A2	Not implemented in this release. Video and audio status indicators are always green.
❽ **Length** Length:	Select the Length control to enter the clip length, then choose record. Recording continues until you choose stop, or the specified length is reached. See "To record a clip using fixed length:" on page 135
❾ **Meterbar Button** ◀))	Displays the Meterbar which contains the audio record level controls and signal meters. Changes to the audio level are saved for the channel.

Recording clips

Ways to record a clip:

- *"To record a clip using New Clip:"*
- *"To record a clip using crash record:"*
- *"To record a clip using fixed length:"*
- *"To specify clip length after recording has begun:"*

To record a clip using New Clip:

To create and name a clip before recording starts:

1. Select a record channel using the front panel button 🔲, or the record channel tab in the Tools pane   ⬤ R1: Recorder .

2. In the AppCenter toolbar, select **Monitor**, then verify the video and audio sources.

3. If needed, adjust the audio level as follows:

    a. In the Recorder pane, select the Meterbar button 🔊 .

    b. Adjust audio level using the graphical faders.
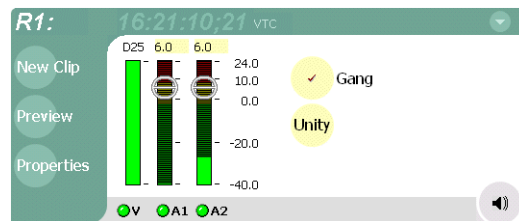
    c. Select the Meterbar button 🔊 again to return to Recorder view.

4. Select **New Clip** to create and load a clip.

5. To rename the clip, select the default clip name, then enter a new clip name using the onscreen or external keyboard.

NOTE: Renaming the clip creates a new seed name. For example, if you rename 'Clip_1' to 'Promo', subsequent clips will be named 'Promo-1', 'Promo-2', and so on.

6. Select the record button on the front panel 🔲, or use the onscreen transport controls 🔴 .

    The recording progresses until you select **Stop**.

Related Topics:

- *"Changing video compression settings" on page 139*
- *"Selecting the video input type" on page 101*
- *"Changing the timecode source" on page 140*

To record a clip using crash record:

Crash record occurs when you start a recording without specifying a clip name. The clip is given a default name, then the recording continues until you select stop.

To crash record:

1. Select a record channel using the front panel button ⌨, or the record channel tab in the Tools pane ⬤ R1: Recorder .

2. In the AppCenter toolbar, select **Monitor**, then check the video and audio sources.

3. If needed, adjust the audio level as follows:

   a. In the Recorder pane, select Meterbar button ◀) .

   b. Adjust audio level using the graphical faders.
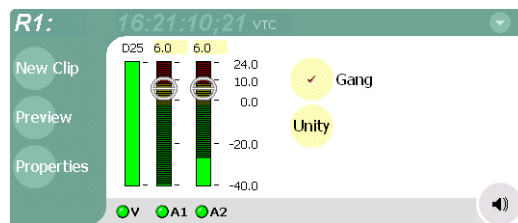
   c. Select the Meterbar button ◀) again to return to Recorder view.

4. Select the record button on the front panel ▣, or use the onscreen transport controls ⬤ .
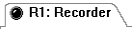
   The recording progresses until you select **Stop**.

To record a clip using fixed length:

You can specify the clip length before recording, or during recording. Fixed length recording continues until the clip length is reached or until you select stop.

To specify clip length before recording:

1. Select a record channel using the front panel button ⌨, or the record channel tab in the Tools pane ⬤ R1: Recorder .

2. In the AppCenter toolbar, select, **Monitor** then verify the video and audio sources.

3. Select **Length** in the Recorder pane.
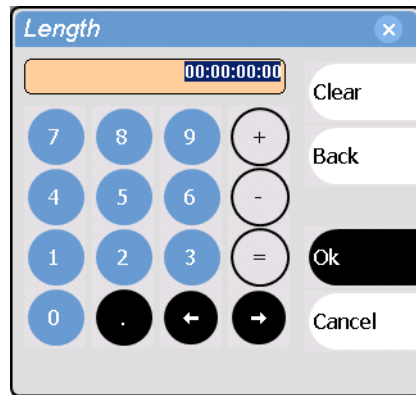
   The Length dialog box appears.

4. Using the onscreen keypad or external keyboard, enter the clip length by typing only numbers, colons are added automatically.

5. Choose **Ok** in the dialog box, or **Enter** on the external keyboard.

6. Select the record button on the front panel 📁, or use the onscreen transport controls ⬤ .

   Recording continues until **Stop** is selected or the desired length is reached. While recording, the mark in and mark out update with the current status of the clip. The Time Dome gives a visual indication of the percent complete as well as a countdown from the specified length down to **00:00:00:00**.

To specify clip length after recording has begun:

1. Select **Length** in the Recorder pane.

   The timecode dialog box appears.

2. Enter the desired length using the onscreen keypad or external keyboard, then select **OK** or **Enter**.

   If the entered length is valid, longer than the amount of material already recorded, the clip continues to record until it reaches the specified length or until you select **Stop**.

Using Continuous Record mode

You can configure Recorder for Continuous Record mode. Continuous record is useful for applications that normally use Loop Record, for example a manual time delay. The following sections describe how continuous record works and how to set up a continuous recording:

- "About Continuous Record mode"
- "Operational considerations"
- "To start continuous record:"

About Continuous Record mode

Continuous record mode allows you to specify a fixed length recording that records continuously. When the fixed length you specify is reached, the iVDR begins to erase the oldest media in 30 second segments to make room for new media. In this way, new media is continuously recorded while the recording is kept to a fixed length.

The continuous recording is stored in the iVDR as a program. The program thumbnail is displayed in the Clips pane immediately after the recording starts. While recording, you can load the continuous record program in Player for playout or to create subclips. The media referenced by the subclips that you create is saved outside the continuous record program and does not subtract from the continuous record length. The subclips can be inserted in Playlist as play events.

Operational considerations

Consider the following when planning for Continuous Record operation:

- **Minimum continuous record length–** 1 minute

- **Maximum continuous record length–** Maximum record length is limited by the amount of storage space and the compression settings used. A message is displayed if the fixed length you enter exceeds the available disk space.

- **Minimum record to playback time**– 5 seconds. Playback in continuous record can start no sooner than 5 seconds after the start of record.

- **Modifying the continuous record name or length–** You can modify the continuous record name or length during record. If you reduce record length, the oldest media outside the new record length is erased.

- **Stopping continuous record** – If the recording is stopped before the fixed length is reached, the resulting program duration is the time elapsed since the recording started. Like normal record mode, you cannot stop, then start a continuous recording. Once record is stopped, you must eject the program and create a new continuous record.

- **Transferring the continuous record program**– The continuous record program cannot be transferred to a file or networked device until record is stopped.

- **Continuous record storage space is not reserved–** Continuous record is allowed to start as long as the record length you enter is less than the available storage, however, the storage space is not reserved. For example, you may have enough storage space to start the continuous record, but you are still allowed to start a

recording on another record channel. Warning messages are displayed in the AppCenter StatusBar when available storage reaches 10% total disk space. All recording is halted at 400MB remaining disk space.

- **Pausing the continuous record program in Player**– You cannot pause the continuous record program in Player indefinitely. Eventually, the record length is reached and the video at the current position is erased. As this happens, the current position is advanced in 30 second increments as the oldest unused media is erased.

- **Changing thumbnail image**– Thumbnail images displayed in the Clips pane are generated using the 16th frame of video. The thumbnail image for a continuous record program appears as normal until the fixed length is reached. Then, the thumbnail will update every 30 seconds as media is erased beginning with the oldest unused media. As the media used to generate thumbnails is erased, new thumbnails are generated.

- **Erasing oldest media is suspended when creating a subclip**– When creating subclips in Player, erasing oldest media is suspended when the first mark is entered (mark-in or mark-out). This means that the continuous record program length may grow larger than the length specified. Erasing media is resumed and the oldest media outside the fixed length is purged when the second mark is entered and you select the Accept button. You could inadvertently fill storage space if you enter the subclip marks, but fail to click the Accept button.
  NOTE: Erasing oldest media is also resumed when you exit subclip mode by ejecting the subclip, or by clicking the Source Clip button.

- **Use genlocked inputs for time delay**– For error free time delay operation, ensure that the video input is genlocked to the video reference signal. See "Reference Video connections" on page 25. This will eliminate periodic picture shift.
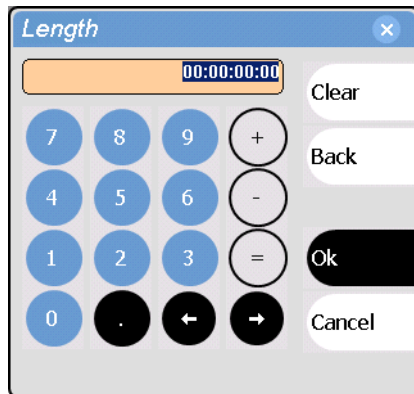
To start continuous record:

1. Select and hold the Time Dome 🔴.

   The Time Dome pop-up menu appears.

2. Choose **Continuous Record** in the pop-up menu.

The Time Dome changes to display continuous record ![icon]. Default continuous record length is 1 hour, or the last record length used.

3. To change continuous record length, select **Length** in the Recorder pane.

   The Length dialog box appears.

4. Using the onscreen keypad or external keyboard, enter the clip length by typing only numbers, colons are added automatically.

5. Choose **Ok** in the dialog box, or **Enter** on the external keyboard.

6. Select the record button on the front panel 🔲, or use the onscreen transport controls 🔴 .

   Recording continues until **Stop** is selected. While recording, the mark in and mark out update with the current status of the clip. The Time Dome gives a visual indication record progress.

7. Load and play the clip in Player using one of the following steps:

   • In the Recorder pane, select the **Preview** button, or

   • In the Monitor pane, select the Record Channel tab, then drag and drop from the Record Channel monitor to the Play Channel monitor.

   The play channel becomes the active channel, and the clip is cued and ready for play.

Changing video compression settings

You can configure the compressions settings for each record channel. When selecting compression settings, there is always a trade-off between image quality and storage capacity, since higher video quality produces larger files. You also must consider whether you plan to export or transfer media to external devices. Larger files take longer to transfer over the network or export to a file. To modify record channel compression settings, refer to "Selecting video compression" on page 99.

Changing the timecode source

The record channel always records one track of timecode using one of three timecode sources: VITC, LTC, or INT (internal timecode generator). Once selected, the timecode source is displayed in the Recorder toolbar as the current timecode. If no timecode is present at the selected timecode source, **XX:XX:XX:XX** is displayed as the current timecode. Also, clips recorded without timecode will show no mark-in/mark-out timecode after recording. When LTC is detected, but the signal is intermittent, the last valid timecode is displayed anytime the LTC signal disappears. Clips with missing or intermittent timecode will show this behavior during playback in a play channel.

To change the timecode source:

1. In the Recorder pane, do one of the following:

   - Select the menu button ⌄, then choose **Select Timecode Source**.

   - Select the timecode display *16:27:13;29* VITC .

The Timecode Source Dialog appears.

2. Choose a timecode source, then select **OK**.
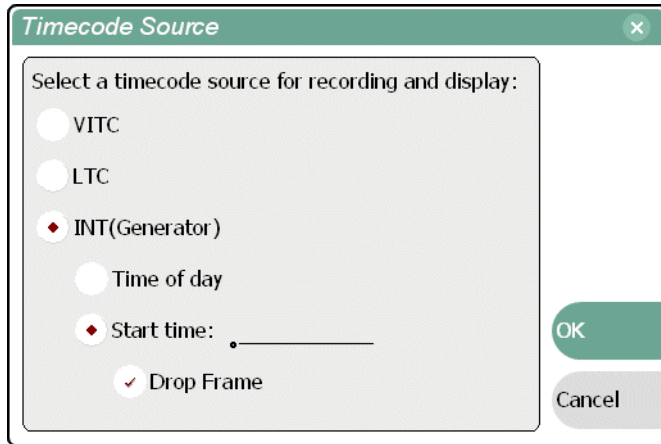
Timecode Source	Description
VITC	Timecode is decoded from the video input. Refer to "Configuring the VITC reader" on page 104 to configure how VITC lines are decoded.
LTC	Timecode is read from the LTC input for the channel.
Generator	Each record channel has a timecode generator that runs in one of the following modes: **Time of Day** The generator is locked to the Windows Operating system real time clock. **Start time** Specifies the timecode to use when the recording starts. The drop frame option is enabled when the system timing is set to the 525 line standard. *Drop frame* timecode allows the generator to operate as an accurate clock.

Changing the current bin

When recording starts, the new clip is saved in the current bin. The current bin is displayed under the clip name. You can use the Clips pane to change the current bin.

To change the current bin for a record channel:

1. Make sure the record channel is selected and displayed in the Applications pane.

2. Select **Clips** in the AppCenter toolbar to open the Clips pane.

3. In the Clips pane, touch or click the Current Bin label Look in: V:/default , then choose a bin from the list.

Related topics:

- "Creating a new bin" on page 219.

Previewing a clip

You can preview a clip while it is still being recorded. Preview loads the currently recording clip into a play channel. The play channel becomes the active channel, and the clip is cued and ready for play.

NOTE: If the corresponding play channel is not available, i.e. the play channel is already playing a clip, a warning message is displayed in the Statusbar.

1. Start the record process.

2. Preview the clip using one of the following methods:

- In the Recorder pane, select the **Preview** button.

  - or -

- In the Monitor pane, select the record channel tab, then drag and drop it in a play channel monitor.

The play channel becomes the active channel, and the clip is cued and ready for play.

3. To play the clip, select the front panel play button ⏯, or use the onscreen transport controls ▶ .

Renaming a clip

You can rename a clip during or after recording.

To rename a clip:

1. Select the clip name in the Recorder pane.

2. Enter the new clip name using the onscreen or external keyboard.

3. Select **OK**, or **Enter** on the external keyboard.

   If a clip with the new name already exists in the current bin, an error message is displayed.

Viewing clip properties

To view the properties of a clip loaded in Recorder:

In the Record pane, do one of the following:

• Select the **Properties** button.

   - or -

• Select the menu button ⊙ , then choose **Properties.**

NOTE: To learn more about the Clip Properties dialog box, .
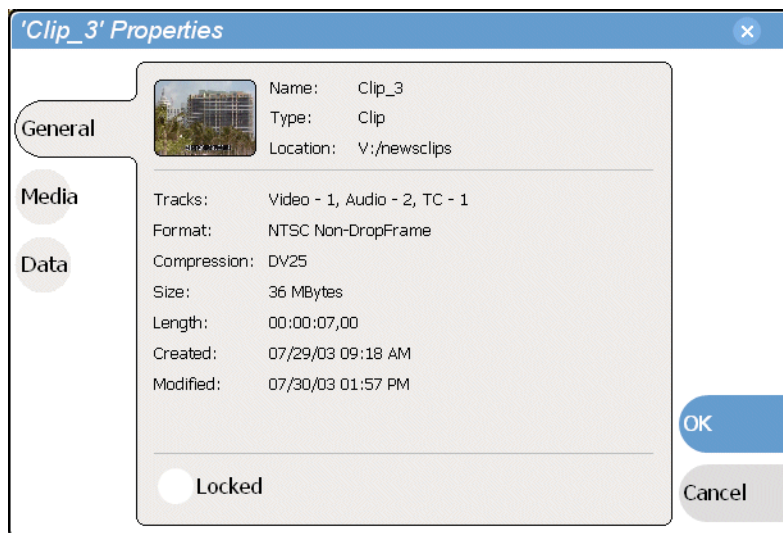
Locating a clip

You can locate the currently loaded clip by displaying the contents of the current bin in the Clips pane. The Clips pane also becomes the active pane.

To locate a clip:

1. After or during recording, select the context menu button ⬇ in the Recorder pane, then choose **Locate**.

2. The Clips pane becomes active and displays the contents of the bin where the clip is located.

Displaying available storage space

You can display available storage using the Time Dome.

To display available storage:

1. Select the Time Dome 🔴 .

   The Time Dome pop-up menu appears.

2. Choose **Available Storage** in the pop-up menu.

   The Time Dome changes to display progress and available storage 🔴 .

   Available storage displayed is based on the video data rate selected in the Configuration dialog box. (See "Selecting video compression" on page 99.) A filled Time Dome represents no storage remaining. Available storage is also displayed numerically under the timedome.

   The white line functions as a "sweep second hand" to show record progress. It sweeps through a complete revolution every 10 seconds when crash recording or makes a single revolution on a fixed length record.

Playing and Editing

Information in this chapter includes:

Before using Player

The Player control application allows you to play media stored on the iVDR., including clips and programs. Player requires a single play channel. Player has two views— Play View and Cue View. The Control view allows you to play clips, trim clips by modifying clip mark-in and mark-out points, and create subclips. The Cue view is used to add cue points within a clip. After adding cue points, you can use the cue list to start playback from any cue point in the list.

Working with clips that are still recording

The following restrictions apply when working with a clip in the Player that is currently recording:

- You cannot rename the clip.

- The clip mark-in/mark-out points cannot be modified.

- Subclips created from a clip currently being recorded can only have a Mark Out equal to the last frame that has been recorded when the subclip is created. You cannot create a clip longer than has been recorded under the assumption that the unrecorded frames will "fill it in".

Otherwise, clips that are currently being recorded behave normally. As a reminder, "Read-Only" is displayed in the StatusBar when the clip loaded or playing is still being recorded.

Monitoring the play channel

The Monitor pane displays status information for the loaded clip. The information that is displayed can be customized using the Configuration application. Channel information that can be displayed for a channel include: the loaded clip name, transport status (e.g. Play or Stop), play speed, current timecode, and audio levels.

During playback, you can monitor the audio for the active channel. If the iVDR has the optional front panel installed, you can use the audio jack and volume control to monitor the audio. Alternatively, there are two rear panel analog audio outputs for monitoring the active channel.

Playing a playlist saved as a program

Playlists cannot be loaded and played in Player. They must be played using Playlist application. However, you can save a playlist as a program and then play it using Player. A *program* includes all the media and transitions in the playlist, but does not include any event that breaks the flow of playout, such as, a pause. When a program is loaded in Player, it is handled in the same way as a simple clip as far as Player is concerned. For more information on creating programs refer to .

Starting Player

Player requires a single play channel. If the play channel is currently being used by another application, you can use the following steps to select the Player application. Selecting the Player application causes the current play channel application to exit when Player is started.

To start Player on a play channel:

1. In the toolbar, select **Split Screen** ▤ , and then **Monitor**.
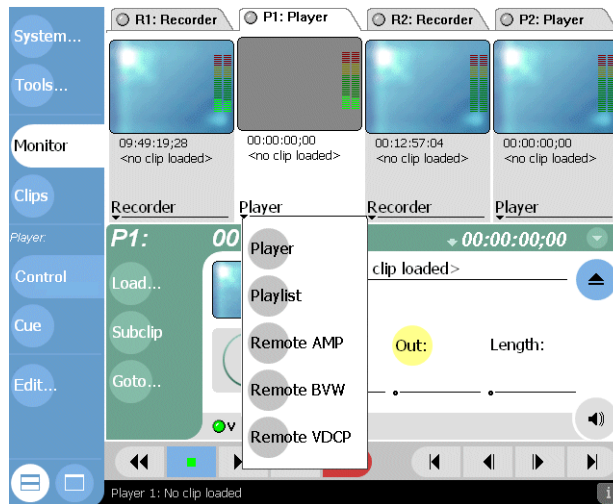
2. In the Monitor pane, select the control application drop-down list for the play channel, then choose **Player**.
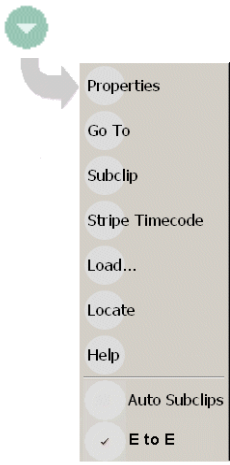
   Player appears in the Applications pane which becomes the active pane.
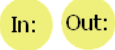
Guide to using Player: Play View

The Play view allows you to play a clip, modify its name, adjust mark in and mark out points, create sub-clips, and stripe timecode. Pressing **Play** in the toolbar shows the Play view. The following describes the essential controls in the Play view.

① Assignable Buttons
(Default buttons are shown)

② Clip Timecode

③ Clip Name & Current Bin
(Click clip name to rename.)

④ Countdown Timecode

⑤ Context Menu Button

⑥ Thumbnail
(Click to change thumbnail)

⑦ Time Dome
(Click to select loop-play mode)

⑧ Mark-In & Mark-Out
(Click to set to current frame timecode)

⑨ Meter Bar Button
(Click to adjust audio level)

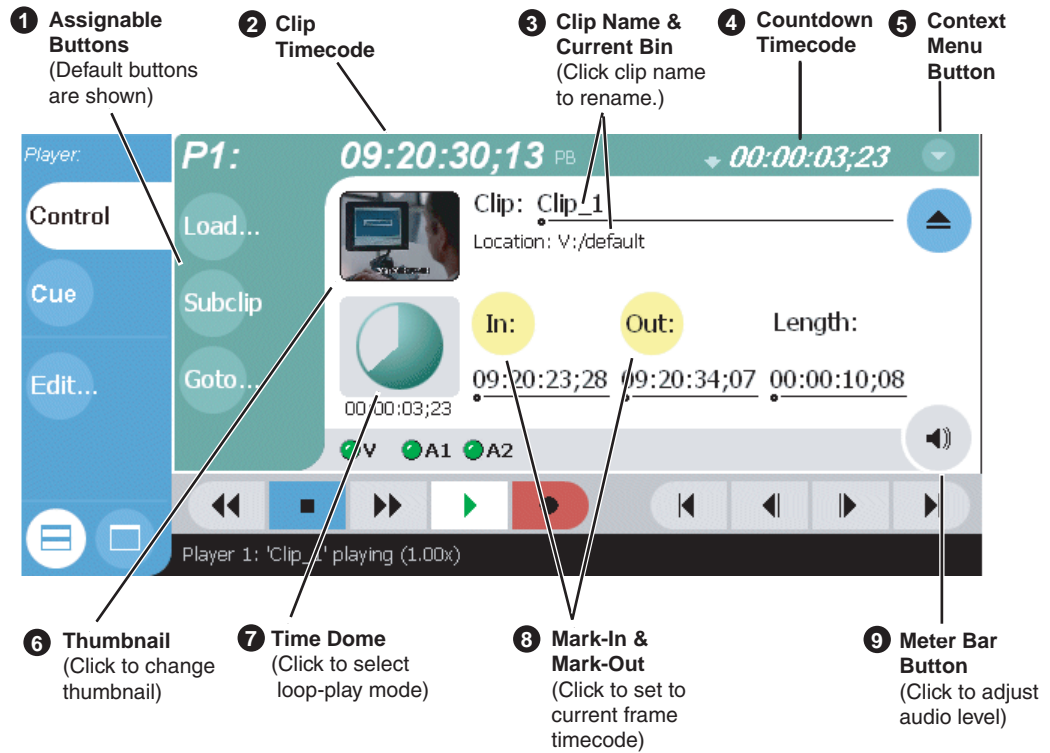| Control	Description and User Operation
❶ Assignable Buttons	Assignable buttons allow you to modify the button assignments to best suit your workflow. Holding down a button longer than one second opens the button pop-up menu which lists the alternative button choices. **Goto**– Same as selecting the Goto context menu item. **Subclip**– Same as selecting the Subclip context menu item. **Load** – Same as selecting the Load context menu item. **Properties**– Same as selecting the Properties context menu item. **Locate** – Same as selecting the Locate context menu item.
❷ Clip Timecode **09:20:30;13** PB	Indicates the recorded timecode of the current frame being played. The timecode value of *XX:XX:XX:XX* is displayed when there is no recorded timecode. Stop mode is indicated by 'PB' (Play Back), or 'EE' (E to E). Refer to "Selecting E to E mode" on page 169 for more information on these stop modes.

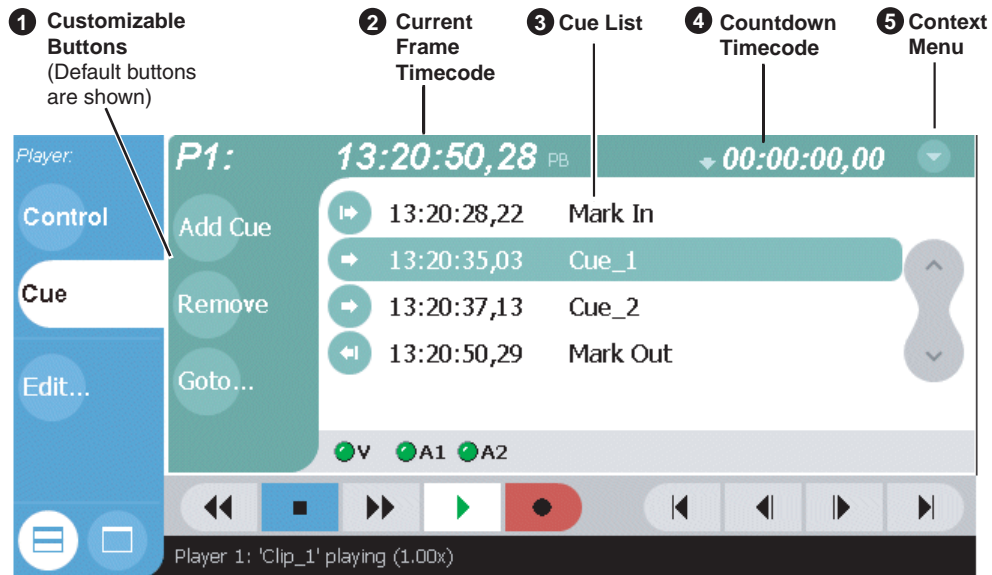| Control	Description and User Operation
❸ **Clip Name & Current Bin** Clip: Clip_1 Location:V:/default	Displays the clip's name and location in the video storage file system. To rename the clip, touch or click the Clip Name, then use the onscreen or external keyboard to enter a new name. See "Renaming a clip in Player" on page 161.
❹ **Countdown Timecode** 00:00:03,12	Displays the time remaining in the clip To select the countdown mode you want to monitor, open the Options dialog box by selecting Options in the context menu.
❺ **Play Mode Context Menu** Properties Go To Subclip Stripe Timecode Load... Locate Help Auto Subclips ✓ E to E	**Properties –** Opens the Properties dialog for the currently loaded clip. See "Viewing clip properties" on page 161. **Goto –** Used to jump to a specific timecode. Select Goto, to open the Goto dialog, then enter a timecode value or use the scrub bar to go to the desired position.See "Jumping to a specific timecode" on page 156. **Subclip –** Opens the Subclip mode which allows you to create subclips from the currently loaded clip. A subclip is an entirely new clip that references media in another clip. See "Creating Subclips" on page 166. **Stripe Timecode**– Opens the Stripe Timecode dialog which allows you to replace the existing timecode track for the loaded clip. You can replace with time of day, or a specific start timecode. See "Striping timecode (replacing the timecode track)" on page 165. **Load –** Select to open the Load Clip dialog which displays the contents of the current bin. Select a clip, then choose OK to load. See "Loading a clip from Player" on page 154 and "Loading a clip from the Clips pane". **Locate –** Locates the currently loaded clip in the Clips pane. See "Locating a clip" on page 155 **Help** – Opens online help. **Auto Subclips**– The auto subclip check box changes the way that the subclip mode behaves. When it is NOT checked, clips have to be accepted manually. When it is checked, a subclip will be created as soon as the user sets a mark out. See "About Auto Subclip mode" on page 168. **E to E** – When E to E mode is enabled the output video and audio switches to the record channel input when the play channel is stopped or when no clip is loaded,. If E to E is disabled, the output freezes on the last frame of video. See "Selecting E to E mode" on page 169
❻ **Thumbnail**	Used to visually identify the clip. By default, the thumbnail is generated using the 16th frame of video. To change the thumbnail, position the clip to the desired frame, then click or touch the thumbnail. See "Changing the clip thumbnail image" on page 164.
❼ **Time Dome** Progress only 00:00:03;23 Progress with media marks 00:00:02;15 Progress & loop play enabled 00:00:08;21	This multi-function control displays play progress, or play progress with media marks which shows the relative position of mark-in/mark-out points in the clip. The timecode underneath indicates play time remaining. The Time Dome is also used to enable loop play. Select the Time Dome, then use the pop-up menu to choose the display mode, or to control loop play mode. See "Selecting loop play" on page 155.

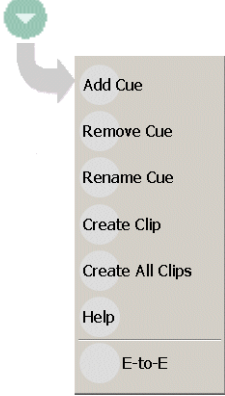| Control	Description and User Operation
❽ **Set Mark-in and Set Mark-out** In: Out:	These buttons are used to set new mark-in or mark-out points. Position the clip to the desired frame, then click or touch the In or Out buttons. Unused media is not deleted. To clear a mark, hold down the button for longer than one second, then choose Clear Mark in the pop-up menu. Marks are reset to the beginning or end of available media. See "Editing a clip: Moving mark-in/mark-out" on page 162.
❾ **Meter Bar Button**	Displays the Meterbar which contains the audio play level controls and signal meters. Clicking the **Save** button saves changes made to the clip audio level. Clicking **Unity** returns the audio levels to the last saved level.
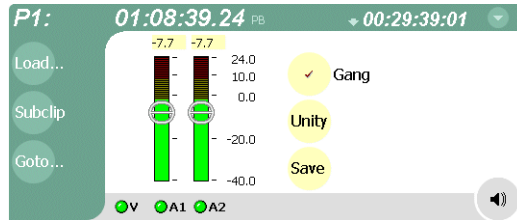
Guide to using Player: Cue View

Player's Cue view is used to add cue points to the a clip. The Cue View allows you to set, modify, and jump to cue points on the loaded clip. Pressing **Cue** in the toolbar displays the Cue view. The following describes the basic controls in the Cue view.
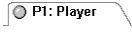
	Control	Description and User Operation
❶	**Assignable Buttons**	Assignable buttons allow you to modify the button assignments to best suit your workflow. Holding down a button longer than one second opens the button pop-up menu which lists the alterative button choices. **Add Cue** – same as selecting the "Add Cue" menu item. **Remove Cue** – removes the selected cue. **Goto** – used to jump to the selected cue, the next cue, or to a specific timecode. See "Jumping to a specific timecode" on page 156. **Rename** - opens text entry dialog box to rename the selected cue. **Create Clip** - same as "Create Clip" menu item. See "Creating subclips in Cue view" on page 168. **Create All** - same as "Create All Clips" menu item. See "Creating subclips in Cue view" on page 168. **Cue Selection** – cues the first selected cue point for playback showing a still frame of video for the cue point. See "Jump to the selected cue point." on page 159.
❷	**Current Frame Timecode** 16:27:13;29	Indicates the recorded timecode of the current frame being played. The timecode value of *XX:XX:XX:XX* is displayed when there is no recorded timecode.
❸	**Cue List** 12:57:34;00 Mark In 12:57:45;00 cue_1 12:58:00;00 cue_2 12:58:13:10 cue_3 12:58:33:29 Mark Out	Displays a list of cue points that are set for the loaded clip. Cue points are listed in chronological order beginning with the mark-in point and ending with the mark-out point.

Control	Description and User Operation
❹ **Countdown Timecode** `↓ 00:00:03,12`	Displays the time remaining in the clip. To select the countdown mode you want to monitor, open the Options dialog box by selecting Options in the context menu.
❺ **Context Menu** Add Cue Remove Cue Rename Cue Create Clip Create All Clips Help E-to-E	**Add Cue –** Creates a cue point at the timecode for the current frame. The channel can be in stop or play mode. The cue point is added using a default name such as "cue_1". See "Using Cue points for playback" on page 158. **Remove Cue –** removes the selected cue. **Rename Cue –** used to rename the selected cue. **Create Clip –** Creates a subclip from the currently loaded clip. The selected cue point becomes the mark-in point, while the mark-out point is the same as the source clip. If more than one cue point is selected, a subclip is created using the first and last cue points. See "Creating Subclips" on page 166. **Create All Clips –** Similar to Create Clip, but creates a subclip for each cue point in the list. Each cue point becomes a mark-in point, while the mark-out point is the same as the source clip. See "Creating Subclips" on page 166. **Help –** opens the online help program. **E to E** – When E to E mode is enabled, the channel output displays the corresponding record channel input when the play channel is stopped or the clip is ejected. If E to E is disabled, the output freezes on the last frame of video. See "Selecting E to E mode" on page 169.

Loading a clip from the Clips pane
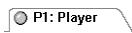
To load a clip from the Clips pane:

1. In the toolbar, select the **Split Screen** button .

2. Select a play channel using the front panel button , or the play channel tab in the Tools pane .

3. In the toolbar, select **Clips**.

4. To load a clip from the Clips pane:

   • Click (or touch) the clip and drag it to the Player pane.

   • Rotate the front panel **Selection Knob** to select a clip, then push in on the knob to load the clip.

   • Select the clip, then choose the **Load** button in the Clips pane.

   • Double-click on an clip.

   • Select a clip, then press Enter on an external keyboard.

NOTE: When a bin contains a large number of clips, it may be easier to display the Clips pane in full screen mode. In full screen mode, clips can still be loaded even though the active play channel is hidden.

Loading a clip from Player

This procedure allows you to load a clip without hiding the Monitor pane.

1. Select a play channel using the front panel button ⌗, or the play channel tab in the Tools pane ⟨○ P1: Player⟩ .

2. In the Play view, open the Load Clip dialog using one of the following:

   • Select the **Load** button in Play view.

   • Select the Play view context menu button 🔽 , then choose **Load**.
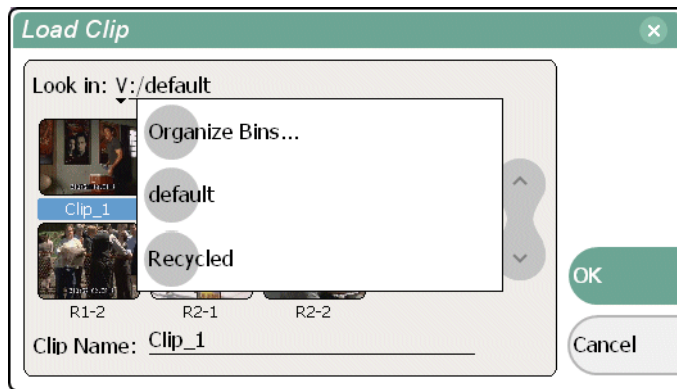
3. If needed, use the **Look in** drop-down list to browse to the desired bin.

4. Select a clip in the Load Clip dialog, then select **OK**.

   The clip is loaded in player.

   NOTE: The first frame of video is cued on the channel output if play channel is configured for PB mode. If E to E mode is selected, the corresponding record channel input is displayed until playout is started. Refer to "Selecting E to E mode" on page 169.

Related topics:

   • "Playing a clip" on page 155.

   • "Using Cue points for playback" on page 158.

Playing a clip

Once a clip is loaded in Player, you can play the clip, or search for a specific frame of video using the transport controls. Use the links in the following table to find information on using the transport controls.

If you are using..	..refer to..
Front Panel controls	"Guide to using the Front Panel" on page 78
On-screen transport controls	"Using the on-screen transport controls" on page 73
Keyboard shortcuts	"Using Keyboard shortcuts" on page 74

Selecting loop play

Loop play mode plays the clip in a continuous loop until Stop is selected. The Time Dome is used to enable/disable loop play.

• Select the **Time Dome** , then choose **Loop Play** in the pop-up menu.

Locating a clip

Selecting the Locate item in the Player context menu displays the bin where the clip is located in the Clips pane. The Clips pane also becomes the active pane.

To locate a clip:

1. With the clip loaded in Player, select the Player context menu button , then choose **Locate**.

2. The Clips pane becomes active and displays the contents of the bin where the clip is located.

Jumping to a specific timecode

The Goto dialog allows Player to jump to the specific clip timecode that you enter. You can enter absolute timecode values based on recorded timecode, or relative timecode values.

To jump to a specific timecode:

1. With a clip loaded in the Player pane, do one of the following:

   • Select the **Goto** button in Play view.

   • Select the Play view menu button ⬇, then choose **Goto**.

   The Goto Timecode dialog appears.
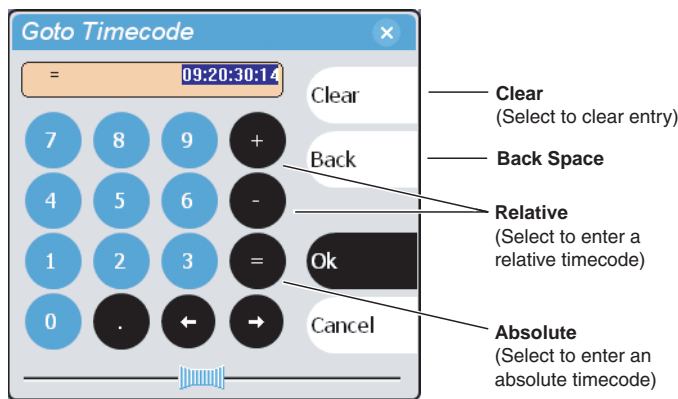
2. Enter a timecode value using one of the following:

   • To enter a *relative* timecode value, select the '**+ or -**' key, enter timecode, then select **Ok**.

   • To enter an *absolute* timecode value, select the '**=**' key, enter timecode, then select **Ok**.

   The new frame is displayed is cued for the channel.

Related topics:

   • "Loading a clip from the Clips pane" on page 153

   • "Loading a clip from Player" on page 154

   • "Using the scrub bar in the Goto Dialog" on page 157

Using the scrub bar in the Goto Dialog

The Goto dialog provides a scrub bar which allows you to search for video in much the same way as using a shuttle knob.

To use the Goto Timecode dialog:

1. With a clip loaded in the Player pane, do one of the following:

   - Select the **Goto** button in Play view.

   - Select the Play view menu button , then choose **Goto**.

     The Goto Timecode dialog appears.
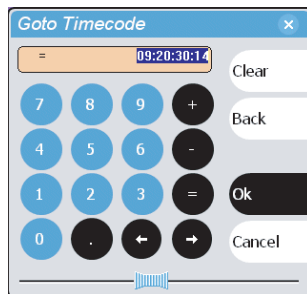
Scrub Bar
(Click and drag while
monitoring channel output)

2. Select and drag the **Scrub Bar** while monitoring play channel output.

3. Click **Ok** to close.

Related topics:

Using Cue points for playback

Player's Cue View allows you to add cue points to a clip. You can use cue points to manage clip play out and create subclips. The following sections describe how to work with cue points.

Topics included here:

- "About using cue points" on page 158
- "Viewing the cue list" on page 159
- "Adding a cue point" on page 159
- "Removing a cue point" on page 159
- "Jump to the selected cue point." on page 159
- "Jump to the next cue point." on page 160
- "Renaming a cue point" on page 160

About using cue points

When you select Cue View, a chronological list of cue points is displayed. The list begins with the mark-in point and ends with the mark-out point. You can add additional cue points to mark other frames within the clip. You can add cue points while the clip is playing or in stop mode. When you add a cue point, it is listed by a default name (such as "cue_1") and timecode value.

Cue points cannot be moved, however, you can remove a cue point and use the transport controls, or Goto Timecode dialog box to enter a new cue point at the current position.

Cue points can be used to:
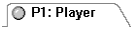
- **Manage clip playout–** jump to the selected cue or next cue.

- **Create subclips–** You can create a subclip from the selected cue point. The selected cue point becomes the mark-in point, while the mark-out point is the same as the source clip. If more than one cue point is selected, a subclip is created using the first and last cue points. The "Create All" feature creates a subclip for every cue in the list. Each subclip duration is from each cue point to the source clip mark-out point. See "Creating subclips in Cue view" on page 168.

Working with cue points:

- **Cue points are retained when a clip is copied or transferred–** Cue points are stored with the clip. All the cue points of the original clip are retained when the clip is copied or transferred to another iVDR.

- **Cue points and trimming–** After you trim a clip by moving the mark-in or mark-out points, the cue points outside the new mark-in and mark-out points are cleared and must be reinserted.

- **Cue points and subclips–** Subclips created from a clip with cue points retain all cue points that fall between the marks of the new subclip. The subclip has its own mark in and mark out points. See "Creating subclips in Cue view" on page 168.

- **Cue points and programs**– Cue points cannot be added to a program.

Viewing the cue list

1. Select a play channel using the front panel button 🗍, or the play channel tab in the Tools pane ⊙ P1: Player .

2. In the toolbar, select **Cue**.

   The Cue view appears showing the cue list for the clip loaded in Player. Initially, only the mark-in and mark-out cue points are listed.

Adding a cue point

While the clip is playing, or in the stop mode, use the transport controls to find the desired frame in the clip, then do one of the following:

- Select **Add Cue**.

- Select the menu button 🔽, then choose **Add Cue**.

A cue point is added to the cue list using a unique name, e.g. cue_1.

NOTE: Using the iVDR preview feature, you can play and add cue points to a clip while it is still being recorded. (See "Previewing a clip" on page 142.)

Related topics

- "Jump to the next cue point." on page 160
- "Removing a cue point" on page 159

Removing a cue point

1. In Cue view, select a cue point in the list.

2. Do one of the following:

   - Select the **Remove** button, or

   - Select the menu button 🔽, then choose **Remove Cue**.

Jump to the selected cue point.

Use the following steps to jump to the selected cue point.

1. In Cue view, select a cue point.

2. In Cue view, do one of the following:

   - Select the **Cue Selection** button, or

   - Select the menu button 🔽, then choose **Cue Selection**, or

   - Select the **Goto** button, then select **Selected Cue**.

3. Press the **Play** button on the front panel or use the onscreen transport controls

   Play out starts from the cued frame.

Jump to the next cue point.

Use the following steps to jump to the next cue point. Depending on the current play position, the clip will cue to the next cue point in the clip.

1. In Cue view, do one of the following:
   - Select the **Next Cue** button, or
   - Select the **Goto** button, then select **Next Cue**.

2. Press the **Play** button on the front panel or use the onscreen transport controls

   Play out starts from the cued frame.

Renaming a cue point

1. Select the cue point in the cue point list.

2. Select the menu button 🔽 , then choose **Rename Cue**.

3. Use the text entry dialog or external keyboard to enter a new cue name, then press **Ok** or **Enter**.

Viewing clip properties

To view the properties of a clip loaded in Player:

In Play view, do one of the following:

- Select the **Properties** button.

  - or -

- Select the menu button ⬇, then choose **Properties.**

NOTE: To learn more about the Clip Properties dialog box, refer to "Viewing clip properties" on page 258.
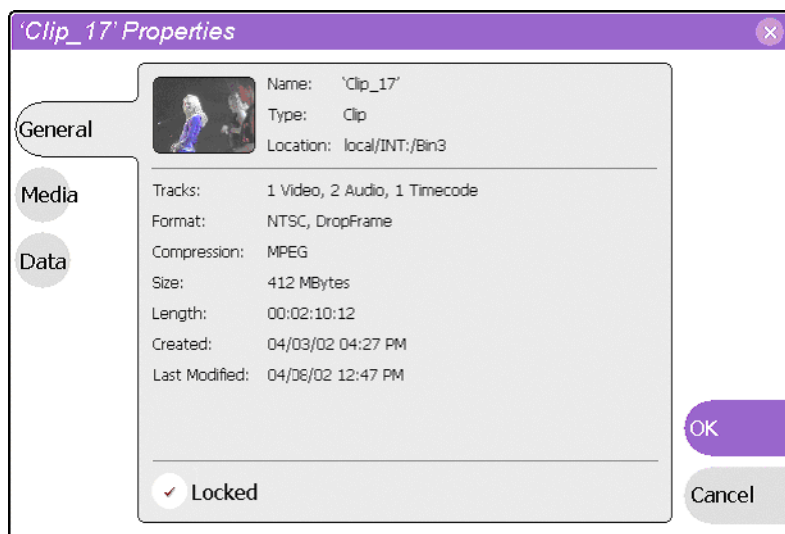
Renaming a clip in Player

1. In the Play view, select the clip name control Clip: C̲l̲i̲p̲_̲1̲.

2. Enter the new clip name using the onscreen keyboard, or an external keyboard.

3. Select **OK**, or press **Enter**.

Editing a clip: Moving mark-in/mark-out

Every clip has a mark-in point and a mark-out point which refer to the first and last frames displayed when the clip is played. When first recorded, clip marks are set to the beginning and end of available media. You can edit the clip marks in order to reference only the desired media. When clip marks are moved, unused media *is not* deleted, and the marks can be moved again, or reset again to display all available media. (See also "Editing a clip: Clearing mark-in/mark-out" on page 163.)

The following restrictions apply when editing clip marks:

- Mark-in must precede the mark-out
- Marks cannot be set outside the recorded media
- Marks cannot be changed on a clip that is still being recorded.

NOTE: If more media exists after the current mark, a <<< or >>> symbol is displayed beneath the mark In/Out timecode. To permanently remove media outside the marks, refer to "Erasing a clip's unused media" on page 227.

To move clip marks, load the clip in the Player pane, then use one of the following methods.

- "Using the In/Out buttons" on page 162
- "Using the timecode entry controls" on page 162
- "Using the clip length control" on page 163

Using the In/Out buttons

To move clip marks:

1. Use the transport controls to locate the desired frame.

2. In Play view, select **In** In: to set mark-in point, or **Out** Out: to set mark-out point.

Using the timecode entry controls

1. In Play view, select the mark-in or mark-out timecode control 00:01:11;09 to open the timecode entry dialog box.
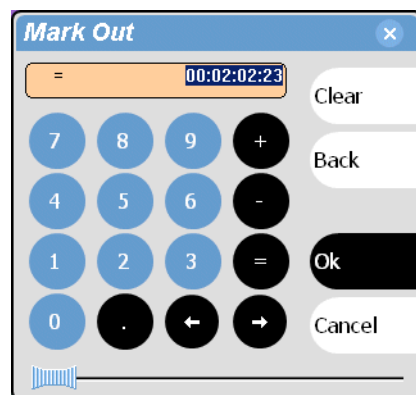
2. Enter a timecode value using the onscreen keypad, or an external keyboard, then select **OK** or **Enter**.

Alternatively: Use the current position scrub bar ─║║║║║─ in the timecode entry dialog box to locate the desired frame, then select **OK**.
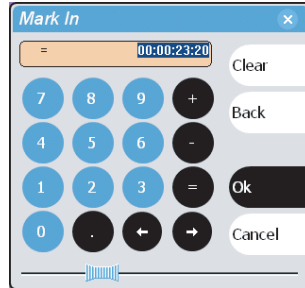
Scrub Bar
(Click and drag while
monitoring channel output)

Using the clip length control

Entering a new clip length moves the mark-out point.

1. Select the **Length** timecode entry control.

2. Enter a new clip length.

The clip length changes by moving the mark-out point.

Editing a clip: Clearing mark-in/mark-out

Clearing a mark point resets the mark to it's default position— mark-in is set to the beginning of available media; mark-out is set to the last frame of available media.

To clear a mark point, do one of the following:

- In Play view, *select and hold* the **In** or **Out** button, then choose **Clear Mark** in the pop-up menu.

- In Play view, select the mark-in or the mark-out timecode control and select **Clear**, then **OK** to clear the mark.
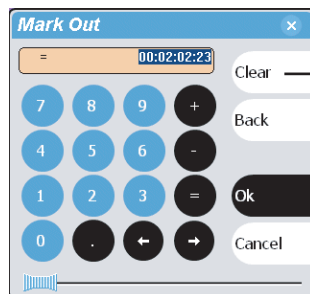
Clear
(Select Clear, then
OK to clear the mark.)

Changing the clip thumbnail image

The clip thumbnail is displayed in control applications and in the Clips pain for visual identification of the clip. By default, the 16th frame is used to generate the thumbnail image.

To change the clip thumbnail:

1. While monitoring the play channel output, use the front panel or onscreen transport controls to position the clip to the desired video frame.

2. In Player, select the thumbnail, then choose **Yes** in the Change Thumbnail dialog box.
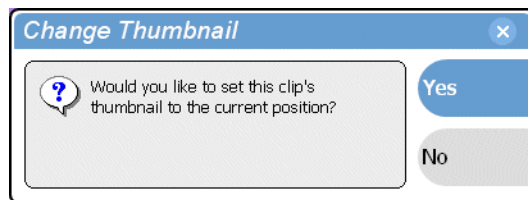
NOTE: If clip marks are edited so that the video frame used to generate the thumbnail is outside the new clip marks, the thumbnail is reset to a position near the mark-in of the modified clip.

To reset the thumbnail:

• Select the thumbnail image, then choose **Reset** in the pop-up menu.

This resets the clip thumbnail to the 16th frame in the clip.

Adjusting playback audio level

To adjust the playback audio level:

1. In the Player pane, select the Meterbar button ◀ᴵ .

2. Adjust the audio level in one of the following ways:

• Adjust the graphical faders individually or "ganged" which insures both channels use the same gain.

• Select **Unity** to set audio back to the last saved level.
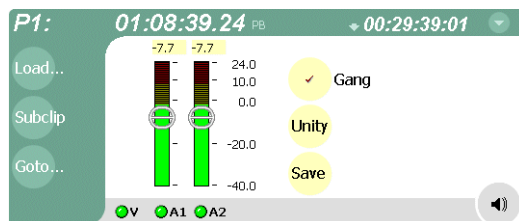
3. Click **Save** to save changes to the clip audio level.

NOTE: Saved audio levels are used every time the clip is loaded and played.
Unsaved changes are lost when the clip is ejected.

4. Select the Meterbar button ◀ again to return to Player view.

Striping timecode (replacing the timecode track)

The stripe timecode dialog allows you to overwrite the existing timecode track for the loaded clip. You can replace the recorded timecode with time of day, or a specific start timecode value.

1. Load the clip in the Player.

2. In Play view, select the menu button ▼, then choose **Stripe Timecode.**
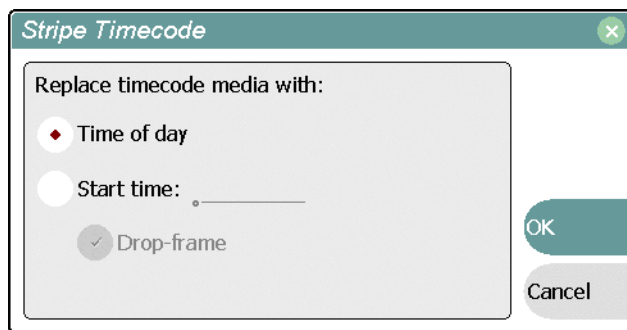
3. In the Stripe Timecode dialog box, specify the replacement timecode:

Time of day – The new timecode track will start with the current time of day and will contain continuous values ranging from the current time of day plus the length of the clip. To select time of day source for the clip, see "Selecting Time-of-day source for event scheduling" on page 97.

Start time – After choosing this option, select the timecode entry control, and enter a start timecode value. The new timecode track will contain continuous values ranging from the specified starting value to the starting value plus the length of the clip.

Drop frame – The drop frame option is available when system timing is set to 525 line standard. Drop frame allows the timecode track to indicate the actual running time of the clip.

Creating Subclips

A subclip is a clip created by referencing a portion of media from another clip or program. For example, if you recorded a two hour clip, you could create several short subclips to use as previews or advertisements. Each subclip refers to a small portion of the original clip and is listed along with all other clips in the Clips pane. When working with subclips, the original clip is sometimes called the *source clip*. After creating subclips, you can delete the source clip. See "Deleting an asset" on page 227.

Subclips created from a clip that is currently recording can only have a mark-out equal to the last frame that has been recorded when the subclip is created. You cannot create a subclip longer than has been recorded under the assumption that the record will "fill it in".

You can load subclips in the Control view and edit the mark-in/mark-out points the same as a clip, provided the unreferenced source media has not been erased. If the source media has been erased, the subclip retains 1 second of media on each side of the mark-in and mark-out points. See "Editing a clip: Moving mark-in/mark-out" on page 162.

The following sections describe how to create subclips:

- "Creating subclips in Subclip mode"
- "About Auto Subclip mode" on page 168
- "Creating subclips in Cue view"

Creating subclips in Subclip mode

You can create subclips from a clip or a continuous record program currently loaded in the Player.

1. With a clip or continuous record program loaded in the Player Control view, select the **Subclip** button.
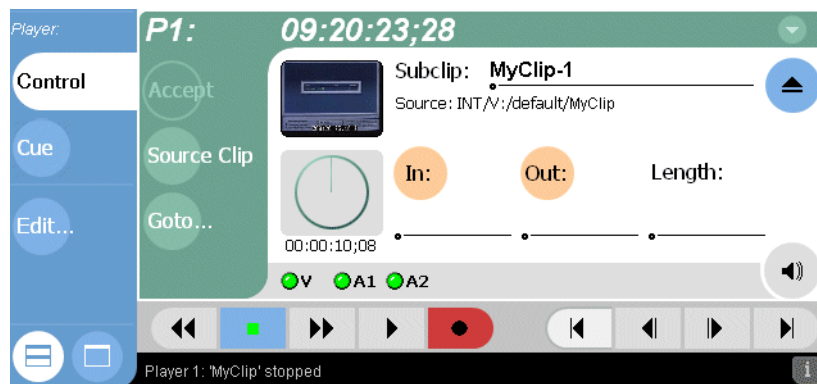
The Subclip pane appears with the new subclip loaded and the **In** and **Out** buttons flashing. The default subclip name follows the form *<source clip name>-<number>*, for example, if the source clip name is *MyClip*, the subclip name is *MyClip-1*.

Changing the name of a subclip creates a new seed name until you leave subclip mode. For example, if you rename subclip *Clip_1-1* to *Promo* and accept the clip,

the subsequent subclip will be named *Promo-1, Promo-2*, and so on.

All controls in subclip mode now represent the attributes of the subclip rather than the original clip.

2. To rename the subclip, select the subclip name control, and enter the new name in the Clip Name dialog using the onscreen or external keyboard, then select **OK**, or **Enter**.

3. Enter the subclip marks as follows:

   a. Using the transport controls, position the clip to the desired frame for mark-in, then select the **In** button.

   b. Using the transport controls, position the clip to the desired frame for mark-out, then select the **Out** button.

   Alternatively: Select the mark-in or mark-out timecode entry controls and enter a specific timecode value.

   Alternatively: Select the **Length** timecode entry control and enter a clip length, then create either a mark-in or a mark-out point.

4. In Subclip mode, select **Accept Input**.

   The new clip is created and Player returns to Subclip mode with a new subclip name loaded.

NOTE: Selecting the Source Clip button or the Eject button prior to pressing the Accept button closes Subclip mode without creating a new clip. Both of these buttons are used to return to the Play view.
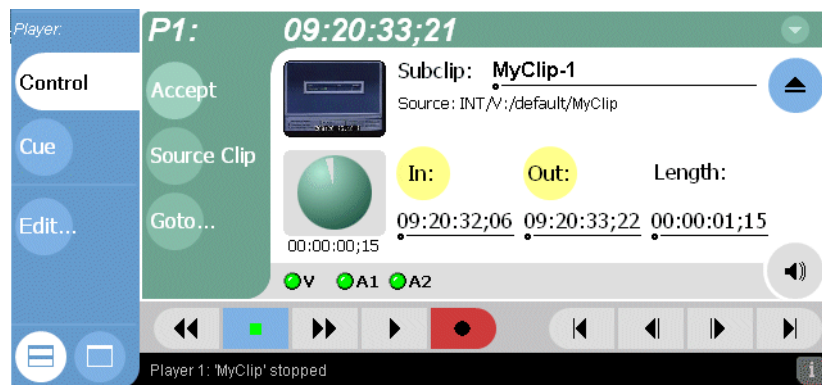
About Auto Subclip mode

The Auto-Subclip feature changes the way that the subclip mode behaves. Auto Subclip mode eliminates the "Accept" step in the subclip procedure. To create a subclip, you simply set mark-in, then set mark-out. On setting mark-out, the subclip is automatically generated and ejected, and a new subclip name is loaded in the subclip pane.

Auto Subclip mode is useful when you want to create subclips while a source clip is playing. You simply load a clip, press play, then create subclips by selecting In, Out, In, Out, etc.

To enable Auto Subclip mode:

• In the Play view, select the context menu button , then choose **Auto Subclip**.

Creating subclips in Cue view

In Cue view, you can automatically create a subclip from the selected cue point. The selected cue point becomes the mark-in point, while the mark-out point is the same as the source clip. If more than one cue point is selected, a subclip is created using the first and last cue points. This feature allows you to manage the media of interest as a separate clip rather than media between cue points in a clip. For example, once you've made a subclip, it can be added to a playlist.

By default, subclips generated from the cue list are given names of the format *<clip name>-<first cue name>*. For example, a subclip generated from a cue point named "cue_1" in a clip named "MyClip" is named "MyClip-cue_1". If a clip already exists with this name, you are prompted to enter a unique name.

To create a subclip from media between two selected cue points:

1. Select two cue points in the cue point list.

2. Select the menu button , then choose **Create Clip**.

To create a subclip using a selected cue point as mark-in. The subclip is terminated by the source clip mark-out point:

1. Select the cue point to use as the mark-in for the new clip.

2. Select the menu button , then choose **Create Clip**.

To create a subclip for all cue points. Each subclip is terminated using the mark-out of the source clip:

• Select the menu button , then choose **Create All Clips**.

In some cases, a progress dialog is displayed as the clips are generated.

Selecting E to E mode

When E to E is selected, the play channel video and audio outputs are switched to the corresponding record channel inputs when the play channel is in stop mode or when no clip is loaded. The following table describes play channel operation depending the E to E selection.

E to E Setting	Play channel mode	Play channel output
Disabled	Play, FF, Rewind	Show clip
	Stop	Show clip
	Eject	Show black
Enabled	Play, FF, Rewind	Show clip
	Stop	Show input[a.]
	Eject	Show input[a.]

[a.] Output is black if no video input is connected.

E to E considerations

If E to E mode is enabled, you can connect an external reference signal which is synchronous to the video input. This will eliminate artifacts on the play channel output (periodic vertical shift) due to routing an asynchronous signal through the iVDR. However, this is not required for recording, the iVDR can record asynchronous signals.

To enable/disable E to E mode:

• In Play view, select the context menu button ⊙, then select the E to E menu item.

Chapter **8**

Working With Playlists

Information in this chapter includes:

- "Introducing Playlist"
- "Before using Playlist"
- "Starting Playlist"
- "Guide to using Playlist: List View"
- "Guide to using Playlist: Event View"
- "Changing the event list viewing mode"
- "Setting monitor information"
- "Creating a list"
- "Opening an existing list"
- "Inserting play events"
- "Using GPI output triggers in playlists"
- "Playing a list"
- "Viewing list properties"
- "Creating a looping list"
- "Locking a list"
- "Modifying events in the list"
- "Managing sections in the list"
- "Managing playlists"
- "Saving a list as a program"

Introducing Playlist

The Playlist control application allows you to build lists containing clips and programs stored on the iVDR. The Playlist control application requires a single iVDR play channel. The following describes the basic features supported when creating and playing lists.

- **Two Playlist views -** The Playlist application has two views— List View and Event View. The List View allows you to manage a lists— insert, move, or modify events, and to control playout of the list. The Event View allows you to edit event properties— event name, in mark, out mark, length, and audio level.

- **Editing lists** - Events in a list can be renamed, moved, or removed.

- **Trimming an event in the list** - Trimming an event only affects the event mark-in and mark-out points, but does not affect its source clip marks.

- **Event transitions** - Transitions between all events in a list is a cut, i.e. the last frame of an event is followed by the first frame of the next event.

- **GPI output triggers** - The iVDR provides 12 GPI output signals through a rear panel connector for controlling external equipment. You can configure events and sections in a playlist to trigger GPI outputs. A GPI trigger does not disrupt playout of the play events. GPI triggers can be set to occur at the beginning or end of an event or section, or at these points with some offset.

- **Loop on a section -** Sections are provided within the list to provide flexibility during playout. A section can be set up to loop indefinitely. The section can be taken out of the loop by manual intervention.

- **Loop on a list** - Lists can be set up to loop indefinitely. The list can be taken out of the loop by manual intervention– play, goto, or, stop.

- **Pause at the end of events or sections** - Events and sections can pause playout at their end. At event pauses, you can choose to show black, show E-to-E, freeze on last frame, or freeze on next event.

- **Saving a playlist as a program** - Playlists can be saved as a program. This saves the media and transitions, but nothing that breaks the flow of playout, such as, pauses. You can insert programs into other playlists, or load and play them using the standard Player application.

Before using Playlist

Read the following sections before using Playlist.

Terms used in Playlist

The following terms are used in the Playlist application.

Term	Definition
List	A list is a sequence of events.
Event	Events are the components that make up a list. Events are created by adding a clip or program to sections in a list.
Section	All events in a list belong to a section. A list has at least one section. Sections have properties that include repeat and pause. A list can have up to 100 sections. Each section can have up to 1000 events.
Source Clip	This is the clip inserted in a list to create a play event.
Program	Playlists can be saved as a program. Programs generated in Playlist include all the media and transitions in the playlist, but nothing that breaks the flow of playout, such as, a pause at the end of an event. Programs are also created from the continuous record mode.

Working with clips currently being recorded

Clips that are currently recording behave as other clips do in a list except for the following restriction:

• The event-out timecode is set to the last recorded frame at the time the clip is inserted in List view, or created in Event view. You can move the event-out timecode as needed while the clip is still recording or after record is stopped.

Working with programs

A *program* is a clip generated from a playlist using the **Save As Program** feature in the Playlist application. A program includes all the media in the playlist, but does not include any event that breaks the flow of playout such as a pauses between events. You can insert programs into other playlists as an event, or load and play them using the standard Player application. You can also send a program to a GXF file or a video network stream.

Monitoring the play channel

When the Playlist channel is active, the channel monitor in the Monitor pane shows the video output of the current list. When another channel is active, the Playlist's channel monitor shows the thumbnail from the current play event. Each time a new event is played, a new thumbnail is displayed.

The Monitor pane also displays status information for the current list showing name and countdown timecode of the event, section, or list. When the Monitor pane is in full screen mode, channel information is superimposed over the moving video or thumbnail image. See .

Symbols used in Playlist

The following table describes the symbols used in the Playlist List view to describe the properties of items in the list— play events, sections, and the list itself.

Symbol	Description
🔒	**Locked** The item is locked and cannot be edited.
🔴	**Pause** At the end of playout, this item will cause playout to pause.
🔄	**Repeat** At the end of playout, the item will repeat.
⚡	**GPI Output Trigger** This event or section triggers one or more GPI outputs.
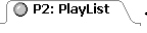
Starting Playlist

Playlist requires a single play channel. If a play channel is currently being used by another application, you can use the following steps to select the Playlist application. Selecting the Playlist application causes the current play channel application to exit when Playlist is started.

To start Playlist on a play channel:

1. In the toolbar, select **Split Screen** ⊜ , and then **Monitor**.
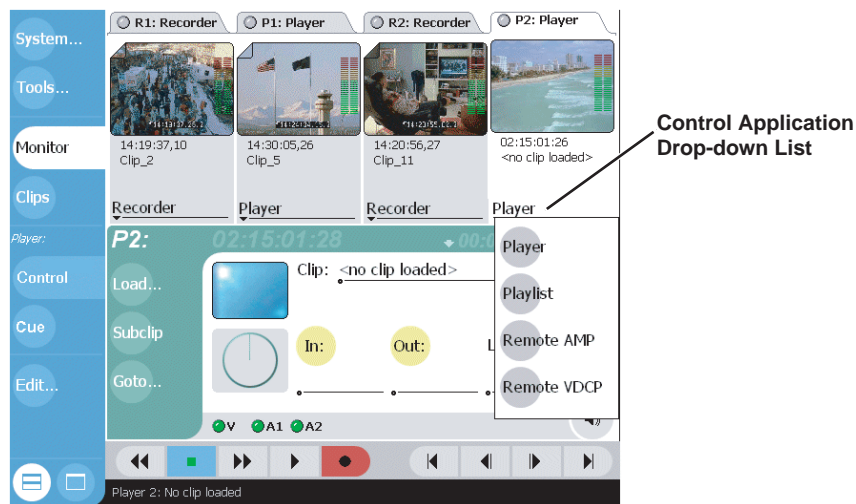
Control Application
Drop-down List

2. In the Monitor pane, select the control application drop-down list for the play channel, then choose **Playlist**.

   Playlist starts on the channel.

3. Select the channel— press the front panel channel select button 🖭, or select the channel tab in the Tools pane ⌜◉ P2: PlayList⌝.

   Playlist appears in the Applications pane which becomes the active pane.

NOTE: Also see "Starting AppCenter" on page 65.

Guide to using Playlist: List View

The List View allows you to manage a list— insert, move, or modify events, and to control playout of the list. Pressing **List** in the AppCenter toolbar displays the List view. You can select the type of display for the asset list– text view, or image view. (See "Changing the event list viewing mode" on page 182) The following describes the basic controls in the List View.
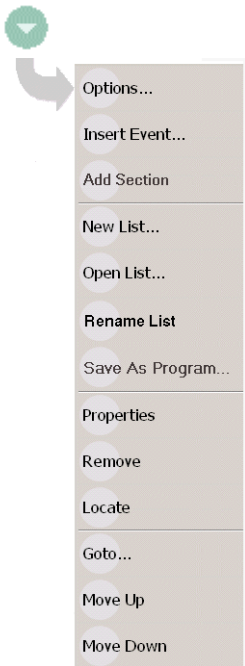
List view in text display mode
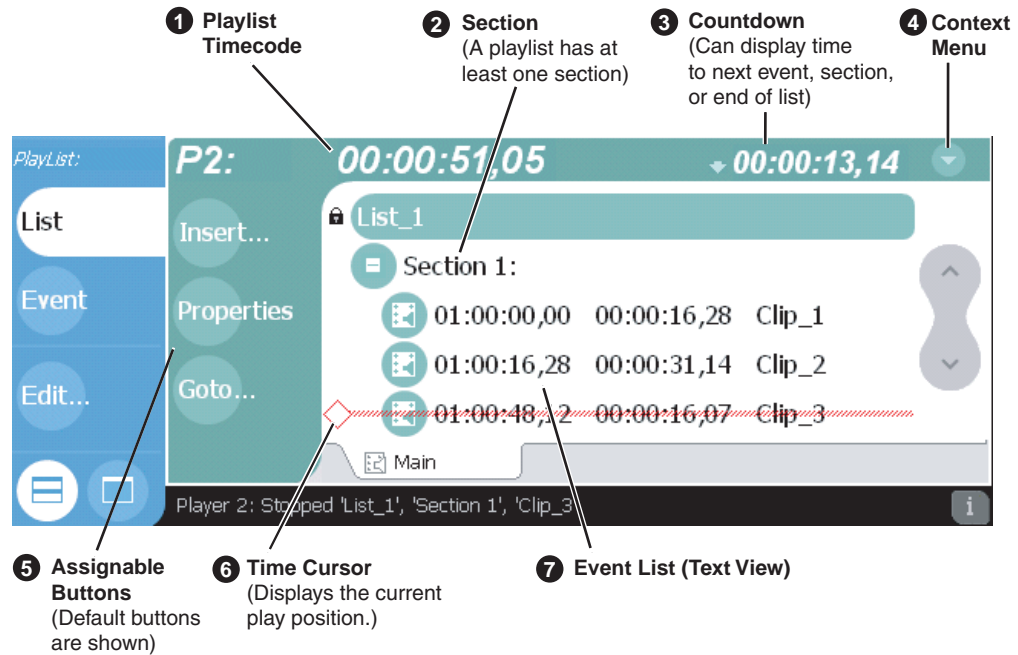
List view in image display mode

	Control	Description and User Operation
❶	**List Timecode** `01:01:25,16`	Though each play event contains the timecode information from its source clip, the timecode for the list is generated internally. This timecode can be an offset from a specific timecode (the default is 01:00:00;00). "Selecting the playlist timecode" on page 204.
❷	**Section (Text View)** ⊟ Section 1: **Section (Image View)** Section 1:	A list has as least one section, but can have up to 100. All events belong to a section, and each section can have up to 1000 events. In Image View, the section is displayed as a Time Dome which shows the amount of the section that has played. An empty Time Dome indicates the section has not started to play. Sections can be expanded or collapsed to reveal or hide the events that belong to the section. Expanded sections are indicated by a '-' symbol.
❸	**Countdown Timecode** `⬙ 00:00:03,12`	Displays the time to the next event, section or end of the list. To select the countdown mode you want to monitor, open the Options dialog box by selecting Options in the context menu.

Control	Description and User Operation
❹ **List View Context Menu** Options... Insert Event... Add Section New List... Open List... Rename List Save As Program... Properties Remove Locate Goto... Move Up Move Down	**Options**– Opens the Options dialog box which allows you to select the asset list view (e.g. Text or Image view), and choose the list monitoring information displayed in the Playlist application and the Monitor pane. See "Changing the event list viewing mode" on page 182. **Insert Event**– Opens the Insert Event dialog box which allows you to insert all event types. See "Inserting play events" on page 184. **Add Section**– Adds a section to the end of the list. Once you add the section, you can move it. See "Adding and removing sections" on page 200. **New List**– Opens the New List dialog box where you can choose the current bin and specify the new list name before creating it. When a new list is created, the current list is ejected and the new list is created containing one section and no events. The default new list name is generated from a seed name and incremented, e.g. if the seed name is List, new list names would be List_1, List_2, etc. Renaming a list creates a new seed name, i.e. renaming 'List_1' to 'Promo' causes the next list created to be named Promo_1. See "Creating a list" on page 184. **Open List**– Closes the current list and allows you to open an existing list. See "Opening an existing list" on page 184. **Rename List**– Rename the list currently loaded in Playlist. **Save As Program**– Saves the current list as a program. The new program is listed in the Clips pane with other assets. Programs can be played using the Player application, or inserted in a list in Playlist. See "Saving a list as a program" on page 206. **Properties** – Opens the properties dialog box for the selected item—list, section, or play event. Properties dialog box includes pages for setting up list timecode, adding metadata, and setting list attributes that will occur when playback reaches the end of the list. Options include repeat, or pause. See "Viewing list properties" on page 191. Section properties and event properties dialog boxes include options for setting the end behavior— repeat or pause, and GPI output properties. "Viewing play event properties" on page 198. **Remove**– Removes the selected item from the list. See "Modifying events in the list" on page 193. **Locate**– Locates the list or source clip for an event, depending on the selection, in the Clips Pane. See "Locating a list in the Clips pane" on page 206 or "Locating the source clip" on page 199. **Goto**– Opens the Goto pop-up menu which allows you to jump to selection, next event, next section, or a timecode that you specify. See "Playing a list" on page 190. **Move Up**– Moves the selected event up in the list. See "Moving events in the list" on page 198. **Move Down**– Moves the selected event down in the list. See "Moving events in the list" on page 198. **Help** – opens online help for Playlist.
❺ **Assignable Buttons**	Assignable buttons allow you to modify the buttons located in the Playlist toolbar to best suit your workflow. Holding down a button longer than one second opens the button pop-up menu which lists the alternative button choices.
❻ **Time Cursor** ◇〰〰Clip_2〰〰	The time cursor indicates the current play position. The time cursor is displayed over the event currently being played.
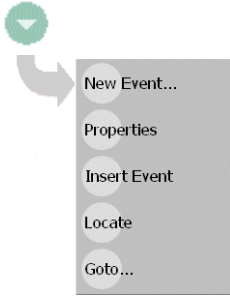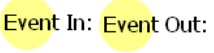
Control	Description and User Operation
❼ Event List	The Event List contains play events. Play events are created from clips or programs which can be added to the list in two ways: drag and drop from the Clips pane, or using the Insert button in List view, Event view, or in the Clips pane. By default, play events added to a list inherit the source clip's name, but you can rename events anytime. Play events and sections can be configured to trigger GPI outputs. GPI triggers can be set to occur when the event or section starts, ends, or at these points plus or minus some offset. A GPI trigger does not disrupt playout of the play events that following it. See "Using GPI output triggers in playlists" on page 188. You can view the Event List in either the text view or image view. Image view displays clip thumbnails along with Time Domes for the list play progress, and section play progress. To change the view, select **Options** in the context menu.

Guide to using Playlist: Event View

The Event View allows you to create a new event before inserting it into the play list, or to edit an existing event's properties. Selecting **Event** in the AppCenter toolbar displays the Event view. Note that you cannot open Event View while the list is playing. The following describes the basic controls in the Event View.

1 Create New Event
(Click to open the new event dialog, then select a clip to make an event.)

2 Current Frame Timecode

3 Event Name & Section
(Click to rename)

4 Countdown Timecode

5 Context Menu

6 Insert or Accept*

7 Goto
(Click to enter goto timecode)

8 Time Dome

9 Thumbnail
(Click and hold to change event thumbnail or view event properties.)

10 Event-In/Event-Out
(Sets the In or Out point to the current frame.)

*Note: Insert adds new event to the list. Accept propagates changes made to an existing event to the event in the list.

	Control	Description and User Operation
1	**New Event Button** New...	Used to create a new event by selecting a clip in the Clips pane, then pressing the **New Event** button. You can also drag and drop clip onto the Event Name control in the Event View.
2	**Event Timecode** 01:01:25,16	Displays the event's timecode. This is the source clip's recorded timecode. It may be helpful when searching for a particular portion of the media to set event marks.
3	**Event Name Control** Event: Clip_7 Section: Section 1	Displays the event's name and section in the list. To rename the event, touch or click the event name control, then use the onscreen or external keyboard to enter a new name. If no event is selected when you switch to the Event View, the Event Name control displays *<No event loaded>*. You can then create a new event or return to the List View. The section name that the event belongs to is displayed directly below the event name. When viewing an event that is not in the list, "Section: <Not in list>" is displayed beneath the event name.

	Control	Description and User Operation
❹	**Countdown Timecode** ▾ *01:04:59;29*	Displays the time to end of event.
❺	**Event View Context Menu** New Event... Properties Insert Event Locate Goto...	**New Event**– Opens the New Event dialog box which allows you to navigate through the clips pane to select the source material for the new event. **Event Properties**– Opens the Event Properties dialog box which includes pages for setting up list timecode, adding metadata, and setting attributes that will occur during playback. **Insert Event**– Inserts the loaded event in the list. The event is inserted after the last selected event. This menu item only appears when the event is not in the play list, for instance after selecting New Event. **Locate**– Locates the event's source clip in the Clips pane. See "Locating the source clip" on page 199. **Goto**– Select Goto, to open the Goto dialog, then enter a timecode value or use the scrub bar —▮▮▮▮▮— to go to the desired position in the event. **Help** – opens online help for Playlist.
❻	**Insert and Accept Buttons** Insert Accept	**Insert Button** – Displayed when editing a new event that is not yet in the list. Inserts the current event into the list after the currently selected event. **Accept Button** – Displayed when editing an event in a list. Propagates changes you made to the event properties to the event in the list, for example, event marks, thumbnail, or end properties.
❼	**Goto Button** Goto...	Opens the Goto dialog box which allows you to jump to a specific timecode in the event.
❽	**Time Dome** ◔ 00:00:03;23	Displays a graphical representation of the current position between the event's marks with an empty Time Dome representing the current position at event in, and a full dome representing the current position at event out. The time remaining from the current position is displayed beneath the Time Dome. When playing media that is currently being recorded, you'll see that the event mark-out is set to the timecode of the last frame of video when event was initially created even though the source clip is still recording.
❾	**Thumbnail**	By default, an event uses the same thumbnail as the source clip. You can select the thumbnail image to change the event thumbnail image to the current frame, or to view the event properties.
❿	**Event In/Event Out** Event In: Event Out:	Used to change the in and out points of the event. These changes do not take effect until the event is inserted into the list using the Insert button, in the case of a new event, or the changes are accepted, using the Accept button in the case of an existing clip. Selecting Accept propagates event change to the event in the list. Changes to the event are lost if you eject without selecting insert or accept as required. Event In/Out changes do not affect the source clip's mark in and out values, but only the event's marks used by the Playlist.

Changing the event list viewing mode

The event list in the List view has two viewing modes– Image view, and Text view. Image view displays events as thumbnails along with the section and the list time domes. The text view lists events descriptions in text format. You can select which event attributes are displayed in text view.
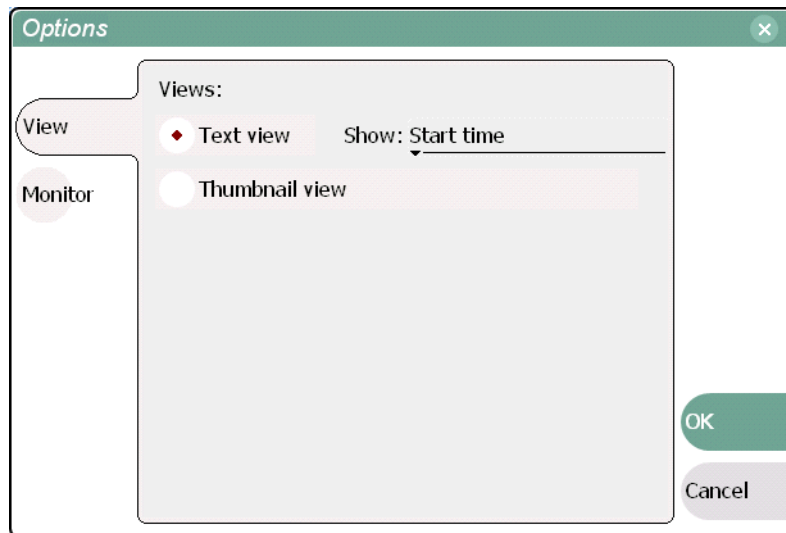
Use the following steps to select the view mode best for you:

1. In List view, select the context menu button , then choose **Options**.

   The Options dialog box appears.

2. In the Options dialog box, select the **View** button.

   The View settings page appears.

3. Select a view mode.

   Text View - displays events in text form including an event icon, name and an additional attribute selectable using the **Show** drop-down list. Show attributes include the following: **duration**, **name only**, **start time**, or **start time and duration**.

   Thumbnail View - displays events in thumbnail form along with the event name.

4. Select **OK** to save settings and close the Options dialog.

Setting monitor information

You can select the monitoring information displayed for the list. The selections you make determine the list attributes that are displayed in the following locations:

- **List information displayed in the Monitor Pane** - List information is displayed under the channel monitor in the Monitor pane. You can select the list attributes displayed in the Monitor pane.

- **Countdown timecode displayed in the Playlist toolbar** - The countdown timer can count down to the next section, the next event, or the end of list.
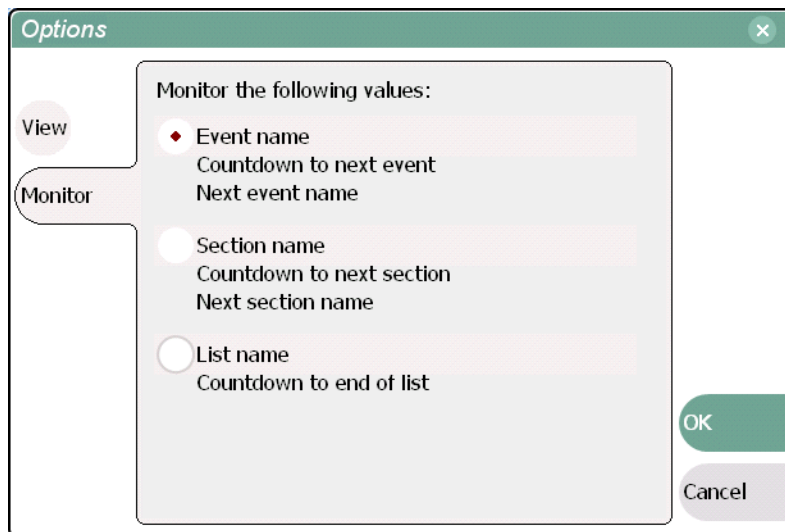
To select the monitor mode:

1. In List view, select the context menu button ⬇, then choose **Options**.

   The Options dialog box appears.

2. In the Options dialog box, select the **Monitor** button.

   The Monitor settings page appears.

3. Select one of the monitor information options.

4. Select **OK** to save settings and close the Options dialog.

Creating a list

Lists are created using the List view. When Playlist is started, the last list loaded on the play channel is opened automatically. If the last list loaded has been deleted, then an empty list containing one section and no events is created. New lists are named "List_n", where n is the first number that results in a unique file name. There is no "eject" operation in Playlist, as there is always a list loaded.

To create a new list:

1. Select the context menu button ⌄, then choose the **New List** menu item.

   The New List dialog box is displayed.

2. Select the bin to store the list, then edit the default name for the new list, then click **OK**.

3. The current list closes, and the new one is created containing one section and no events.

Opening an existing list

To open a list, do the following:

1. Select the context menu button ⌄, then choose **Open List**.

   The Open List dialog box appears.

2. Locate and select the list you want to open, then select **Open**.

   Before the list is opened, the currently loaded list is closed.

Renaming a list

To rename a list in Playlist:

- Select the context menu button ⌄, then choose **Rename List**.

Inserting play events

A new list contains one section and no events. When you start inserting play events, they will be played in the order you insert them. You can move events in the list up or down, or insert new events between existing ones by selecting the insertion point.

Selecting the insertion point

- When using the **Insert** button or menu item, the insertion point is after the currently selected event.

- When using the drag and drop method, you will see a drop cursor as you drag the event over the list. The drop cursor indicates where the new event will be inserted.

NOTE: The time cursor only indicates the current play position, and cannot be selected and moved. Selecting and dragging may inadvertently select and move the event.

Inserting play events in List view

To insert an event in List view:

1. Select **List** in the Playlist pane.

2. Do one of the following:

• Drag and drop assets from the Clips pane using the drop cursor to locate the insertion point.

• Drag and drop from the Monitor pane. Select the thumbnail or video image, then drag to List view. Use the drop cursor to locate the insertion point.

• Double-click an asset in the Clips pane. The asset is inserted in the list after the insertion point.

• Select an event in the list as the insert point, then select one or more assets in the Clips pane. Select **Insert** in the Clips pane to insert the event after the insert point.

• Select an event in the list as the insert point, then select **Insert** in List view, and select one or more assets in the Insert Event dialog box. Select **OK** to insert the events.
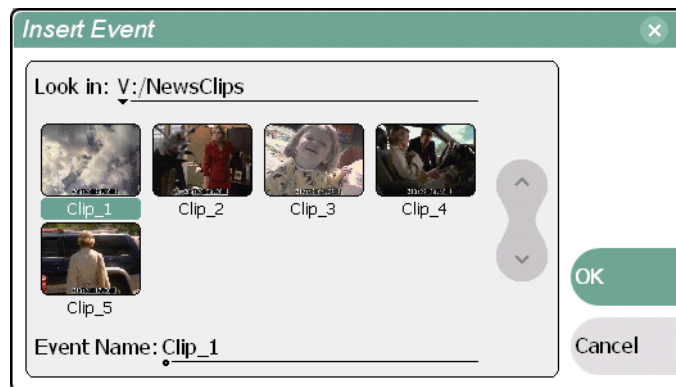

Inserting play events in Event view

To insert a play event in Event view:

1. Select the **Event** button in the Playlist pane.

2. Do one of the following:

• Drag and drop an asset from Clips pane, then press Event view **Insert** button to add it to the list.

• Select an asset in the Clips pane and press the **New Event** button. After trimming the event as required, select the Event view **Insert** button to insert the event in the list.

- Select the **New** button which opens the New Event dialog box. Select an asset in the New Event dialog box, then select the **OK**. The event is displayed in the Event view and added to the list.
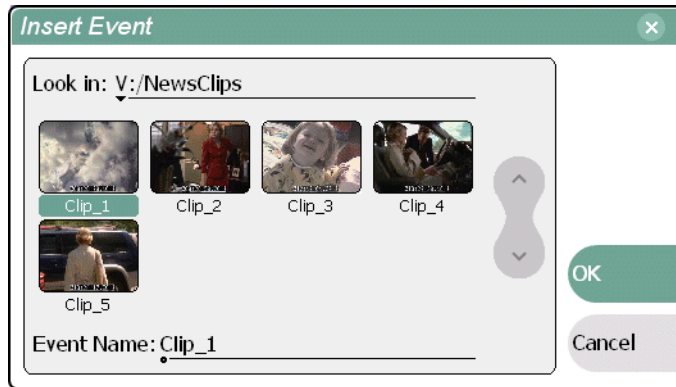
Using copy and paste to insert play events

Any asset that can be selected, can be placed on the clipboard and pasted into another application that accepts that type of asset. For example, you can copy a play event from Playlist running on play channel P1, and paste it into Playlist running on play channel P2. You can also copy a clip from the Clips pane and paste it into the Playlist application.

The Cut, Copy, and Paste operations are performed by using the AppCenter's Edit menu, or by using the standard keyboard shortcuts if an external keyboard is attached (CTRL+C, CTRL+X, CTRL+V).

To insert an asset from the Clips pane using the clipboard:

1. In the Clips pane, select one or more assets.

2. Copy the assets to the clip board.

3. Select an insertion point in the list.

4. Paste the asset from the clipboard into the list.

To use the clipboard to move or copy events already in a play list:

1. Select the event(s) you wish to move or duplicate.

2. Copy or Cut the selection to the clipboard.

3. Select the new insertion point in the list.

4. Paste the event(s) from the clipboard into the list.

Related Topics

- "AppCenter user interface overview" on page 67

- "Using Keyboard shortcuts" on page 74

- "Selecting multiple assets" on page 222

Inserting a clip that is still recording

Clips that are currently recording behave as other clips do in a list except for the following restriction:

- The event-out timecode is set to the last recorded frame at the time the clip is inserted in List view, or created in Event view. You can move the event-out timecode as needed while the clip is still recording or after record is stopped.

Inserting a playlist in a playlist

You cannot insert an existing playlist into another playlist. However, you can save the playlist as a program, and then insert the program in the playlist.

Related topic:

-

# Using GPI output triggers in playlists

You can assign GPI output triggers to events and sections in a playlist. The GPI outputs can be used to trigger external equipment when the list plays. Before you can use GPI output triggers in a list, you must assign GPI outputs to the play channel using Configuration Manager. *See "Configuring GPI outputs" on page 113.*

NOTE: If you want to play a list that was created on another play channel, you must ensure that GPI triggers assigned to the play channels use the same names, otherwise the GPI triggers will not occur.

To trigger GPI outputs:

1. Use Configuration Manager to assign GPI outputs to the current Play channel.

   Follow instructions in "Configuring GPI outputs" on page 113, then return to this procedure.

2. Select an event or section in the playlist, then open the properties dialog box by doing one of the following:

   • Select the context menu button , then choose the **Properties**.

   • Select the **Properties** button.

Section GPI properties page
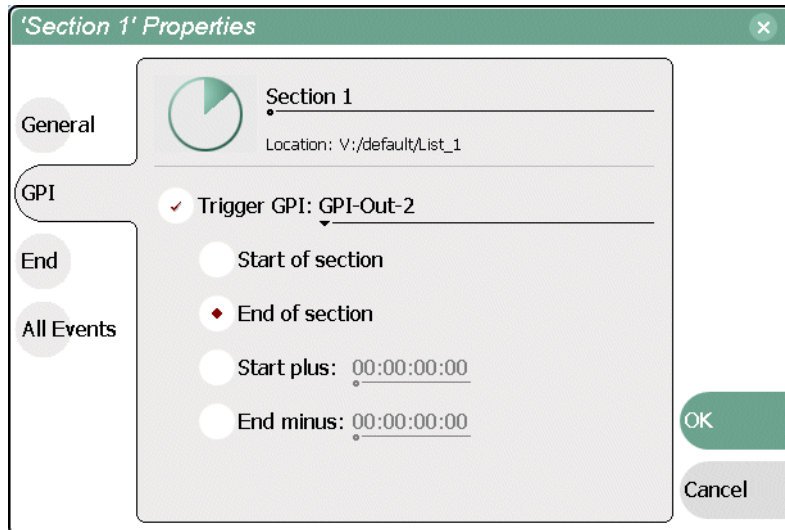
Event GPI properties page

3. Select Trigger GPI, then use the drop-down list to select a GPI output.

NOTE: If no GPI outputs are listed, use Configuration Manager to assign GPI outputs to the current channel, then return to this step. See "Configuring GPI outputs" on page 113.

4. Select the trigger action for the GPI output.

Action	Trigger point
Start of event or section	First frame of event or section
End of event or section	Last frame of event or section
Start of event or section plus	Start of event or section plus the time entered using the text entry control. Offset should not exceed the event or section total length.[a]
End of event or section minus	End of event or section minus the time entered using the text entry control. Offset should not exceed the event or section total length.[a.]

[a.] If the offset time entered exceeds the event or section length, a warning message is displayed.

5. Select **OK** to save settings.

Playing a list

Once the list is completed, you can play it using the onscreen or front panel transport controls. The following sections describe playout using these controls.

Starting playout

To begin playout:

- Open the list, then press **Play**.

  - or -

- Select an event in the list, then press **Play**.

Other playout operations

While playback is in progress, you can perform the following operations using the front panel transport controls, touch screen, and Playlist user interface. If you don't have a front panel, use the keyboard shortcuts for all transport controls. See "Using Keyboard shortcuts" on page 74.

To...	...do this
...continue playout after a pause in the list	select the **Play** button.
...play the next event	press the **Play** and **FF** buttons. -or- select **Goto**, and then choose **Next Event** in the Goto pop-up menu.
...play the next section	press the **Play** button and hold the **FF** button down. -or- select **Goto**, and then choose **Next Section** in the Goto pop-up menu.
...skip playback to any event or section in the list	first, press and hold the **Play** button, then select the event or section using the touch screen.
...select an event or section to playback	first, select the event or section, then click **Goto**, and choose **Selection** in the Goto pop-up menu. Then press **Play**.

Playlist keyboard shortcuts

You can also control Playlist playout using an external keyboard. Refer to "Using Keyboard shortcuts" on page 74

Viewing list properties

To open the list properties dialog box, doing one of the following, select the context menu button ⊙, then choose the **List Properties**.

Refer to the following for more information on these properties pages:

- Data Page – "Adding and modifying asset metadata" on page 240
- Timecode Page – "Selecting the playlist timecode" on page 204.
- End – "Locking a list" on page 192

Creating a looping list

You can loop on a list until you intervene.

1. Open the list properties dialog box, doing one of the following:

   - Select the context menu button ⊙, then choose the **List Properties**.
   - Select the list icon in the event list, then select the **Properties** button.

2. Select End, then choose the **Repeat** option.

3. Select **OK** to close.

Locking a list

You can lock a list to prevent changes from being made.

1. Open the list properties dialog box, doing one of the following:

   • Select the context menu button , then choose the **List Properties**.

   • Select the list icon in the event list, then select the **Properties** button.

2. Select **General**, then choose the **Locked** option.
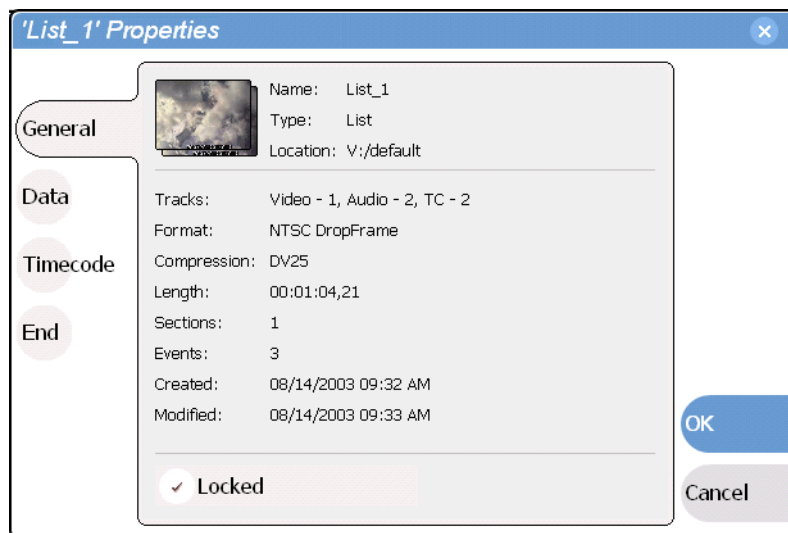
3. Select **OK** to close. The lock symbol appears next to the list in List view.

Modifying events in the list

Modifying events includes the following tasks:

About editing events while playing a list

If the List view is playing a list, you cannot monitor video and audio of an event when you switch to the Event view. The channel resources, video and audio outputs and monitor outputs, are being used by the List view application. However, you can still edit an event in Event view by using the event in/out timecode controls to enter timecodes values.

Moving Event-In and Event-out marks

Every event has a event-in point and an event-out point which refer to the first and last frames displayed when the event plays. When first created, event marks are set to the mark-in and mark-out of the source clip. You can edit the event marks in order to reference only the desired media. Event marks can be cleared to reset them to the marks specified in the source clip. (See "Clearing Event-In/Event-out marks" on page 195.)

The following restrictions apply when editing event marks:

- Event-in must precede the Event-out
- Event marks cannot be set outside the recorded media of the source clip.

NOTE: If more media exists outside the current mark, a <<< or >>> symbol are displayed beneath the current event mark timecode.

To move event marks, view the event in Event view, then use one of the following methods to move clip marks.

**Using the Event In/Out buttons**

To move clip marks:

1. Use the transport controls to locate the desired frame.

   NOTE: If the List view is playing a list, you cannot monitor video and audio of an event when you switch to the Event view. The channel resources— video and audio outputs, are being used by the List view application. However, you can still edit an event in Event view by using the event in/out timecode controls to enter timecodes values.

2. In Event view, select **Event In** Event In: to set mark-in point, or **Event Out** Event Out: to set mark-out point.

3. Do one of the following:

   • For an existing event, select **Accept** to propagate the change to the event in the list.

   • For a new event, select **Insert** to add the event to the list.

Using the timecode entry controls

1. In Event view, select the Event-In or Event-Out timecode control 00:01:11;09 to open the timecode entry dialog box.

   Mark Out
   = 00:02:02:23
   Clear
   7 8 9 +
   Back
   4 5 6 -
   1 2 3 = Ok
   0 . ← → Cancel
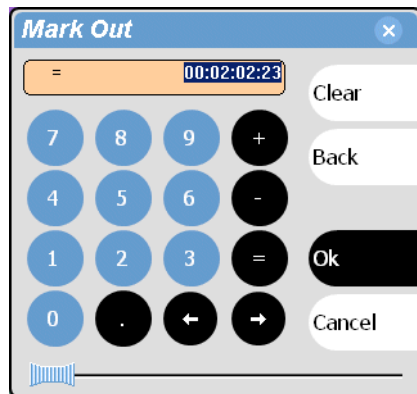
2. Enter a timecode value using the onscreen keypad, or an external keyboard, then select **OK** or **Enter**.

   Alternatively: Use the current position scrub bar —||||||||— in the timecode entry dialog box to locate the desired frame, then select **OK**.

Scrub Bar
(Click and drag while
monitoring channel output)

3. Do one of the following:

- For an existing event, select **Accept** to propagate the change to the event in the list.

- For a new event, select **Insert** to add the event to the list.

Using the event length control

Entering a new event length moves the Event-out point.

1. Select the **Length** timecode entry control.

2. Enter a new event length.

    The event length changes by moving the event-out point.

3. Do one of the following:

- For an existing event, select **Accept** to propagate the change to the event in the list.

- For a new event, select **Insert** to add the event to the list.

Clearing Event-In/Event-out marks

Clearing an event mark resets the mark to the marks used in the source clip. Event-in is set to the mark-in point of the source clip, and event-out is set to the mark-out point of the source clip.

To clear an event mark, do one of the following:

- With the event loaded in Event view, *select and hold* the **Event In** or **Event Out** button, then choose **Clear Mark** in the pop-up menu.

- With the event loaded in Event view, select the Event-In or Event-Out timecode control and select **Clear**, then **OK** to clear the mark.

Clear
(Select Clear, then
OK to clear the mark.)
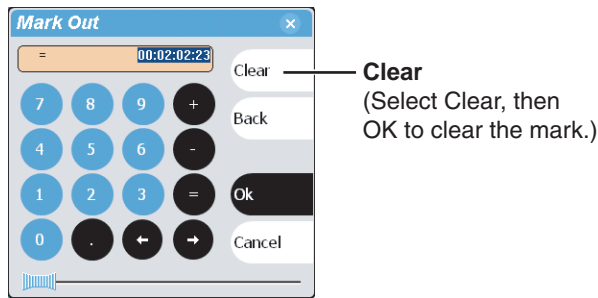
Pausing at the end of an event

1. Select the event in List view.

2. Open the properties dialog box by doing one of the following:

   • Select the context menu button , then choose the **Properties**.

   • Select the **Properties** button.

3. Select **End**.
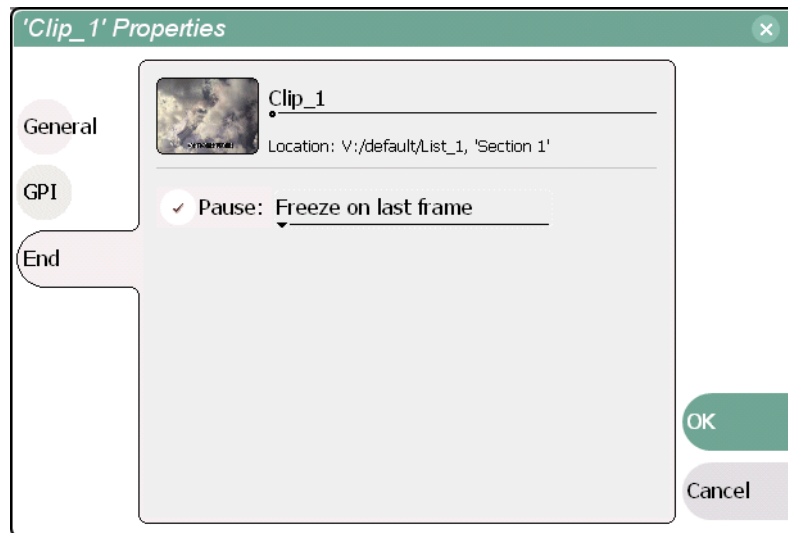
4. In the End page, select the **Pause** option, then use the drop-down list to select a pause action:

5. Use the drop down list to choose whether to **Show black**, **Show E-to-E**, **Freeze on last frame**, or **Freeze on next event**.

6. Click **OK**.

   The pause symbol appears next to the event in List view.

Related topics

   • "Adding pause at the end of all section events" on page 202

   • "Removing pause at the end of all section events" on page 203

Changing the event thumbnail image

By default, an event's thumbnail is set to the thumbnail of its source clip.

To change an event's thumbnail:

1. Select the event in List View.

2. Select the Event button in the toolbar to change to Event View.

3. Monitor video output and use the front panel or onscreen transport controls to position the clip to the desired video frame.

4. Select the thumbnail to image in Event pane to open the pop-up menu, then select **Set Event Thumbnail**.

   The event will now be represented by the new thumbnail. If the event is the first play event in the list, then the list thumbnail is updated to refer to the new event thumbnail.

NOTE: If the you modify the event marks so that the thumbnail is outside of the event's media, the thumbnail is automatically changed to correspond to the event's mark in position.

Adjusting the event audio level

The audio level for each event in the list is adjusted independently.

To adjust the event audio level:

1. With the event loaded in the Event view, select the Meterbar button 🔊 .

2. Adjust the audio level using the graphical faders or select **Unity** to return audio to the last saved level.
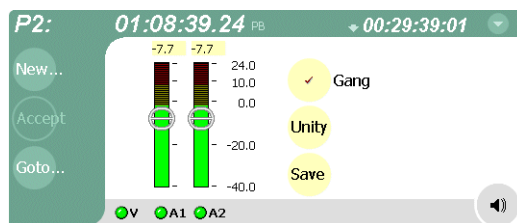
3. Select **Save** to save changes to the event audio level.

NOTE: Changing event audio levels does not affect the source clip. Saved audio levels are stored and used every time the list is loaded and played. Unsaved changes are lost when another list is loaded.

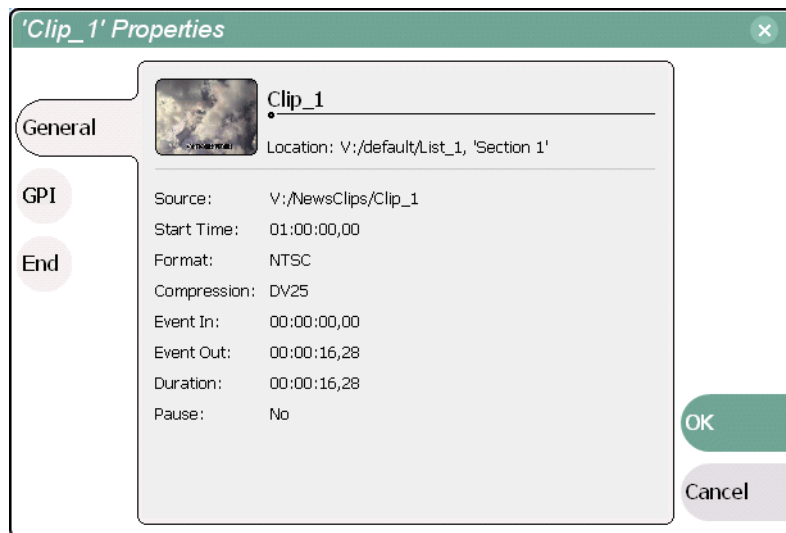4. Select the Meterbar button 🔊 again to return to List view.

Moving events in the list

To the change the order of events in a list, perform one of the following:

- Drag and drop the event into another location in the list.

- Select an event in List view, then select the context menu button ⊙, and choose the **Move Up** or **Move Down** menu item. The event moves up or down one position in the list.

- Use the **Edit** menu in the AppCenter toolbar or standard keyboard shortcuts to **Copy**, **Cut**, or **Paste** the event. When you paste the event, it is inserted after the currently selected event. NOTE: You can paste events that you copied from Playlist running on the other play channel.

Viewing play event properties

1. Select the event in the List view.

2. Open the properties dialog box by doing one of the following:

   - Select the context menu button ⊙, then choose the **Properties**.

   - Select the **Properties** button.

'Clip_1' Properties	⊗

General		Clip_1
		Location: V:/default/List_1, 'Section 1'
GPI	Source:	V:/NewsClips/Clip_1
	Start Time:	01:00:00,00
End	Format:	NTSC
	Compression:	DV25
	Event In:	00:00:00,00
	Event Out:	00:00:16,28
	Duration:	00:00:16,28
	Pause:	No

OK

Cancel

Related topics

- End properties page -

Renaming an event

To rename an event, perform one of the following:

- Select the event in List view, then select the context menu button ⏷, and choose **Properties**. All the pages in the Event Properties dialog box allow renaming the event.

- Select the event in List view, then switch to the Event View. Select the Event name control Event: ˳Clip_1   , and enter a new name.

Locating the source clip

The locate menu item is used to locate and select the source clip in the Clips pane that is used to generate an event.

To locate the source clip:

- Select the event in List view, then select the context menu button ⏷, and choose **Locate**.

The source clip is selected in the Clips pane.

Managing sections in the list

A list has as least one section, and all events belong to a section. Sections management tasks include the following:

Adding and removing sections

A playlist has as least one section, but can have up to 100. All events belong to a section, and each section can have up to 1000 events.

To add a section:

- In List view, select the context menu button , then choose the **Add Section.** The new section is inserted at the end of the list.

To remove a section, perform one of the following:

- Select the section in the list, then select the context menu button , and choose **Remove**, or

- Select the section in List view, then select the **Remove** button in the List view toolbar. This button only appears in full screen viewing mode.
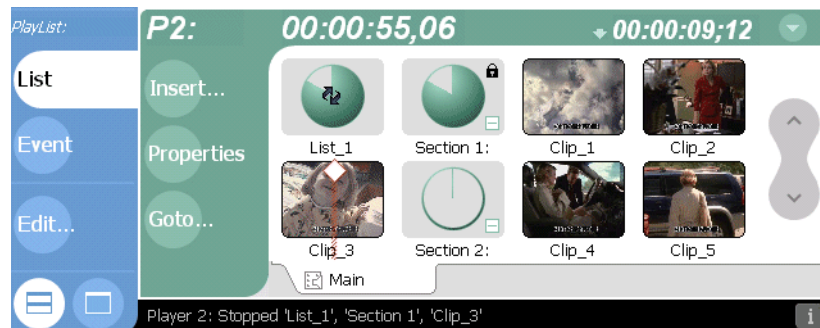
Renaming sections

To rename a section:

1. Select the section in the List view.

2. Open the properties dialog box by doing one of the following:

   - Select the context menu button , then choose the **Properties**.

   - Select the **Properties** button.
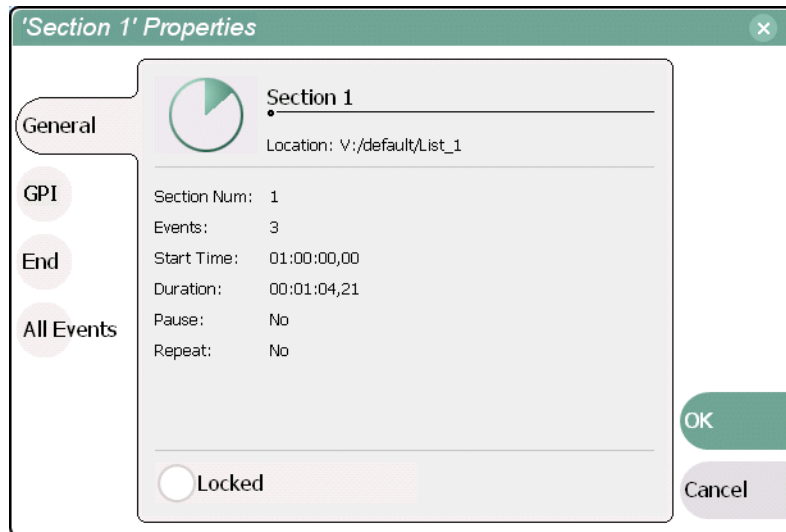
3. Select the section name, then enter a new name using the onscreen or external keyboard.

4. Select **OK**.

Selecting the section end properties

You can control how a list performs during playout by selecting the section end properties. Section "End" properties determine what will happen when playout reaches the end of the section.

To select section end properties:

1. Select the section in the List view.

2. Open the properties dialog box by doing one of the following:

   • Select the context menu button , then choose the **Properties**.

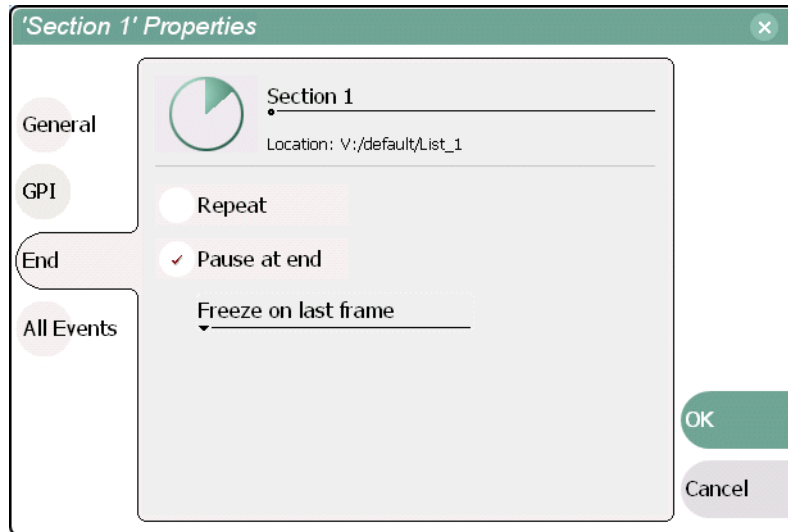   • Select the **Properties** button.

3. Select **End** to display the End Property Page.

4. Select the end properties, then click **OK**. The following table describes the end properties available.

End Property	Description
Repeat	When playout reaches the end of the section, the play position jumps back to the first event in the section and play continues. The section will continue to repeat until you intervene.
Pause	When the play position reaches the end of the section, playout pauses until you intervene. You must select from the following pause actions: - **E to E** - **Freeze on last frame** - **Freeze on next event** (momentary freeze on the last frame of the current event, then jumps to the first frame of the next event) - **Show black**

Adding pause at the end of all section events

To force a pause at the end of all section events:

1. Select the section in the List view.

2. Open the properties dialog box by doing one of the following:

   • Select the context menu button , then choose the **Properties**.

   • Select the **Properties** button.

3. Select **All Events** to display the End Property Page.

4. Select the **Change event pauses** check box, then choose the **Add a pause to every event** option.
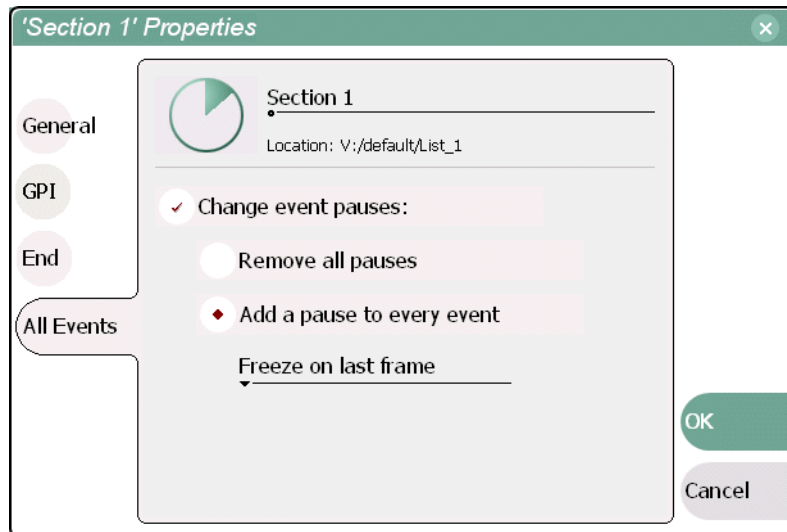
5. Use the drop-down list to choose whether to **Show black**, **Show E-to-E**, **Freeze on last frame**, or **Freeze on next event**.

6. Press the **OK** button.

   Each event's properties are modified to include the specified pause type. During playback, each event will remain paused at its end until you intervene. The pause symbol ⬤ appears next to the events in List view.

Removing pause at the end of all section events

To remove pauses at the end of all section events:

1. Select the section in the List view.

2. Open the properties dialog box by doing one of the following:

   • Select the context menu button ⬇, then choose the **Properties**.

   • Select the **Properties** button.

3. Select **All Events** to display the End Property Page.
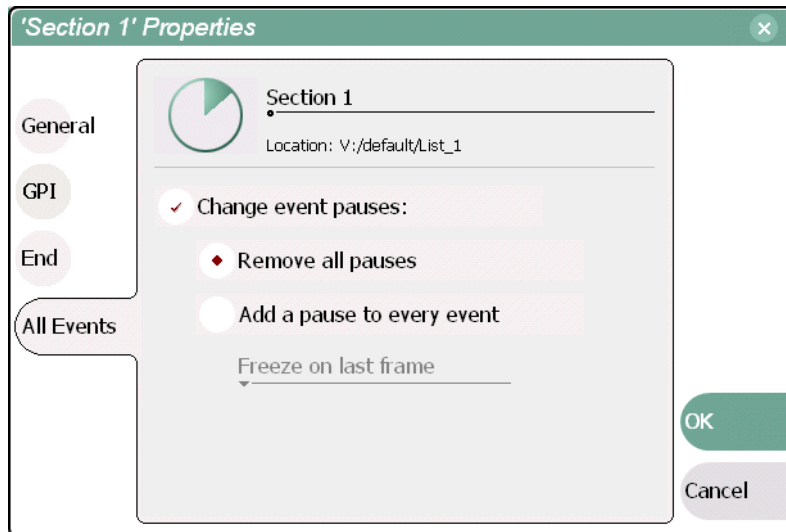
4. Select the **Change event pauses** check box, then choose the **Remove all event pauses** option.

5. Press the **OK** button.

Pauses are removed from all events in the section. The section now plays without pausing between any events.

Managing playlists

Managing lists includes the following tasks:

- "Renaming a playlist" on page 204
- "Selecting the playlist timecode" on page 204
- "Changing the list thumbnail image" on page 205

Renaming a playlist

You can rename a playlist using the Clips pane. The playlist must be removed from the List application by creating a new playlist, or opening an existing one. See these related sections to rename a playlist.

- "Creating a list" on page 184.
- "Renaming an asset" on page 222

Selecting the playlist timecode

The playlist timecode is displayed in the List view toolbar. This selection is also used to generate VITC and LTC timecode for the play channel.

To select the playlist timecode:

1. Open playlist properties dialog by performing one of the following:

- In List view, select the context menu button ⊙, then choose the **List Properties** menu item.

- In List view, select the **Properties** button.

The List Properties dialog box is displayed.

2. Select **Timecode** in the properties dialog box.

3. Select **Drop Frame** is needed.

   The drop frame option is available when system timing is set to 525 line standard. Drop frame allows the playlist timecode to indicate the actual running time of the list.

4. In the Timecode page, specify a start time, then press **OK**.

   The start timecode is displayed in the List view toolbar.

Changing the list thumbnail image

The list thumbnail image graphically identifies the list when it appears in the Clips pane, or when the List view is set to the image view option. By default, the list thumbnail is always set to the first play event's thumbnail.

To change the list thumbnail:

1. In the List view, select the first play event in the list.

2. Select Event to go to Event View.

3. Use the front panel or onscreen transport controls locate the video frame to be used for the new thumbnail.

4. Select the Event view thumbnail image, then select **Set Event Thumbnail** in the thumbnail pop-up menu.

The first play event and the list now have the same thumbnail.

Locating a list in the Clips pane

- In List view, select the list icon or time dome, then select the context menu button
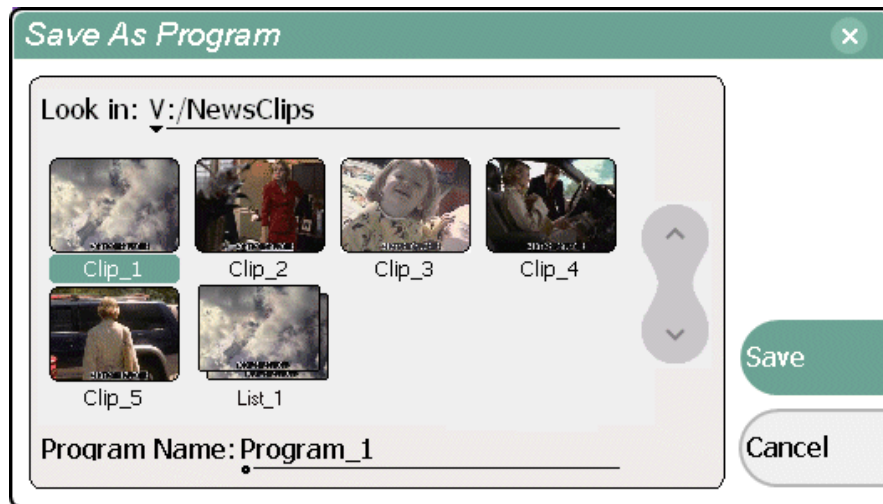 🔽 , and choose **Locate**.

  The bin containing the list is shown in the Clips pane.

Saving a list as a program

Playlists can be saved as a program so that they can be managed as a single clip. This saves the events in the list, but nothing that breaks the flow of playout such as pauses between events or sections. Saving a list does not consume media storage space since the program merely references the source clip media that is already stored in the media file system. If the source clips are deleted, the media referenced by the program is preserved. (See "Deleting an asset" on page 227.)

You can insert programs into other playlists, or load and play them using the standard Player application. In Player, you can edit the program mark-in and mark-out points providing the source clips referenced by the program have not been deleted. If that is the case, 1 second of media is preserved before and after the program mark-in and mark-out allowing some trimming.

1. Load the playlist in the Playlist pane.

2. In List view, select the context menu button 🔽, and choose **Save As Program**.

Save As Program					✕

Look in: V:/NewsClips

Clip_1	Clip_2	Clip_3	Clip_4	
Clip_5	List_1			**Save**
				Cancel

Program Name: Program_1

3. Use the **Look in** control to change the current bin if required.

4. Select the **Program Name** text entry control to enter the program name using the onscreen or external keyboard, then click **Save**.

5. The list is saved as a program in the current bin.

Chapter **9**

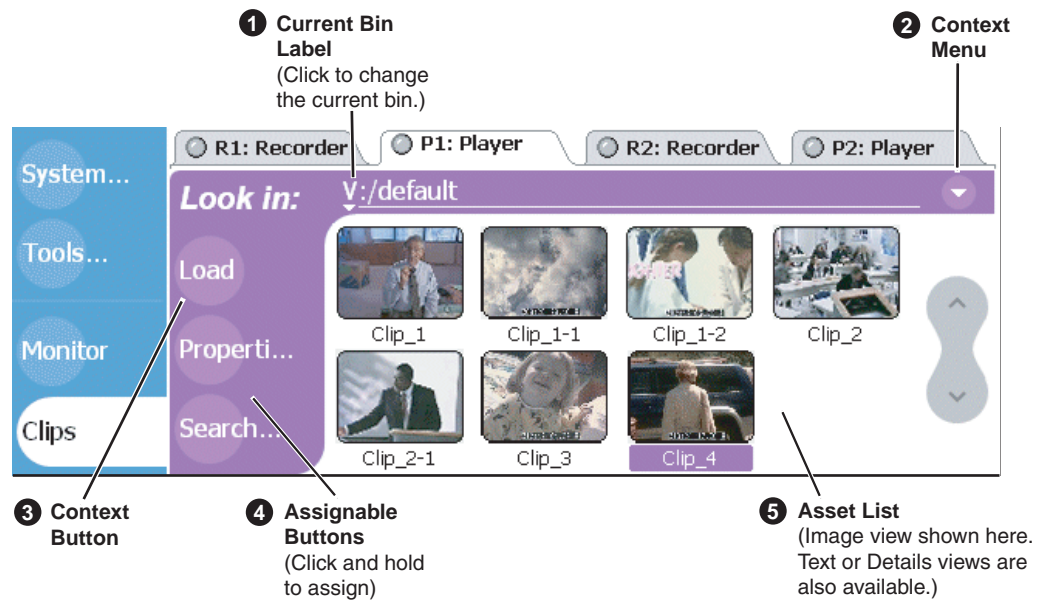# Managing Media Using Clips Pane

Information in this chapter includes:

- "Guide to using the Clips pane"
- "Modifying the asset list view"
- "Selecting Split or Full screen mode"
- "Working with bins"
- "Working with assets"
- "Working with the Recycle Bin"
- "Locating assets"
- "Working with asset metadata"
- "Importing media from a file or a device"
- "Sending media to a file or a device"
- "Guide to using the Transfer Monitor"
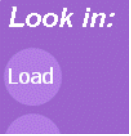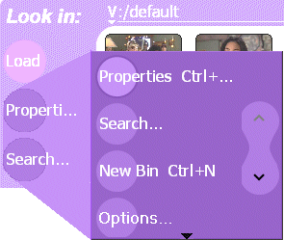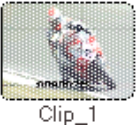- "Viewing clip properties"

Guide to using the Clips pane

The Clips pane in the iVDR user interface provides tools for managing assets stored on the media drives. Assets include clips, and playlists, and programs. In addition to the typical file management tasks such as browse, copy, move, delete, and managing the directory structure, you'll also use the Clips pane to transfer files to other devices, and to import or export assets using standard file formats.

Viewing the Clips pane

To view the Clips pane, select **Clips** in the AppCenter tool bar.

	Control	Description and User Operation
❶	**Current Bin Label** **Look in:** V:/default	Displays the name and location of the current bin, or the summary of the search or link operation. At first time start-up, the current bin is *V:/default*. The bin named 'default' is on the internal disk volume. Touch or click the current bin label to change the current bin and organize bins. See "About the Current Bin drop-down list" on page 211.
❷	**Context Menu Button**	Opens the Clips Pane context menu. See See "About the Clips pane context menu" on page 212.

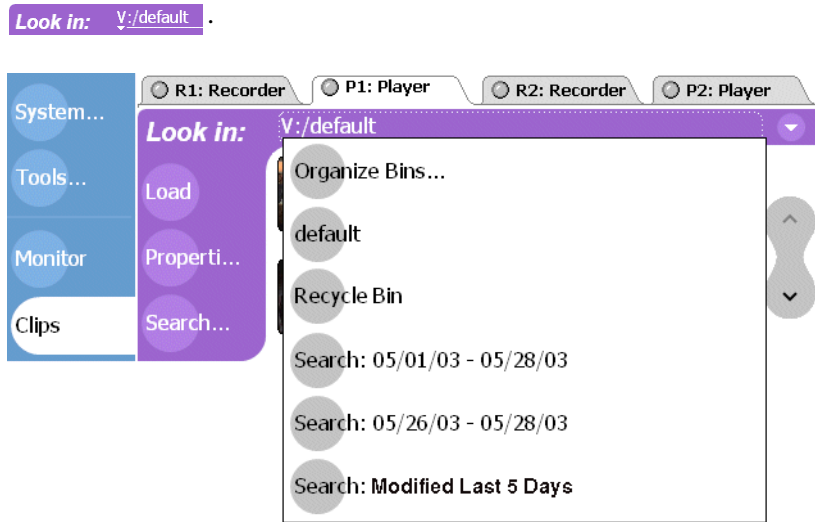| Control	Description and User Operation
❸ **Context Button** *Look in:* Load	The operation and label of the context button changes with the control application displayed in the applications pane. **Load** – Displayed when Player or Recorder is running on the active channel. Loads the asset selected in the asset list. **Preview** – Displayed when Playlist is running on the active channel in Event View. Creates an unattached event in the playlist that can be previewed and then inserted. **Insert** – Displayed when Playlist is running on the active channel in List View. Inserts selected assets into the playlist. *Note: Pushing in on the front panel selection knob, or double-clicking the asset in the asset list performs the same function as touching the context button.*

❹ **Assignable Buttons**
 	
Look in: V:/default
Load
Properti... Properties Ctrl+...
  Search...
Search... New Bin Ctrl+N
  Options...
	Assignable buttons allow you to modify the button assignments to best suit your workflow. Holding down a button longer than one second opens the button pop-up menu which lists the alternative button choices.
	Properties– Opens the Properties dialog for the selected asset. See "Viewing clip properties" on page 258.
	Search– Opens the search dialog box. See "Locating assets" on page 231.
	New Bin– Creates a new bin. To create a new bin in the current disk volume, click New Bin, then enter the new bin name using onscreen or external keyboard. See "Working with bins" on page 218.
	Options– Opens the options dialog box which allows you to modify how assets are displayed in the asset list. See "Modifying the asset list view" on page 215.
	Delete– Deletes the selected item(s). See "Deleting a bin" on page 220, or "Deleting an asset" on page 227.
	Rename– Opens the rename dialog box. See "Renaming an asset" on page 222.
	Send to– Opens the Send to dialog box used to send the asset to a file, or streaming transfer to another networked device. See "Sending media to a file or a device" on page 248.

❺ **Asset List** Select from three view options— Image, Text, or Details	Displays the list of assets located in the current bin. Includes the scroll control. You can also scroll using the front panel selection knob or up/down arrow keys on an external keyboard. Touch and hold (or use right-click with a mouse) to open the Asset Context menu. See "About the asset context menu" on page 214. You can change how assets are shown by selecting the view option. View options include Image (thumbnail), Text, or Details (includes thumbnail and detailed text). "Modifying the asset list view" on page 215. Assets recorded using a different video standard or compression type than the current system setting cannot be loaded and played. These assets will appear "greyed" in the Clips pane asset list. Example shows the appearance of a Pal clip when the iVDR is set to NTSC: Clip_1

Terms used in the Clips pane

The following table describes the terms used in the Clips pane.

Asset	Description
Bin	A container used to organize assets, similar to a directory or folder on a computer. A bin is contained within a disk volume. The iVDR does not support nested bins, that is, a bin cannot contain another bin.
Current Bin	The current bin functions as the target bin when recording clips, or as the source bin when loading clips. The current bin contents are listed in the Clips pane. The *V:/default* bin is created automatically.
Disk Volume	The iVDR has one disk volume located on the internal media drives. The internal disk volume is formatted using the iVDR media file system created by using the iVDR Storage Utility. The internal disk volume uses the drive letter 'V:'.
Playlist	A sequence of events that can be loaded and played using the Playlist application. Playlists are created in the Playlist application by adding clips or programs to a list. See "Introducing Playlist" on page 172.
Media	Media is the video, audio, and timecode source material recorded on the disk drives. Each media type is stored in it's own file which are referenced by one or more clips for playback.
Clip	A clip references the media files stored on the media drives to allow playback of the video and associated audio and timecode recorded from a single source. Deleting a clip deletes the media referenced by the clip only if it is not referenced by another clip. You can use the Find Links feature to find related assets. See "Finding linked assets" on page 238.
Program	Programs are generated from continuous record mode or from a playlist using the Playlist application. Programs generated in Playlist include all the media and transitions in the playlist, but nothing that breaks the flow of playout, such as, a pause at the end of an event. For more information on creating programs in Playlist, refer to the "Saving a list as a program" on page 206.

About the Current Bin drop-down list

- To access the Current Bin drop-down list, touch or click the Current Bin label
Look in: V:/default .

Current bin menu items

Menu Item	Description and User Operation
Organize Bins	Opens the Organize Bins dialog box used to manage bins— create, delete, rename, change current bin. See "Working with bins" on page 218.
Bin List	List of all the bins in the current disk volume. A volume must always have at least one bin. The default bin is created automatically.
Recycle Bin	Displays the contents of the Recycle Bin. All assets deleted from the asset list are stored in the Recycle Bin until it is emptied. See "Working with the Recycle Bin" on page 230.
Cached Search Results	The last four search results are cached. You can view the most recent search results using the Current Bin drop-down list. See "Locating assets" on page 231.

About the Clips pane context menu

Select the Clips pane context menu button ⬇ to access items in the context menu.
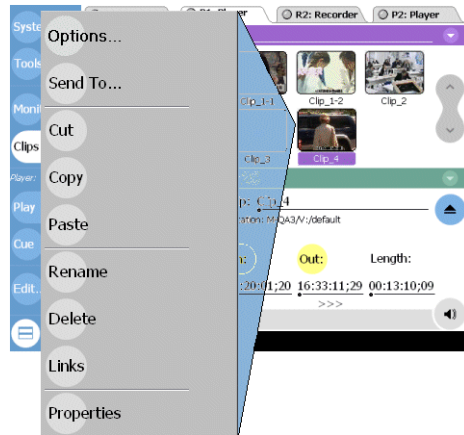

The following table describes the Clips pane context menu items.

Menu Item	Description
New Bin	Creates a new bin in the current disk volume. Use the onscreen or external keyboard to enter the bin name. See "Creating a new bin" on page 219.
Options	Opens the **Options** dialog box which allows you to change the way assets are displayed in the asset list. See "Modifying the asset list view" on page 215.
Properties	Opens the **Properties** dialog box for the selected asset. See "Viewing clip properties" on page 258.
Delete	Deletes the selected asset. See "Deleting a bin" on page 220 or "Deleting an asset" on page 227.
Rename	Opens the **Rename** dialog box for the selected asset. Use the onscreen keyboard, or an external keyboard to enter the new asset name. See "Renaming a bin" on page 221 or See "Renaming an asset" on page 222.
Send To	Opens the **Send To** dialog box which is used to send assets to a different location– another bin, disk volume, or another iVDR, Profile XP Media Platform, or any networked device that supports GXF media transfers. Send To is also used to export clips or programs to local windows drives or networked devices. Export file types include SMPTE 360M (*.gxf), or AVI D25 (*.avi) file format. See "Sending media to a file" on page 248 or "Sending assets to another machine" on page 251.

Menu Item	Description
Import	Opens the **Import** dialog box which is used to import assets from the following sources: – Media streams from another iVDR or Profile XP Media Platform via the network. – Other files formats including SMPTE 360M (*.gxf), and AVI D25 (*.avi). from a local drive or over the network. See "Importing media from a file or a device" on page 244.
Search	Opens the **Search** dialog box which is used to perform basic or advanced searches. See "Locating assets" on page 231.
Links	Opens the **Links** dialog box allowing you to locate other assets that are linked to the selected asset. For example, a subclip is linked to the source clip. See "Locating assets" on page 231.
Empty Recycle Bin	Permanently removes all items from the Recycle Bin. By default, deleted assets are moved to the Recycle Bin and remain there until it is emptied. See "Bypassing the Recycle Bin when deleting" on page 230 for information on deleting assets without using the Recycle Bin.
Select All	Selects all items in the asset list. Operations available for Select All include: delete, send to, and copy. See "Selecting multiple assets" on page 222.
Help	Opens online help for the Clips pane.

About the asset context menu

To open the asset context menu, touch and hold the asset using the touch panel, or right-click the asset using a mouse.


| Menu Item	Description
Options	Opens the **Options** dialog box which allows you to change the way assets are displayed in the asset list. See "Modifying the asset list view" on page 215.
Send To	Opens the **Send To** dialog box which is used to send assets to a different location– another bin, disk volume, or another iVDR, Profile XP Media Platform, or any networked device that supports GXF media transfers. Send To is also used to export clips or programs to local windows drives or networked devices. Export file types include SMPTE 360M (*.gxf), or AVI D25 (*.avi) file format. See "Sending media to a file" on page 248 or "Sending assets to another machine" on page 251.
Cut, Copy, Paste	Used to move assets, or make a additional copies. Copying a clip does not consume media disk space. Only a new reference to existing media is created. See "Moving an asset to another bin" on page 223.
Rename	Opens the **Rename** dialog box for the selected asset. Use the onscreen keyboard, or an external keyboard to enter the new asset name. See "Renaming a bin" on page 221 or See "Renaming an asset" on page 222.
Delete	Deletes the selected asset. See "Deleting a bin" on page 220 or "Deleting an asset" on page 227.
Links	Opens the **Links** dialog box allowing you to locate other assets that are linked to the selected asset. See "Finding linked assets" on page 238.
Properties	Opens the **Properties** dialog box for the selected asset. See "Viewing clip properties" on page 258.
Help	Opens online help for the Clips pane.

Modifying the asset list view

The asset list in the Clips pane displays the contents of the current bin, and the results from searches or from requests for linked assets. You can choose one of three views to best suit your workflow.

1. Select the Clips pane context menu button ⌄, then choose **Options**.
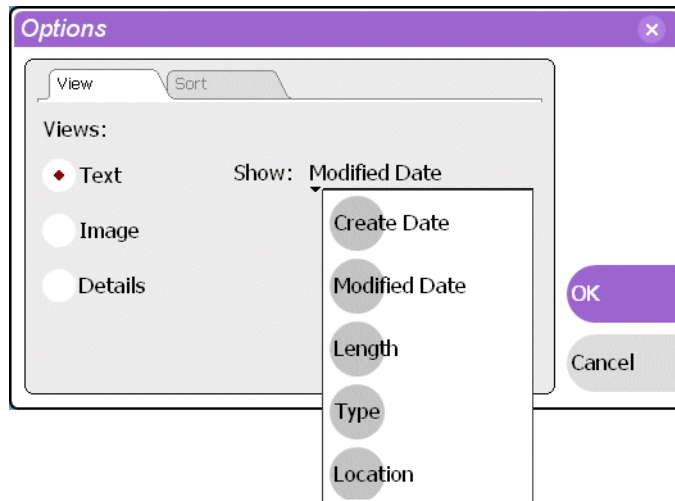
2. In the view options dialog box, select one of the following view options.

Image view
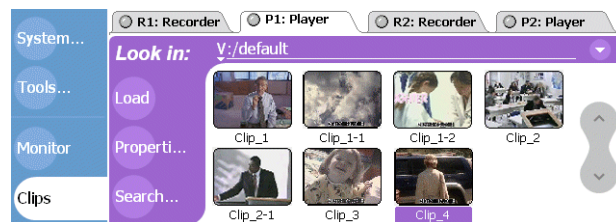
Displays the asset name and thumbnail image for each asset in the bin. Playlists are displayed as a stack of thumbnails. You can change the video frame used to generate the thumbnail. See "Changing the clip thumbnail image" on page 164.

Text view
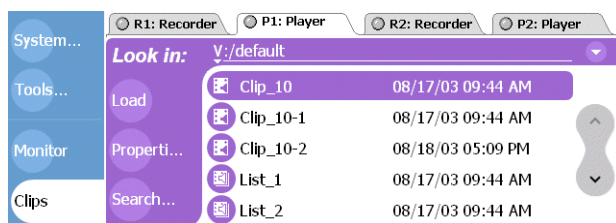
The text view displays an icon and name for each asset and one attribute of your

choice. To select an asset attribute, select the **Show** drop-down list in the View Options dialog box, then select one of the following attributes.

Attribute display options:

- Create Date
- Modified Date
- Length
- Type (MPEG or DV25)
- Location (full path)

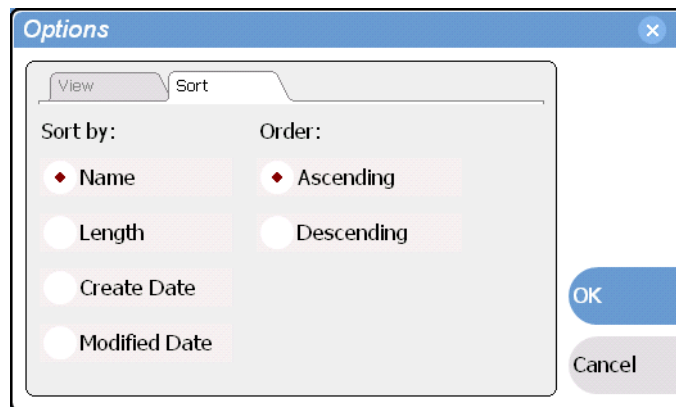The following table describes symbols shown in Text view.

Asset Symbols used in the Text View	Asset Type
	Clips with audio and video
	Video only clip
	Playlist

Details view
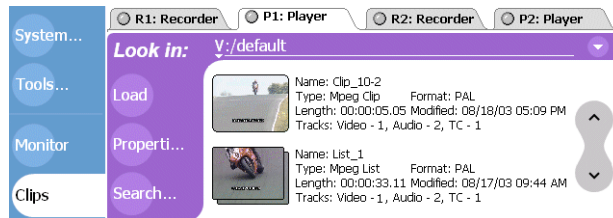
Details view displays assets with both a thumbnail and a detailed text description.

3. Select the Sort tab, then choose how you want assets sorted.

Selecting Split or Full screen mode

The Clips pane can be displayed in split-screen or full screen mode. Full screen mode provides a larger space to display assets. Split-screen allows operations between applications, for example, drag and drop between panes.

• To toggle between Split and Full Screen mode, select the **Clips** button in the toolbar, then select the Split or Full Screen button.
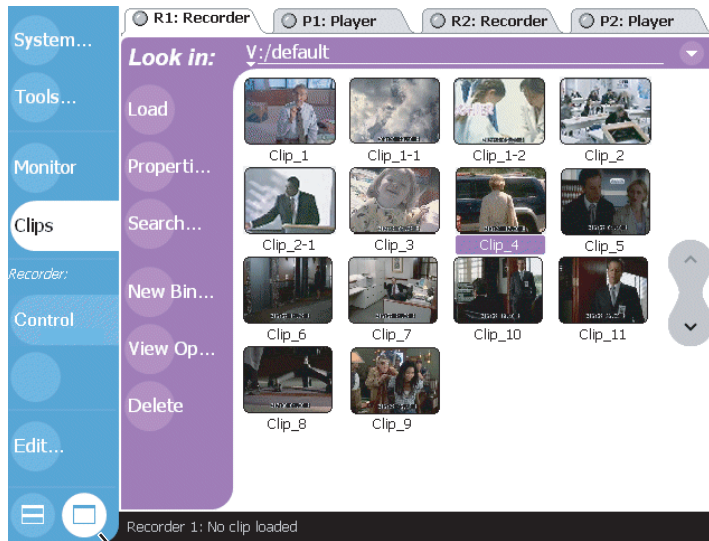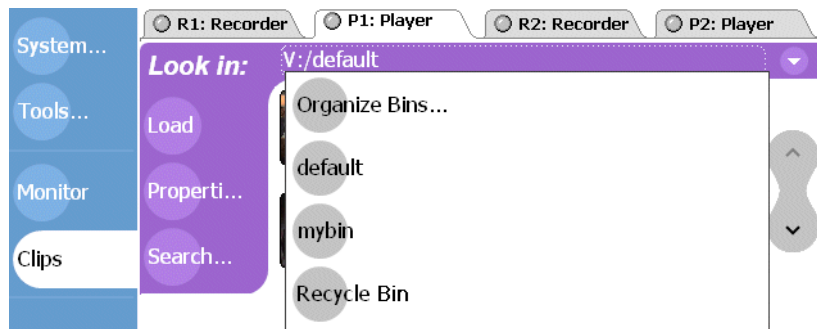
Full Screen Select Button

Working with bins

This section includes:
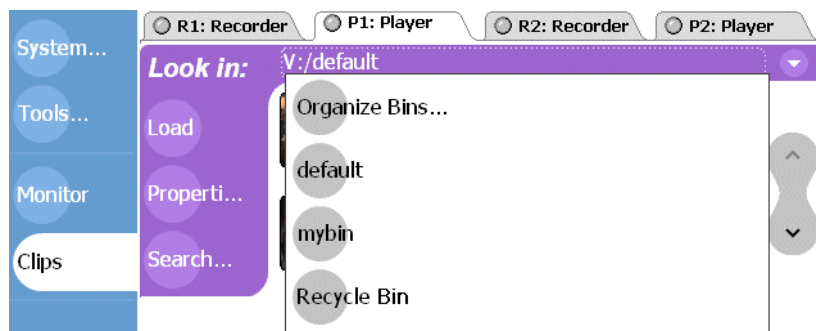
Changing current bin using 'Look in' drop-down list.

- In the Clips pane, touch or click the Current Bin label `Look in: V:/default`, then choose a bin from the list.
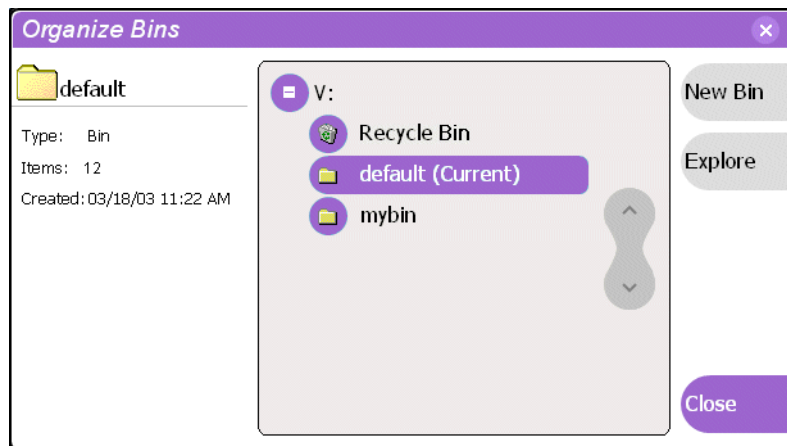

Changing current bin

Exploring a bin in the Organize Bins dialog box causes it to become the current bin.

1. In the Clips pane, select the Current Bin drop-down list `Look in: V:/default`, then select the **Organize Bins**.
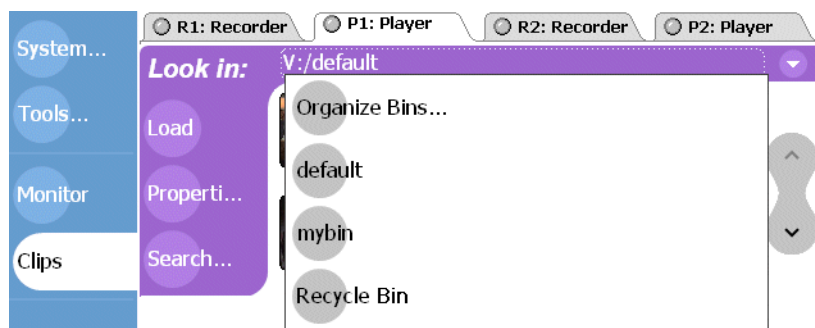

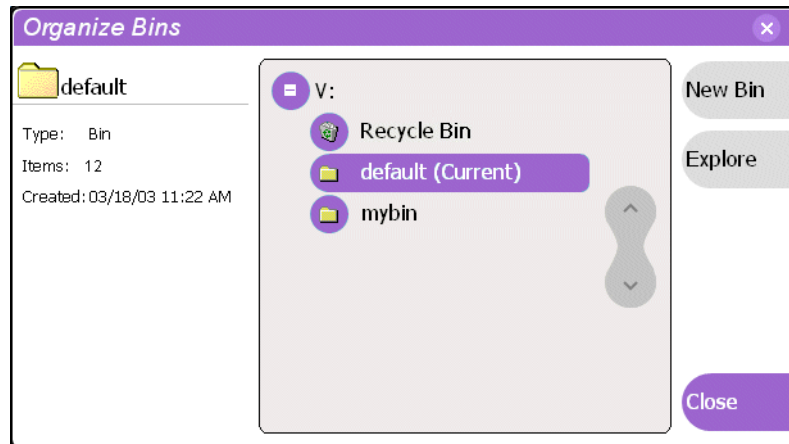2. In the Organize Bins dialog box, select a bin, then click **Explore**.

3. Close the Organize Bins dialog box.

4. The bin becomes the destination bin (for recording) and the source bin for loading clips (for playing) for all channel operations.

Creating a new bin

1. Open the Organize Bin dialog box using one of the following"

   • Select the context menu button ⬇ , then choose **New Bin**.

   - or -

   • In the Clips pane, select the Current Bin drop-down list **Look in:** V:/default , then select the **Organize Bins**.

2. In the Organize Bins dialog box, select a disk volume, then select **New Bin**.

3. Enter the new bin name using the onscreen or external keyboard, then press **OK**.

4. Close the Organize Bins dialog box.

Deleting a bin

1. In the Clips pane, select the Current Bin label `Look in:  V:/default`, then select the **Organize Bins**.

2. In the Organize Bins dialog box, choose the bin you want to delete

3. Select the **Delete** button, or press the DELETE or BACKSPACE key on an external keyboard.

   Deleted bins and assets are moved to the Recycle Bin unless the "*Remove items immediately when deleted.*" option is set for the Recycle Bin (see "Bypassing the Recycle Bin when deleting" on page 230. Holding down the SHIFT key on an external keyboard during delete also bypasses the Recycle Bin.

NOTE: You cannot delete a bin containing assets that are locked or in use. However, the unlocked assets in the bin will be deleted.

4. Select **Yes**, in the Confirm Delete dialog box.

5. Close the Organize Bins dialog box.

Renaming a bin

1. In the Clips pane, select the Current Bin label **Look in:** V:/default , then select the **Organize Bins**.

2. In the Organize Bins dialog box, choose the bin you want to rename, then select **Rename**.

3. Edit the bin name using the onscreen or external keyboard, the select **OK**.

   Asset names can contain up to 32 characters, including spaces. Spaces count as two characters, and the following characters are not allowed: \ / : * ? < > | ' (single quote) " (double quote) [ ] and ~ at the beginning of the name.

   NOTE: If the renamed bin contains assets that are locked or in use, two bins will appear after renaming— one with the new name, and one with the old name containing the problem asset.

4. Close the Organize Bins dialog box.

Working with assets

Assets displayed in the Asset List include clips, subclips, playlists, and programs. Refer to the following procedures to work with assets:

- "Renaming an asset" on page 222
- "Selecting multiple assets" on page 222
- "Moving an asset to another bin" on page 223
- "Copying an asset" on page 224
- "Deleting an asset" on page 227
- "Erasing a clip's unused media" on page 227
- "Locking an asset" on page 229

Renaming an asset

1. Select the asset in the Asset List using the front panel touch screen, the front panel selection knob, or a mouse.

2. Select **Rename** using one of the following:

   - Select the Clips pane context menu button 🔽 , then **Rename**, or

   - Select **Rename** in the asset context menu, or

   - Select the **Rename** button in the Clips pane.
     If the Rename button is not displayed in the Clips pane, refer to assignable buttons in "Guide to using the Clips pane" on page 208.

   The rename dialog box appears.

3. Edit the asset name using the onscreen or external keyboard, the select **OK**.

   Asset names can contain up to 32 characters, including spaces. Spaces count as two characters, and the following characters are not allowed: \ / : * ? < > | ' (single quote) " (double quote) [ ] and ~ at the beginning of the name.

   The renamed asset is not re-sorted.

   NOTE: Assets that are locked or in use cannot be renamed.

Selecting multiple assets

There are three ways to select multiple assets in the clips pane:

- When using the touch screen, you can turn on the multi-select mode in the Edit menu. When multi-select mode is turned on, all the assets you touch or click once are selected. To turn off multi-select mode, you must clear the multi-select option in the Edit menu.

- Use the **Select All** command in the Clips Pane context menu.

- Using mouse and keyboard, hold the SHIFT or CTRL key on the keyboard while selecting multiple assets with the mouse or arrow keys.

Moving an asset to another bin

There are two ways to move an asset to another bin: Using Cut/Paste or the Send To dialog box.

Using the cut and paste commands

1. Select the asset(s) in the asset list using the front panel touch screen, the front panel selection knob, or a mouse.

2. Cut the asset to the clipboard using one of the following:

   • Select **Cut** in the asset context menu, or

   • Select **Edit** in the AppCenter toolbar, then choose **Cut**.

   • Use keyboard shortcut **Ctrl + X**.

3. Change the current bin to the target bin. (Refer to "Changing current bin using 'Look in' drop-down list." on page 218.)

4. Paste the asset(s) from the clipboard to the current bin.

   The Paste operation is accessed in the same way as Cut.

   NOTE: If an asset is locked or in use, it remains in the existing bin, while the remaining assets are moved to a new bin with the specified name.

Using Send To

1. Select the asset(s) in the Asset List using the front panel touch screen, the front panel selection knob, or a mouse.

2. To open the Send To dialog box using do one of following:

   • Select the Clips pane context menu button , then choose **Send To**, or

   • Select **Send To** in the asset context menu, or

   • Select the **Send To** button in the Clips pane.
   If the Send To button is not displayed in the Clips pane, refer to assignable buttons in "Guide to using the Clips pane" on page 208.

   The Send dialog box appears.

3. In the Send dialog box, select **Move to** in the right-hand drop-list.
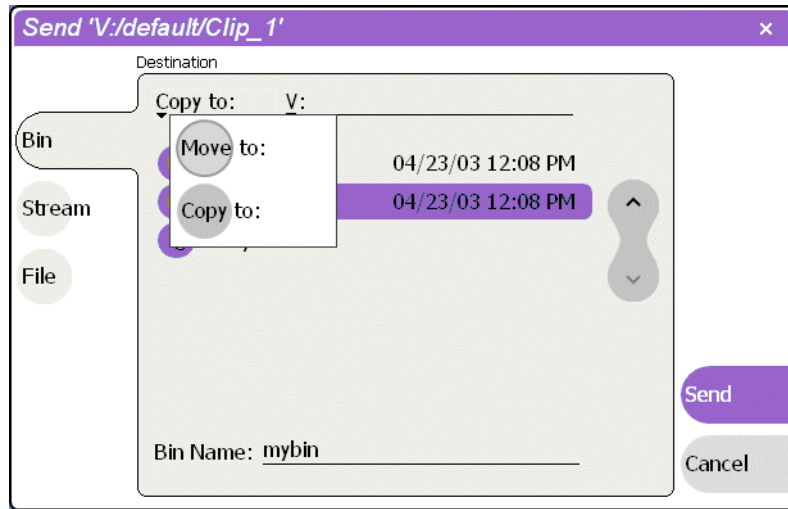
4. In the list view, select the target bin name.
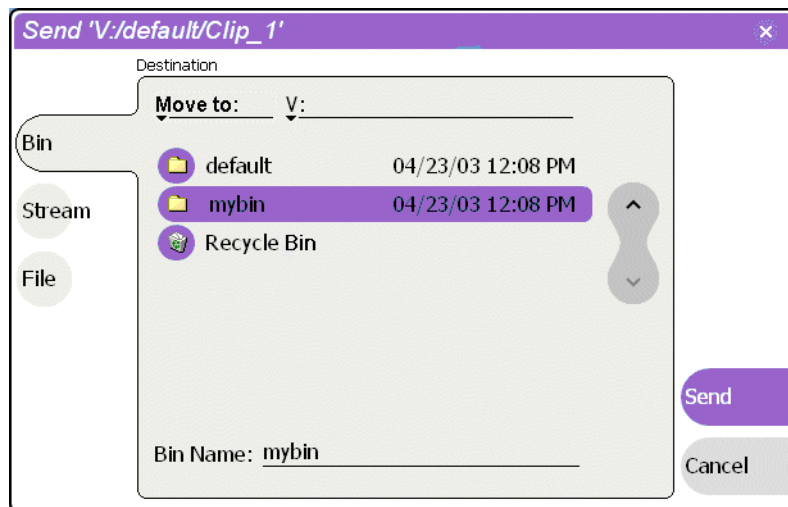
5. Select the **Send** button to close the Send dialog box, and move the file.

    NOTE: Move is a background task and can be monitored using the Transfer Monitor. Refer to "Guide to using the Transfer Monitor" on page 253.

Copying an asset

The copy command creates a new asset that references the same media files belonging to the original asset. Copying an asset does not duplicate the media files. Copying does not change impact the media storage space available. You can copy or move assets in two ways.

The naming convention for copied assets in the same bin adds an underscore ("_") and a number after the original name. For example, the copied clip for "Clip1" will be "Clip1_1", "Clip1_2" and so on.

Using the copy and paste commands

1. Select the asset(s) in the asset list using the front panel touch screen, the front panel selection knob, or a mouse.

2. Copy the asset to the clipboard using one of the following:

   • Select **Copy** in the asset context menu, or

   • Select **Edit** in the AppCenter toolbar, then choose **Copy**.

   • Use the keyboard shortcut **Ctrl + C**.

3. If needed, change the current bin to the target bin. (Refer to "Changing current bin using 'Look in' drop-down list." on page 218.)

4. Paste the asset(s) from the clipboard to the current bin.

   The Paste operation is accessed in the same way as Copy.

   *NOTE: If an asset is locked or in use, it remains in the existing bin, while the remaining assets are moved to a new bin with the specified name.*

Using Send To

1. Select the asset(s) in the Asset List using the front panel touch screen, the front panel selection knob, or a mouse.

2. To open the Send To dialog box using do one of following:

   • Select the Clips pane context menu button , then choose **Send To**, or

   • Select **Send To** in the asset context menu, or

   • Select the **Send To** button in the Clips pane.
     If the Send To button is not displayed in the Clips pane, refer to assignable buttons in "Guide to using the Clips pane" on page 208.

   The Send dialog box appears.

3. In the Send dialog box, select **Bin**, then **Copy to** in the left-hand drop-list.
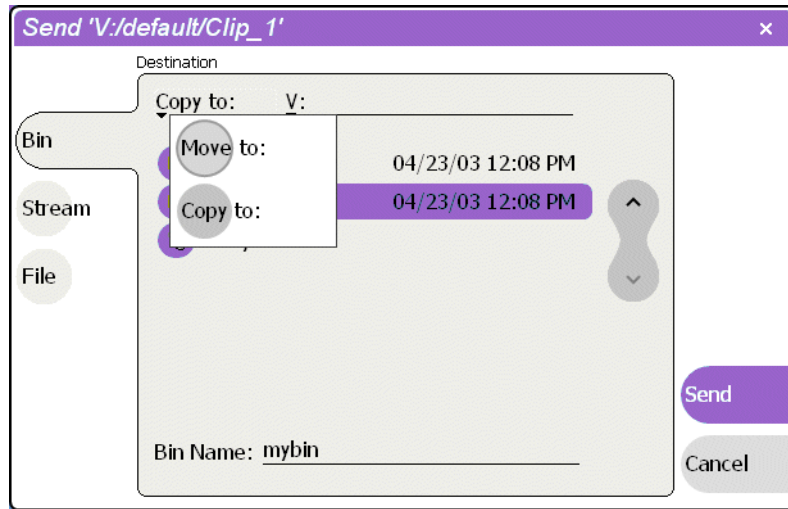
4. In the list view, select the target bin name.
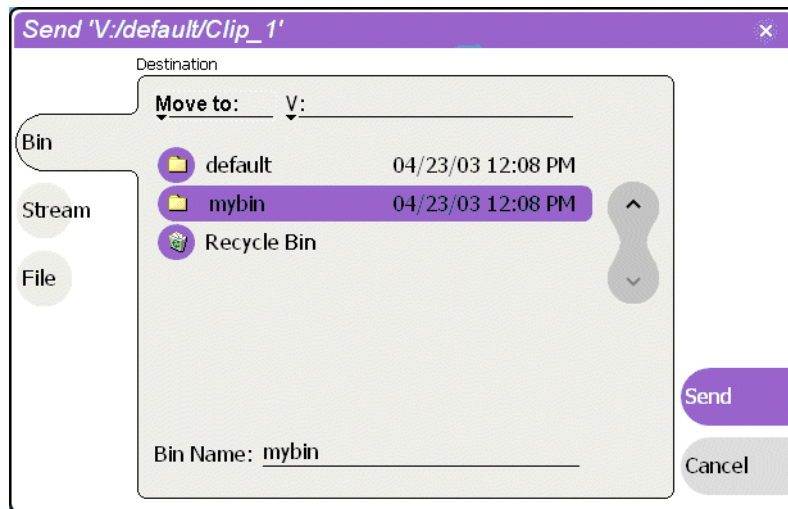
5. Select the **Send** button to close the Send dialog box, and copy the file.

NOTE: Copy is a background task and can be monitored using the Transfer Monitor. Refer to "Guide to using the Transfer Monitor" on page 253.

Deleting an asset

You can delete assets to free storage space. You can safely delete a clip without harming the subclips, playlists, and programs created from it. The media referenced by subclips, playlists, and programs is preserved when the clip is deleted. Once the source clip is deleted, subclips and playlist events retain an extra 1 second of media before and after their mark points to allow some trimming.

Deleted assets are moved to the Recycle Bin unless the bypass Recycle Bin option is used. (See "Bypassing the Recycle Bin when deleting" on page 230) You must empty the Recycle Bin to free storage space.

1. Select the asset in the Asset List using the front panel touch screen, the front panel selection knob, or a mouse.

   The multi-select feature in the Edit menu enables multiple selections.

2. Select **Delete** using one of the following:

   - Select the Clips pane context menu button 🔽 , then choose **Delete**, or

   - Select **Delete** in the asset context menu, or

   - Select the **Delete** button in the Clips pane.
     If the Delete button is not displayed in the Clips pane, refer to assignable buttons in "Guide to using the Clips pane" on page 208.

   A progress dialog appears when deleting multiple assets. If the selected asset is contained in the Recycle Bin, it is permanently removed; otherwise, it is moved from its original bin into the Recycle Bin. If an item of the same name is already in the Recycle Bin, the new item is automatically renamed. (See also "Bypassing the Recycle Bin when deleting" on page 230.)

   NOTE: Assets that are locked or in use cannot be deleted.

Erasing a clip's unused media

After editing a clip by moving the mark-in/mark-out points, the remaining portion of media outside the marks can be erased to free media storage space. If the media outside the clip marks is referenced by a subclip, program, or event from a playlist, that media is not erased. Subclips and playlist events retain an extra 1 second of media before and after their mark points to allow some trimming.
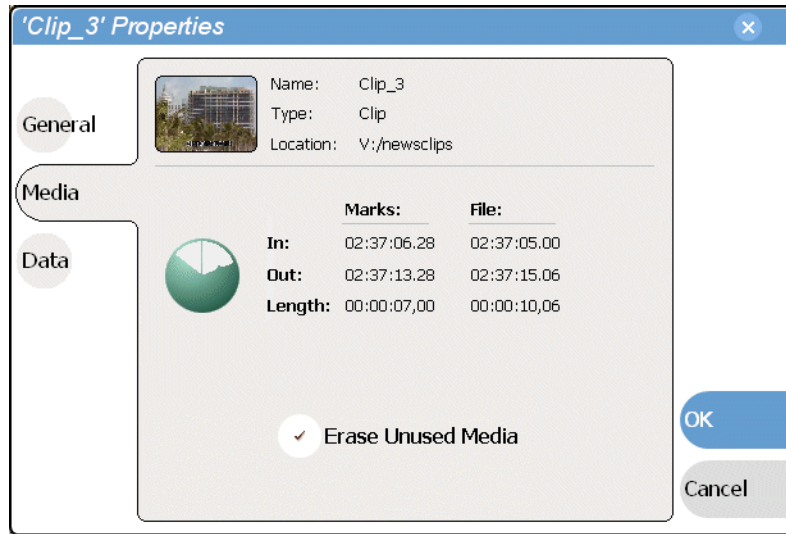
To erase unused media:

1. Select the clip in the asset list using the front panel touch screen, the front panel selection knob, or a mouse.

2. Open the Clip Properties dialog box using one of the following:

   - Select the Clips pane context menu button 🔽 , then choose **Properties**, or

   - Select **Properties** in the asset context menu, or

   - Select the **Properties** button in the Clips pane.
     If the Properties button is not displayed in the Clips pane, refer to assignable buttons in "Guide to using the Clips pane" on page 208.

The Clip Properties dialog appears.

3. In the Clip Properties dialog box, select **Media**.

4. On the Media page, select the **Erase Unused Media** option.

5. In the Clip Properties dialog box, select **OK**.

   Unused media is erased when you select the **OK** button and the Properties dialog box is closed. After erasing unused media, the following is true:

   • Media outside the clip marks is erased except that portion referenced by a subclip, playlist event, or program.

   • All subclips and events generated from the source clip will retain 1 second of media before the mark-in and after the mark-out.

Locking an asset

Locked assets cannot be renamed, deleted, or modified in any way.

1. Select the asset in the Asset List using the front panel touch screen, the front panel selection knob, or a mouse.

2. To view the Properties dialog box for the selected asset, do one of the following:

   - Select the Clips pane context menu button , then choose **Properties**, or

   - Select **Properties** in the asset context menu, or

   - Select the **Properties** button in the Clips pane.
     If the Properties button is not displayed in the Clips pane, refer to assignable buttons in "Guide to using the Clips pane" on page 208.

   The Asset Properties dialog appears.
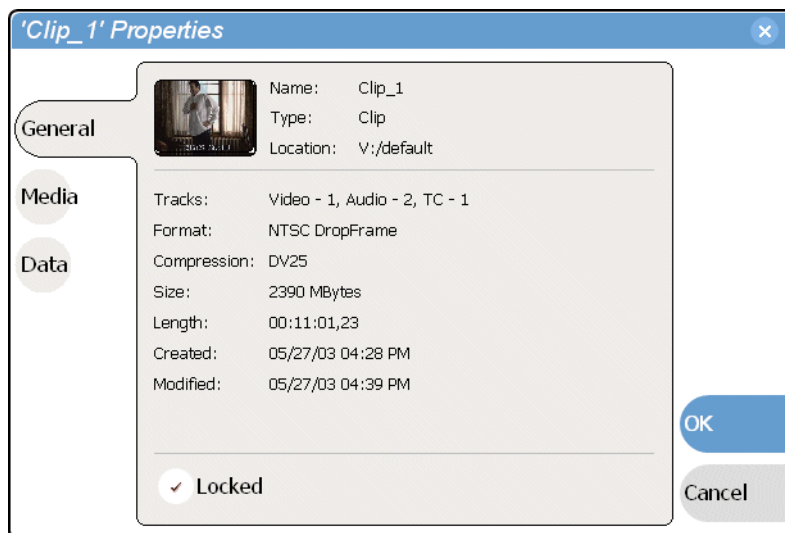
3. Select General, then select the **Locked** check box to lock the asset.

4. Select **OK** to close the Properties dialog.

Working with the Recycle Bin

Topics in this section:

Viewing the Recycle Bin contents

- In the Clips pane, select the Current Bin label **Look in:** V:/default , then select **Recycle Bin**.

  The Recycle Bin assets are displayed in the asset list as the current bin. You can work with assets in the Recycle Bin just like any other bin. See "About the asset context menu" on page 214.

Emptying the Recycle Bin

1. In the Clips pane, select the Current Bin label **Look in:** V:/default , then select the **Organize Bins**.

2. In the Organize Bins dialog box, select **Recycle Bin** from the bin list.

3. Select **Empty**, then **Yes** in to confirm.

4. Close the Organize Bins dialog.

Bypassing the Recycle Bin when deleting

1. In the Clips pane, select the Current Bin label **Look in:** V:/default , then select the **Organize Bins**.

2. In the Organize Bins dialog box, choose **Recycle Bin**.
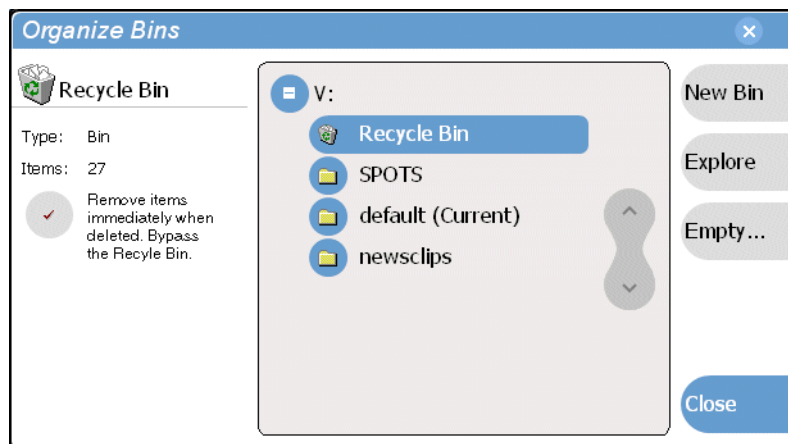
3. Select the "*Remove items immediately when deleted.*" option.

NOTE: Holding down the SHIFT key on an external keyboard during delete also bypasses the Recycle Bin.

4. Close the Organize Bins dialog box.

Locating assets

Three tools are provided for locating assets: Sorting, Search, and Links. You can set how assets are sorted by selecting the "sort by" attribute for the asset list. For example, you can sort by name, modified date, length, etc. The Search dialog box provides both basic search and advanced search modes for locating assets anywhere in the iVDR media storage. Advanced search mode allows you to define search criteria for assets based on user defined metadata. The Links dialog box helps you determine assets that are related. For example, you can locate the source clip used to generate a subclip, or you can determine if there are copies of a given clip.

Topics in this section include:

- "Sorting assets in the Asset List" on page 231
- "Using Basic search" on page 232
- "Viewing recent search results" on page 235
- "Using Advanced Search" on page 235
- "Finding linked assets" on page 238

Sorting assets in the Asset List

You can sort assets by file attributes such as date, name, length, and create date using the Options dialog box.

To change how assets are sorted:

1. Open the Options dialog box using one of the following:

- Select the Clips pane context menu button , then choose **Options**, or
- Select an asset, then select View Options in the asset context menu, or
- Select the **Options** button in the Clips pane.
  If the Options button is not displayed in the Clips pane, refer to assignable buttons in "Guide to using the Clips pane" on page 208.

2. Select the **Sort** tab in the Options dialog box.
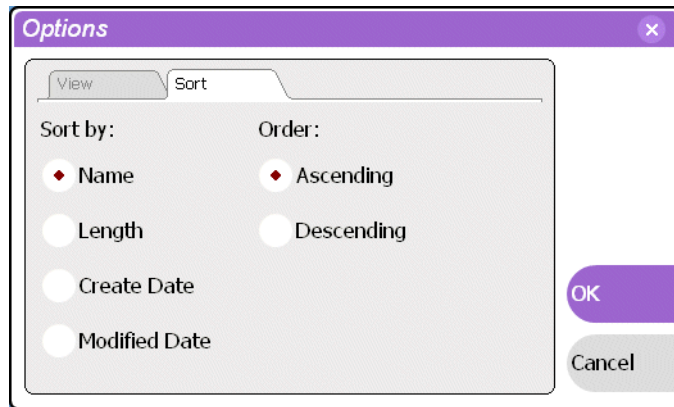
3. Choose the desired sorting attribute and order, then select **OK**.

   The Asset List will sort in the order specified.

   NOTE: When assets are added or renamed, assets may not remain listed according to the selected sort order. To re-sort the assets, repeat this procedure, or press F5 on an external keyboard to refresh the Asset List.

Using Basic search

The Search dialog box provides the basic search mode for locating assets anywhere in the iVDR media storage.

1. Open the Search dialog box by doing one of the following:

   • Select the Clips pane context menu button , then choose **Search**, or

   • Select the **Search** button in the Clips pane.
     If the **Search** button is not displayed in the Clips pane, refer to assignable buttons in "Guide to using the Clips pane" on page 208.

2. To choose a specific bin to search, select the Current Bin label in the Search dialog box, then select a bin from the drop-down list. Otherwise, the search runs on the entire disk volume V:.

3. Choose **Basic** search, then specify search criteria on the **Text**, **Date** and **Type** tabs. The search is performed using the combination of search criteria on all three tabs.

   Search by text – If you know all or part of an asset name, use the **Text** tab. Select the text entry control, then use the on-screen or external keyboard to type all or part of the asset name in the "Enter Search Text" dialog box. The default text search mode is "any word" or "word portion". For example, if you enter the word *fire*, search will find all asset names that contain fire, for example, *fires* and *house fire*. For an "exact phrase" search, use a single quote or double quote to specify the phrase. For example, if you enter *"forest fire"*, search will locate all asset names that contain the phrase *forest fire*.

   If the **Search names only...** option is selected, the search is applied to asset names. If not selected, the search includes all asset metadata. Refer to "Working with asset metadata" on page 239.
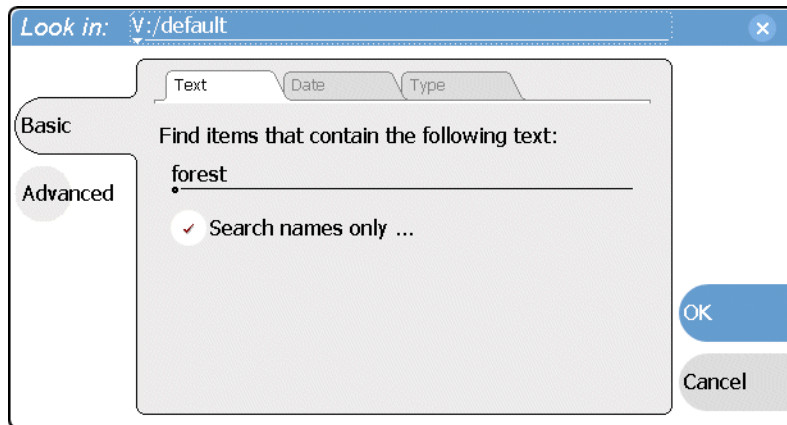
Search by date – If you are searching for assets created or modified within a specific date or time range, use the **Date** tab. By default, the **All Dates** box is selected. To specify date criteria, select the **Find items** option to enable the controls under it. Use the drop-down list to choose **Created** or **Modified**, then do one of the following.

- Select the **between** option, and then specify a date range. Click the edit control to display a calendar for easy input.

- Select the **in the last** option, and then use the drop-down lists to specify a time within a recent number of minutes, hours, days, or months.
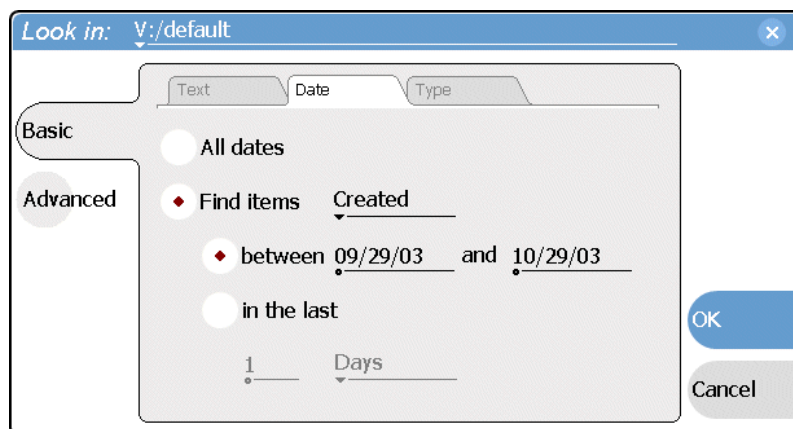
Search by Type – In the **Type** tab, select the type of assets— clips, programs or lists to be searched. Search results will only include the selected types.
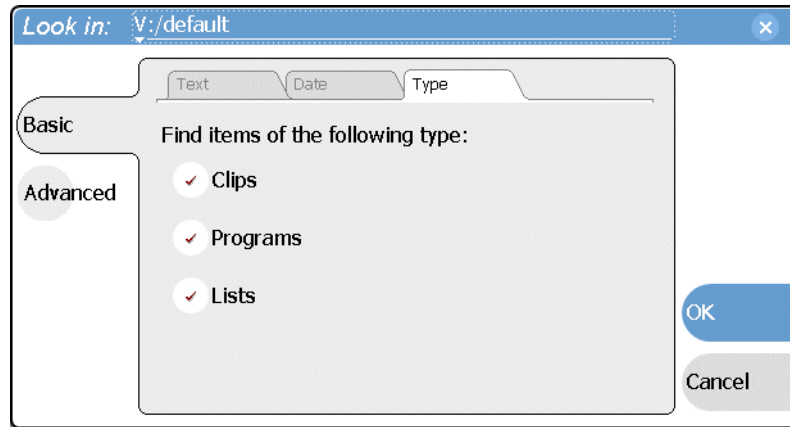
4. Once you have selected the search criteria, select **Ok** to start the search.

   The search results are displayed in the Asset List. The text in the Current Bin control is replaced with a brief summary of the search. For example, *Search: movie - indicates all the clips, programs and lists with names like movie1, movie2, or Search: Created Last 5 Days* for assets created in the last 5 days.
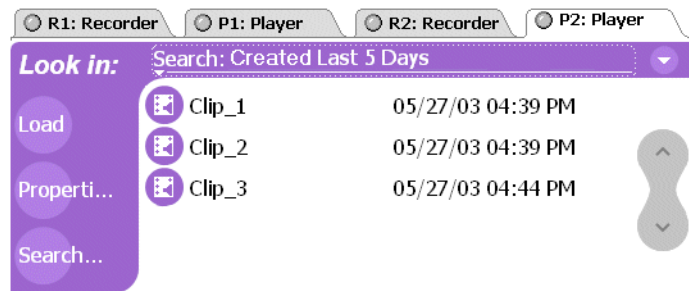
Viewing recent search results

The last four search results are retained. You can view the most recent search results using the Current Bin label.

- Select the Current Bin label **Look in:** V:/default , then choose a search result.
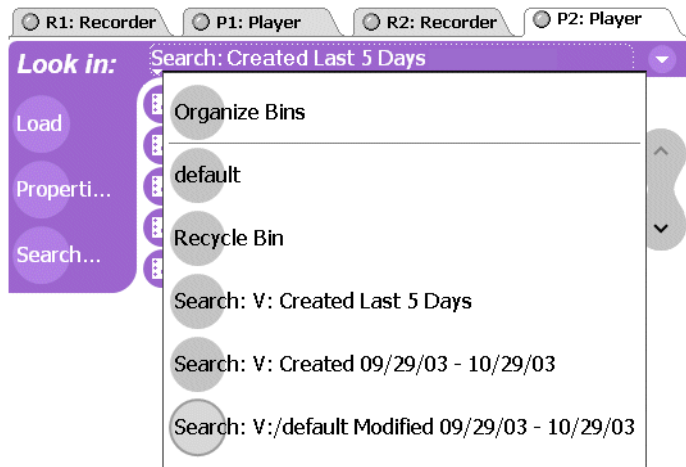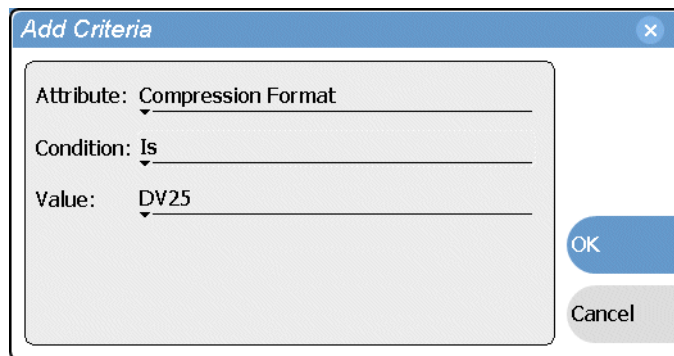

Using Advanced Search

The Search dialog box provides the advanced search mode which provides an extended set of attributes for locating assets anywhere in the iVDR media storage.

1. Open the Search dialog box by doing one of the following:

   - Select the Clips pane context menu button , then choose **Search**, or

   - Select the **Search** button in the Clips pane.
     If the **Search** button is not displayed in the Clips pane, refer to assignable buttons in "Guide to using the Clips pane" on page 208.

2. To choose a specific bin to search, select the Current Bin label **Look in:** V:/default in the Search dialog box, then select a bin from the drop-down list. Otherwise, the search runs on the entire disk volume V:.

3. Choose **Advanced** search to view the advanced search criteria list.

   When Advanced search is used, Basic search criteria is ignored.
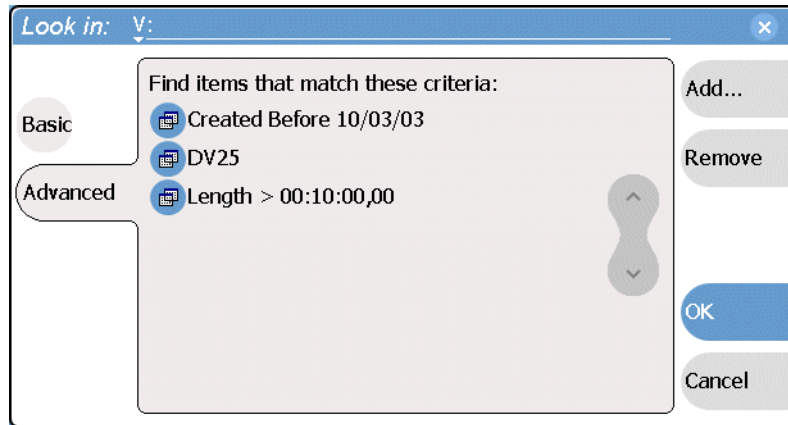
4. Select **Add** to add new search criteria, or select **Remove** to remove it, then click **OK** to start the search.

The following table lists the advanced search attributes along with their conditions and value choices. Advanced searches can include metadata attributes. Since these are user defined, only their types and conditions are listed here. See also "Working with asset metadata" on page 239.

Advanced Search Criteria

Attributes	Conditions	Value	Value
Name	Like/Not Like	Name	N/A
Type	Is/Is Not	Clip Program List	N/A
Compression Format	Is/Is Not	DV25 MPEG	N/A
Video Standard	Is/Is Not	PAL NTSC	N/A
Create Date	Between Before After	Date 1 Date Date	Date 2
Modified Date	Between Before After	Date 1 Date Date	Date 2
Length	Greater Than Less Than Equals Between	Length Length Length Length 1	Length 2
Locked	Is	True/False	N/A
Drop-frame timecode	Is	True/False	N/A

|	Data Type	Conditions	Value	Value
Metadata	String	Like/Not Like	A string	N/A
	Integer Float	Greater Than Less Than Equals Between	A number	N/A
	Date	Between Before After	Date 1 Date Date	Date 2
	Boolean	Is	True/False	N/A

5. Once you have added all the search criteria, select **Ok** to start the search.

The search results are displayed in the Asset List. The text in the Current Bin control is replaced with a brief summary of the search.

Finding linked assets

The Links dialog box helps you locate assets that are related based on the links criteria that you can specify.

1. In the asset list, select the asset for which you want to find linked assets.

2. Open the Links dialog box by performing one of the following steps:

   • Select the Clips pane context menu button ⬇, then choose **Links**, or

   • Select an asset, then select **Links** in the asset context menu, or

   • Select the **Links** button in the Clips pane.
     If the Links button is not displayed in the Clips pane, refer to assignable buttons in "Guide to using the Clips pane" on page 208.
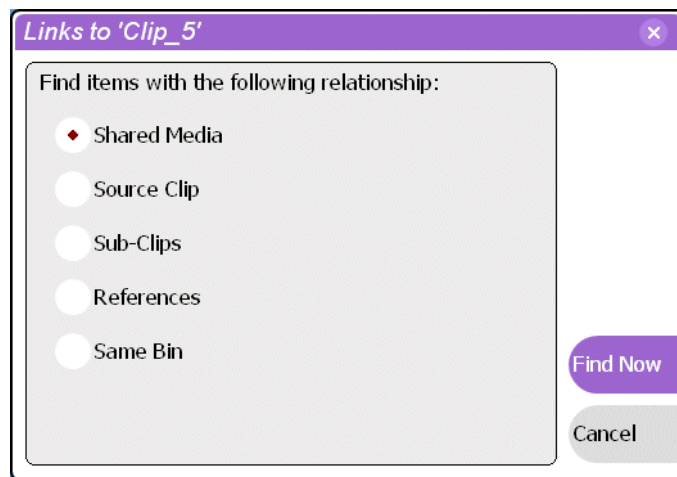
3. Choose one of the link relationship to us.

Link Relationship	Description
Shared media	Find all assets that reference the same media files, i.e., the same video, audio, timecode files in the media file system.
Source clip	Find the source clip from which a subclip was created.
Subclips	Find all subclips created from the selected clip.
References	When a playlist or program is selected, find all the assets that are referenced by the playlist or program. When a clip is selected, find all the playlists and events that reference that clip.
Same bin	Generate a list of assets that are located in the same bin

4. Select **Find Now**.

   The results of the link operation are displayed in the asset list. The text in the Current Bin label is replaced by a brief summary of the links operation.

   NOTE: Unlike the search results, link results are not cached. You must perform the Links operation to discover linked assets.

Working with asset metadata

The properties dialog box displays information about an asset as described in "Viewing asset properties" on page 258. The properties dialog box also includes a user defined metadata feature that allows you to define and add your own information about an asset. You can specify the metadata name, data type, and value.

The metadata you add for one asset automatically appears on properties pages for all existing and future assets, except with no value entered. The values you specify for an asset are retained with the asset for the following operations: copy, move, and send to. The metadata you define for an asset can be used as search criteria in advanced search.

Metadata types and their possible values are described in the following table.

| Data Type	Value	Example: Name/Value
String	User defined string	Producer: John Doe
Integer	An integer value	Episode: 4
Float	A number expressed in floating point	Version: 1.2
Date	Date	Air Date: 10/31/03
Boolean	True or False	QA: False

Topics in this section include:

- "Adding and modifying asset metadata" on page 240
- "Clearing metadata" on page 242
- "Deleting asset metadata" on page 243

## Adding and modifying asset metadata

Use the following steps to add or modify metadata in the properties dialog box. The metadata names you add will appear in the properties dialog box for all assets. See also "Deleting asset metadata" on page 243.

1. Select an asset in the Clips pane asset list.

2. Open the Properties dialog box using one of the following:

   - Select the Clips pane context menu button ⬇, then choose **Properties**, or

   - Select **Properties** in the asset context menu, or

   - Select the **Properties** button in the Clips pane.
     If the Properties button is not displayed in the Clips pane, refer to assignable buttons in "Guide to using the Clips pane" on page 208.

   The properties dialog box appears.
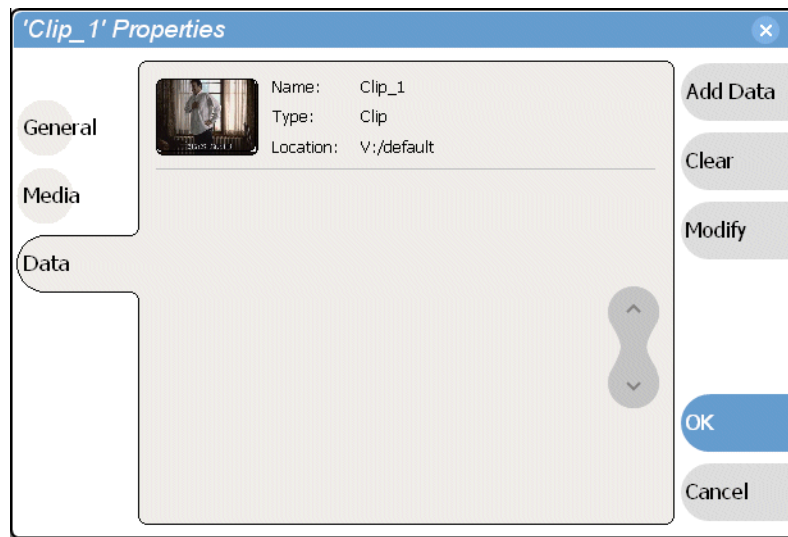
3. Select **Data**, then **Add Data** or **Modify** on the data page.
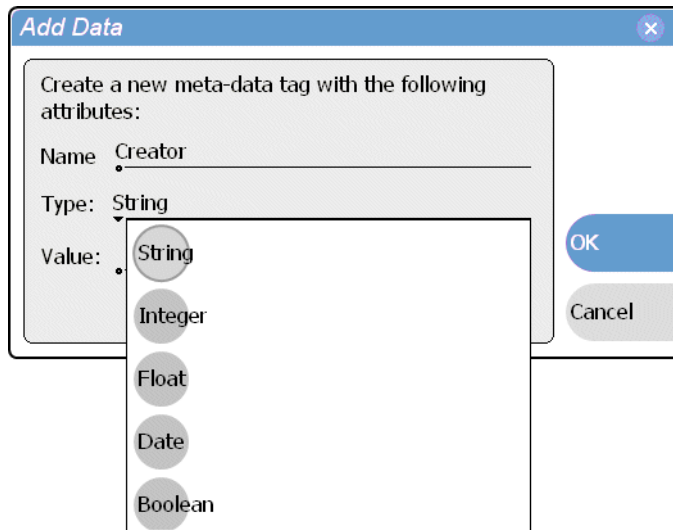
4. Define or modify metadata using the following steps:

    a. Select **Name**, then use the onscreen or external keyboard to enter the metadata name in the Name dialog box.

       Names are not case sensitive. "Episode" and "episode" are treated the same. You cannot modify names of existing metadata. See also "Deleting asset metadata" on page 243.

    b. Select **Type**, then choose a data type from the drop-down list.

       Metadata types include: String, Integer, Float, Date, and Boolean. (Refer to "Working with asset metadata" on page 239.)

    c. Select **Value**, then enter a metadata value in the Value dialog box.

    d. Click **OK** to close the Add or Modify dialog box and save changes.

       Your changes appear in the Properties dialog box for this and all other assets.
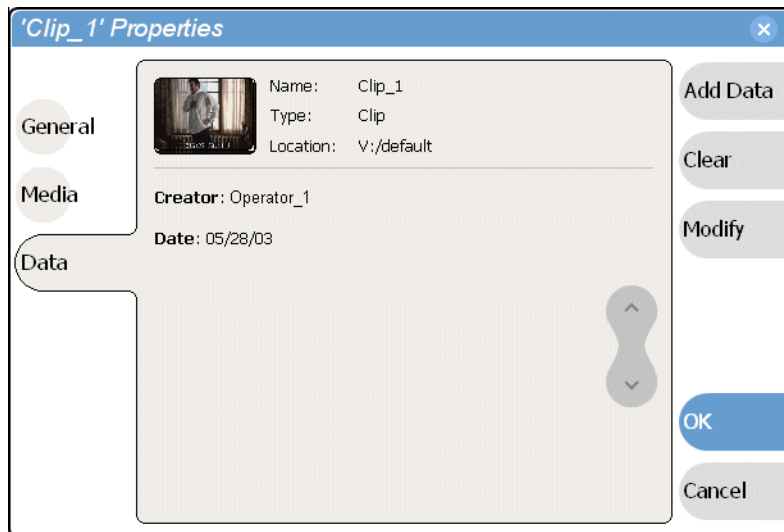
Clearing metadata

Clearing metadata removes the value entered for the selected metadata, but does not delete the metadata name from the properties data page.

1. Select the asset in the Clips pane asset list.

2. Open the Properties dialog box using one of the following:

   - Select the Clips pane context menu button ⊙ , then choose **Properties**, or

   - Select **Properties** in the asset context menu, or

   - Select the **Properties** button in the Clips pane.
     If the Properties button is not displayed in the Clips pane, refer to assignable buttons in "Guide to using the Clips pane" on page 208.

   The properties dialog box appears.
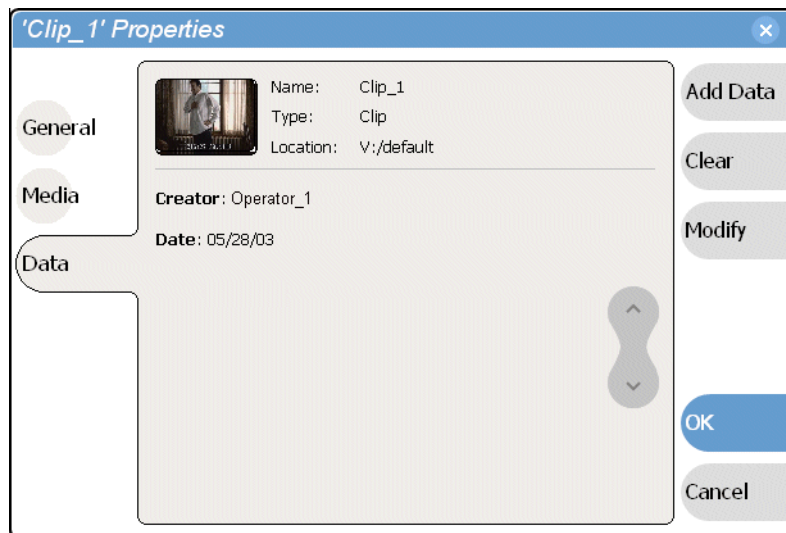
3. Select **Data**, then use the scroll button to locate and select the metadata entry you want to clear.

4. Select **Clear**.

   The metadata value is now blank.

5. Repeat step 3 and step 4 to clear other metadata values.

6. In the Properties dialog box, select **OK**.

   If the metadata name is used by any other asset, that is, a value has been entered on another properties page, the metadata name will remain on all properties pages. See also, "Deleting asset metadata" on page 243.

Deleting asset metadata

You may need to delete a metadata name, that is, remove it from all properties pages when it becomes obsolete, or to repair a typographical error. There is no "delete metadata" feature, however, metadata names are checked every time you close a properties dialog box. If a metadata name is not being used, that is, no values are entered for the metadata name on any asset properties page, the metadata name is automatically deleted and removed from all metadata pages.

To delete a metadata name you just created:

1. In the asset Properties dialog box, click **Data**.

2. Select the metadata name you want to delete.

3. Click **Clear**.

4. In the Properties dialog box, click **OK**.

    The metadata name is removed from all asset properties pages since no metadata value exists for any asset.

To delete a metadata name already in use:

To completely purge a metadata name, you must clear the metadata value on all asset properties data pages. When the last asset is cleared, and the properties dialog is closed, the metadata name is purged and removed from all properties pages. Refer to .

Importing media from a file or a device

Assets are imported into iVDR media storage from two sources:

File – You can import media using standard media file formats. Supported formats include SMPTE 360M (*.gxf), or AVI D25 (*.avi). Imported files can be located on a local iVDR disk drive (fixed or removable media), or a mapped networked drive. See also "AVI file encoding requirements for importing" on page 292.

Stream – The iVDR supports media transfers over the standard Ethernet port or optional network adapters. Source devices for streaming include other iVDRs, Grass Valley Profile XP Media Platform, or any device that supports SMPTE 360M (GXF) streaming transfers. You must configure your network for streaming transfers prior to using the "Import to stream" feature. See "Setting up the Ethernet network" on page 33.

A transfer job is created for each "import" operation. Once created, transfer jobs are added to the transfer job queue where they are dispatched in a first in, first out basis. Up to four transfer jobs can execute simultaneously. Any additional jobs wait in the queue. You can use the Transfer Monitor to check the status of your transfers. "Guide to using the Transfer Monitor" on page 253.

NOTE: Before playing a clip that is being imported from a file or stream, use the Transfer Monitor to verify that the clip transfer rate is higher than the clip data rate. This is required to prevent playback problems due to insufficient bandwidth.

Topics in this section:

- "Importing media from a file" on page 244
- "Importing assets from another iVDR or Profile XP system" on page 246

Importing media from a file

You can import media files in either SMPTE 360M (*.gxf), or AVI D25 (*.avi) file format. Importing converts the files to the iVDR media file format.

Before importing an AVI file, make sure the file meets the following encode requirements:

- Video Compression - DV (SMPTE 314) 25Mb/s
- Color sampling - 4:1:1 (525 Line NTSC); 4:2:0 (625 Line PAL)
- Resolution - 720 X480 (525), or 720 X 576 (625)
- Frame Rate 29.97Hz - (525 Line), or 25Hz (625 Line)
- Audio Sampling - 16bit PCM, 48Khz sample rate, stereo

To import a file:

1. In the Clips pane, select the current bin.
   For help see "Changing current bin using 'Look in' drop-down list." on page 218.

   The current bin is the destination bin for the import operation.

2. Select the Clips pane context menu button 🔽 , then choose **Import**.

The Import dialog box opens.
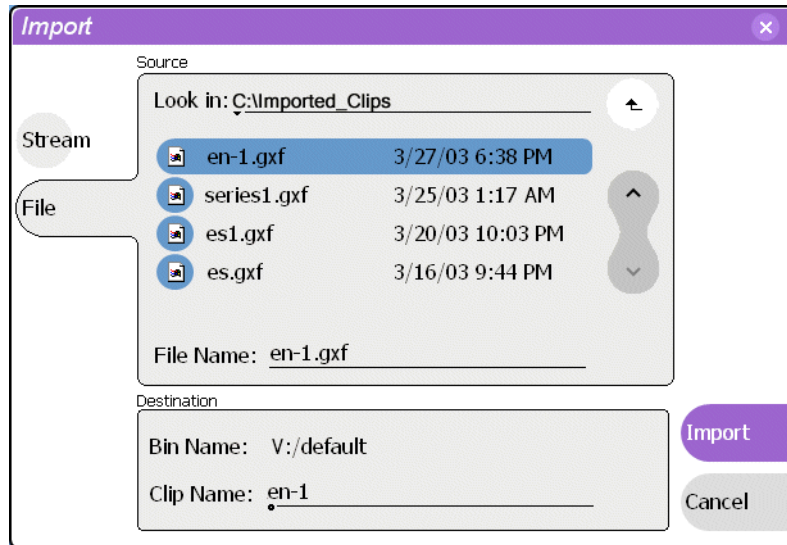
3. Select **File**.

NOTE: The appearance of the asset list and file open dialog boxes is determined by the Options setting. (See "Modifying the asset list view" on page 215.)

4. In the Source section, browse to locate and select the source file, or enter the path name using the **File Name** edit control.

   About browsing in the Import dialog box
   The **Look in** label shows the current location. The list under the **Look in** label displays the contents of the current location. You can select items in the list (such as a *machine*, disk drive, or folder) to explore its contents.

   Clicking the up-arrow button moves up one directory level in the storage hierarchy.

   The Look in drop-down list allows you to choose from one of the most recent source locations visited (history).

5. In the Destination section, **Bin Name** displays the name of the current bin which is where the imported file is placed.

6. Specify a clip name, if needed, by selecting the Clip Name edit control.

   The system suggests a clip name based on a seed name specified in the iVDR Configuration Manager application, for example *Clipx_xxx*. You can select the **Clip Name** edit control to rename it, as you like.

7. Select **Import** to start the import.

NOTE: Import is a background task and can be monitored using the Transfer Monitor. See "Guide to using the Transfer Monitor" on page 253 to view the job status.

Importing assets from another iVDR or Profile XP system

1. In the Clips pane, select the current bin.
   For help see "Changing current bin using 'Look in' drop-down list." on page 218.

   The current bin is the destination bin for the import operation.

2. Select the Clips pane context menu button 🔽 , then choose **Import**.

   The Import dialog box opens.
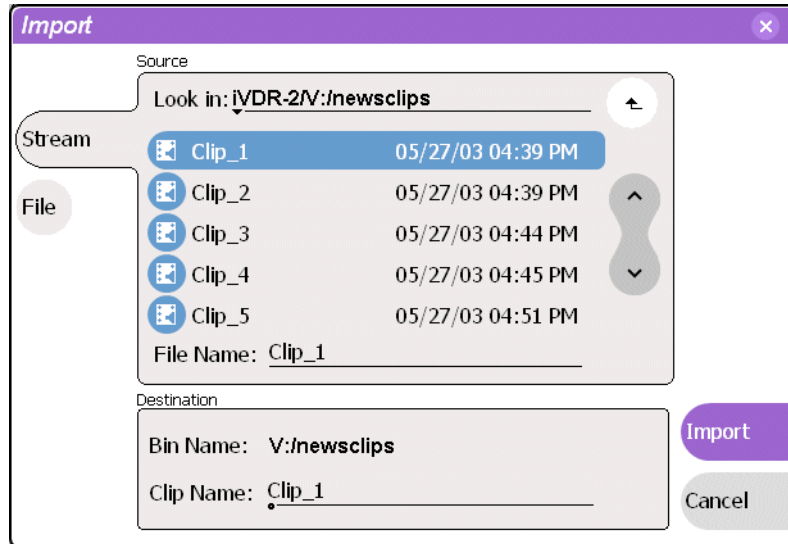
3. Select **Stream**.

   NOTE: The appearance of the asset list and file open dialog boxes is determined by the View Option setting. Use the Clips pane context menu to choose Image or Text view. (See "Modifying the asset list view" on page 215.)

4. In the Source section, browse to locate and select the source file.

   About browsing in the Import dialog box:
   Browsing Non-M-Series Devices - Browsing a non-M-Series device, such as a Profile XP Media Platform, is not supported. You must select the device, and then manually enter the disk volume and bin name, e.g. *EXT:\default*, and the file name to import. Note that the path is case sensitive.

   Browsing another M-Series iVDR - The **Look in** label shows the current location. The list under the **Look in** label displays the contents of the current location. You can select items in the list such as *machine*, *disk volume* or a *bin*, to explore its contents.

   Clicking the up-arrow button 🔼 moves up one directory level in the storage hierarchy.

   The **Look in** drop-down list allows you to choose from one of the most recent source locations visited (history).

5. In the Destination section, **Bin Name** displays the name of the current bin which is

where the imported file is placed.

6. Specify a clip name, if needed, by selecting the Clip Name edit control.

   The system suggests a clip name based on a seed name specified in the iVDR Configuration Manager application, for example *Clipx_xxx*. You can select the **Clip Name** edit control to rename it, as you like.

7. Select **Import** to start the transfer.

NOTE: Import is a background task and can be monitored using the Transfer Monitor. See "Guide to using the Transfer Monitor" on page 253 to view the job status.

Sending media to a file or a device

You can send iVDR media to another location in two ways:

Send to a File – You can export iVDR assets using standard media file formats. Supported formats include SMPTE 360M (*.gxf), or AVI D25 (*.avi). Media files can be exported to a local iVDR disk drive (fixed or removable media), or a mapped networked drive. Note that when sending lists or programs to a file, only the GXF format is available.

Send to a Stream – The iVDR supports streaming media transfers over the standard Ethernet port or optional network adapters. Streaming transfers allow playout while the asset is still transferring. Destination devices for streaming include the Grass Valley Profile XP Media Platform, other M-Series iVDRs, or any device that supports GXF SMPTE 360M streaming transfers. You must configure the iVDR network adapter prior to using the "Send to stream" feature. See "Setting up the Ethernet network" on page 33.

A transfer job is created for each "send to" operation. Once created, transfer jobs are added to the transfer job queue where they are dispatched in a first in, first out basis. Up to four transfer jobs can execute simultaneously. Any additional jobs wait in the queue. You can use the Transfer Monitor to check the status of your transfers. "Guide to using the Transfer Monitor" on page 253.

Topics in this section:

- "Sending media to a file" on page 248
- "Sending assets to another machine" on page 251

Sending media to a file

Sending media to a file allows you to convert iVDR clips to GXF or AVI DV25 media file format, and then write the file to disk. The target location can be a local disk, removable media drive, or a shared network drive. When sending playlists or programs, only the GXF format is available.

About sending files to removable media drives

The following are operational considerations when sending files to removable media drives:

- **Formatting CD-R/RW and DVD media** - You must format CD-R/RW or DVD disks before it can be used. The iVDR includes the software for doing this formatting. Refer to "Formatting CD-R/RW and DVD disks" on page 87.

- **Estimating clip file sizes** - AppCenter does not prevent you from sending a file that is larger than the space available on the target disk. The transfer fails when the disk becomes full. The space written to on +R/-R disk types becomes unusable. To avoid this problem, check the clip size reported in the clip properties dialog box. You can use this to estimate the disk space required for the clip.

- **Best transfer performance** - File transfers to the DVD or CD-ROM drives are handled concurrently, up to four at a time. Additional transfer requests are queued. To enhance transfer performance, you may try limiting transfers to one at a time.

- **Choosing DVD media** - You may experience considerably longer write times

when using DVD-RW media compared to other types, such as +RW, -R, or +R.

- **Adding/Removing USB devices** - The USB connectors on the rear panel and front panel can be used to connect a mouse, keyboard, USB drive, or other USB device. Do not plug or unplug these devices while the iVDR is being used for critical play to air activity.

- **Maximum file sizes when exporting assets to USB drives**- Exporting assets with long durations may result in file sizes that exceed 4GB. Some USB drives are formatted using FAT/FAT32 which has the 4GB maximum file size limitation. Attempting to send a file to these disk volumes will cause the transfer operation to fail. Disk volumes formatted using NTFS allow larger maximum file sizes. Before exporting an asset, be sure to check that the file size is less than 4GB, otherwise, ensure that the file system on the target drive supports larger files sizes.

To send to a file:

1. In the Clips pane, select the asset(s) you want to send to a file.

2. Open the Send to dialog box using one of the following steps:

   - Select the context menu button [icon], then choose **Send to**, or

   - Select **Send to** in the asset context menu.

   The Send to dialog box appears.
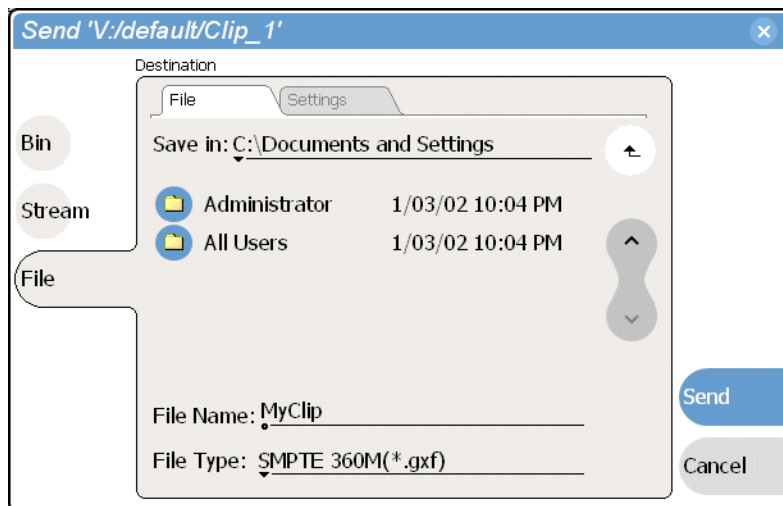
3. Select **File,** then locate and select the destination directory.

   About browsing in the Send to file dialog box
   The **Save in** label shows the current destination. The list under the **Save in** label displays the contents of the current destination. You can select items in the list (such as a *machine*, disk drive, or folder) to explore its contents.

   Clicking the up-arrow button [icon] moves up one directory level in the storage hierarchy.

   The Save in drop-down list allows you to choose from one of the most recent target

locations used (history).

NOTE: You must format CD-R/RW and DVD disks before use. The iVDR includes the software for doing this formatting. Refer to "Formatting CD-R/RW and DVD disks" on page 87. Also, make sure that the asset can fit on the media type you've chosen by checking asset properties. See "Viewing asset properties" on page 258.

4. Use the **File Type** drop-down list to select the file type— SMPTE 360M (*.gxf), or AVI D25 (*.avi).

5. Change the destination file name using the **File Name** File Name: MyClip edit control, if needed.

6. Select the settings tab, then specify export settings— AVI file settings: Interleaved or Non-Interleaved.
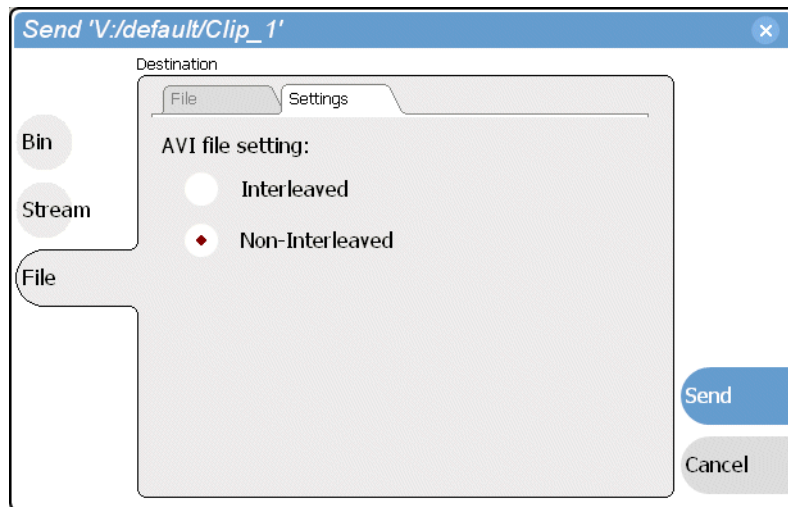
7. Select **Send**.

NOTE: Send to file is a background task and can be monitored using the Transfer Monitor. See "Guide to using the Transfer Monitor" on page 253 to view the job status. If the operation fails for any reason, the asset is deleted from the target location.

Sending assets to another machine

The iVDR supports streaming media transfers over the standard Ethernet adapter or optional network adapters. Streaming transfers allow playout while the asset is still transferring. Destination devices for streaming include other M-Series iVDRs, the Grass Valley Profile XP Media Platform, or any device that supports SMPTE 360M streaming transfers. Lists or programs streamed to the Profile XP platform are converted to a "master" in the Profile XP media file system.

You must configure an iVDR network adapter prior to using the "Send to stream" feature. Refer to "Setting up the Ethernet network" on page 33, then return to this procedure.

1. In the Clips pane, select the asset(s) you want to transfer.

2. Open the Send to dialog box using one of the following steps:

   - Select the context menu button ⊙ , then choose **Send to**, or

   - Select **Send to** in the asset context menu.

   The Send to dialog box appears.

   Send 'V:/default/Clip_1'

   Destination

   Stream to: iVDR-2/V: ⬆

   Bin

   📁 default   03/18/03 11:22 AM

   📁 M-Video   03/21/03 08:39 AM   ∧

   Stream   🗑 Recycle Bin

   📁 Short Clips   03/30/03 04:38 PM   ∨

   File

   Send

   Bin Name: Short Clips   Cancel
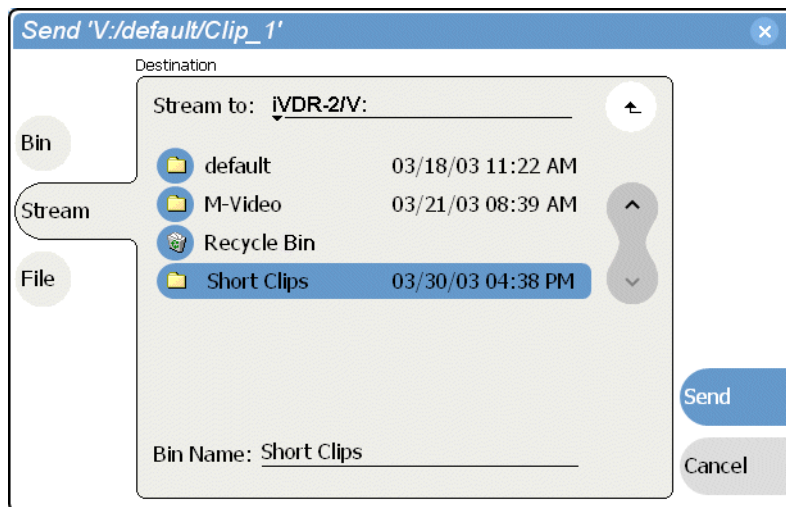
3. Select **Stream,** then locate and select the stream destination.

   About browsing:
   Non-M-Series Devices - Browsing a non-M-Series device, such as a Profile XP Media Platform, is not supported. You must select the device, and then manually enter the disk volume and bin name, e.g. *EXT:\default*, and the file name to stream to. Note that the path is case sensitive.

   Browsing another M-Series iVDR- The **Stream to** label shows the current destination. The list under the **Stream to** label displays the contents of the current location. You can select items in the list (a *machine*, *disk volume,* or a *bin*) to explore its contents.

   Clicking the up-arrow button ⬆ moves up one directory level in the storage hierarchy.

The **Stream to** drop-down list allows you to choose from one of the most recent target locations used (history).

4. Select **Send** to transfer the asset(s).

NOTE: Send to stream is a background task and can be monitored using the Transfer Monitor. See "Guide to using the Transfer Monitor" on page 253 to view the job status. If the operation fails for any reason, the asset is deleted from the target location.

Guide to using the Transfer Monitor

The Transfer Monitor is used to monitor all iVDR transfer jobs and their status. A transfer job is created for each "send to" or "import" operation. Once created, transfer jobs are added to the transfer job queue where they are dispatched in a first in, first out basis. Up to four transfer jobs can execute simultaneously. Any additional jobs wait in the queue. You can use the Transfer Monitor to check the status of your transfers.

Starting the Transfer Monitor

To start Transfer Monitor, perform one of the following:

- In the AppCenter toolbar, select **Tools**, then choose **Transfer Monitor** from the pop-up menu.

  -or-

- In the AppCenter Statusbar, select the Transfer Monitor button .
  The Transfer Monitor button appears when a transfer job is present or pending.

Transfer Monitor pages and buttons

In the Transfer Monitor, transfer jobs are categorized and displayed on one of three pages— Sending, Receiving, and Completed pages. On each page the transfer jobs are displayed using a thumbnail image along with a brief description of its source, destination and status. Jobs that have encountered errors are shown in red text.

- **Source** – The source of the transfer job. If the source includes multiple files, the first file name is displayed plus a '…' sign beside it. You may find the full path of all the source files from the Properties page.

- **Destination** – The destination of the transfer job. You may find the full path of all the source files from the Properties page.

- **Status** – For ongoing transfer jobs, the transfer rate is displayed in megabytes per second and percentage of job completed. All jobs waiting in the queue are shown as "Pending". Jobs that encountered errors are displayed in red text along with an error code.

- **Remove Button** – Used to remove jobs from the Transfer queue.

- **Abort Button** – Used to cancel transfer jobs in progress.

- **Properties Button** – Used to view more detailed information about a transfer job. See "Viewing detailed transfer job properties" on page 256.

Receiving Page

The Receiving page displays all import transfer jobs.
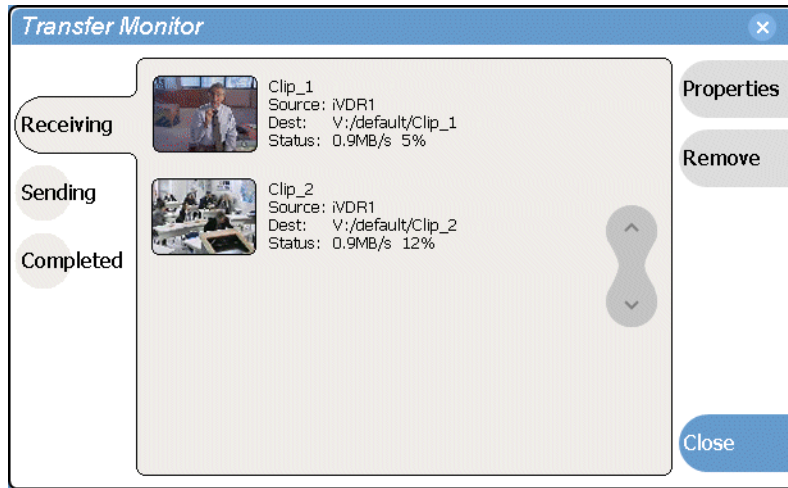
Sending Page

The Sending page displays all "Send to" transfer jobs and their status.
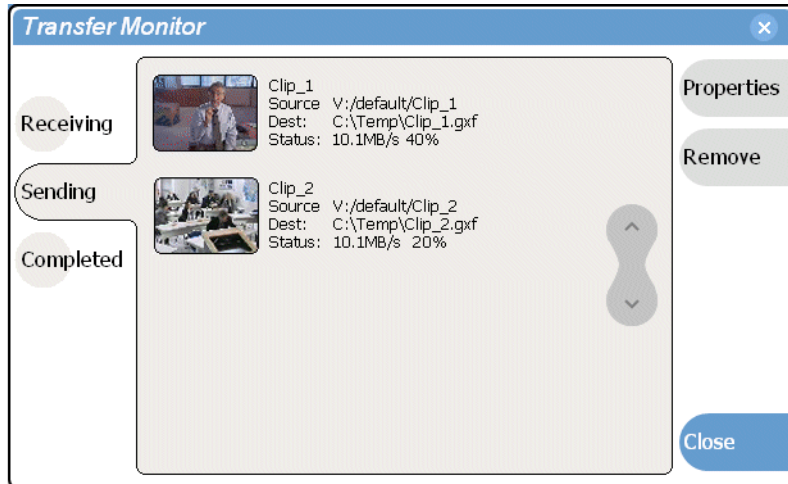
Completed Page

The Completed page displays all jobs that have completed successfully. Completed jobs are automatically cleared after approximately 36 hours. You can manually clear jobs from the completed list using **Remove** or **Remove All**.
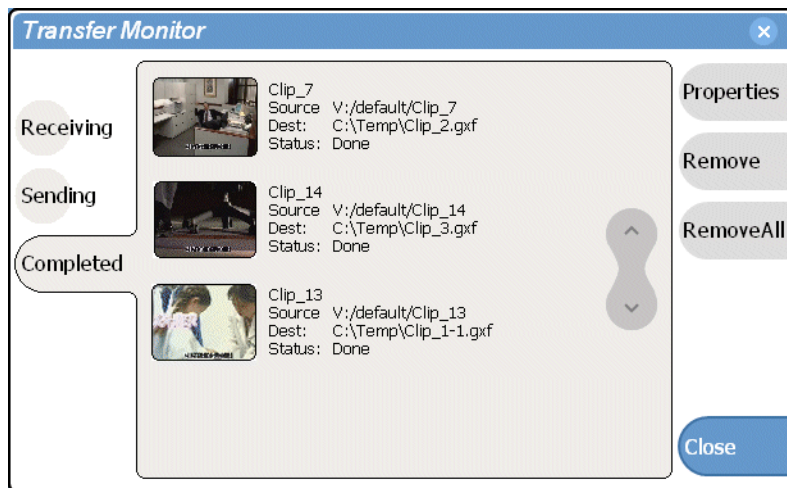
Viewing transfer jobs in Transfer Monitor

Each transfer job is displayed in the Transfer Monitor with a thumbnail image along with a brief description of its source, destination and status. For jobs that have encountered errors, they are shown in red. You may find more detailed information about a transfer job from its Properties page. See

* Source: The source of the transfer job. If the source includes multiple files, the first file name is displayed plus a '…' sign beside it. You may find the full path of all the source files from the Properties page.

* Destination: The destination of the transfer job. You may find the full path of all the source files from the Properties page.

* Status: For ongoing transfer jobs, the transfer rate is displayed in megabytes per second and percentage of job completed. All jobs waiting in the queue are shown as "Pending". Jobs that encountered errors are displayed along with an error code. You may find a more detailed error message in the Properties page.

Viewing detailed transfer job properties

1. In the Transfer Monitor, select a transfer job.
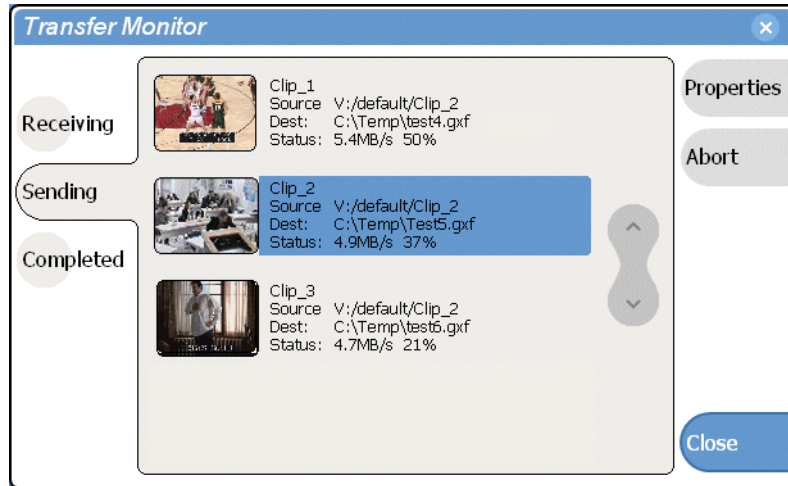
2. In the Transfer Monitor, touch or click **Properties**

3. When the Transfer Job Properties dialog box appears, select the **Transfer** page to examine transfer properties.

General properties page
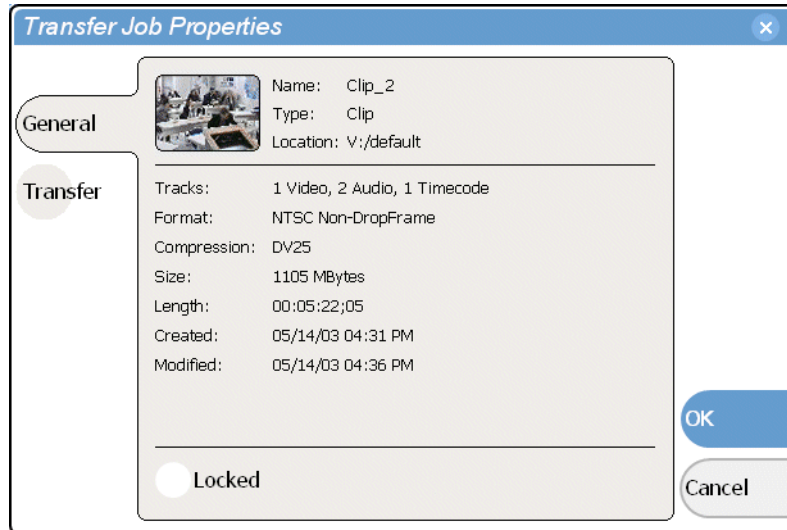
Transfer properties page

Aborting a transfer job

1. In Transfer Monitor, select a transfer job in the list.

2. Select **Abort**.

Removing transfer jobs from the completed list

You can remove transfer jobs from the Completed page.

1. In Transfer Monitor, select **Completed**.

2. Remove the transfer jobs using one of the following:

   • Select the job(s) to remove, then select **Remove**.

   • Select the job(s) to remove, then select **Remove All**.

Viewing asset properties

The properties dialog box varies depending on the asset.

- "Viewing clip properties" on page 258
- "Viewing playlist properties" on page 259
- "Viewing program properties" on page 259
- "Viewing bin properties" on page 260
- "Viewing volume properties" on page 261

Viewing clip properties

1. Select the clip in the Clips pane asset list using the front panel touch screen, the front panel selection knob, or a mouse.

2. Open the Clip Properties dialog box using one of the following:

   - Select the Clips pane context menu button ⊙, then choose **Properties**, or

   - Select **Properties** in the asset context menu, or

   - Select the **Properties** button in the Clips pane.
     If the Properties button is not displayed in the Clips pane, refer to assignable buttons in "Guide to using the Clips pane" on page 208.

   The Clip Properties dialog box appears. There are three pages in the clip dialog box. **General**, **Media**, and **Data**. The General and Media pages are self explanatory. The Data page is used to add metadata to the clip. To learn more, refer to "Working with asset metadata" on page 239.

Viewing the General properties page
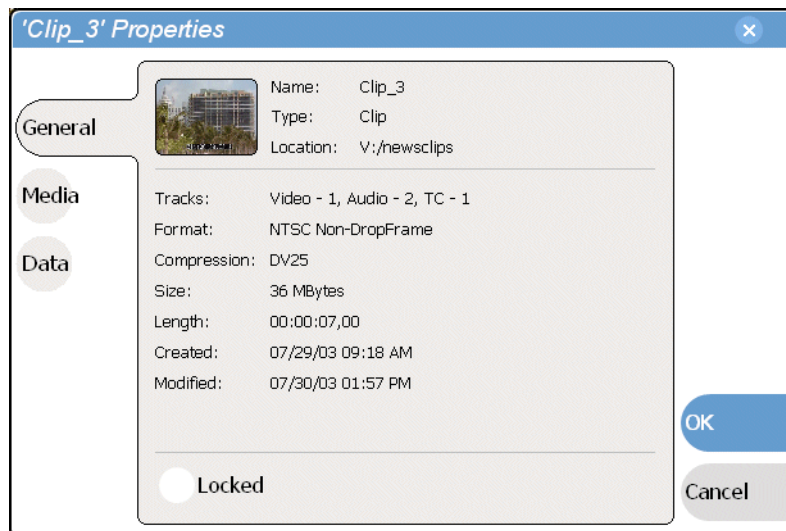
Viewing Media Properties page

The Media page displays all the relevant clip timecodes, including clip marks, and the first and last frame of the clip. A Time Dome gives a graphical display of the relative position of the marks within the recorded media.
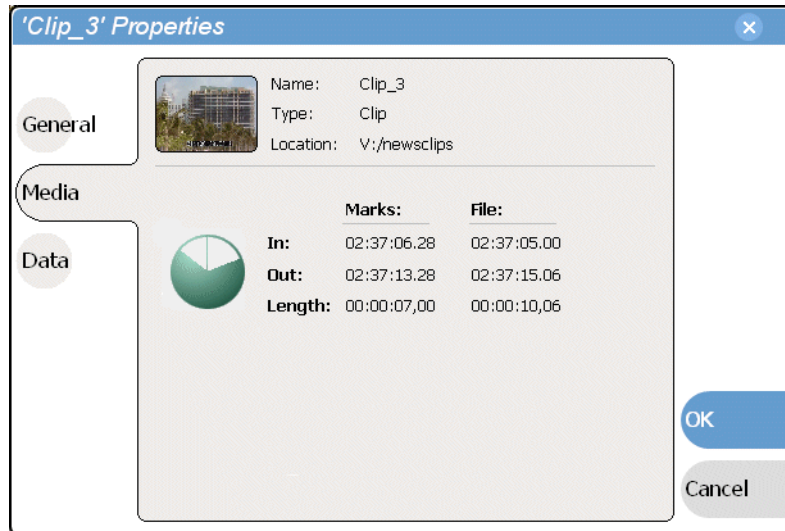
Viewing Data properties page

Allows you to define your own metadata and specify values for that metadata. Refer to "Working with asset metadata" on page 239.

Viewing playlist properties

Playlist properties dialog box include features that controlling list playback in the Playlist application. Refer to "Creating a looping list" on page 191 to learn about using the playlist properties dialog box.

Viewing program properties

1. Select the program in the Clips pane asset list using the front panel touch screen, the front panel selection knob, or a mouse.

2. Open the Program Properties dialog box using one of the following:

   - Select the Clips pane context menu button ⊙, then choose **Properties**, or

   - Select **Properties** in the asset context menu, or

   - Select the **Properties** button in the Clips pane.
     If the Properties button is not displayed in the Clips pane, refer to assignable buttons in "Guide to using the Clips pane" on page 208.
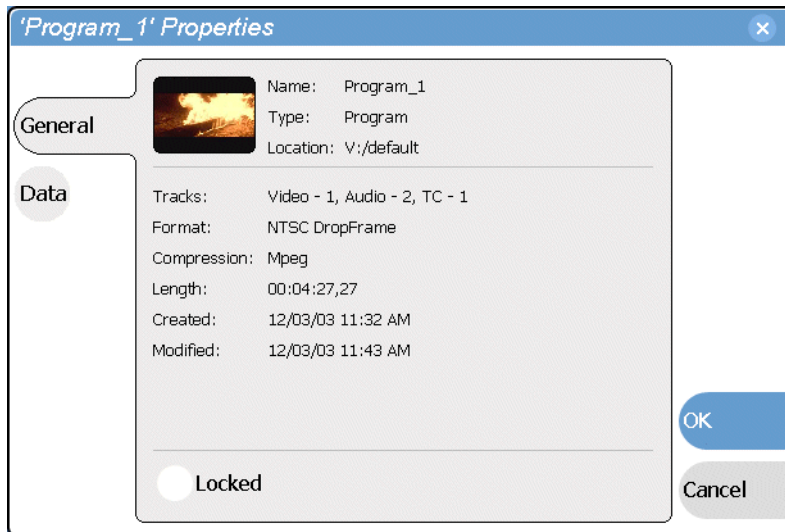
The Program Properties dialog box is displayed which has two pages, **General** and **Data**. The General page is self explanatory. The Data page is used to add metadata to the program. To learn more, refer to "Working with asset metadata" on page 239.

Viewing bin properties

1. In the Clips pane, touch or click the Current Bin label `Look in:  V:/default` , then choose a bin from the list.

2. In the Organize Bins dialog box, select a bin. The bin properties are displayed in the Organize Bins dialog box.
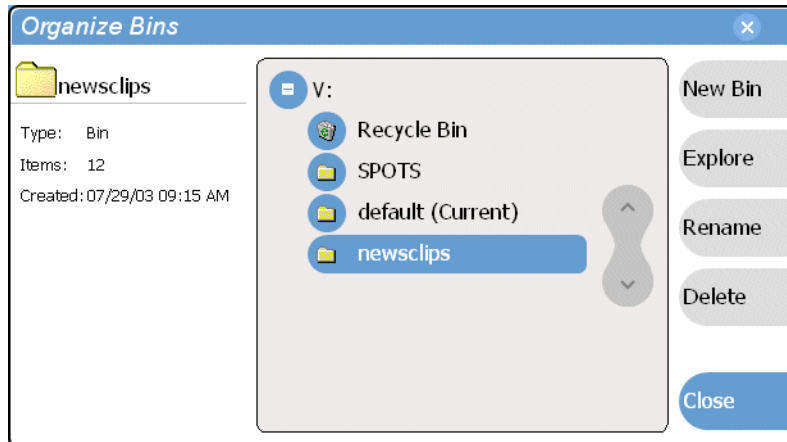
Viewing volume properties

1. In the Clips pane, select the Current Bin label **Look in:** V:/default , then select the **Organize Bins**.
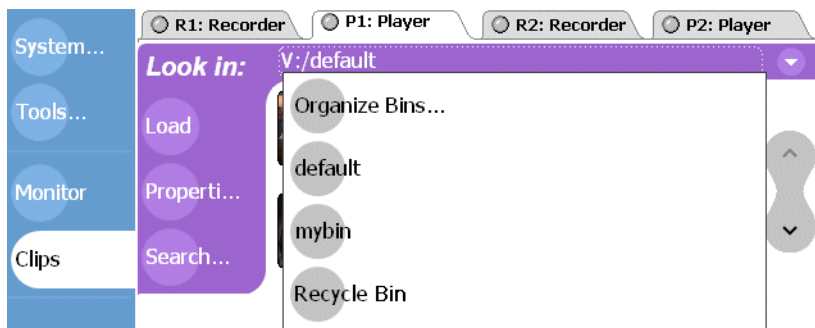
2. In the Organize Bins dialog box, select a disk volume. The volume properties are displayed in the Organize Bins dialog box.
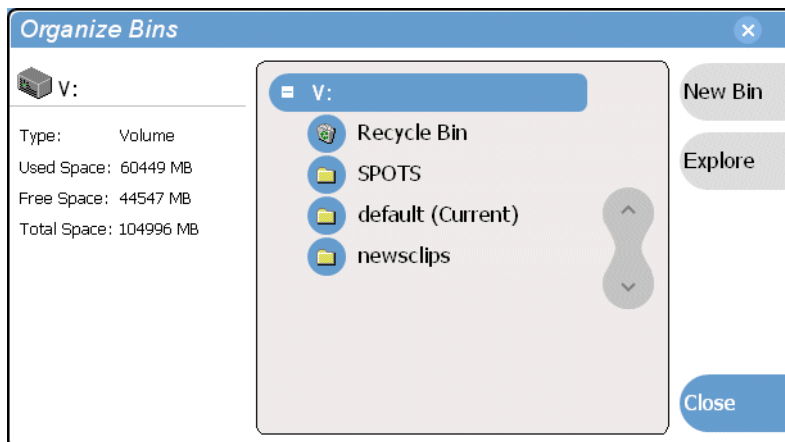
Chapter **10**

Using Remote Control Protocols

Information in this chapter includes:

- *"About remote control protocol support"*
- *"Making RS-422 and Ethernet connections"*
- *"Starting a remote control protocol application"*
- *"Selecting the control port and control mode"*
- *"Guide to Protocol Recorder: Protocol Only mode"*
- *"Guide to Protocol Recorder: Local/Protocol mode"*
- *"Guide to Protocol Player: Protocol Only mode"*
- *"Guide to Protocol Player: Local/Protocol mode"*
- *"Using Protocol Recorder: Local control tasks"*
- *"Using Protocol Player: Local control tasks"*
- *"Monitoring remote control communications"*

About remote control protocol support

You can use remote control devices and applications software developed for the M-Series iVDR that use industry-standard serial protocols. For each supported protocol, the iVDR provides a protocol-specific application.

The protocol applications shipped with the iVDR are described in the following table:

Supported Protocols	iVDR Protocol Application	iVDR Channel Type Required
AMP[a]	AMP Recorder	Record Channel
	AMP Player	Play Channel
VDCP	VDCP Recorder	Record Channel
	VDCP Player	Play Channel
BVW[b]	BVW Recorder	Record Channel
	BVW Player	Play Channel

[a.] Advanced Media Protocol (AMP) - AMP is an extension of the Odetics protocol.

[b.] BVW Protocol - supports standard set of commands used for VTR machine control. BVW Insert Edit, used by most edit control panels, is not supported.

To enable remote control protocol support for the iVDR, you must start and configure a protocol application on one or more iVDR's channels. See "Starting a remote control protocol application" on page 267.

About Local/Remote mode

You can configure the protocol applications for ***Protocol control only*** or ***Local and Protocol control***". When you start a protocol application, you can configure the control mode as needed.

In "Protocol control only" mode, you are able to monitor operations on the iVDR, but you cannot perform *any* control operations locally. All control comes from the external device. The buttons, menu items, and other interface controls are disabled. From the local iVDR you can see the control operations as they take place, but you can't control channel resources using the user interface on the iVDR.

In "Local and Protocol control" mode, both local and remote control are allowed. Control comes from the external device, but at the same time, all user interface controls are enabled.

See "Selecting the control port and control mode" on page 268.

About AMP protocol support

You can use Advanced Media Protocol (AMP) to control iVDR record and play channels. This protocol is an extension of the Odetics protocol and is supported through the AMP Player application running an iVDR play channel, and the AMP Recorder running on an iVDR record channel. External control devices can be connected via rear panel RS-422 serial connectors, or an Ethernet network connection. See "Starting a remote control protocol application" on page 267.

AMP Player supports the use of a two-head model in that two clips are loaded simultaneously, as follows:

- Current clip — The AMP "preset id" is considered the current clip that controls channel resources.

- Preview clip — The AMP "preview preset id" is considered the preview clip. Generally the preview clip begins playing after the current clip completes, at which point the preview clip becomes the current clip.

About VDCP protocol support

You can use the Video Disk Control Protocol (VDCP) to control iVDR record and play channels on the iVDR. This protocol is supported through the VDCP Player application running on an iVDR play channel, and VDCP Recorder application running on an iVDR record channel. External control devices can be connected via rear panel RS-422 serial port connectors. See "Starting a remote control protocol application" on page 267.

VDCP Player supports the use of a two-head model in that two clips are loaded simultaneously, as follows:

- Current clip — The VDCP "preset id" is considered the current clip that controls channel resources.

- Preview clip — The VDCP "preview preset id" is considered the preview clip. Generally the preview clip begins playing after the current clip completes, at which point the preview clip becomes the current clip.

About BVW protocol support

You can use BVW protocol to control iVDR record and play channels. BVW protocol is supported using the BVW Player application running on an iVDR play channel, and BVW Recorder application running on an iVDR record channel. The iVDR applications support the standard set of BVW commands used for VTR machine control. BVW Insert Edit, used by some edit control panels, is not supported.

See "Starting a remote control protocol application" on page 267.

About video network transfer support

If you use remote protocols to perform video network transfers, you must setup the video network and the Controller ID as described in the Installation chapter. Refer to "Setting up the Ethernet network" on page 33.
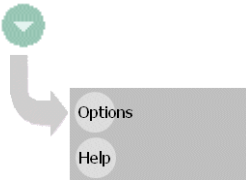
About Front Panel remote indicator lights

The remote control indicator lights on the Front Panel next to the channel select buttons glow whenever a protocol application has been launched and is running on that channel.

Making RS-422 and Ethernet connections

Protocol control is available through four 9-pin RS-422 serial port connectors mounted on the iVDR rear panel, or through an Ethernet network connection (AMP only).

Refer to the following sections to make cable connections:

- "Connecting RS422" on page 49
- "Connecting the Ethernet network cabling" on page 33

Starting a remote control protocol application

The protocol applications require a channel on which to run. If the channel is currently being used by another application, you can use the following steps to select the protocol application. Selecting the protocol application causes the current channel application to exit when the protocol application is started.

To start a protocol application on a channel:

1. In the toolbar, select **Split Screen** [icon].

2. In the toolbar, select **Monitor**.
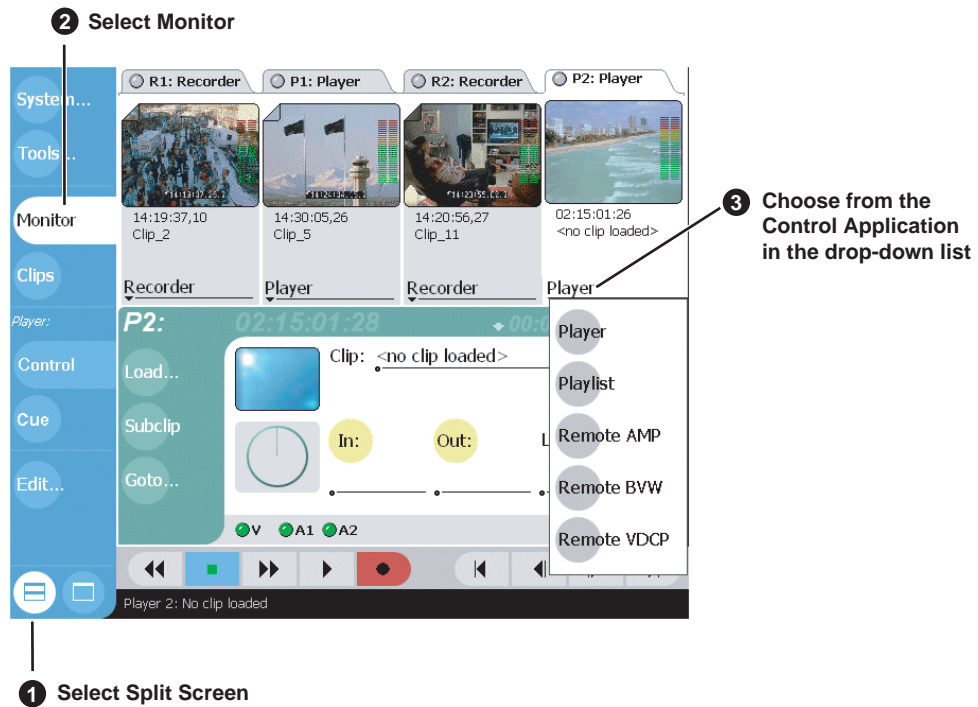
3. In the Monitor pane, select the control application drop-down list [Player] for a channel, then choose a protocol application.

   Player protocol applications are available on play channels. Recorder protocol applications are available on record channels.

   The protocol application starts on the channel.

4. Proceed to "Selecting the control port and control mode".

Selecting the control port and control mode

After starting the protocol application on one of the iVDR channels as described in the previous procedure you must select a control port and the application control mode– Protocol control only, or Local and Protocol control.

To configure a protocol application:

1. In the Player or Recorder pane, select the **Options** button,

   - or -

   Select the context menu button ⌄, then select the **Options** menu item.
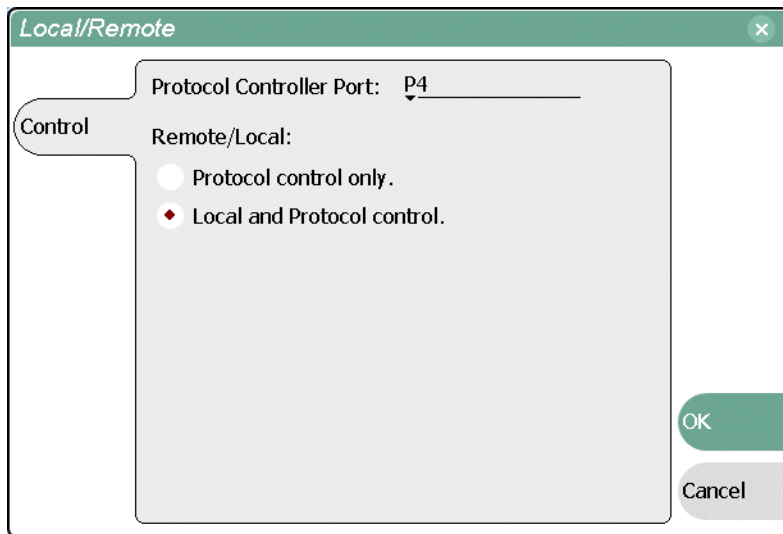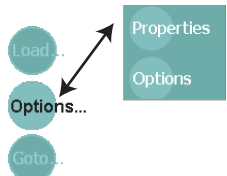
2. Select the remote control port as follows:

   a. Temporarily set the Remote/Local option to **Local and Protocol control**.

   b. Use the Protocol Controller Port drop-down list to choose a remote control port.

      You can select one of the four RS422 ports (P1-P4), or the Ethernet port.

3. Select the Remote/Local control option as required by your control system:

   • **Protocol control only** — Disables local control. The iVDR is controlled only from the remote device. The iVDR display is used to monitor the channel status and control operations as they take place remotely.

   • **Local and Protocol control** — Local control is enabled. With this setting you must take care to avoid conflicts between local and remote control.

4. If you use remote protocols to perform video network transfers, you must setup the video network and the *Controller Id* as described in the Installation chapter. Refer to "Setting up the Ethernet network" on page 33.

Guide to Protocol Recorder: Protocol Only mode

The *Protocol control only* mode allows you to only monitor the record channel operations and view clip information. All control comes from the external devic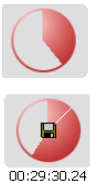e. The buttons, menu items, and other interface controls are disabled. You can select this mode by choosing the **Protocol control only** option in the Options dialog box. (See "Selecting the control port and control mode" on page 268.)

The following describes the controls and indicators in the *Protocol control only* mode.

	Control	Description and User Operation
❶	**Assignable Buttons**	The assignable button allows you to modify the button assignment to best suit your workflow. Holding down a button longer than one second opens the button pop-up menu which lists the alternative button choices. Button choices include **Options** or **Properties**. The buttons function the same as the context menu items. See "Protocol control only Context Menu" later in this table.
❷	**Current Timecode**	Indicates the current timecode of the timecode source for recording. The timecode value of *XX:XX:XX:XX* is displayed if there is no input timecode.
❸	**Timecode Source**	The text displayed to the right of current timecode indicates the timecode source: VITC, LTC, or INT (internal generator). You must temporarily switch to **Local and Protocol control** mode to change the record channel timecode source. See "Changing the timecode source" on page 140.

	Control	Description and User Operation
❹	**Clip Name and location** Clip: Clip_4 Location: V:/newsclips	Displays the current clip's name and location in the media storage system.
❺	**Protocol control only Context Menu** Options Help	**Options** – Opens the Options dialog box. **Help** – Opens online help.
❻	**Thumbnail**	Used to visually identify the clip. By default, the thumbnail is generated using the 16th frame of video. The thumbnail image can be modified in Player.
❼	**Time Dome** **Progress Only** **Progress and Available Storage** 00:29:30,24	This multi-function indicator displays record progress and available storage. By default, the Time Dome indicates one revolution every 10 seconds, or one revolution during a fixed length recording. You must switch to local control mode to change the Time Dome display, then refer to "Displaying available storage space" on page 144.
❽	**Protocol Monitor Button**	Appears when a channel is configured for remote control using a remote control protocol applications. The button flashes when the application is successfully receiving serial control protocol commands. Selecting the button opens the Protocol Monitor pane used to monitor command activity. See "Monitoring remote control communications" on page 283. *NOTE: The Protocol Monitor dialog will not open until a controller is connected and at least one command set is sent.*

Guide to Protocol Recorder: Local/Protocol mode
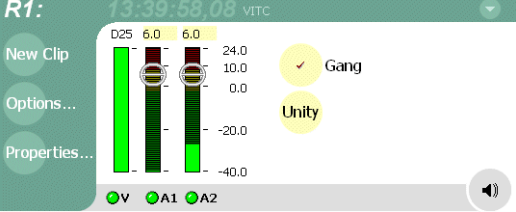
The *Local and Protocol control* mode allows you to control the record channel locally as well as remotely. You can select this mode by choosing **Local and Protocol control** in the Options dialog box. (See "Selecting the control port and control mode" on page 268.)

The following describes the controls and indicators used in the *Local and Protocol control* mode.

	Control	Description and User Operation
❶	**Assignable Buttons** 	Assignable buttons allow you to modify the button assignments to best suit your workflow. Holding down a button longer than one second opens the button pop-up menu which lists the alternative button choices. Button choices include **New Clip, Options, Locate** and **Properties.** The buttons function the same as the context menu items. See "Local/Protocol Mode Context Menu" later in this table.
❷	**Current Timecode** *16:27:13;29*	Indicates the current timecode of the timecode source for recording. The timecode value of *XX:XX:XX:XX* is displayed if there is no input timecode.
❸	**Timecode Source** *16:27:13;29* VITC	The text displayed to the right of current timecode indicates the timecode source: VITC, LTC, or INT (internal generator). See "Changing the timecode source" on page 140

Control	Description and User Operation
❹ **Clip Name Edit Control** Clip: Clip_1 Location:V:/default	Displays the clip's name and location in the media storage system. To rename the clip, touch or click the Clip Name, then use the onscreen or external keyboard to enter text. To change the current bin, i.e. the target location for recording clips, refer to "Changing the current bin" on page 142.
❺ **Local/Protocol Mode Context Menu** Options New Clip Preview Properties Locate Select Timecode Source Help	**Options** – Opens the Options dialog box. **New Clip**– Used to create and name a clip prior to starting the recording. A default clip name is generated by incrementing some seed name, for example, Clip_2 if the last clip created was Clip_1. To rename the clip after or during record, select the clip name and enter a new name using the onscreen or external keyboard. If a clip is already loaded, New Clip is disabled. Ejecting the clip enables the control. See "To record a clip using New Clip:" on page 134. **Preview** – Loads the clip into Player or Protocol Player on the corresponding play channel. If there is a clip already loaded as the Current clip on the Protocol Player, then this clip will be loaded as Preview clip. **Properties**– Opens the Properties dialog for the currently loaded clip. See "Viewing clip properties" on page 161. **Locate**– Locates the currently loaded clip in the Clips pane. See "Locating a clip" on page 144 **Select Timecode Source** – Opens the Timecode Source Select dialog. See "Changing the timecode source" on page 140 **Help** – Opens online help.
❻ **Thumbnail**	Used to visually identify the clip. By default, the thumbnail is generated using the 16th frame of video.
❼ **Time Dome** **Progress Only** **Progress and Available Storage** 00:29:30,24	This multi-function indicator displays record progress and available storage. By default, the Time Dome indicates one revolution every 10 seconds, or one revolution during a fixed length recording. Select the Time Dome, then choose Available Storage or Record Progress only. See "Displaying available storage space" on page 144
❽ **Length** Length:	Select the Length control to enter the clip length, then choose record. Recording continues until you choose stop, or the specified length is reached.
❾ **Protocol Monitor Button**	Appears when a channel is configured for remote control using a remote control protocol applications. The button flashes when the application is successfully receiving serial control protocol commands. Selecting the button opens the Protocol Monitor pane used to monitor command activity.See "Monitoring remote control communications" on page 283. *NOTE: The Protocol Monitor dialog will not open until a controller is connected and at least one command set is sent.*

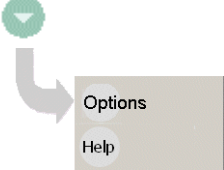| Control	Description and User Operation
❿ **Meterbar Button** 🔊	Displays the Meterbar which contains the audio record level controls and signal meters. Changes to the audio level are saved for the channel.

Guide to Protocol Player: Protocol Only mode

The *Protocol control only* mode allows you to only monitor play channel operations and view clip information. All control comes from the external device. The buttons, menu items, and other interface controls are disabled. You can select this mode by choosing the **Protocol control only** option in the Options dialog box. (See "Selecting the control port and control mode" on page 268.)

The following describes the indicators displayed *Protocol control only* mode.

	Control	Description and User Operation
❶	**Assignable Buttons**	Assignable buttons allow you to modify the button assignment to best suit your workflow. Holding down a button longer than one second opens the button pop-up menu which lists the alternative button choices. Button choices include **Options** or **Properties**. The buttons function the same as the context menu items. See "Protocol control only Context Menu" later in this table.
❷	**Current Timecode** `16:27:13;29`	Indicates the current timecode of the timecode of the clip. The timecode value of *XX:XX:XX:XX* is displayed when there is no recorded timecode. See "Striping timecode (replacing the timecode track)" on page 165.
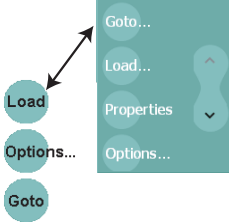
Control	Description and User Operation
❸ **EE or Playback Selection** `16:27:13;29` EE	The text displayed to the right of clip timecode indicates the playback mode selection: EE or PB. When E to E is selected, the play channel output switches to the record channel input when playback is stopped. When PB is selected, play channel output freezes on the last video frame. To select the playback mode, refer "Selecting E to E mode" on page 169.
❹ **Clip name and current bin** Clip: Clip_2 Location: V:/default	Displays the clip's name and location in the video storage file system. In Status view you cannot rename the clip.
❺ **Countdown timecode** `00:01:06;17`	Displays the time remaining for the clip loaded in player.
❻ **Protocol Only Mode Context Menu** Options Help	**Options** – Opens the Options dialog box used to select the control mode, and the control port. See "Selecting the control port and control mode" on page 268. **Help** – Opens online help.
❼ **Thumbnail**	Used to visually identify the current clip loaded in Player. When AMP and VDCP protocols are used, the thumbnail includes the current and preview clip. You can click or touch the thumbnail image to toggle between the preview and current clip thumbnails. This allows you to identify the preview clip before it plays. Generally the preview clip begins playing after the current clip completes, at which point the preview clip becomes the current clip.
❽ **Time Dome** Progress only 00:00:03;23 Progress with media marks 00:00:02;15 Progress & loop play enabled 00:00:08;21	This multi-function control displays play progress, or play progress with media marks which shows the relative position of mark-in/mark-out points in the clip. The timecode underneath indicates play time remaining. The Time Dome is also used to enable and indicate loop play mode. You must temporarily switch to Local Control mode, then select and hold the Time Dome, and select **Loop Play** in the pop-up menu.
❾ **Protocol Monitor Button**	Appears when a channel is configured for remote control using a remote control protocol applications. The button flashes when the application is successfully receiving serial control protocol commands. Selecting the button opens the Protocol Monitor pane used to monitor command activity. See "Monitoring remote control communications" on page 283. *NOTE: The Protocol Monitor dialog will not open until a controller is connected and at least one command set is sent.*

Guide to Protocol Player: Local/Protocol mode

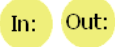The *Local and Protocol control* mode allows you to control a play channel locally as well as remotely to play clips. You can select this control mode by choosing **Local and Protocol control** in the Options dialog box. (See "Selecting the control port and control mode" on page 268.)

The following describes the controls and indicators displayed in the *Local and Protocol control* mode.

Control	Description and User Operation
1 Assignable Buttons 	Assignable buttons allow you to modify the button assignments to best suit your workflow. Holding down a button longer than one second opens the button pop-up menu which lists the alternative button choices. **Goto** – Used to jump to a specific timecode in the current clip, or skip to the preview clip. See "Skipping to the preview clip during playout" on page 281 and "Jumping to a specific timecode" on page 281. **Load** – opens the Load Clip dialog which displays the contents of the current bin. Select a clip, then choose OK to load. **Properties** – Opens the Clip Properties dialog for the current or preview clip. **Options** – Opens the Options dialog box used to select control mode and control port. See "Selecting the control port and control mode" on page 268.

Control	Description and User Operation
❷ **Current Frame Timecode and Stop Mode.** `12:17:28;12` PB	Indicates the recorded timecode of the current frame being played. The timecode value of *XX:XX:XX:XX* is displayed when there is no recorded timecode. The text displayed to the right of clip timecode indicates the playback mode selection: EE or PB. When E to E is selected, the play channel output switches to the record channel input when playback is stopped. When PB is selected, play channel output freezes on the last video frame. To select the playback mode, refer "Selecting E to E mode" on page 169.
❸ **Clip name & Current Bin** Clip: Clip_2 Location: V:/default	Displays the current or preview clip's name and location in the video storage file system. You can toggle between current and preview clip name by clicking the thumbnail image. To rename the clip, touch or click the clip name, then use the onscreen or external keyboard to enter a new name.
❹ **Countdown Timecode** ▼ `00:01:06;17`	Indicates the time remaining for the clip.
❺ **Local/Protocol Control Context Menu** Options… Load… Goto… Stripe Timecode… Properties… Locate E-to-E Help…	**Options** – Opens the Options dialog box used to configure the protocol player application. See "Selecting the control port and control mode" on page 268. **Load** – Opens the load clip dialog box. **Goto** – Used to jump to a specific timecode in the current clip, or skip to the preview clip.The Goto Timecode dialog allows you to enter a timecode value or use the scrub bar to jump to a specific position in the current clip. See "Jumping to a specific timecode" on page 281 or "Skipping to the preview clip during playout" on page 281. **Stripe Timecode**– Opens the Stripe Timecode dialog which allows you to replace the existing timecode track for the loaded clip. You can replace with time of day, or a specific start timecode. See "Striping timecode (replacing the timecode track)" on page 165. **Properties**– Opens the Properties dialog for the currently loaded clip. **Locate** – Locates the currently loaded clip in the Clips pane. See "Locating a clip" on page 155. **E to E** – In E to E mode, if the play channel is stopped with a clip loaded, the play channel output is switched to the record channel input instead of displaying a still frame. See "Selecting E to E mode" on page 169. **Help** – Opens online help.
❻ **Current and Preview Clip Thumbnail**	Used to visually identify the current clip loaded in Player. When AMP and VDCP protocols are used, the thumbnail includes the current and preview clip. You can click or touch the thumbnail image to toggle between the preview and current clip thumbnails. This allows you to identify the preview clip before it plays. Generally the preview clip begins playing after the current clip completes, at which point the preview clip becomes the current clip.

Control	Description and User Operation
❼ **Time Dome** Progress only 00:00:03;23 Progress with media marks 00:00:02;15 Progress & loop play enabled 00:00:08;21	This multi-function control displays play progress, or play progress with media marks which shows the relative position of mark-in/mark-out points in the clip. The timecode underneath indicates play time remaining. The Time Dome is also used to enable and indicate loop play mode. Select and hold the Time Dome, then select **Loop Play** in the pop-up menu.
❽ **Set Mark-in and Set Mark-out** In: Out:	These buttons are used to set new mark-in or mark-out points. Position the clip to the desired frame, then click or touch the In or Out buttons. Unused media is not deleted. To clear a mark, hold down the button for longer than one second, then choose Clear Mark in the pop-up menu. Marks are reset to the beginning or end of available media. See "Editing a clip: Moving mark-in/mark-out" on page 162.
❾ **Protocol Monitor Button**	Appears when a channel is configured for remote control using a remote control protocol applications. The button flashes when the application is successfully receiving serial control protocol commands. Selecting the button opens the Protocol Monitor pane used to monitor command activity. See "Monitoring remote control communications" on page 283. *NOTE: The Protocol Monitor dialog will not open until a controller is connected and at least one command set is sent.*
❿ **Meter Bar Button**	Displays the Meterbar which contains the audio play level controls and signal meters. Changes to the audio level can be saved with the clip. See "Adjusting playback audio level" on page 164.

Using Protocol Recorder: Local control tasks

In local control mode, you can perform all the tasks locally that are available in the standard recorder application while the record channel is still under remote control. For a full description of all the tasks you can perform using the Recorder user interface, refer to "Guide to using Recorder" on page 132.

Using Protocol Player: Local control tasks

In local mode, the Player user interface operates just like the standard Player application. For a full description of all the tasks you can perform using the Player user interface, refer to "Guide to using Player: Play View" on page 148.

In addition, the following sections describe tasks that are unique to the AMP and VDCP protocol player applications.

- "Playout using current and preview clips"
- "Skipping to the preview clip during playout"
- "Jumping to a specific timecode"
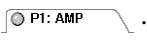
Playout using current and preview clips

The AMP and VDCP Player applications use a two-head model in that two clips are loaded simultaneously, as follows:

- Current clip — The "preset id" is considered the current clip that controls channel resources, i.e. video, audio, and timecode outputs.

- Preview clip — The "preview preset id" is considered the preview clip. Generally the preview clip begins playing after the current clip completes, at which point the preview clip becomes the current clip.

If you don't need this functionality you can use the protocol player applications just like the standard player, loading and playing a single clip. See "Loading a clip from the Clips pane" on page 153 and "Playing a clip" on page 155.

To playout using current and preview clips:

1. In the toolbar, select the **Split Screen** button .

2. Select a play channel using the front panel button , or the play channel tab in the Tools pane P1: AMP .

3. In the protocol player, click (or touch) the thumbnail image to place the current clip thumbnail in front of the preview thumbnail.
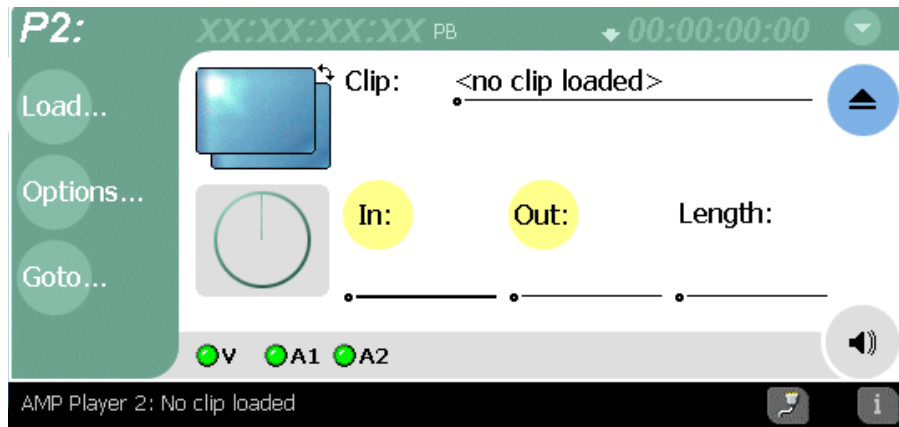
4. Load a clip from the Clips pane using one of the following:

   • Click (or touch) the clip and drag it to the Player pane.

   • Rotate the front panel **Selection Knob** to select a clip, then push in on the knob to load the clip.

   • Select the clip, then choose the **Load** button in the Clips pane.

   • Double-click on an clip.

   • Select a clip, then press Enter on an external keyboard.

   The clip is loaded as the current clip and the thumbnail appears.
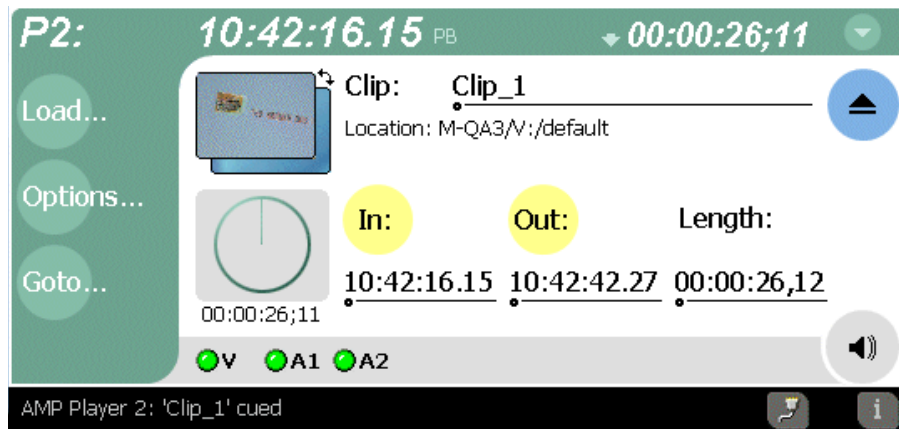
NOTE: You can load a preview clip only if the Current (preset) clip is loaded.

5. Load the preview as described in the previous step 4.

The preview thumbnail appears behind the current clip thumbnail. You can click the thumbnail image to bring the preview image to the foreground without effecting current clip playout.
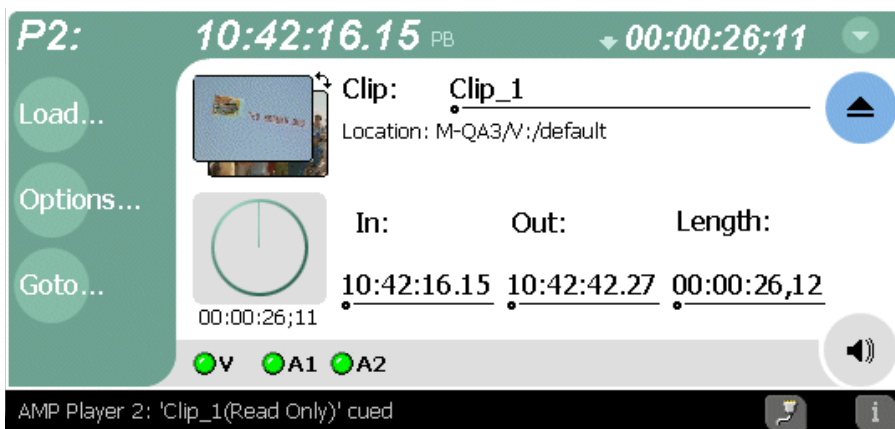
6. Start current clip playout using your remote control device or software.

When the current clip playout reaches its mark-out point, it is ejected and the preview clip is promoted to current clip and begins to play.

NOTE: You can toggle between current and preview clip thumbnails at anytime to identify the preview clip without affecting current clip playout.

7. Load a new preview clip (see step 5) to continue uninterrupted playout.

Skipping to the preview clip during playout

During playout, you can skip to the preview clip.

• Select the **Goto** button in the player toolbar, then choose the **Skip to Preview** in the pop-up menu.

The play channel begins to play the preview clip.

Jumping to a specific timecode

The Goto Timecode dialog allows you to jump to the specific timecode in the current clip. You can enter absolute timecode values based on recorded timecode, or relative timecode values.

To jump to a specific timecode:

1. Open the Goto Timecode dialog box using one of the following:

• Select the **Goto** button in the player toolbar, then select the **Timecode** menu item.

• Select the context menu button in player , then choose **Goto Timecode**.

The Goto Timecode dialog appears.
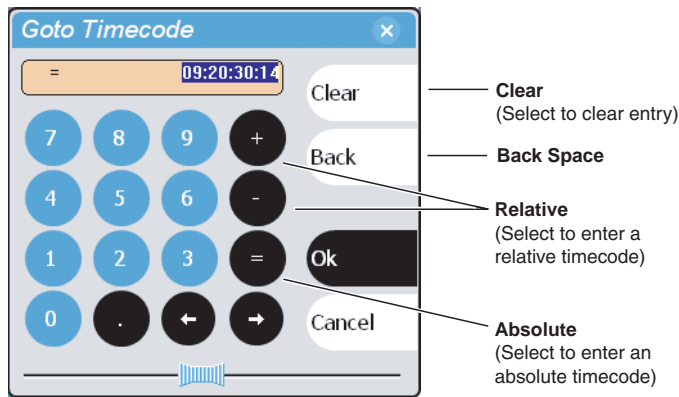
2. Enter a timecode value using one of the following:

- To enter a *relative* timecode value, select the '**+ or -**' key, enter timecode, then select **Ok**.

- To enter an *absolute* timecode value, select the '**=**' key, enter timecode, then select **Ok**.

- Select and drag the **Scrub Bar** —▮▮▮▮▮— while monitoring play channel output, then click **Ok** to close.

Monitoring remote control communications

The Protocol Monitor button [icon] is displayed in the AppCenter StatusBar when a protocol application is running on an iVDR channel. The button flashes when any channel is receiving remote control messages. Clicking the button opens the Protocol Monitor dialog box which you can use to determine which channels are receiving messages.

NOTE: The Protocol Monitor dialog will not open until a controller is connected and at least one command set is sent.

To open the Protocol Monitor dialog box:

• Click the Protocol Monitor button [icon] in the AppCenter StatusBar.

The dialog box displays the channel number and protocol being used, along with the port number and control mode (Local or Protocol only). The green status LED indicates the port is receiving protocol commands.
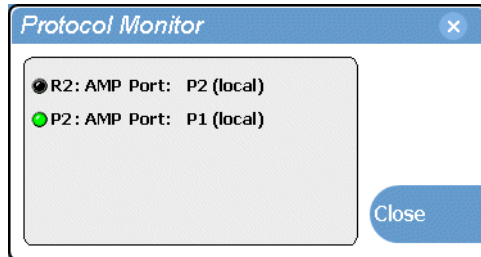
Appendix **A**

Specifications

Specifications in this chapter:

- *"AC power specification"*
- *"Environmental specifications"*
- *"Mechanical specifications"*
- *"Electrical specifications"*
- *"Operational specifications"*

AC power specification

The M-Series iVDR AC power specification is shown in the following table.

Characteristic	Specification
Mains Input Voltage	100V to 240V auto-range, 50-60Hz
Power consumption	300W typical, 450W maximum

⚠ **WARNING: Always use a grounded outlet to supply power to the system. Always use a power cable with a grounded plug, such as the one supplied with the system.**

Environmental specifications

Characteristic	Specification
Ambient Temperature Non-Operating	-40° to +60° C
Ambient Temperature Operating	10° to +40° C
Relative Humidity	Operating 20% to 80% from -5° to +45°C Non-Operating 10% to 80% from -30° to +60°C Do not operate with visible moisture on the circuit boards
Operating Altitude	To 10,000 feet IEC 950 compliant to 2000 meters
Storage Altitude	To 40,000 feet
Non-Operating Mechanical Shock	Class 5 (30G) Thomson Grass Valley 001131500
Random Vibration	Operational: Class 6 Thomson Grass Valley 001131500 Non-Operational: Class 5 Thomson Grass Valley 001131500
Transportation	Thomson Grass Valley 001131500
Equipment Type	Information Technology
Equipment Class	Class 1
Installation Category	Category II Local level mains, appliances, portable equipment, etc.
Pollution Degree	Level 2 operating environment, indoor use only.

Mechanical specifications

Dimension	Measurement
Height	7 in (177 mm)
Width	17.75 in (450 mm)
Depth[a]	25.5 in (647 mm) Rack-mounting ears in forward position.
Weight:	55 lbs. (25 kg)

[a.] Adjustable rack-mounting ears accommodate different rack depth limitations.

Electrical specifications

The following sections describe the electrical specifications:

Serial Digital Video (SDI)

Parameter	Specification
Video Standard	525 Line or 625 Line component
Number of Inputs	1 per record channel
Number of Outputs	2 per play channel
Data format	Conforms to SMPTE 259M
Connector	BNC, 75 ohm, No loop through
Return Loss	≥15db, 5Mhz to 270Mhz
Ancillary Data	Ancillary data is blanked
Number of bits	10
Max Cable Length	225 meters (738 ft) (Belden 8281 type cable)

Composite Analog Video

Parameter	Specification
Composite Video Standard[a]	NTSC, 525 line (59.94Hz) Conforms to SMPTE170M, or PAL, 625 line (50Hz) Conforms CCIR Report 624
Number of Inputs	1 per record channel
Number of Outputs	2 per play channel
Connectors	BNC, 75 ohm

a. The iVDR can record signals from most non-timebase corrected signal sources such as color under video playback devices, i.e. VHS or U-Matic VTRs, and low cost cameras. However, for reliable recording performance some devices may require external signal conditioning products, i.e. timebase correction.

Genlock Reference

Characteristics	Description
Signal Type	NTSC/PAL Color Black Composite Analog
Connectors	2 BNC, 75 ohm passive loop through
Color Field Detection, Based on SCH Phase	Correct color framing for signals having an average SCH phase ±40°; Lockup ±10°. Once locked to color field, it will stay locked over a range of 0° to ±90°
Burst Frequency Lock Range	PAL,±10 Hz at subcarrier NTSC, ±20 Hz at subcarrier
Signal Amplitude Lock Range	Stays locked to +6 dB and -3 dB
Input Return Loss	≥40 dB to 5 MHz
Unlocked internal clock accuracy[a]	When not locked to a reference, 27Mhz. will be within ± 25PPM

a. Internal reference provides accurate free-running timing signals in the absence of genlock reference to allow asynchronous record and play.

System Timing

Characteristics	Description[a]
Nominal Playback Output Delay	Adjustable (Default: Zero timed to reference)

Output Delay Range
(Independent for each play channel)
	Frames – NTSC 0 to +1 frames,
	      PAL 0 to +3 frames
	Lines – NTSC (525 lines) 0 to +524 lines,
	    PAL (625 lines) 0 to +624 lines.
	Samples – NTSC (525 lines) 0 to +1715 clock samples,
	      PAL (625 lines) 0 to +1727 clock samples.
	Analog sub-pixels (SC)[b]– (analog video only). Range is slightly more than one sample clock period.

Nominal E to E Output Delay	NA (E to E is provided for monitoring purposes only, not intended as a program switch.)

[a] All delay values shown are relative to Black Reference.

[b] Output delay adjustments affect the SDI and composite analog outputs together. The analog sub-pixel adjustment is only a "fine" trim on the composite output with respect to the current SDI timing.

Analog Audio

Parameter	Specification
Audio Standard	Balanced differential analog
Audio Inputs	2 per record channel, Female XLR
Audio Outputs	2 per play channel, Male XLR
Audio Monitor	Stereo pair, Male XLR (Switched to monitor selected channel, Male XLR)
Impedance	Input: 15k ohm, balanced Output: 50 ohm per side, balanced
Sampling and encoding	48 KHz and 16-bit pcm

Audio headphone output

Parameter	Specification
Audio Standard	Single-ended analog output with volume control
Channels	One stereo pair, switched to monitor selected video channel
Connector	1/4 inch Stereo Audio Jack

LTC Input/Output

Parameter	Specification
Standard	SMPTE 12M Longitudinal Time Code, AC coupled, differential input
Number of Inputs	1 channel per record - Female XLR
Number of Outputs	1 channel per play - Male XLR
Input Impedance	1K ohm
Output Impedance	50 ohm
Minimum Input Voltage	0.1 V peak-to-peak, differential
Maximum Input Voltage	2.5 V peak-to-peak, differential
Nominal Output Voltage	2.0 V peak-to-peak differential.
LTC Reader	LTC reader will accept LTC at rates between 1/30 and 80 times the nominal rate in either forward or reverse directions.
LTC Transmitter	LTC transmitter outputs LTC at the nominal frame rate for the selected standard at 1x speed, forward direction only.

VITC Input/Output

Parameter	Specification
VITC	lines 10-22 (525 Line); lines 6-23 (625 Line)

GPI I/O specifications

Characteristics	Description
Number of Inputs/Outputs	12 inputs and 12 outputs.
Connector type	25pin D
GPI Input	Inputs set to TTL level high. Compatible with 5 volts CMOS/TTL open collector or contact closures.
GPI Output	Outputs are open drain drivers. Max. voltage when outputs are open = 45V Max. current when outputs are closed = 250ma Typical risetimes approximately 625ns Typical falltimes approximately 400ns

Operational specifications

Topics include:

- "Video codec description" on page 291
- "Vertical blanking interval compression" on page 291
- "Media file system performance" on page 291
- "Video network performance" on page 292
- "AVI file encoding requirements for importing" on page 292
- "Composite analog video input performance" on page 292

Video codec description

Model	Compression Types	Description
M-122A	DV25	SMPTE 314M-1999
M-222A	DV25 MPEG2 I frame only	SMPTE 314M-1999 4:2:2, data rate up to 25Mbs. Selectable encode range includes active picture or active picture plus VBI.

Vertical blanking interval compression

DV25 compression mode on the iVDR supports EIA/CEA-608-B Line 21 data services (closed captioning). This also includes the XDS portions of EIA-608 (eXtended Data Services) which is used for program ratings, time of day, etc. In DV25 mode, the M-Series decodes and records all line 21 data from both video fields, inserts it in the DV25 data stream, and then on playout, regenerates the signals on line 21.

M-Series MPEG I-Frame Only compression has the same capabilities when you select the **VBI plus picture** option in the Configuration dialog box. (See "Selecting video compression" on page 99.) When VBI plus picture is selected, 32 additional lines of the vertical blanking area are compressed along with the picture. This will includes the closed captioning information transmitted in the vertical blanking interval.

Media file system performance

- Maximum number of clips: 20,000
- Minimum record to play time: 5 second from start of record.
- Maximum bit rate:

    M-122A/M-222A: 25Mbs simultaneously on all four channels

Video network performance

The iVDR supports streaming video network transfers between iVDRs, Profile XP Media Platforms, or any device that supports General Exchange Format (GXF) as described in SMPTE 360M.

• 100BaseT Network Performance: >33Mb/s with all channels operating at 25Mb/s

• 1GBaseT performance: >80Mb/s with all channels operating at 25Mb/s.

• Ethernet streaming and Ethernet control on the same network adapter interface is allowed.

• Can handle four concurrent transfers with all four channels operating at 25Mb/s. Priority is given to record/playback during system bandwidth negotiations.

AVI file encoding requirements for importing

Before importing an AVI file, make sure it meets the following encode requirements.

AVI file encoding requirements:

• Video Compression - DV (SMPTE 314) 25Mb/s

• Color sampling - 4:1:1 (525 Line NTSC); 4:2:0 (625 Line PAL)

• Resolution - 720 X480 (525), or 720 X 576 (625)

• Frame Rate 29.97Hz - (525 Line), or 25Hz (625 Line)

• Audio Sampling - 16bit PCM, 48Khz sample rate, stereo

Composite analog video input performance

The iVDR can record signals from most non-timebase corrected signal sources such as color under video playback devices, i.e. VHS or U-Matic VTRs, and low cost cameras. However, for reliable recording performance some devices may require external signal conditioning products, i.e. timebase correction.

Rack-mounting and Connector Pin-outs

Rack-mounting the iVDR

The M-Series iVDR chassis is designed to fit standard rack sizes. Adjustable rack-mount brackets are attached to the front of the chassis to accommodate different rack depth limitations. From the factory, the rack-mount brackets are mounted in the forward position to allow the front panel to fit flush with the front of the rack. The rack-mount brackets can be moved toward the rear to accommodate rack depth.

Rack slide tracks shipped with the iVDR allow sliding in and out without having to remove the unit from the rack. If the rack does not already have rack slides installed, or if the slides are not correctly positioned, you will have to use those shipped with the iVDR.

When planning the placement of equipment in your equipment rack, bear in mind the following:

- Insure adequate air flow around the chassis to provide sufficient cooling. Operating ambient temperature will affect the amount of air circulation required to keep the iVDR within its temperature limitations. See "Environmental specifications" on page 286 for details.

- If the system is installed with its ventilation intakes near another system's exhaust or in a closed or multi-unit rack assembly, the operating ambient temperature inside the chassis may be greater than the room's ambient temperature. Install the system in an environment compatible with this recommended maximum ambient temperature.

- Ensure the rack is anchored to the floor so that it cannot tip over when the iVDR is extended out of the rack.

- Be sure to mount the iVDR in a way that ensures even weight distribution in the rack. Uneven mechanical loading can result in a hazardous condition. Secure all mounting bolts when installing the chassis to the rack.

The following sections describe installing the M-Series iVDR step-by-step.

Rack mount hardware shipped with the iVDR

Your iVDR comes with rack mounting hardware as shown. The iVDR are shipped with the *chassis sections* already attached.
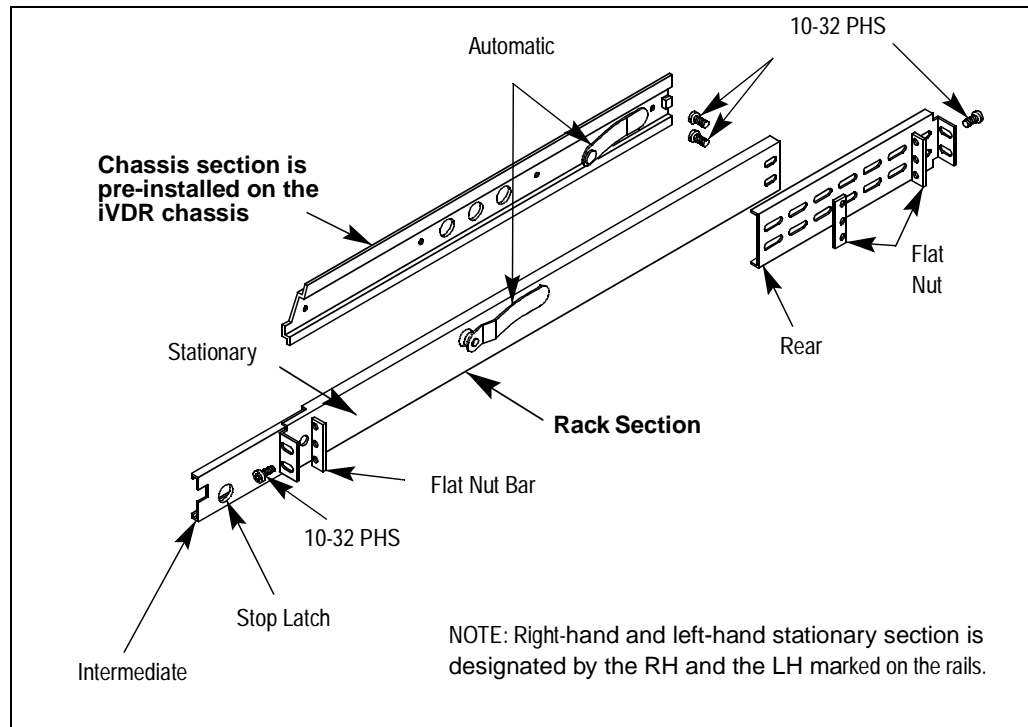
Mounting the Rack Slides

Choose the proper set of rail mounting holes on the rack. Notice that the hole spacing can vary with the rack type. When mounting the slides in racks with EIA spacing, make sure that the slides are attached to the 0.5-inch spaced holes.
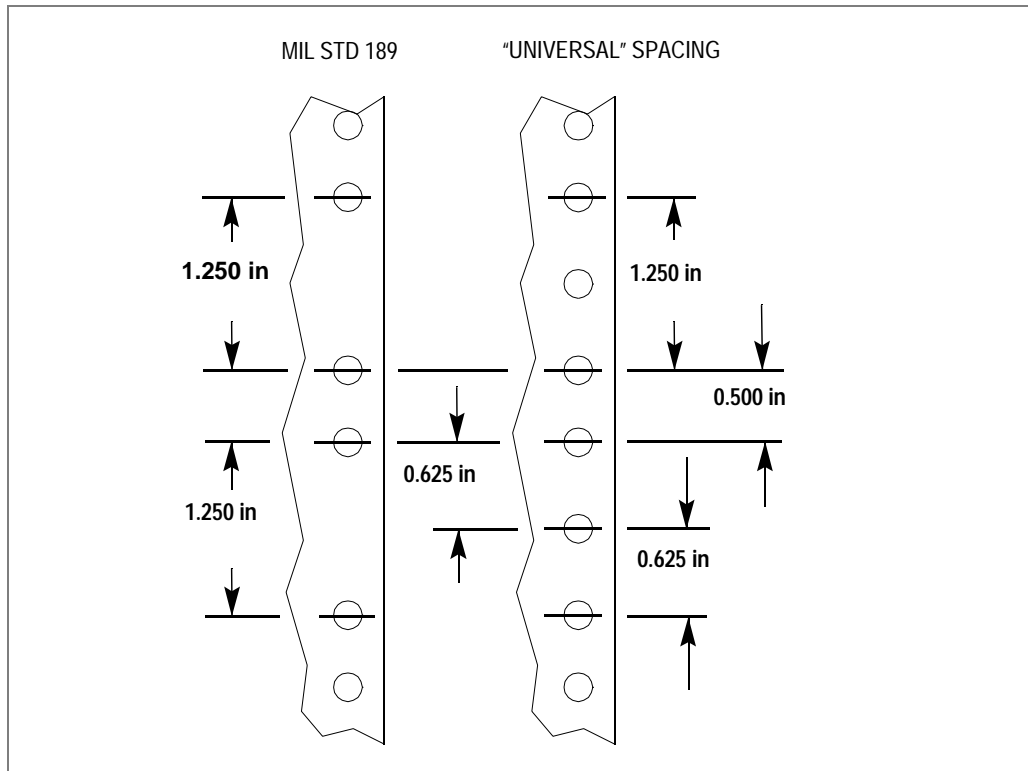
Front and rear rack rail mounting hardware is provided with the rack mount kit. Mount the rails using the enclosed hardware. Make sure the stationary sections are horizontally aligned and are level, as well as parallel to each other.

BAR NUT
(Use if the front rail is not tapped)

FRONT RACK RAIL

BAR NUT

PNH

REAR RACK RAIL
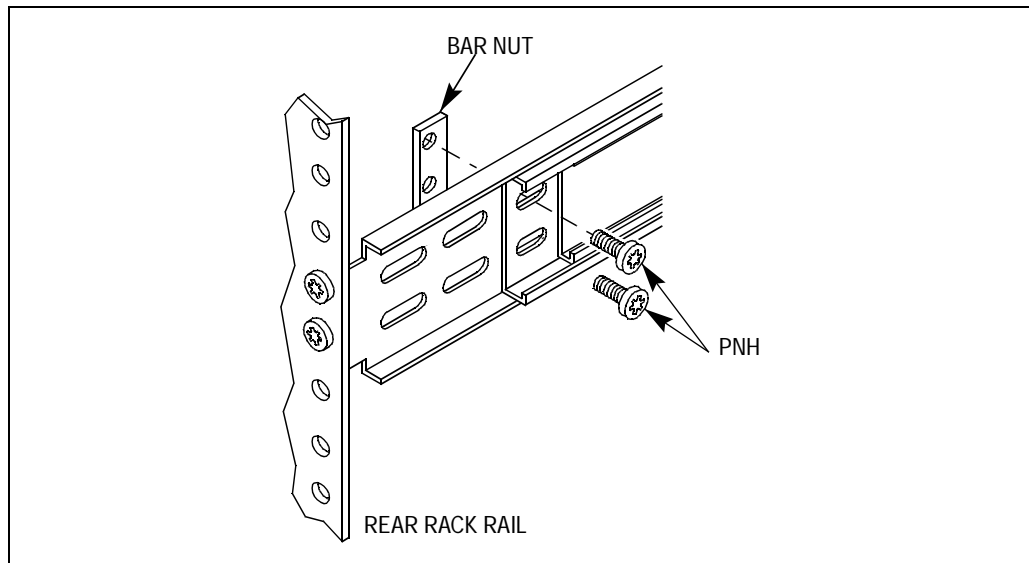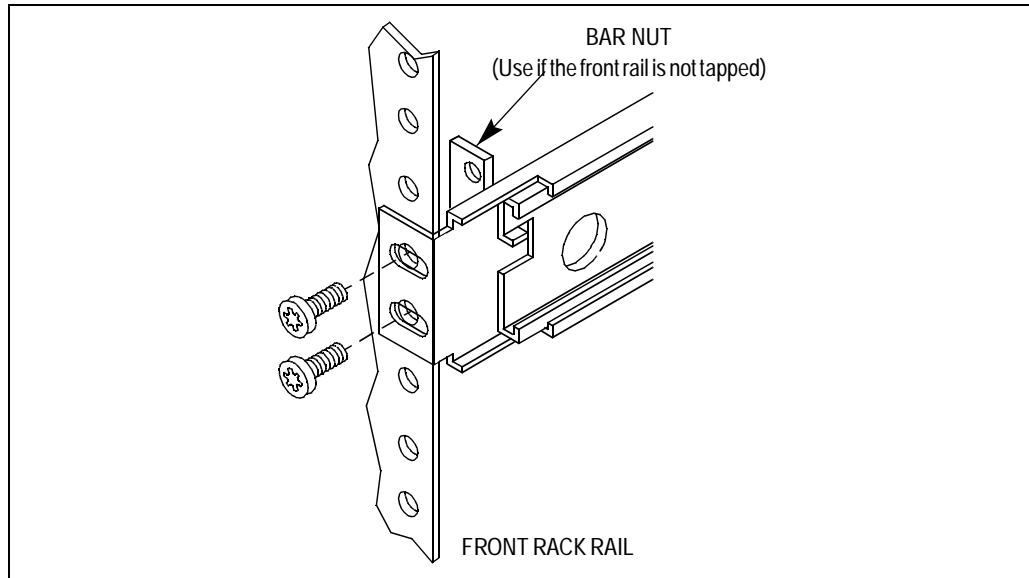
Installing the iVDR on the rack mount rails

To install the iVDR on the rack mount rails:

1. Pull the slide-out track section to the fully extended position.

⚠ *WARNING: To prevent injury, two people are required to lift the iVDR. It is too heavy for one person to install in the rack.*

⚠ *WARNING: To prevent serious injury, insure that the rack is anchored to the floor so that it cannot tip over when the iVDR is extended out of the rack.*

2. Insert the ends of the chassis sections into the slide-out sections.

3. Push the chassis toward the rack until the chassis sections lock into the intermediate sections.

4. Press the stop latches in the intermediate sections and push the chassis toward the rack until the latches snap into their holes.
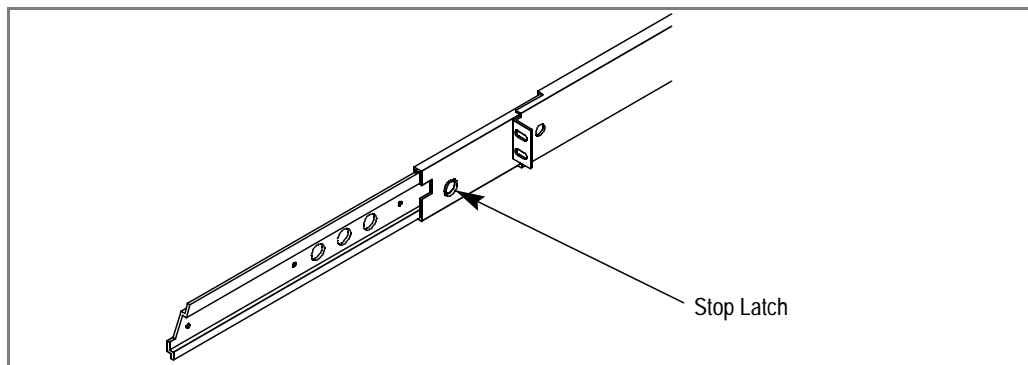
Stop Latch

5. Again, press the stop latches and push the cabinet fully into the rack.

6. Insert and tighten the front panel retaining screws.

Making Rack Slide Adjustments

After installation, binding may occur if the slide tracks are not properly adjusted. To adjust the tracks:

1. Slide the chassis out approximately 10 inches.

2. Slightly loosen the mounting screws holding the tracks to the front of the rails and allow the tracks to seek an unbound position.

3. Tighten the mounting screws and check the tracks for smooth operation by sliding the chassis in and out of the rack several times.

4. Tighten the front panel retaining screws once the cabinet is in place within the rack to complete the installation.

Adjusting rack-mount brackets

The four-position adjustable rack-mount brackets allows the iVDR to accommodate different rack depth limitations. The rack-mount bracket is shipped in the forward position allowing the iVDR front panel to fit flush with the front of the rack.

To reposition the rack-mount brackets:

1. Slide the chassis out approximately 10 inches, and remove the three mounting screws using Torx tool with a T15 tip.

1 Remove screws

3 Replace screws

2 Move bracket toward rear, and align chassis mounting holes with the nearest bracket mounting holes.
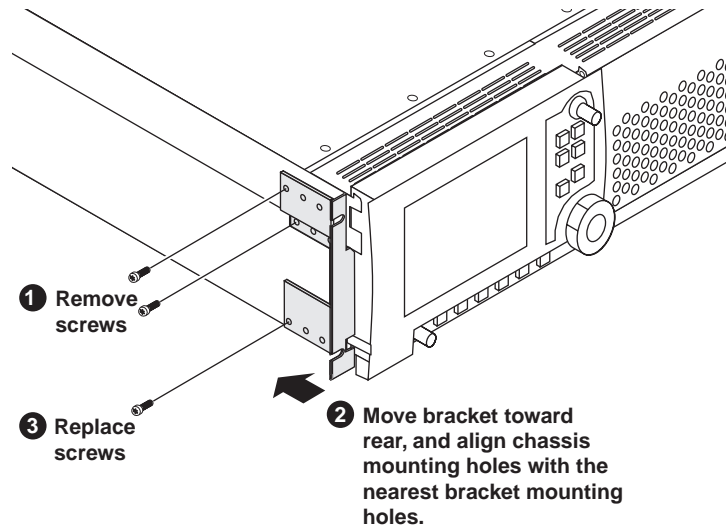
2. Move the bracket toward the rear to accommodate rack depth, then align the chassis mounting holes with the nearest bracket mounting holes.

3. Replace the screws.

Rear panel connector pin-outs

The following sections describe iVDR rear panel connector pinouts.

RS-422 connector pinouts
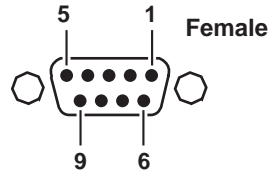
Pin #	Signal	Description
1	GND	Signal Ground
2	-TXD	Differential Transmit Data (low)
3	+RXD	Differential Receive Data (high)
4	GND	Signal Ground
5	NC	
6	GND	Signal Ground
7	+TXD	Differential Transmit Data (high)
8	-RXD	Differential Receive Data (low)
9	GND	Signal Ground

LTC connectors pinouts
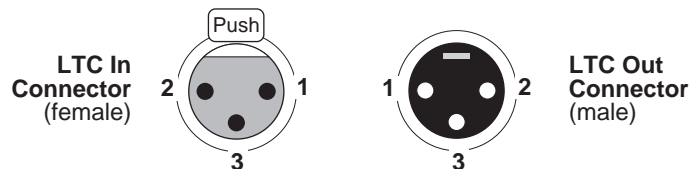
Pin #	LTC In	Pin #	LTC Out
1	Signal Ground	1	Signal Ground
2	(+)	2	(+)
3	(-)	3	(-)

Analog audio connector pinouts
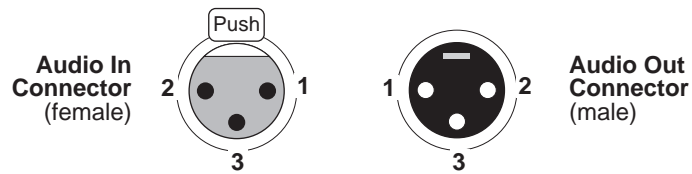
Pin #	Audio In	Pin #	Audio Out
1	Signal Ground	1	Signal Ground
2	(+)	2	(+)
3	(-)	3	(-)

GPI I/O connector pinouts
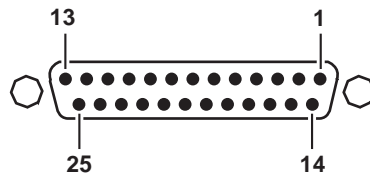
Pin	Signal	Pin	SIgnal
1	Output 1	14	Input 1
2	Output 2	15	Input 2
3	Output 3	16	Input 3
4	Output 4	17	Input 4
5	Output 5	18	Input 5
6	Output 6	19	Input 6
7	Output 7	20	Input 7
8	Output 8	21	Input 8
9	Output 9	22	Input 9
10	Output 10	23	Input 10
11	Output 11	24	Input 11
12	Output 12	25	Input 12
13	Ground		

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