grass valley

K2
Media Client

User Manual

SOFTWARE VERSION 3.3

071-8459-04
June 2009

THOMSON
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CERTIFICATE

Certificate Number: 510040.001

The Quality System of:

Grass Valley, Inc.

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Including its implementation, meets the requirements of the standard:

ISO 9001:2000

Scope:
The design, manufacture and support of video hardware and software products and related systems.

This Certificate is valid until: June 14, 2009
This Certificate is valid as of: August 30, 2006
Certified for the first time: June 14, 2000

H. Pierre Sallé

H. Pierre Sallé
President
KEMA-Registered Quality

The method of operation for quality certification is defined in the KEMA General Terms And Conditions For Quality And Environmental Management Systems Certifications. Integral publication of this certificate is allowed.

K2™

MEDIA CLIENT

User Manual

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JUNE 2009

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Revision Status

Rev Date	Description
November 23, 2005	Initial release of the K2 Media Client User Manual — 071-8459-00
August 15, 2006	Updates for 3.1 release — 071-8459-01
July 1, 2007	Updates for 3.2 release — 071-8459-02
July 30, 2008	Updates for 3.2.7 release — 071-8459-03
June 9, 2009	Updates for 3.3 release — 071-8459-04. Added AFD information.

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Finding Information

This user manual describes the K2 Media Client and provides instructions for using the product in a variety of applications. The manual contains information for all models and options. Refer to the sections that apply to your particular model and options.

How this manual is organized

This manual is organized around the tasks required to configure and operate the K2 Media Client. The following describes the chapters included in this manual:

Chapter 1, *Product Description* — Provides the product functional description and an overview of the key features.

Chapter 2, *Getting Started* — Provides an overview of getting AppCenter started and describes applications that allow you to configure and operate the K2 Media Client.

Chapter 3, *Using AppCenter* — Describes how to operate the K2 Media Client using the AppCenter user interface.

Chapter 4, *Recording clips* — Describes how to operate the AppCenter Recorder application.

Chapter 5, *Playing and editing clips* — Describes how to operate the AppCenter Player application.

Chapter 6, *Working with playlists* — Describes how to operate the AppCenter Playlist application.

Chapter 7, *Managing clip media* — Describes how to manipulate the AppCenter Clips pane.

Chapter 8, *Importing and Exporting Media* — Describes how to import and export media using AppCenter.

Chapter 9, *Using Channel Suites* — Describes how to manage the AppCenter channel suites.

Chapter 10, *SDA-00: Audio/Video Configuration* — Describes how to modify the K2 Media Client SDA-00 configuration settings using the configuration tool provided in the AppCenter application.

Chapter 11, *SD-00: Audio/Video Configuration* — Describes how to modify the K2 Media Client SD-00 configuration settings using the configuration tool provided in the AppCenter application.

Chapter 12, *HD-00: Audio/Video Configuration*— Describes how to modify the K2 Media Client HD-00 configuration settings using the configuration tool provided in the AppCenter application.

Chapter 13, *GPI and other configurations* — Describes how to modify the K2 Media Client GPI configuration settings, as well as remote host and security settings, using the configuration tool provided in the AppCenter application.

Chapter 14, *Channel Ganging and Track Mapping* — Describes how to modify the K2 Media Client Channel Ganging configuration settings using the configuration tool provided in the AppCenter application. Also describes how to add, modify, and route audio and video tracks to a clip.

Appendix A, *Keyboard Shortcuts* — Describes how to operate the K2 Media Client using an external keyboard.

Appendix B, *Specifications* — Provides environmental and operational specifications for the K2 Media Client.

Getting more information

The following illustration shows the recommended order in which to reference the documentation.

K2 Media Client Release Notes
The latest information about the hardware and software shipped with the system. Packaged with K2 Media Client.

Quick Start Guide
The essential steps for installing the K2 Media Client. Different models each have their own version, packaged with the K2 Media Client.

K2 Media Client System Guide*
Specifications and instructions for system settings.

Path for the installer of the K2 Storage System with connected K2 Media Clients

K2 Media Client and K2 Storage System** Release Notes
The latest information about the hardware and software shipped with the system.

K2 Storage System Cabling Guide**
Diagrams for cabling K2 Storage System devices.

K2 Storage System Instruction Manual*
Instructions to install/configure K2 Storage (SAN), with K2 Media Client, K2 Media Server.

K2 Media Client System Guide*
Specifications and instructions for system settings.

Other Manuals*
Including:
- *Quick Start Guide*
- *User Manual*
- *Service Manual*
- *RAID manuals*

Path for the operator

K2 Media Client Release Notes
The latest information about the hardware and software shipped with the system.

K2 Media Client User Manual*
Information for using the user interface to record, play and manage clips and to configure channels.

* Find the K2 Documentation CD packaged with K2 Media Clients and with K2 RAID Storage devices, primary chassis.

** Find the Storage Release Notes and Cabling Guide packaged with K2 RAID Storage devices, primary chassis.

Quick Start Guide

You receive this guide in the product packaging with your K2 Media Client. The Quick Start Guide provides step-by-step installation instructions for basic installation and operation, including recording and playing clips.

Release Notes

The release notes contain the latest information about the K2 Media Client 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. Because release notes contain the latest information, they are printed out rather than included in the Documentation CD-ROM.

Documentation CD-ROM

Except for the release notes and Quick Start guide, the full set of support documentation, including this manual, is available on the Documentation CD-ROM that you received with your K2 Media Client.

The Documentation CD-ROM includes the following:

- **User Manual** — Describes the K2 Media Client and provides instructions for configuring and operating the product.

- **Storage System Instruction Manual** — Contains installation, configuration, and maintenance procedures for shared storage options.

- **System Manual** — Contains the product specifications and step-by-step instructions for modifying system settings.

- **Service Manual** — Contains information for solving common setup problems as well as information on servicing and maintenance.

- **RAID Instruction Manuals** — There is an Instruction Manual for each type of RAID storage device that can be a part of a K2 Media Client shared storage system. These manuals contain procedures for troubleshooting and servicing the device.

- **K2 Storage System Cabling Guide —** Contains diagrams for cabling the devices of the K2 Storage System.

On-line Help Systems

K2 Media Client Help — You can access the on-line help through the AppCenter user interface as follows:

- In the menu bar select **Help,** then choose **AppCenter Help Topics** from the drop-down menu. K2 Media Client help is displayed.

NetCentral Help — If you are using NetCentral to monitor your K2 Media Client, from the NetCentral interface access on-line help as follows:

- For general help with NetCentral manager, select **Help | NetCentral Help Topics**.

- For help specific to monitoring K2 Media Client system devices, select **Help | Device Providers** and then select the monitored device.

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

For technical assistance, to check on the status of a question, or to report new issue, 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.

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

Telephone Support

Use the following information to contact Product Support by phone.

International Support Centers

Our international support centers are available 24 hours a day, 7 days a week.

Support Center	Toll free	In country
France	+800 80 80 20 20	+33 1 48 25 20 20
United States	+1 800 547 8949	+1 530 478 4148

Authorized Local Support Representative

A local support representative may be available in your country. To locate a support center during normal local business hours, refer to the following list. This list is regularly updated on the website for Thomson Grass Valley Product Support (http://www.grassvalley.com/support/contact/phone/).

After–hours local phone support is also available for warranty and contract customers.

Region	Country	Telephone
Asia	China	+86 10 5883 7575
	Hong Kong, Taiwan, Korea, Macau	+852 2531 3058
	Japan	+81 3 6848 5561
	Southeast Asia - Malaysia	+603 7492 3303
	Southeast Asia - Singapore	+65 6379 1769
	Indian Subcontinent	+91 11 515 282 502 +91 11 515 282 504
Pacific	Australia, New Zealand	+61 1300 721 495
Central America, South America	All	+55 11 5509 3440
North America	North America, Mexico, Caribbean	+1 800 547 8949 +1 530 478 4148

Region	Country	Telephone
Europe	UK, Ireland, Israel	+44 118 923 0499
	Benelux – Netherlands	+31 (0) 35 62 38 421
	Benelux – Belgium	+32 (0) 2 334 90 30
	France	+800 80 80 20 20 +33 1 48 25 20 20
	Germany, Austria, Eastern Europe	+49 6150 104 444
	Belarus, Russia, Tadzhikistan, Ukraine, Uzbekistan	+7 095 258 09 20 +33 (0) 2 334 90 30
	Nordics (Norway, Sweden, Finland, Denmark, Iceland)	+45 40 47 22 37
	Southern Europe – Italy	+39 02 24 13 16 01 +39 06 87 20 35 42
	Southern Europe – Spain	+34 91 512 03 50
Middle East, Near East, Africa	Middle East	+971 4 299 64 40
	Near East and Africa	+800 80 80 20 20 +33 1 48 25 20 20

END-OF-LIFE PRODUCT RECYCLING NOTICE

Grass Valley's innovation and excellence in product design also extends to the programs we've established to manage the recycling of our products. Grass Valley has developed a comprehensive end-of-life product take back program for recycle or disposal of end-of-life products. Our program meets the requirements of the European Union's WEEE Directive, the United States Environmental Protection Agency, and U.S. state and local agencies.

Grass Valley's end-of-life product take back program assures proper disposal by use of Best Available Technology. This program accepts any Grass Valley branded equipment. Upon request, a Certificate of Recycling or a Certificate of Destruction, depending on the ultimate disposition of the product, can be sent to the requester.

Grass Valley will be responsible for all costs associated with recycling and disposal, including freight. However, you are responsible for the removal of the equipment from your facility and packing the equipment to make it ready for pickup.
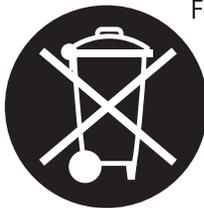
For further information on the Grass Valley product take back system please contact Grass Valley at + 800 80 80 20 20 or +33 1 48 25 20 20 from most other countries. In the U.S. and Canada please call 800-547-8949 or 530-478-4148, and ask to be connected to the EH&S Department. Additional information concerning the program can be found at: www.thomsongrassvalley.com/environment

Finding Information

Product Description

The K2 Media Client is a cost-effective media platform that incorporates IT and storage technologies to deliver a networked solution to facilities for ingest, playout, and media asset management. It is a comprehensive platform that provides a suite of user applications, system tools, and the largest range of third-party interactivity in the industry.

System Overview

The K2 Media Client comes in different models that offer choices between Standard Definition (SD) or High Definition (HD) video format, bidirectional or fixed channels, internal or external storage.

The table below describes the main attributes of the K2 Media Client models.

SDA-00	SD-00	HD/SD-00
Fixed channels (channel must be an input channel or an output channel)	Bidirectional channels (channel can be either an input channel or it can be an output channel)	Fixed channels (channel must be an input channel or an output channel)
SD analog only	Various SD definition formats	SD and HD definition: MPEG-2 only
Supports DV, MPEG-2 compression formats up to 50 Mb/s	Mixed-format playback (e.g. DV10, DV25, and MPEG-2 clips on the same timeline)	Up/down HD/SD conversion (e.g. SD and HD clips ingested, then played back as SD or HD clips.)
Internal, direct-connect, or shared storage	Internal, direct-connect, or shared storage	Internal, direct-connect, or shared storage

For a more detailed overview of available formats, see the *K2 Media Client System Guide*. For a more detailed overview of the different types of shared storage available, see the *K2 Storage System Instruction Manual*.

There are many different models of K2 Media Client. For a full list of all the available K2 Media Client models, see the *K2 Media Client System Guide*.

About remote operation and monitoring

The K2 Media Client is designed as a "headless" unit. This means that there is no need to connect a keyboard, monitor, and mouse directly to the K2 system, as ongoing operation, configuration, and monitoring can be accomplished from a PC on the network. You can lock the K2 Media Client locally, as you would normally lock a Windows computer, but still access the K2 Media Client from a Control Point PC. From this Control Point PC, you can use channels from different K2 Media Clients in one channel suite.

The software application that supports this headless functionality is called AppCenter. It is included with the K2 Media Client. For more information, refer to .

Automation protocols and other optional applications can also be used to control K2 Media Client units remotely. For more information, refer to the *K2 Media Client System Guide*.

You can also use the Microsoft Windows Remote Desktop Connection application on your PC to connect to the K2 system for configuration or administration. Do not use the Remote Desktop Connection to access the PC running the Control Point software or to access the AppCenter application; results can be unreliable.

NetCentral and the AppCenter status bar can be used to monitor the K2 Media Client as it ingests, outputs, or transfers media.

About K2 Media Client storage options

The K2 Media Client can have internal storage for standalone use. For multiple K2 Media Clients, however, Grass Valley recommends the K2 storage system.

The K2 storage system is Grass Valley's shared storage solution that gives multiple clients access to a common pool of media. Clients access the shared media storage via a Gigabit Ethernet network and a Fibre Channel connection. Data is communicated using the Small Computer System Interface (SCSI) data transfer interface and the Internet SCSI (iSCSI) protocol. For more information on the K2 storage system, see the *K2 Storage System Instruction Manual*.

Licensing

Grass Valley continues to develop the K2 product family to better meet the needs of a wide range of customer requirements. As these developments become available, you can add the specific functionality you need with Grass Valley software licenses. Detailed procedures for installing licenses come with option kits or are included in release notes for K2 products. Contact your Grass Valley representative to learn more about the licensing structure and for purchasing information.

Software version licenses

At major software releases, significant new features are added. If you are licensed for the software release, you can upgrade your software and received the benefits of the new features.

Licensable options

Optional applications, bundles of advanced features, and enhanced functionality are available as licensable options for K2 products. The following list describes some of the options:

• AppCenter Pro, included with a trial license, is an optional application for use with K2 systems.

• TimeDelay is an optional application for use with K2 systems.

• For SDA-00 and SD-00 models, a codec upgrade is available that adds D10 and DV50 compression and increases available MPEG-2 compression data rate up to 50Mbs, 4:2:2.

• K2 Pathfire capture service

- K2 DG capture service

- K2 XML Import capture service

- K2 InSync

- Avid-TM

This is not a complete list of all options. As development continues, new options become available. Contact your Grass Valley representative to learn more about current options.

Chapter **2**

Getting Started

Topics in this chapter include:

Getting Started with AppCenter

Prerequisites

Before you start AppCenter, make sure you have completed all the installation steps detailed below:

1. Make cable connections.

2. Power on.

3. If working from a network-connected PC, install the Grass Valley Control Point software from the system software disk.

4. Obtain a user name and password from your Windows administrator. For more information on login requirements, see "Types of K2 users".

5. If working with external storage, make sure you have it setup and configured. For information on external storage, see the *K2 Storage System Instruction Manual*.

For more information on installation procedures, see the *K2 Quick Start Guide* or the *K2 Media Client System Guide*.

Types of K2 users

Anyone with ordinary network access privileges can view the AppCenter channels. Before you can use AppCenter, you must log onto AppCenter using a user name and password supplied by a Windows administrator.

NOTE: A K2 administrator controls AppCenter, the K2 Media Client, and the K2 Media Server. A Windows administrator controls the Control Point PC or the computer on which the K2 system runs.

The table below explains the four types of K2 user.

Type of user	Access
Unknown user	Can view AppCenter (locally or on a network-connected Control Point PC) and see the channels being used, the properties of the clips in the current bin, and the Status pane; has access to online help. Can export logs.
K2 user	In addition to all the unknown user access privileges, the K2 user can create channel suites and run all of the channel applications (such as the Player or Recorder applications) on any K2 Media Client on which the user has an account. (If using a channel suite with channels on multiple K2 Media Clients, the user needs access privileges on each K2 Media Client.) Can view Configuration Manager.
K2 administrator	In addition to all the K2 user access privileges, the K2 administrator can make changes to Configuration Manager and use the Storage Utility and K2 Config applications.
Windows administrator	In addition to all the K2 administrator access privileges, the Windows administrator can create K2 users, enable or disable the USB drive connectors on the administrator's PC, and run AppCenter using the Microsoft Windows Remote Desktop application.

For the K2User, the default password is K2user. (The password is case sensitive.)
For more information on K2 access privileges, see the *K2 Media Client System Guide*.

Starting AppCenter

Once you have installed AppCenter, you can start it by clicking on the AppCenter

shortcut on the Windows desktop.

If you are using AppCenter on a local K2 Media Client, you can begin using it
immediately after you log on. The first time you run AppCenter remotely through a
network-connected Control Point PC, you need to set up a channel suite before you
can use AppCenter. For more information, refer to the next section "Starting
AppCenter for the first time with a Control Point PC".

> *CAUTION: If the K2 Media Client was shut down using Windows XP
> Standby mode, AppCenter will not start up, even though the K2 Media
> Client machine itself boots up normally.*

Starting AppCenter for the first time with a Control Point PC

Before you can run AppCenter from a network-connected PC running Control Point
software, you must perform two steps:

1. Log on to AppCenter (see the Windows administrator for domain, user name and
   password).

2. Configure a channel suite.

This section describes these steps in detail.

Logging on to AppCenter

The first time you start AppCenter, a Log on dialog box displays. Enter your user
name and password.

*NOTE: Your domain configuration might require that you use the syntax of machine
name\user name. For example, if you have difficulty logging on to a K2 Media Client,
try logging on as <K2 Media Client>\K2User.*

Once you have logged in, the Suite Properties dialog box displays.
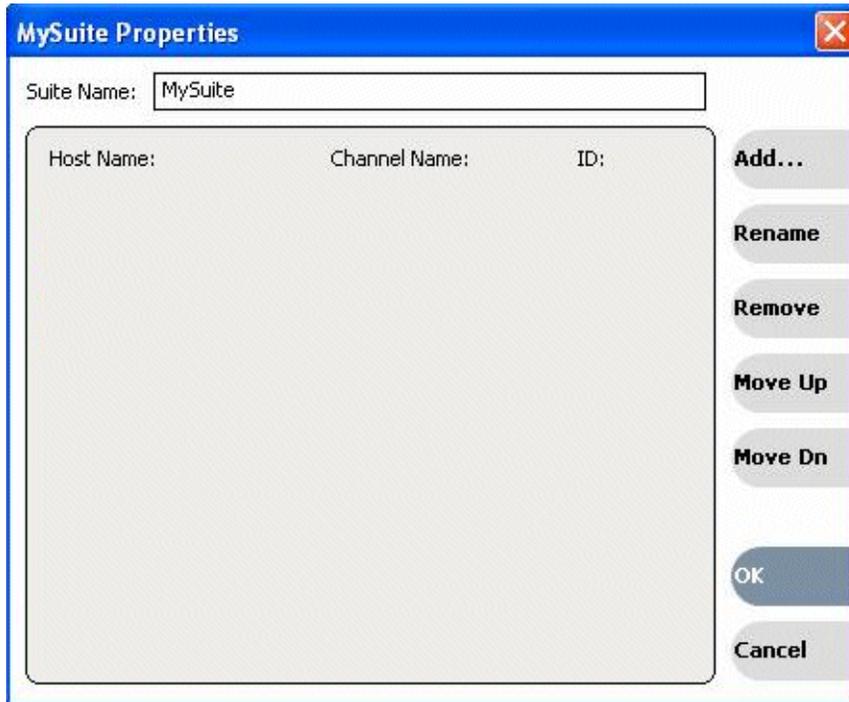
Configuring a channel suite

You need to configure the channel suite before you can use it. To configure a channel suite, specify a K2 Media Client that you want to use and add its channels to a channel suite. You can add channels from several K2 Media Clients to one channel suite, with a maximum of 16 channels in one channel suite.

To configure the channel suite, follow these steps:

1. At the blank Suite Properties dialog box, click the **Add** button. An Add Channel dialog box displays.
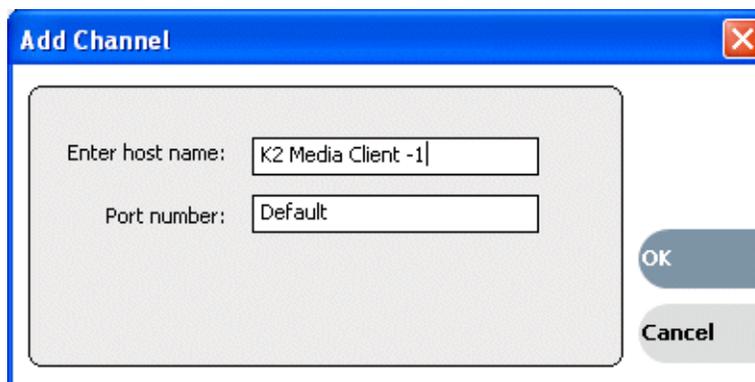
2. Enter the K2 Media Client host name or IP address.

3. Click **OK**. A second Add Channel dialog box displays, listing the channels on the

specified K2 Media Client.
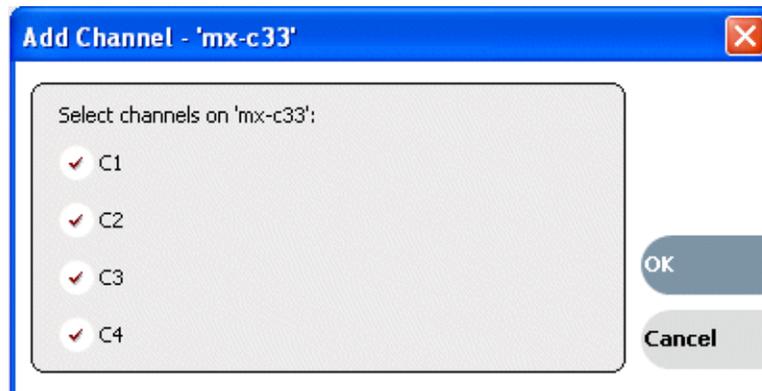
4. Select the channels you want in your channel suite and click **OK**.

5. Review the changes you have made to the Suite Properties dialog box and click **OK**.

Once you have saved the changes to the channel suite, you can modify the channel suite's name and location or rename or reorganize the channels. Descriptive channel names are especially helpful when using a channel suite with channels from multiple K2 Media Clients.
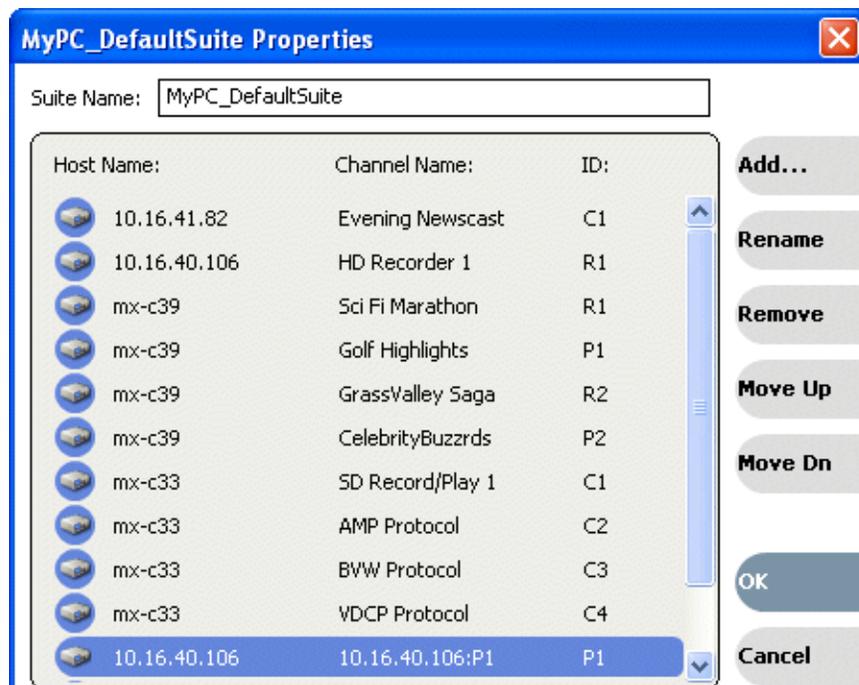
For more information on managing channels, see .

Starting AppCenter after creating a channel suite

For subsequent AppCenter startups using a Control Point PC, AppCenter will attempt to start by opening the last-used channel suite. If you have deleted or moved the last-used channel suite, you need to create a new channel suite or cancel the Channel Suite Properties dialog box and open the channel suite you want to use.

If you log on to AppCenter and the K2 Media Client running, you will see a System Startup message.
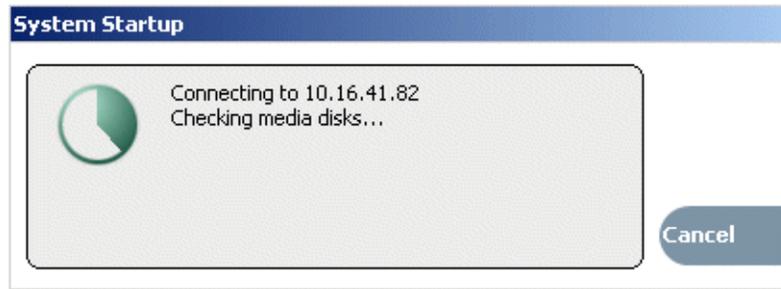
If you are running AppCenter with a Control Point PC, AppCenter opens with the last-used channel suite. To change the channel suite, select **System | Open Suite** or **System | New Suite**. To open one of the four last-used channel suites, select **System | Recent Suites**. Channel suites are saved by default in the C:\Profile\ChannelSuites directory in XML format. For more information on managing channel suites, see "Managing channel suites" on page 175.

If one of the channels is not available, the title bar for that channel will display its state, for example: "In Use", "Disconnected", and so on. For information on different channel states, see "Using channel suites" on page 175.

AppCenter startup errors

If you start AppCenter and the K2 Media Client is not running, or your login information is not correct, you will see a Startup Error message.

The following table describes the two most common startup error messages.

Startup Error	Description
Log on failed	Your user name or password is not valid for this K2 Media Client. Remember that the password is case sensitive. • Click **Ignore** to view the AppCenter channels. If working remotely, you will see the channels from the last-used channel suite. Or, • Click **Retry** to enter the login information again. Or, • Click **Abort.** If you are accessing AppCenter through a network-connected Control Point PC, **Abort** lets you try to create a new channel suite. If you are accessing AppCenter locally, it lets you exit to Windows. For assistance with your user name or password, consult your Windows administrator.
<K2 Media Client>: *<error>*	The K2 Media Client might be offline or have had difficulty with the start up checks. There are various reasons why AppCenter is having difficulty connecting to the K2 Media Client; for example, the error might say there is no file system or that the K2 system has been taken offline for maintenance. • Verify that the host name or IP address is correct and see if you can correct the problem. • If working locally, reboot the K2 Media Client. • If working from a network-connected Control Point PC, select **System | Reconnect** from the AppCenter System menu. For more information, see the *K2 System Service Manual*.

Locking AppCenter

You can lock the AppCenter interface so that keyboard and mouse input is disabled. You can do this on both local AppCenter running on a K2 Media Client and remote AppCenter running on a Control Point PC.

To lock AppCenter, do the following:

1. Click **System \| Lock AppCenter**. The Lock AppCenter dialog box appears.

All keyboard and mouse input to AppCenter is now disabled. The Lock AppCenter dialog box remains on the screen as an indicator that AppCenter is locked.

To unlock AppCenter, do the following:

1. On the Lock AppCenter dialog box, click **Unlock** and when prompted "…unlock AppCenter?" click **Yes**.

The Lock AppCenter dialog box closes. Keyboard and mouse input to AppCenter is now enabled.

Shutting down AppCenter

To shut down AppCenter, do one of the following:

- Click the standard Windows **X** button in the title bar, or

- Select **System | Shutdown**. The Shutdown dialog box opens.

The available Shutdown options depend upon whether you are shutting down AppCenter locally or remotely.

Shutting down AppCenter locally

When you shut down AppCenter locally, you have three options.
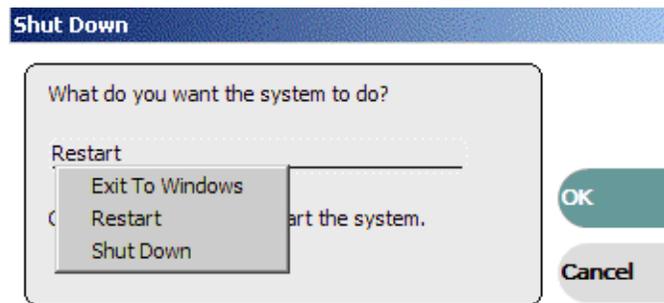
Shutdown options are as follows:

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.
Shut Down	Shut down the Windows operating system and power-off the K2 Media Client.

NOTE: If you shut AppCenter down locally, you must re-start it locally.

Shutting down AppCenter from a Control Point PC

When you shut down AppCenter from a network-connected PC using Control Point software, you have can suspend the channel suite or exit. If you select the Exit to Windows option, your channel suite is shut down and AppCenter is closed. (If you want to shut down the current channel suite but keep AppCenter running, you can open or create a channel suite in the System menu.)

The following table explains the Shutdown options:

Shutdown Mode	Description
Suspend channel suite	Exit AppCenter and display the Windows desktop. Applications and remote protocols in suspended channel suites keep running. Channels may be commandeered by another user. If all channels in a suspended channel suite are taken over in this manner, the channel suite is shut down. For more information, see "Sharing channels with other users" on page 177. Use the desktop shortcut to restart AppCenter.
Exit to Windows	Exit AppCenter, close the channel suite and display the Windows desktop. If you select this option, a second dialog box displays asking you to confirm that you want to exit, since any applications that are running (including remote protocols) will be stopped. Use the desktop shortcut to restart AppCenter.

NOTE: If you shut down AppCenter from a network-connected Control Point PC, the K2 Media Client is still running and can be accessed locally or from another network-connected Control Point PC.

Configuration Manager

Configuration Manager is the primary configuration tool for the K2 Media Client. It allows you to make settings that apply to the overall K2 Media Client as well as settings that apply to individual channels, as summarized in the following table.

Configuration Tab	Description
System	Configure the video reference, audio reference, and the timecode input. Note that choices made on this tab might affect options offered on other tabs. For example, if you designate the video reference standard to be NTSC, you do not see any options for PAL on the Channel tab. Refer to sections later in this document, "SDA-00: Audio/Video Configuration", "SD-00: Audio/Video Configuration", and "HD-00: Audio/Video Configuration", as appropriate for the type of K2 Media Client.
Channel	Configure the audio and video inputs and outputs on record and play channels. Refer to "SDA-00: Audio/Video Configuration", "SD-00: Audio/Video Configuration", and "HD-00: Audio/Video Configuration", as appropriate for the type of K2 Media Client.
Ganging	Configure channels to play or record together. Refer to "Channel Ganging and Track Mapping" on page 231.
GPI	Make settings for your GPI triggers. Refer to "GPI and other configurations" on page 225.
Panel	Set play speed options. Refer to "SDA-00: Audio/Video Configuration", "SD-00: Audio/Video Configuration", and "HD-00: Audio/Video Configuration", as appropriate for the type of K2 Media Client.
Remote	Manage other systems as remote hosts for importing or exporting media. Refer to *K2 Media Client System Guide*.
Security	Set permission levels for media access. Refer to *K2 Media Client System Guide*.

Opening and closing Configuration Manager

1. If you are accessing a K2 Media Client from a Control Point PC with a channel suite that has channels from multiple K2 Media Clients, select a channel from the K2 Media Client that you want to configure before opening Configuration Manager.

2. On the AppCenter menu bar, click **System | Configuration**. Configuration Manager opens.

NOTE: If the **System | Configuration** *menu option is grayed out, review your level of user access. For more information, see "Types of K2 users" on page 22.*

Use the scroll button when the list of settings extends below the area displayed.
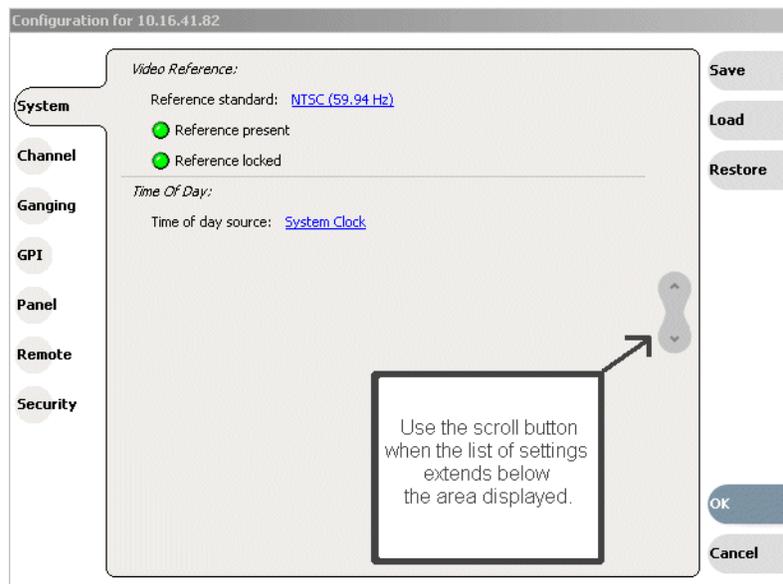
3. Select buttons, tabs, and links to find and make settings. Use the scroll button when the list of settings extends below the area displayed.

4. Close Configuration Manager as follows:

   • To apply changes, complete all your modifications on all Configuration Manager screens, then select **OK**.

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

   • If desired, save settings as a file, as explained in the next section "Saving and restoring configuration settings".

Saving and restoring configuration settings

You can save 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.

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.

You can also restore all the settings in Configuration Manager to their default settings, which returns the K2 Media Client to its initial factory configuration.

The following table summarizes these operations. Use these operations with care, as each one affects all Configuration Manager settings with a single operation.

In Configuration Manager, select this item…	To do the following…
Save	This dialog box allows you to save a configuration XML file on the K2 Media Client's Windows file system.
Load	This dialog box allows you to restore configuration settings from an XML file on the K2 Media Client's Windows file system.
Restore	Returns all configuration settings to their default values.

Monitoring applications

Status bar

The status bar displays information about the state of the delegated channel as well as low-level error messages. (High priority error messages are displayed in pop-up windows.) The status bar is located just above the Start button.

If you select a channel, a status message appears on the left-hand side of the status bar. If a potential error arises while an application is running in a channel, a status message flashes briefly on the left-hand side of the status bar, and an icon (such as the triangular Alert icon) displays on the right-hand side. Double click on the icon to open the status pane to view a more detailed message about the channel's status.

Status pane

The system status pane displays general information such as the video and audio settings on the channels. To check the system status, select **Help | System Status**. The system status pane displays. For help troubleshooting any potential error messages, refer to the *K2 Media Client Service Manual* or, for external storage models, the *K2 Storage System Instruction Manual*.
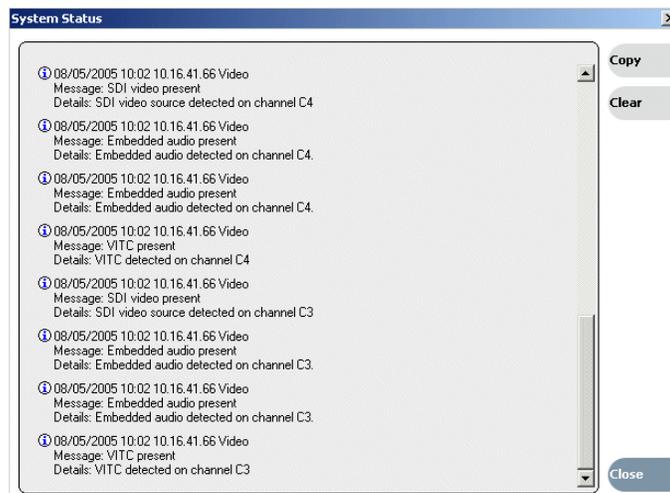
*NOTE: If the **Clear** button is grayed out, you do not have the necessary privileges to perform this action. For more information on access privileges, see "Types of K2 users" on page 22.*

Export Logs

The K2 Media Client log files includes all applications messages, Status pane logs, and messages related to managing the media file system. The exported log files can be sent to Thomson Grass Valley product support, where they can be examined to analyze the operation of your K2 System.

Exporting logs from AppCenter

To export a log while you are using AppCenter, select **System | Export Log**, choose the destination where you want to export the log, and click the radio button next to **All logs**.

Exporting logs from the Start menu

To export a log when you are not using AppCenter, click the **Start** button. From the Programs list, select **Programs | Grass Valley| Export logs**. Click the radio button next to **All logs**, and choose the destination where you want to export the log.

For more information, see the *K2 System Service Manual*.

Storage Utility

Storage Utility is your primary access to the media file system and media disks of the K2 Media Client for configuration, maintenance, and repair. There are two versions of Storage Utility:

• Storage Utility for internal storage K2 media client models

• Storage Utility for the K2 storage system.

*NOTE: If the **System | Storage Utility** menu option is grayed out, or you are unable to log in by clicking on the desktop icon, review your level of user access. For more information, see "Types of K2 users" on page 22.*

Accessing Storage Utility

Grass Valley strongly recommends that you access Storage Utility by selecting **System | Storage Utility** in AppCenter. However, if you are unable to access AppCenter, then open Storage Utility by clicking on the Storage Utility desktop icon.

Storage Utility

For Storage Utility procedures for internal storage, refer to *K2 Media Client System Guide*. Refer to the *K2 External Storage Instruction Manual* to learn about Storage Utility for the K2 storage system.

> *CAUTION: Use the Storage Utility only as directed by a documented procedure or by Grass Valley Support. If used improperly, the Storage Utility can render your K2 Media Client inoperable or result in the loss of all your media.*

K2 System Configuration

The K2 System Configuration application is the primary tool for configuring the K2 storage system. Once the devices of the storage system have the required software installed, are cabled, and are communicating on the control network, a K2 administrator can do all the configuration required to create a working K2 storage system using the K2 System Configuration application.

The K2 System Configuration application runs on a Control Point PC and accesses the devices of the K2 storage system via the control network. For more information on administering the K2 System Configuration application, see *K2 Storage System Instruction Manual*.

Chapter **3**

Using AppCenter

Topics in this section include:

About AppCenter

AppCenter is the built-in video disk recorder and player application that provides a single interface for tasks such as channel control, configuration, clip management, media transfers, channel monitoring, and system monitoring.

You can access AppCenter using a network-connected PC with Control Point software or you can access it by connecting a VGA monitor, mouse, and keyboard to the K2 Media Client. If connecting directly, the monitor must be capable of 1280 x 1024 @70Hz. Otherwise, AppCenter might limit the number of visible channels to three or less.

NOTE: If you are using the optional K2 TimeDelay application, see the K2 TimeDelay online help for information on using TimeDelay with AppCenter.

AppCenter user interface overview

Monitor pane
Displays channel status information

Channel pane
Displays channels in their current control modes

Clips pane
Displays media stored on media disks

This menu changes for the current channel application

These buttons control channel operations

A drop-down list here selects the channel's application

These buttons control media management operations

On-screen transport controls

These tabs switch views for the channel application

Click anywhere in the Monitor pane or Channel pane to select a channel

Click and drag borders to resize or hide panes

Statusbar
Displays current operations and system status

Main components in the AppCenter user interface

The following table describes the main components in the AppCenter window

AppCenter Component	Description
Monitor pane	Displays the current information for the channel. Displays a thumbnail of the clip currently loaded in the channel and indicates the current control application for the channel. Contains a drop down menu for changing the channel's application. For the currently selected channel, the monitor pane has a white background.
Channel pane	Displays each channel in its current application. Only one channel can be selected at a time. The currently selected channel is displayed with a white background.
Clips pane	Displays media stored on the K2 system and provides controls for media management.
Status Bar	Displays status and error messages, and includes tool buttons for opening Transfer Monitor, StatusPane, or the Protocol Monitor dialog box.

Playing the channel pane in full screen

Select **View | Full screen** to fill the entire channel pane with only the selected channel. This is useful when you need more room to display information, such as a long series of clips in the Playlist application.
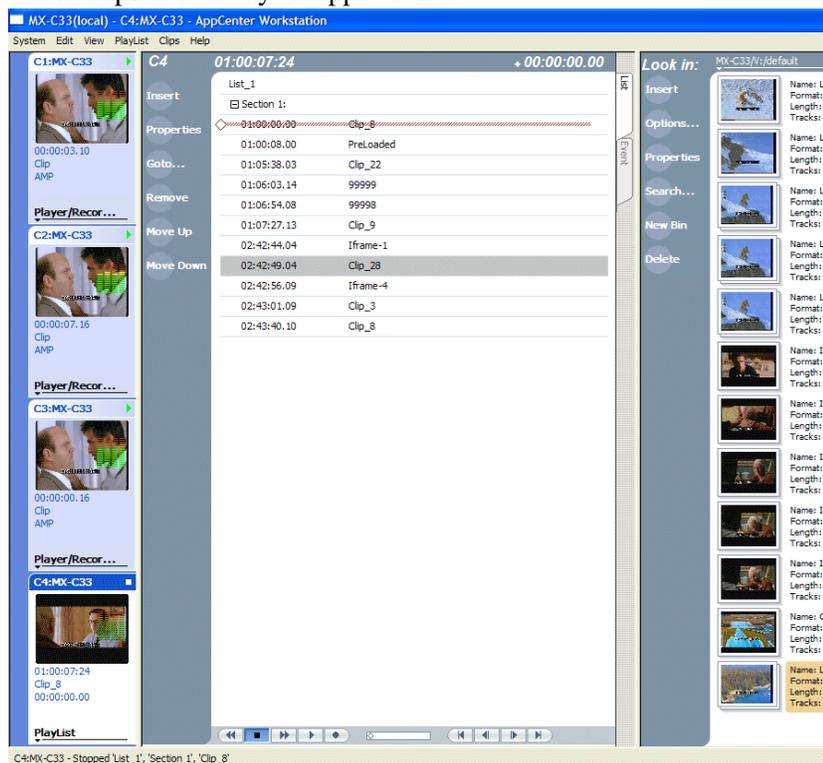
To return to split screen, select **View | Split screen**. If all channels cannot be displayed, a scrollbar appears on the left side of the pane. Scrolling in the channel monitor pane also applies to the control applications when viewed in Split Screen mode.

Tools in AppCenter

AppCenter includes the following tools for managing the K2 Media Client and its assets.

Tools	User Interface	Essentials Tasks
Configuration Manager		Configuring system settings
Transfer Monitor		Monitoring media transfers, including network transfers and file import/export
Online Help		Complete documentation of operational tasks.
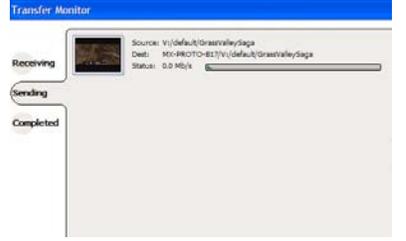
Conventions used in the AppCenter interface

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 text entry controls.

	Convention	Graphical Description and User Action
1	**Drop-down list** Player/Recorder	A horizontal line and arrowhead. Select and choose from a list of items in the drop-down list.
2	**Context Menu** Control Load... New Clip Subclip Goto... Schedule Start Time... Stripe Timecode Locate Properties Options... Auto Subclips Widescreen (16:9)	This menu changes depending on the application of the selected channel. It becomes a menu for Player/Recorder (SD-00 K2 Media Client only), Recorder (SDA-00 or HD-00 K2 Media Client), Player (SDA-00 or HD-00 K2 Media Client), or Playlist.
3	**Text Entry Control** Clip: My Clip Name	A horizontal line and small dot. Select to open the text entry **dialog** box.
4	**Eject Button**	Select to eject the current clip
5	**View Tabs** Control Cue	Select one tab or the other to toggle between different views in Player application or in Playlist application.
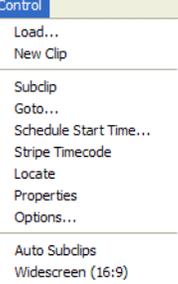
	Convention	Graphical Description and User Action
6	**Timecode Entry Control** 00:01:11;09	A horizontal line and small dot. Select to open the timecode entry dialog box.
7	**Meterbar Button** ◀))	Select to toggle between the Meterbar and the application interface. The Meterbar contains audio meters, and the audio level controls.
8	**Assignable Button Groups**	Some button groups are assignable. Holding down a button opens a pop-up menu that lists the alternative button choices. This allows you to customize the user interface to suit your workflow.

Terms and concepts used in AppCenter

Assignable buttons – Some buttons are assignable, meaning you can change the order that buttons appear in some button groups to better suit your workflow. Right-clicking a button causes a pop-menu to appear which lists the alternative button choices for that button.

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.

Channel application – Channels in AppCenter are always in one application or another. Each application has its own set of buttons, lists, controls, and other characteristics, relative to the operations performed in that application. The name of the application for the channel is displayed in the channel's monitor pane, which is also where you can change the application for the channel.

Clip thumbnail – Used for visual identification of a clip. By default, the thumbnail is generated from the 16th frame of video. You can select a new thumbnail using Player. If no thumbnail is available, an icon is displayed showing there is no thumbnail.

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.

Selected channel – there is always one channel that is selected. When a channel is selected, the channel is displayed with a white background in the channel pane. The keyboard is delegated to controlling the selected channel. To select the channel either select a channel in the monitor pane or press a keyboard shortcut. Changing the channel selection does not disrupt other channels, they continue to operate in the background.

Storage – The term "Storage" is used to refer to external, shared storage. Storage that is used internally with standalone K2 Media Clients will be specifically designated as "internal storage."

Timecode

Timecode is displayed in hours:minutes:seconds:frames. However, the timecode syntax differs based on whether the video is drop frame or non-drop frame.

	First Field	Second Field
Non-drop frame	. (period)	: (colon)
Drop frame	, (comma)	; (semicolon)

For example, in drop frame timecode, a clip could start on 01:15:00,04 and end on 01:15:00;09.

Volume – The set of media drives that functions as a single physical disk.

Channels overview

A channel is a set of resources that together have the capability to record or play media. AppCenter channels have applications for performing tasks such as recording or playing. When AppCenter starts, each channel comes up in an application. There is always one channel selected in AppCenter. The title bar displays the selected channel's name and the control application running on it.

When a channel is selected, the control application that is using that channel is the active control application. To select a channel, click on the channel monitor pane or click the control application in the control applications pane. The selected channel can receive input from the keyboard. Selecting a channel does not affect processing on any of the other channels, which operate in the background.

In a channel suite, you can name a channel or change the order in which the channels appear in the AppCenter window. For more information on renaming or rearranging channels, see "Managing channel suites" on page 175.

Administrators can set user permissions for each channel. Depending on your security settings, you could be denied permission to operate a channel. For more information, see the *K2 Media Client System Guide*.

Channel suites

A channel suite is a collection of channels. If you are using your K2 Media Client through a network-connected PC with Control Point software, the channels are accessed through a channel suite. Channel suites allow you to customize the channels to run particular applications or save the clips to specific locations. You can add channels from different K2 Media Client machines to one channel suite. Each channel suite can have up to 16 channels. For more information on channel suites, see "Using channel suites" on page 175.

NOTE: If you are running a K2 Media Client locally, you cannot use channel suites. You can only use the channels on that K2 system.

Channels on an SD-00 K2 Media Client

On an SD-00 K2 Media Client, the channels are labeled C1, C2, C3, C4. Each channel is *bi-directional*, that is, you can designate the channel to any application available on the system. Once you designate a channel to run a specific application, the channel remains the designated application until you change it. You can change the channel's application in the Channel monitor.

The following example shows channels on an SD-00 K2 Media Client.
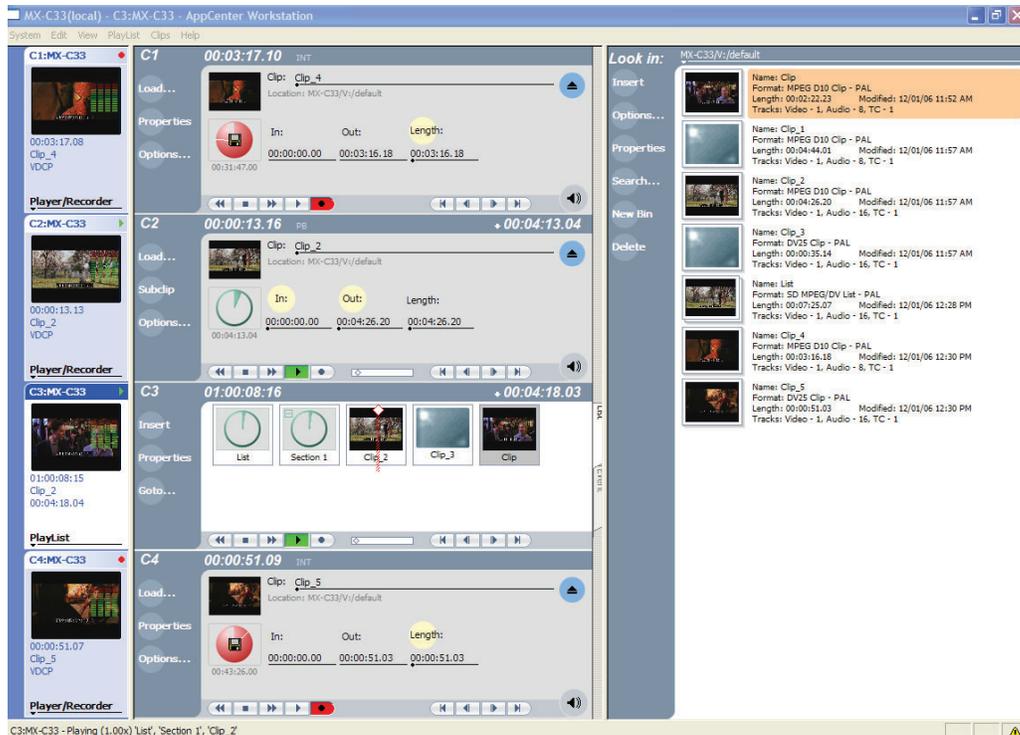
Channels on an SDA-00 or HD-00 K2 Media Client

On an SDA-00 or HD-00 K2 Media Client, the channels are labeled according to their predetermined application type, for example, Recorder (R1), Player (P1), Player (P2). Player (P3). Each channel is fixed, that is, the application types that run on that channel were designated when the machine was built. (For example, a Player channel can run applications that have play functionality, such as Player, Playlist or TimeDelay.)

The HD-00 K2 Media Client is configured so that it can accept standard video input formats as well as HD video input formats of 720p or 1080i. It can convert the video input into SD or HD video output format.

The following example shows channels on an HD-00 K2 Media Client.
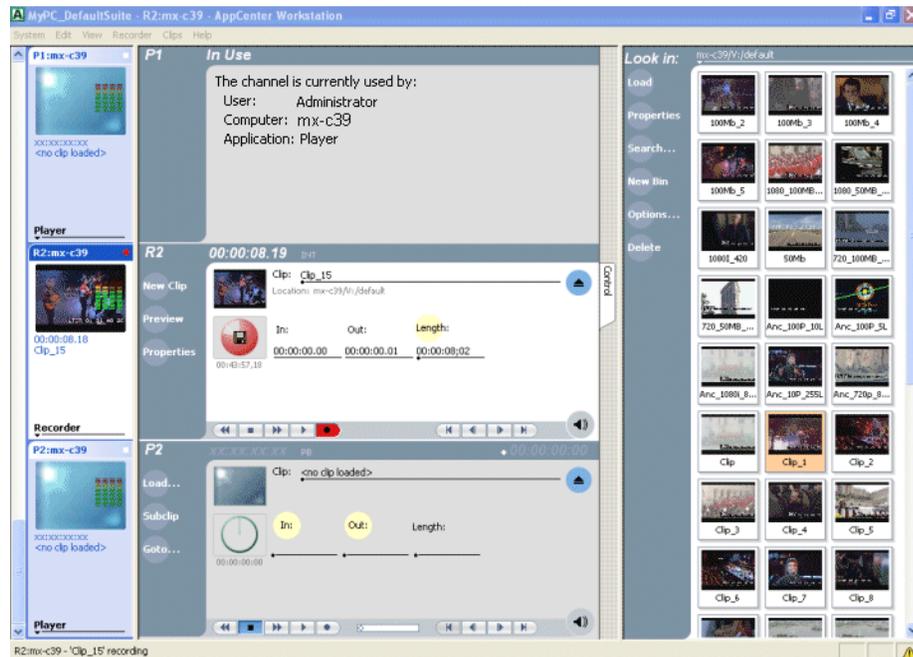
Channel applications overview

AppCenter channels have applications for performing essential tasks. When AppCenter starts, each channel comes up in its last used application. For the SD-00 K2 Media Client, you can change the channel application. (SDA-00 and HD-00 K2 Media Client systems are set at the factory to run in pre-determined input or output channels.)

Selecting a channel application

To change channel applications, in the monitor pane, select the channel application drop-down list ▼————— for the channel, then choose an application.

The selected application replaces the current application and appears in the channel's space in the channel pane. The channel becomes the selected channel.

Available channel applications

The K2 Media Client provides Playlist, Player/Recorder (SD-00 K2 Media Client) or Player and Recorder applications (HD-00 and SDA-00 K2 Media Clients) to run on a channel. AMP, BVW, and VDCP remote protocol applications are configured on each channel under **Control | Options**.

NOTE: Additional channel applications, such as K2 TimeDelay, are available. For more information, consult the Grass Valley website www.thomsongrassvalley.com.

Related topics:

The table below provides an overview of these applications.

Channel Application Name	User Interface	Channel Type Required	Essentials Tasks
Recorder	 Cue View 	Recorder	Recording clips, adding cue points
Player	Control View Cue View 	Player	Play clips, edit and trim clips, create sub-clips, and playout using cue points.
Playlist		Player	Create and play playlists. Lists include clips recorded in Recorder application or imported using the clips pane.
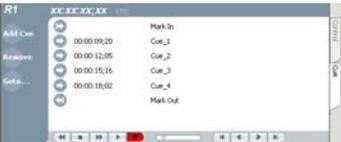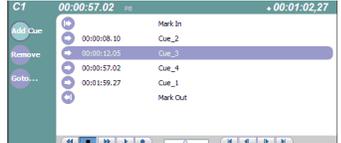
Using on-screen transport controls

When a channel is selected, the on-screen transport controls appear. All channel applications have on-screen transport controls.
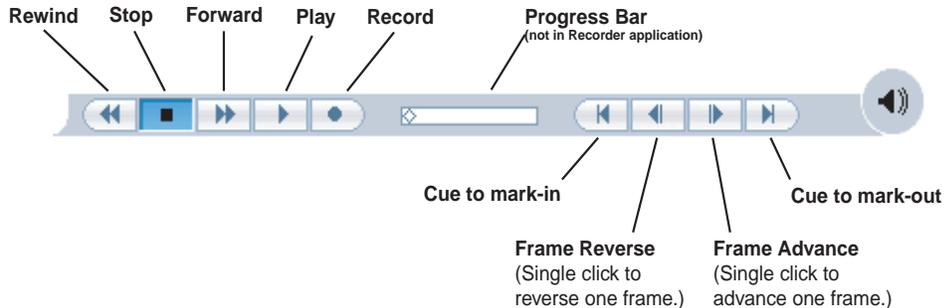
Using remote protocols

You can control the K2 Media Client using remote control devices and applications software developed for the K2 system that use industry-standard serial control protocols. You can enable remote control mode from AppCenter.

This section is divided into the following topics:

- "About remote control and supported protocols" on page 45
- "Configuring a channel for remote control" on page 46

About remote control and supported protocols

The following table shows the remote control protocols supported:

Supported Protocols	Comments
AMP	Advanced Media Protocol (AMP) - AMP is an extension of the Odetics protocol.
BVW	BVW Protocol - supports standard set of commands used for VTR machine control. BVW Insert Edit, used by most edit control panels, is not supported.
VDCP	Video Disk Control Protocol

This section is divided into the following topics:

- "About AMP protocol support" on page 45
- "About BVW protocol support" on page 46
- "About VDCP protocol support" on page 46

About AMP protocol support

You can use Advanced Media Protocol (AMP) to control K2 Media Client record and play channels. This protocol is an extension of the Odetics protocol. External control devices can be connected via rear panel RS-422 serial connectors or an Ethernet

network connection. AMP player supports the use of a two-head model in that two clips are loaded simultaneously. Refer to the *K2 Media Client System Guide* for details.

About BVW protocol support

You can use BVW protocol to control K2 system record and play channels. External control devices can be connected via rear panel RS-422 serial connectors. (Ethernet is not available for BVW.) The K2 system supports a standard set of BVW commands used for VTR machine control. BVW Insert Edit, used by some edit control panels, is not supported.

About VDCP protocol support

You can use the Video Disk Control Protocol (VDCP) to control K2 system record and play channels. External control devices can be connected via rear panel RS-422 serial port connectors. (Ethernet is not available for VDCP.) VDCP player supports the use of a two-head model in that two clips are loaded simultaneously. Refer to the *K2 Media Client System Guide* for details.

NOTE: If you use VDCP remote protocol to perform video network transfers, you must set up the video network and the Controller ID as described in the K2 Media Client System Guide.

Configuring a channel for remote control

You can configure a channel for remote control from either locally or through a network-connected Control Point PC. Operating remote control from AppCenter provides extended features that allow local and remote control at the same time.

You can select a remote protocol to use with individual channels.

To modify the remote protocol setting for a channel:

1. Click on the channel whose protocol you want to specify.

2. Select **Control | Options**. The Options dialog box displays.
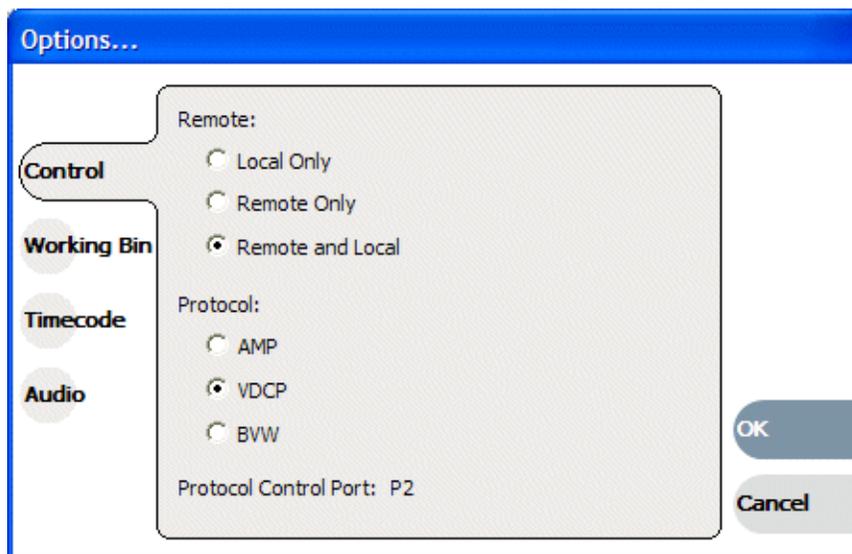
3. If if is not already displayed, select the **Control** tab.

4. Select the desired protocol and remote settings, and click **OK**. If using VDCP protocol to perform video network transfers, you must set up the video network and the *Controller ID*. Refer to the *K2 Media Client System Guide*.

NOTE: The protocol control port is pre-set and cannot be modified.

5. Test the system and recheck settings, if required.

Protocol Mode	Description
Local only	Allows you to monitor the record or play channel operations and view clip information locally only. There is no control from any external device.
Remote only	Allows you to monitor the record or play channel operations and view clip information only using remote protocol. 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 **Remote only** option in the Options dialog box
Local and Remote	Allows you to control the record or play channel locally as well as remotely. You can select this mode by choosing **Remote and Local** in the Options dialog box.

Chapter **4**

Recording clips

The Recorder application is used to record clips on the HD-00 and SDA-00 K2 Media Clients. The Player/Recorder application records clips on the SD-00 K2 Media Client. You can play the clip while it is still recording, or you can finish the recording, and then play the clip or add it to a playlist. In addition to recording clips, you can add cue points to clips and create new sub clips.

This chapter includes the following topics:

About recording clips

The Recorder (HD-00 and SDA-00 K2 Media Client) or Player/Recorder (SD-00 K2 Media Client) application requires a record or player/recorder channel. The application has two views— Control view and Cue view. The Control view allows you to record clips. The Cue view is used to add, remove, or rename cue points within a clip and create new subclips.

Select record channel signal inputs – Before you start recording, you might need to select video, audio, and timecode inputs.

Missing or intermittent VITC or LTC timecode - If VITC or LTC is the selected timecode source and the signal is missing, i.e. VITC or LTC not connected, 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 VITC or LTC is detected, but the signal is intermittent, the last valid timecode is displayed anytime the signal disappears. Clips with missing or intermittent timecode will show this behavior during playback in a play channel. If VITC or LTC is intermittent or missing, try one of the following solutions:

- Use the internal timecode generator as the timecode source for recording.

- Stripe the timecode after the clip is recorded using the Player application.

Using the video input noise reduction filter – The video input noise reduction filter provides pre-filtering to enhance the picture quality.

Re-recording and appending clips is not supported through the AppCenter – You cannot record over a previously recorded clip. To replace the unwanted clip, delete it and record a new one. Also, appending to 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 to previously recorded clips is supported through AMP Serial Control Protocol. Contact Thomson Grass Valley for more information on control devices available.

No pre-roll time — Recording begins as soon as record is selected.

About continuous record mode

Continuous record allows you to specify a fixed-length recording that records continuously. When the fixed length you specify is reached, K2 Media Client begins to erase the oldest media in 3 minute segments to make room for new media. In this way, new media is continuously recorded while the recording is kept to a fixed length. (For very long continuous records, the segment size groups up to 15 minutes.)

The continuous recording is stored 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 a Player application 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 a Playlist application as play events.

Note: a program, such as a playlist, *cannot be saved in AVI format.*

Continuous mode operational considerations

Consider the following when planning for Continuous Record operation:

- **Minimum continuous record length**– 6 minutes

- **Maximum continuous record length**– Maximum record length is limited by the amount of storage space and the compression settings used. If the fixed length you enter exceeds the available disk space, the fixed length is automatically adjusted to equal the available space.

- **Minimum record to playback time**– 6 seconds (internal storage). In other words, playback in continuous record can start no sooner than 6 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 could have enough storage space to start the continuous record, but you are still allowed to transfer media or otherwise fill disk space. Warning messages are displayed in the AppCenter StatusBar when available storage reaches 10% total disk space. All recording is halted when media storage reaches its full threshold.

- **Pausing the continuous record program in Player application**– You cannot pause the continuous record program in Player application 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 3 minute 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 3 minutes 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 application, erasing oldest media is suspended when the first mark is entered (mark-in or mark-out). This means that the continuous record program length could 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. This will eliminate periodic picture shift.

Guide to using the Recorder application: Control view

The following shows the basic controls in the Recorder application found in SDA-00 or HD-00 K2 Media Clients. These models use the Recorder application to record a clip. Depending on the configuration of your K2 Media Client, the Recorder channel is referred to as R1 or R2.
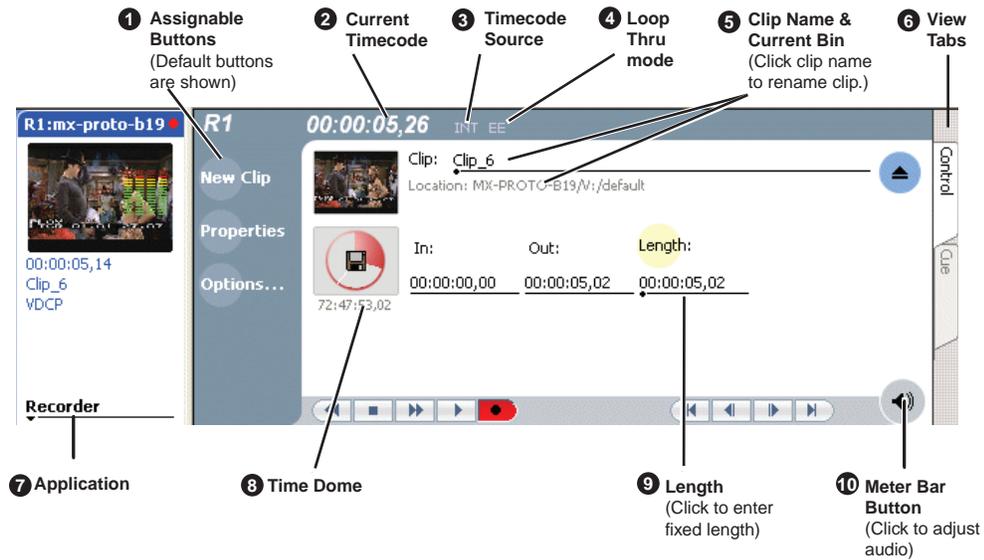
Guide to using the Recorder/Player application: Control view

The following shows the basic controls in the Recorder/Player application found in an SD-00 Media Client. This model uses the Player/Recorder application to record a clip. The Player/Recorder channel is referred to as C1, C2, C3 or C4.

	Control	Description and User Operation
1	**Assignable Buttons**	Assignable buttons allow you to modify the button assignments to best suit your workflow. Hold down a button to open a pop-up menu that lists the alternative button choices. **Properties**– Same as selecting Properties on the Recorder menu. **New Clip**– Same as selecting New Clip on the Recorder menu. **Preview** – Same as selecting Preview on the Recorder menu. **Locate** – Same as selecting Locate on the Recorder menu.
2	**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 64.
3	**Timecode Source**	The text displayed to the right of current timecode indicates the timecode source. See "Changing the timecode source" on page 64.
4	**Loop Thru Mode**	This text indicates if "E-to-E (LoopThru) mode" is selected. See Record Menu below.
5	**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, click and enter text. To change the current bin, i.e. the target location for recording clips, refer to "Changing the current bin" on page 65. You can use the Clips pane to manage and organize clips.

	Control	Description and User Operation
6	**View tabs** Control Cue	These tabs toggle between Control view and Cue Points view.
7	**Application**	For SDA-00 and HD-00 K2 Media Clients, this indicates whether the pane is set to none or to a Recorder. For an SD-00 K2 Media Client, a drop-down list allows you to select between none, Playlist or the Player/Recorder application. If the Player/Recorder application is selected, you can play or record using the pane controls.
8	**Time Dome** **Progress Only** **Available Storage** 00:29:30,24 **Available Storage and Continuous Record Mode** 00:29:30,24	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, right-click the Time Dome, then choose an application from the pop-up menu.
9	**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.
10	**Meter bar button**	Displays the Meter bar which contains the audio record level controls and signal meters. Changes to the audio level are saved for the channel.

Control	Description and User Operation
Recorder Menu	**Load Clip**– Opens the Load Clip dialog box. (Only available on the SD-00 K2 Media Client) **New Clip –** Used to create and name clip prior to starting the recording. If a clip is already loaded, selecting New Clip ejects the current clip and creates a new one. **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. (Only available on the HD-00 and SDA-00 K2 Media Clients.) **Schedule Start Time** – Opens the Trigger At entry box so a start time can be entered. **Locate** – Locates the currently loaded clip in the Clips pane. **Properties** – Opens the Properties dialog for the currently loaded clip. **Options** – Opens the Record channel options dialog box. **Widescreen** – Sets the channel for recording widescreen format. (720p and 1080i clips recorded on the HD-00 K2 Media Client are always in widescreen, whether this is selected or not.) **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 you set a mark out. (Only available on the SD-00 K2 Media Client.) **E-to-E (LoopThru) mode** – This menu item available on SD-00 and HD-00 models. When selected, the following occurs: "EE" is displayed on the channel pane, next to the Timecode Source indicator; when no clip is loaded, the signal that is currently present at the channel input plays out; when a record operation stops the clip remains in the Recorder. The signal that is currently present at the channel input plays out. **E to E** – This menu item available on SDA-00 models. When selected, the output video and audio switches to the record channel input when the play channel is stopped or when no clip is loaded. If not selected, the output freezes on the last frame of video. If you are using E-to-E, you must connect a video reference signal to prevent playback instability.

Guide to using the Recorder application: Cue view

	Control	Description and User Operation
1	**Assignable Buttons**	Assignable buttons allow you to modify the button assignments to best suit your workflow. Hold down a button to open a pop-up menu that lists the alternative button choices.
		Properties– Same as selecting Properties on the Recorder menu. **New Clip**– Same as selecting New Clip on the Recorder menu. **Preview** – Same as selecting Preview on the Recorder menu. **Locate** – Same as selecting Locate on the Recorder menu.
2	**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 64.
3	**Timecode Source**	Indicates the mark in, mark out, and cue points of the recording session.
4	**View tabs**	These tabs toggle between Control view and Cue Points view.

Control	Description and User Operation
Recorder Menu	**Add Cue –** Used to add a cue to a recording:
	1. In the Control view, start the recording.
	2. Select the **Cue** tab.
	3. At the desired timecode, select **Control	Add Cue**.
	Remove – Used to remove a cue.
	Rename – Used to rename a cue.
	Create Clip – Creates a sub clip from highlighted cue points.
	Create All – Creates sub clips from all cue points.
	E-to-E (LoopThru) mode – This menu item available on SD-00 and HD-00 models. When selected, the following occurs: "EE" is displayed on the channel pane, next to the Timecode Source indicator; when no clip is loaded, the signal that is currently present at the channel input plays out; when a record operation stops the clip remains in the Recorder. The signal that is currently present at the channel input plays out.
	E to E – This menu item available on SDA-00 models. When selected, the output video and audio switches to the record channel input when the play channel is stopped or when no clip is loaded. If not selected, the output freezes on the last frame of video. If you are using E-to-E, you must connect a video reference signal to prevent playback instability.

Before you record: Recorder settings checklist

Before recording, check the following recorder channel settings.

Record Channel Setting	Procedure
Verify video and audio input selection	In the monitor pane, check the thumbnail and its audio level indicators to verify the correct record channel inputs are selected. If there is a problem, correct the settings.
Verify video compression data rate You can manage storage capacity and video quality by adjusting the record channel compression data rate. Generally set as high as possible to obtain the storage capacity needed.	Under the **System** menu, click **Configuration**.
Verify digital audio compression setting	Under the **System** menu, click **Configuration**.
Verify the timecode source Make sure to select a valid timecode source. You can use the internal timecode generator, VITC, or LTC.	See "Changing the timecode source" on page 64.
Verify widescreen mode setting This setting only applies to SD clips. If the SD video source is in widescreen format, select widescreen mode for the recorder. This attribute is saved with the clip. (720p and 1080i clips recorded on the HD-00 K2 Media Client are always in widescreen, whether this is selected or not.)	In AppCenter main menu, click **Control	Options	Widescreen 16:9** to toggle widescreen mode. *NOTE: The clip aspect ratio cannot be changed once the clip is recorded. If you want to change the clip's aspect ratio attribute you must re-record the clip.*
Adjust audio level (if needed) You can use the audio leveling feature to adjust the analog or digital audio input levels, excluding dolby encoded digital audio.	1. In the Recorder pane, select the **Meter bar** button. 2. Adjust audio level using the graphical faders. Select the Meter bar button again to return to Recorder view.
Verify audio monitor settings You can select which audio channels to monitor.	Select **Control	Options** and click the **Audio** tab.

Record Channel Setting	Procedure
Verify working bin The clip is recorded to the currently configured working bin, regardless of the bin currently displayed in the Clips pane.	Select **Control | Options** and click the **Working Bin** tab.
Verify video compression settings Choosing a video compression setting is a trade-off between image quality and storage capacity. Higher video quality produces larger files which take up more storage space and take longer to transfer to external devices.	Select **System | Configuration** to modify the video compression settings.

To record a clip

This section covers:

Using New Clip record mode

To create and name a clip before recording starts:

1. Verify video, audio, widescreen, and other settings for your recording as explained in .

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

3. To rename the clip, select the default clip name Clip: Clip_1 , then enter a new clip name.

4. Select the record button on the onscreen transport controls ● .

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

Using Crash record mode

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. Verify video, audio, and other settings for your recording as explained in .

2. Select the record button on the onscreen transport controls ● .

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

Scheduling a recording

This feature is part of the licensable AppCenter Pro option.

You can schedule a recording to start at a specified time. (Scheduled Start Time uses Time of Day, not LTC or VITC.) To schedule a start time for a clip to play, see

1. Select **Control | Schedule Start Time**. Trigger At entry box appears.

2. Enter the time when you want the recording to start and click **OK**. The time of day, trigger time, and a countdown are displayed.
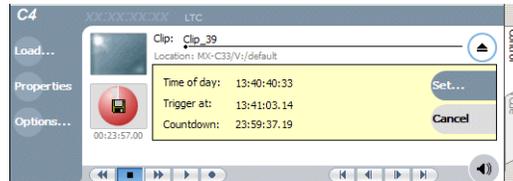
Using Fixed Length record mode

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.

1. Verify video, audio, and other settings for your recording as explained in

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

   The Length dialog box appears.
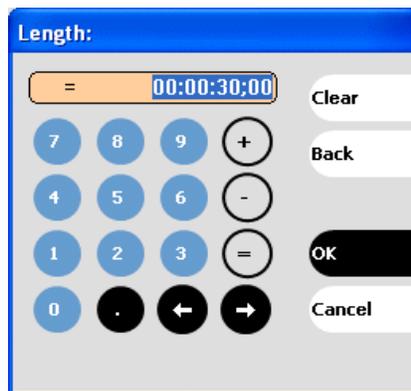
3. Enter the clip length by typing only numbers, colons are added automatically.

4. Choose **OK** in the dialog box, or press **Enter**.

5. Select the record button on 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**.

Specify clip length after recording has begun

While a clip is recording you can enter the clip length as follows:

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

   The timecode dialog box appears.

2. Enter the desired length, 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

You can configure Recorder for Continuous Record mode. Continuous record is useful for applications that normally use Continuous Record, for example a manual time delay. Refer to .

1. Click the Time Dome .

   The Time Dome pop-up menu appears.

2. Choose **Continuous Record** in the pop-up menu.
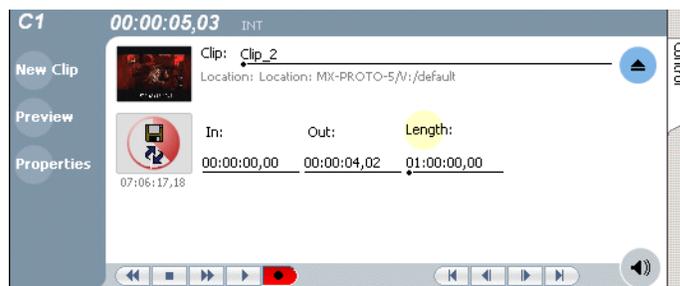
The Time Dome changes to display continuous record .

3. Click **Length**.

   The Length dialog box appears.
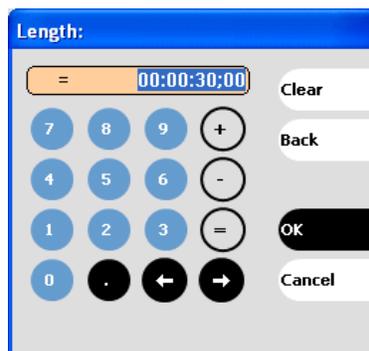
4. Enter the clip length by typing only numbers, colons are added automatically.

5. Click **OK** in the dialog box, or press **Enter**.

6. Select the record button on 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 application:

   • Drag and drop from the Recorder monitor pane to the Player monitor pane.

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

Previewing a clip that is recording

Preview loads the currently recording clip into a play channel. The play channel becomes the selected channel, and the clip is cued and ready for play.

To preview a clip:

1. Start the record process.

2. Preview the clip:

   a. In the Monitor pane, use the drop-down list to select the Player application.

   b. Drag the clip thumbnail from the channel running the Recorder application to the channel running the Player application.

   The play channel becomes the selected channel, and the clip is cued and ready for play. If a play channel is not available, e.g. the play channels are already playing a clip, a warning message is displayed in the status bar.

3. To play the clip, select the onscreen transport controls ▶ .

Using cue points while recording

Cue points enable you to move quickly from one frame to another in a clip. You can use cue points to manage clip play out or create subclips.You can add, remove, or rename cue points while a clip is being recording.

To add a cue to a clip while the clip is recording, you need to begin the recording while in Control mode. Once the recording has begun, you can switch to Cue mode and modify the clip with cue points

This section is divided into the following topics:

• "Adding a cue point while recording" on page 63

• "Removing a cue point" on page 63

• "Renaming a cue point" on page 63

Related topics:

- "About using cue points" on page 25.
- "Using cue points for playback" on page 24.

Adding a cue point while recording

1. Select Recorder (HD-00 or SDA-00 K2 Media Clients) or Player/Recorder (SD-00) from the application drop-down list.

2. Begin recording, using one of the methods described in "To record a clip" on page 59.

3. In the Record pane, click on the Cue tab. The Cue view displays.

4. While the clip is record mode, use the transport controls to find the desired frame in the clip, then do one of the following:

- Click the **Add Cue** button.
- Select **Control | Add Cue**.

A cue point is added to the cue list using a unique name, e.g. Cue_1.

Removing a cue point

1. While recording, click on the Cue tab.

2. Select a cue point in the list.

3. Do one of the following:

- Click the **Remove** button, or
- Select **Control | Remove**.

Renaming a cue point

1. While recording, click on the Cue tab.

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

3. Select **Control | Rename.**

4. Use the text entry dialog to enter a new cue name, then click **OK** or press **Enter**.

Changing the timecode source
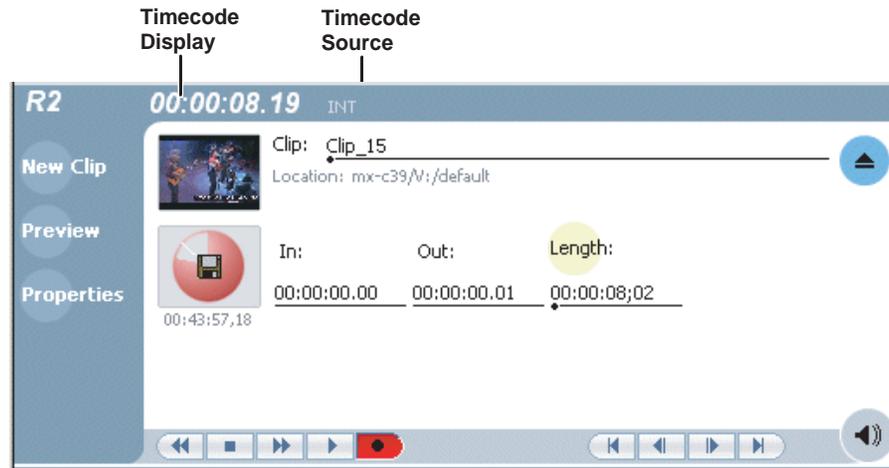
To change the timecode source:

1. Click on the channel whose timecode you want to specify.

2. Select **Control | Options**. The Options dialog box displays.

3. Select the **Timecode** tab.

4. Choose a timecode source, then click **OK**.

Timecode Source	Description
AncVITC	Available on HD channels only. Timecode is read from ancillary VITC.
VITC	Timecode is read from the VITC input for the channel.
LTC	Available on SD channels only. Timecode is read from the LTC input for the channel.
AncLTC	Available on HD channels only. Timecode is read from ancillary LTC.
Time of Day	If using the SD-00 models, the record channel has an internal timecode generator. When Time of Day is selected, the generator is locked to the Time of Day Source as currently configured.
Start Time	If using the SD-00 models, the record channel has an internal timecode generator. When Start Time is selected, you can specify 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 (NTSC). *Drop frame* timecode allows the generator to operate as an accurate clock.

Selecting widescreen mode

When recording SD video that is 16:9 aspect ratio, select the widescreen attribute. To change the Widescreen attribute, select Control | Widescreen.

The attribute is saved as part of the video media file. The attribute is used by the play channel to handle aspect ratio on playout when the clip is played on an HD-00 K2 Media Client. For more information on how the K2 Media Client handles aspect ratios, see "About aspect ratio conversion modes" on page 211.

NOTE: HD record channels on an HD-00 K2 Media Client always record 720p and 1080i video in the 16:9 ratio, whether the widescreen attribute is selected or not.

Changing the current bin

On the K2 system, a fixed amount of disk space is reserved for storing media files—the **V:** partition. Within the V:\ disk partition, your clips and playlists are stored in *bins* which function like directories in a file system. You can organize your media by creating and removing bins in AppCenter. You can have channels from multiple K2 Media Clients in one channel suite; the clips displayed are those on the K2 Media Client that has the currently selected channel.

When recording starts, the new clip is stored in the *current bin,* which is also referred to as a working bin. Each channel has its own working bin. You can change the current bin to determine where you want the clip stored. The current bin name is displayed under the clip name in the Recorder display.

Clip: Clip

Location: MX-C33/V:/AESaudio

↑

location of working bin for this channel

NOTE: Changing the current bin affects the recorder and the player applications.

To change the current bin:

1. Make sure the record channel is selected.

2. From the main menu, select Control | Options.

3. Click the Working Bin tab, then choose a bin from the list.
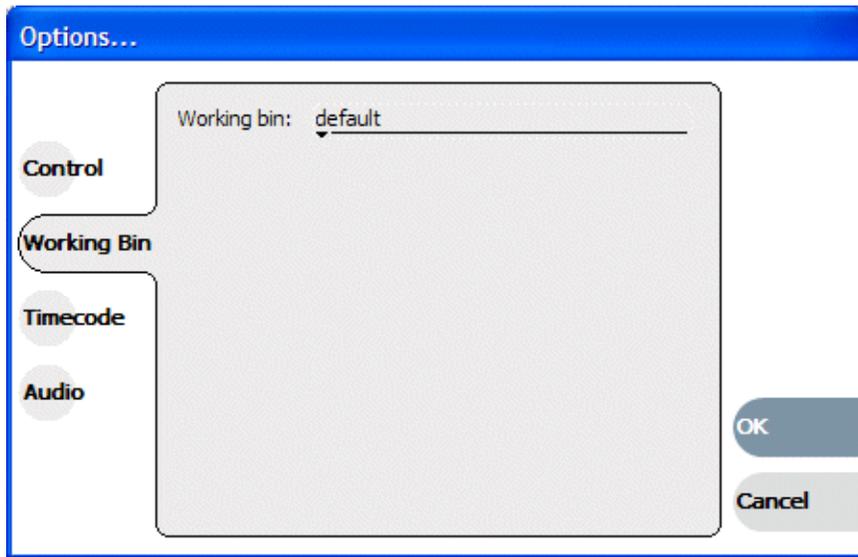
You can also change the working bin by loading a clip into a channel (for example, by using drag-and-drop) from a bin that is not the current working bin for that channel. The bin from which you loaded the clip then becomes that channel's working bin.

Renaming a clip

You can rename a clip during or after recording.

To rename a clip:

1. Select the clip name control Clip: Clip_1 in the Recorder application.
   Location:V:/default

2. Enter the new clip name using the on-screen keyboard.

3. Click **OK**, or press **Enter**.

   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 the Recorder application:

In the Record application, do one of the following:

• Click the **Properties** button.

   - or -

• Select **Control | Properties.**
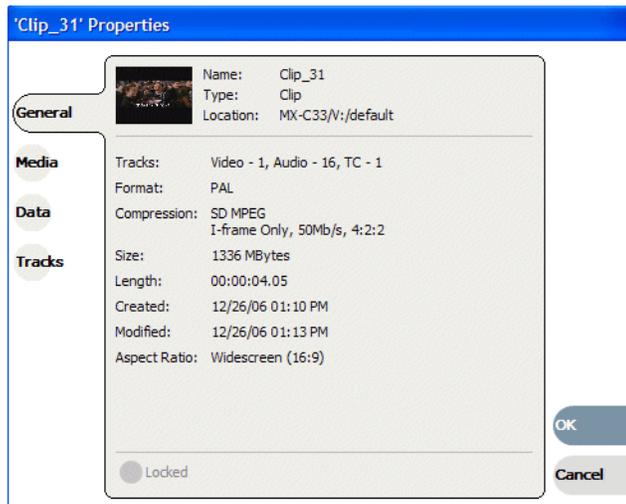
Locating a clip

You can locate the currently loaded clip by displaying the contents of the current bin in the Clips pane, as follows:

1. After or during recording, select **Control | Locate**.

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

Displaying available storage space

In the Recorder pane, you can display available storage using the Time Dome. The available storage displayed is the storage on the K2 Media Client or the K2 storage system accessed by the currently selected channel.

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 available storage .

   Available storage displayed is based on the video data rate selected in the Configuration dialog box. (To access the Configuration dialog box, select **System|Configuration**.) 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.

Chapter **5**

Playing and editing clips

The information in this chapter describes how to play and edit clips recorded on the SDA-00, SD-00, and HD-00 K2 Media Clients. You can play clips in a variety of ways including off-speed play and triggered by GPI. In addition to editing existing clips, you can create new clips using the subclip feature and add cue points to clips.

This chapter is divided into the following sections:

- "About playing clips" on page 70
- "Selecting the Player application in AppCenter" on page 70
- "Guide to using Player: Control view" on page 71
- "Guide to using Player: Cue view" on page 74
- "Loading media for playout" on page 75
- "Playing a clip" on page 76
- "Scheduling a clip to play" on page 76
- "Selecting loop play" on page 77
- "Jumping to a specific timecode" on page 77
- "Using cue points for playback" on page 78
- "Editing a clip" on page 80
- "Creating Subclips" on page 85
- "Viewing clip properties" on page 87
- "Viewing clip options" on page 87

About playing clips

The AppCenter Player application (for the SDA-00 and HD-00 K2 Media Clients) or the Player/Recorder application (for the SD-00 K2 Media Client) allows you to play media stored on the K2 Media Client, including clips and programs. The application requires a play channel and has two views— Control view and Cue view. The Control view allows you to play clips, trim clips, and create new 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 application 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."

- The length of the record-to-play delay depends on if the clip is in local storage or shared storage. Refer to the *K2 Media Client System Guide* for media file system performance specifications.

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

Playing a playlist saved as a program

Playlists can be loaded and played in the Player or Playlist applications. You can also save a playlist as a program and then play it in the Player application. 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 the Player application, it is handled in the same way as a simple clip as far as the Player application is concerned, except that they cannot be edited, they are "read-only. For more information on creating programs refer to

Selecting the Player application in AppCenter

The Player application requires a single play channel. If the play channel is currently being used in another application, such as a Playlist application, you can use the following steps to select the Player application. Selecting the Player application causes the play channel operation to stop, then the Player application is started.

To start the Player application on a play channel:

1. In the monitor pane, select the control mode drop-down list for the play channel, then choose **Player**.
   The channel switches to the Player application and becomes the selected channel.

Guide to using Player: Control view

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

	Control	Description and User Operation
1	**Assignable Buttons**	Assignable buttons allow you to modify the button assignments to best suit your workflow. Hold down a button to open a pop-up menu that lists the alternative button choices.
2	**Clip Timecode** `00:00:02,02 TC`	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 TC (recorded timecode) or Gen (zero-based, internal generated timecode.).
3	**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, click the Clip Name, then enter a new name.
4	**Countdown Timecode** `00:00:03,12`	Displays the time remaining in the clip.

	Control	Description and User Operation
5	**View tabs** Control Cue	These tabs toggle between Control and Cue views. Control is used for playing and editing of clips. During playback, you can use the Cue view to add cue points so that you can quickly cue a clip to a frame.
6	**Application**	For SDA-00 and HD-00 K2 Media Clients, a drop-down list allows you to set the pane to none or to the Player application. For an SD-00 K2 Media Client, a drop-down list allows you to select between none, Playlist or the Player/Recorder application. If the Player/Recorder application is selected, you can play or record using the pane controls.
7	**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 the thumbnail.
8	**Time Dome** Play Progress 00:00:03;23 Media marks 00:00:02;15 Loop playback 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.
9	**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 the In or Out buttons. Unused media is not deleted. To clear a mark, click the button, then choose yes in the pop-up dialog box. Marks are reset to the beginning or end of available media.
10	**Meter Bar Button**	Displays the Meter bar, 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.

Control	Description and User Operation
Player Menu - Control view Control Load... New Clip Subclip Goto... Schedule Start Time... Stripe Timecode Locate Properties Options... Auto Subclips ✔ E-to-E (Loop-Thru) Widescreen (16:9)	**Load**– Select to open the Load Clip dialog box, which displays the contents of the current bin. Select a clip, then choose OK to load. **New Clip –** Used to create and name a clip prior to starting the recording. If a clip is already loaded, selecting New Clip ejects the current clip and creates a new one. (On the SD-00 K2 Media Client) **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 **Goto**– Used to jump to a specific timecode. Select Goto, to open the Goto dialog box, then enter an absolute or relative timecode value, or use the scrub bar to go to the desired position. **Schedule Start Time** – Opens the Trigger At entry box so a start time can be entered. **Stripe Timecode**– Opens the Stripe Timecode dialog box, 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. **Properties**– Opens the Properties dialog box for the currently loaded clip. **Options**– Opens the Options dialog for the currently loaded clip. **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 is created as soon as the user sets a mark out. (Applies to SD-00 K2 Media Client only.) **E-to-E (LoopThru) mode** – This menu item available on SD-00 and HD-00 models. When selected, the following occurs: "EE" is displayed on the channel pane, next to the Timecode Source indicator; when no clip is loaded, the signal that is currently present at the channel input plays out; when a record operation stops the clip remains in the Recorder. The signal that is currently present at the channel input plays out. **E to E** – This menu item available on SDA-00 models. When selected, the output video and audio switches to the record channel input when the play channel is stopped or when no clip is loaded. If not selected, the output freezes on the last frame of video. If you are using E-to-E, you must connect a video reference signal to prevent playback instability. **Widescreen** – Sets the channel for recording widescreen format.

Guide to using Player: Cue view

The Player application Cue view is used to add cue points to the clip. The Cue view allows you to set, modify, and jump to cue points on the loaded clip. Clicking the **Cue** tab displays the Cue view. The following describes the basic controls in the Cue view.

1 Customizable Buttons (Default buttons are shown) **2** Current Frame Timecode **3** Cue List **4** Countdown Timecode **5** View Tabs

	Control	Description and User Operation
1	**Assignable Buttons**	Assignable buttons allow you to modify the button assignments to best suit your workflow. Hold down a button to open a pop-up menu that lists the alternative button choices. **Add Cue** - same as selecting "Add Cue" from the Player menu. **Remove** - removes the selected cue. **Goto** – used to jump to the selected cue, the next cue, or to a specific timecode. **Rename** - opens text entry dialog box to rename the selected cue. **Create Clip** - same as selecting "Create Clip" from the Player menu. **Create All** - same as selecting "Create All Clips" from the Player menu. **Cue Selection** – cues the first selected cue point for playback showing a still frame of video for the cue point.
2	**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.
3	**Cue List** 00:00:14,28 Mark In / 00:00:15,03 Cue_1 / 00:00:15,10 Cue_2 / 00:00:15,14 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.
4	**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.

	Control	Description and User Operation
5	**View tabs** Control Cue	These tabs toggle between Control view and Cue Points view.
	Player Menu Control . Add Cue Remove Rename Create Clip Create All ✔ E-to-E	**Add Cue** – Used to add a cue to a clip: 1. In the Control view, start the clip playing. 2. Select the Cue tab. 3. At the desired timecode, select **Control | Add Cue**. **Remove** – Used to remove a cue. **Rename** - Used to rename a cue. **Create Clip** – Creates a sub clip from highlighted cue points. **Create All**– Creates sub clips from all cue points. **E-to-E (LoopThru) mode** – This menu item available on SD-00 and HD-00 models. When selected, the following occurs: "EE" is displayed on the channel pane, next to the Timecode Source indicator; when no clip is loaded, the signal that is currently present at the channel input plays out; when a record operation stops the clip remains in the Recorder. The signal that is currently present at the channel input plays out. **E to E** – This menu item available on SDA-00 models. When selected, the output video and audio switches to the record channel input when the play channel is stopped or when no clip is loaded. If not selected, the output freezes on the last frame of video. If you are using E-to-E, you must connect a video reference signal to prevent playback instability. **Widescreen** – Sets the channel for recording widescreen format.

Loading media for playout

You can load clips or programs in the play display for playout.

NOTE: Loading a clip from a bin into a play channel changes the working bin for that channel.

Loading clips from the clips pane

1. Select a play channel by clicking in the channel's monitor pane.

2. Locate the clip in the clips pane. If necessary, change bins by clicking the current bin control *Look in:* Y:/default and selecting from the drop-down list.

3. Load the clip in one of the following ways:

   • Drag the clip from the clips pane into the play channel.

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

   • Double-click on the clip.

 • Select the clip, then press **Enter** on the keyboard.

Loading a clip from the Player application

1. Select a play channel by clicking in the channel's monitor pane.

2. Open the Load Clip dialog using one of the following:

    • Click the **Load** button in Player.

    • Select **Control | Load**.
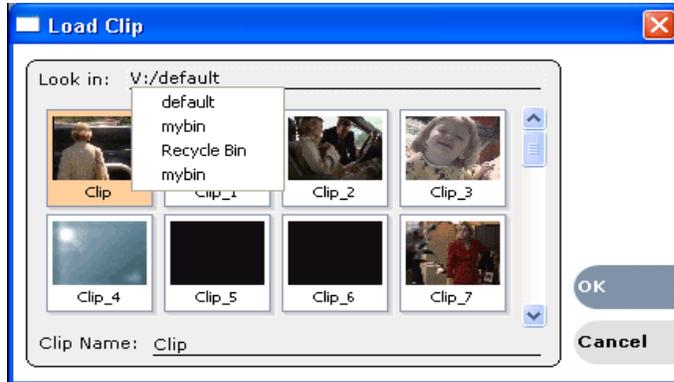
3. If needed, use the **Look in** drop-down list to browse to the desired bin.

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

    The clip is loaded in the player.

Related topics:

   • "Playing a clip" on page 76

   • "Using cue points for playback" on page 78

Playing a clip

Once a clip is loaded in the Player application, 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 playing clips.

If you are using…	Refer to…
On-screen transport controls	"Using on-screen transport controls" on page 45
Keyboard shortcuts	*Appendix A, Keyboard Shortcuts*
GPI triggers	"GPI and other configurations" on page 225

Scheduling a clip to play

This feature is part of the licensable AppCenter Pro option.

You can schedule a clip to start playing at a specified time. (Scheduled Start Time uses Time of Day, not LTC or VITC.) To schedule a start time for a clip to record, see "Scheduling a recording" on page 60.

1. Select **Control | Schedule Start Time**. Trigger At entry box appears.

Enter the time when you want the recording to start and click **OK**. The time of day, trigger time, and a countdown are displayed.

Selecting loop play

Loop play allows the clip to play in a continuous loop until **Stop** is pressed. The Time Dome is used to enable/disable loop play.

• Click the **Time Dome** , then choose **Loop Mode** in the pop-up menu.

Jumping to a specific timecode

The Goto dialog box allows the player application to jump to the specific clip timecode that you enter. You can enter an absolute timecode value based on recorded timecode, or a relative timecode value, that is, cue the video to a point +/- some value relative the current frame. If you don't know the timecode value of the frame you want, you can click and drag the scrub bar to shuttle to the desired frame.

To jump to a specific timecode:

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

   • Click the **Goto** button.

   • Select **Control | Goto**.

   The Goto Timecode dialog box appears.
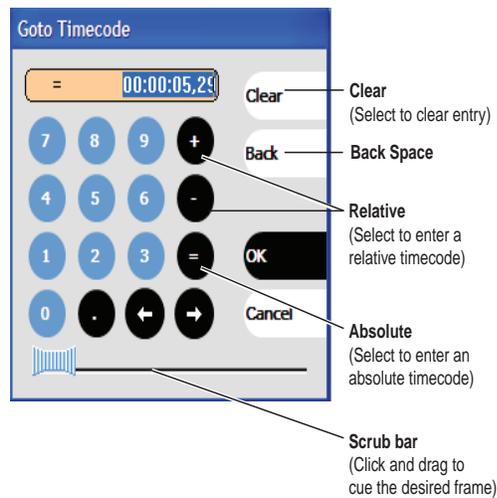
2. Perform one of the following:

- Enter a *relative* timecode value, select the '+' **or** '-' key, enter timecode, then click **OK**.

- Enter an *absolute* timecode value, select the '=' key, enter timecode, then click **OK**.

- Click and drag the scrub bar to cue the desired frame.

Related topics:

- "Loading clips from the clips pane" on page 75

- "Loading a clip from the Player application" on page 76

- "Playing a clip" on page 76

Using cue points for playback

Cue view allows you to add cue points to a clip. You can use cue points to manage clip play out or create subclips. The following sections describe how to work with cue points.

Topics included here:

- "About using cue points" on page 79

- "Viewing the cue list" on page 79

- "Adding a cue point" on page 79

- "Removing a cue point" on page 80

- "Jump to the selected cue point" on page 80

- ""Jump to the next cue point" on page 80

- "Renaming a cue point" on page 80

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 60.

When working with cue points, keep these considerations in mind:

- **Cue points are retained when a clip is copied or transferred (GXF or Streams)**– With using GXF or streams, 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 server. Cue points are not retained for other file transfers.

- **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 60.

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

Viewing the cue list

1. Select a play channel by clicking in the channel's monitor pane.

2. Select the Cue tab.

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

Adding a cue point

NOTE: To add a cue point while Recording, see "Adding a cue point while recording" on page 17.

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:

- Click the **Add Cue** button.

• Select **Control | Add Cue**.

A cue point is added to the cue list using a unique name, e.g. Cue_1.

NOTE: Using the preview feature, you can play and add cue points to a clip while it is still being recorded. (See "Previewing a clip that is recording" on page 137.)

Removing a cue point

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

2. Do one of the following:

   • Click the **Remove** button, or

   • Select **Control | Remove**.

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 in the list.

   • Click the **Goto** button, then select **Selection**.

2. Press the **Play** button on the onscreen transport controls

   Playout 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, click the **Goto** button, then select **Next Cue**.

2. Press the **Play** button on the onscreen transport controls.

   Playout starts from the cued frame.

Renaming a cue point

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

2. Select **Control | Rename.**

3. Use the text entry dialog to enter a new cue name, then click **OK** or press **Enter**.

Editing a clip

Topics in this section are as follows:

• "Moving clip mark-in/mark-out points" on page 81

• "Clearing mark-in/mark-out points" on page 82

• "Adjusting clip audio level" on page 83

• "Changing the clip thumbnail image" on page 83

• "Striping timecode (replacing the timecode track)" on page 84

• "Renaming a clip in the Player application" on page 84

Moving clip mark-in/mark-out points

Every clip has a mark-in point and a mark-out point that 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, the unused media *is not deleted.* Clearing the marks resets them to the first and last frames of the recorded clip. (See also "Clearing mark-in/mark-out points" on page 82.)

NOTE: 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 "Moving clip mark-in/mark-out points" on page 54.**

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 In/Out timecode. To permanently remove media outside the marks, refer to "Erasing a clip's unused media" under Managing Clip Media.

To move clip marks, load the clip in player, then use one of the following methods.

- "Moving clip marks: Using the In/Out buttons" on page 81

- "Moving clip marks: Using the timecode entry controls" on page 81

- "Moving clip marks: Using the clip length control" on page 82

Moving clip marks: Using the In/Out buttons

1. Use the transport controls to locate the desired frame.

2. In Control view, click **In** In: to set mark-in point, or click **Out** Out: to set mark-out point.

3. In the Confirm Mark Change window, click **Yes**.

Moving clip marks: Using the timecode entry controls

1. In Control view, select the mark-in or mark-out timecode control 00:01:11;09 to open the timecode entry dialog box.
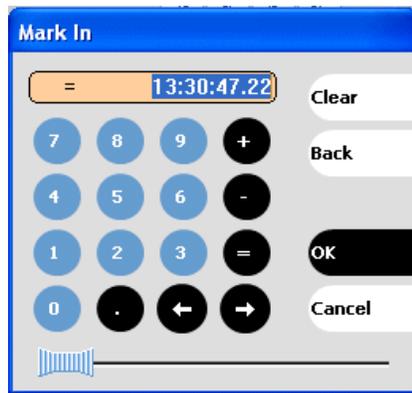
2. Enter a timecode value, then click **OK** or press **Enter**.

   Alternatively: Use the current position scrub bar ‒▐▐▐▐▐▐‒ in the timecode entry dialog box to locate the desired frame, then select **OK**.

Moving clip marks: Using the clip length control

Entering a new clip length moves the mark-out point.

1. Click the **Length** timecode entry control.

2. Enter a new clip length and click **OK**.

   The clip length changes by moving the mark-out point.

Clearing mark-in/mark-out points

Clearing a mark point resets the mark to its 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, click 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 click **Clear**, then **OK** to clear the mark.
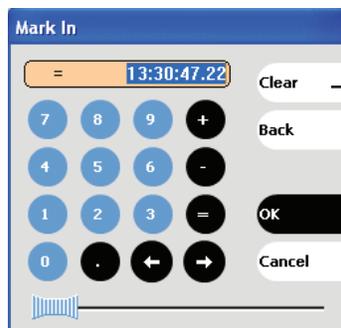
Clear
(Click Clear, then OK to clear the mark.)

Adjusting clip audio level

The audio meter display provides audio level adjustment for clips loaded in the player display. Saved audio levels are used every time the clip is loaded and played. Unsaved changes are lost when the clip is ejected.

To adjust audio level:

1. In the Player application, click the Meter bar button ⏺ .

2. Adjust the audio level in one of the following ways:

   • Adjust the graphical faders individually or "ganged," which ensures all channels use the same gain.

   • Click **Unity** to set audio back to the last saved level.
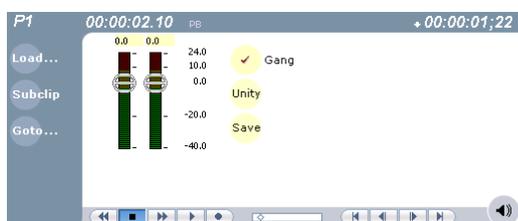
3. Click **Save** to save changes to the clip audio level.

4. Click the Meter bar button again to return to the Player application.

Changing the clip thumbnail image

The clip thumbnail is displayed in AppCenter 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 onscreen transport controls to position the clip to the desired video frame.

2. In Player, click on the thumbnail, then select **Yes** in the Change Thumbnail dialog box.
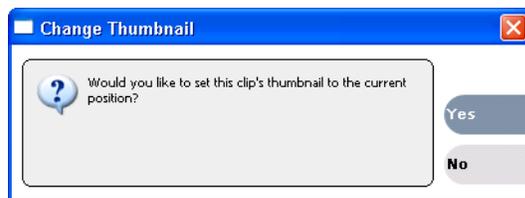
NOTE: If clip marks are edited so that the video frame used to generate the thumbnail is outside the new clip marks, the thumbnail is reset to a position near the mark-in of the modified clip.

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.

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 play channel.

2. In Control view, select **Control | Stripe Timecode**. The Stripe Timecode dialog box opens.
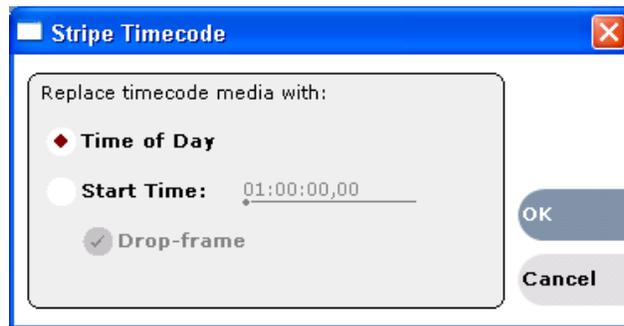
3. Specify the replacement timecode:

   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.

   Fixed 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 is a timecode adjustment that applies to NTSC video only). Drop frame allows the timecode track to indicate the actual running time of the clip. Drop-frame time code yields precise running times, but frames are not all numbered sequentially. A frame number must be dropped periodically to keep the clock right.

Renaming a clip in the Player application

1. In the Control view, select the clip name control Clip: Clip_1___.

2. Enter the new clip name.

3. Click **OK**, or press **Enter**.

Creating Subclips

A subclip is a clip created by referencing a portion of media from another clip. 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.

Subclips created from a clip that is still 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 what has been recorded with the assumption the media will "fill in". You can create subclips from a clip being recorded in loop record mode. In loop record mode, media referenced by the subclips is retained while unreferenced media is discarded.

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.

NOTE: 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 "Moving clip mark-in/mark-out points" on page 54.

The following sections describe how to create subclips:

- "To create subclips" on page 85
- "About Auto Subclip mode" on page 86
- "Creating subclips in Cue view" on page 86

To create subclips

1. Load a clip in the player.

2. In the Player Control view, click the **Subclip** button.
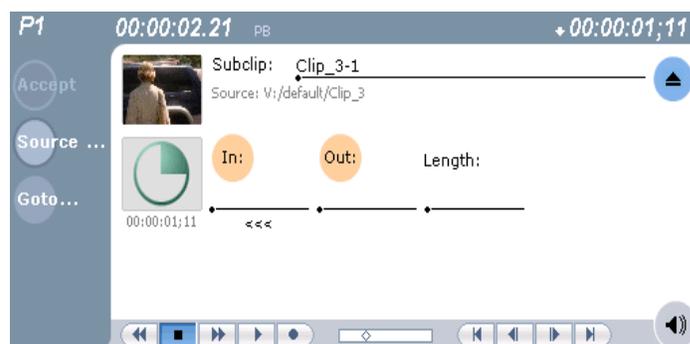
 The Subclip display appears with a new subclip loaded. The **In** and **Out** buttons are flashing indicating no mark-in or mark-out points are defined. The default subclip name follows the form *<source clip name>-<number>*, for example, if the source clip name is *PlayoffGame*, the subclip name is *PlayoffGame-1*.

3. To rename the subclip, click the subclip name control Subclip: •PlayoffGame , and enter the new name in the Clip Name dialog, then click **OK**, or press **Enter**.

Renaming the subclip creates a new seed name. For example, if you rename the subclip *PlayoffGame-1* to *Highlight*, subsequent subclips created are named *Highlight-1*, *Highlight-2*, and so on.

4. Enter the subclip marks as follows:

a. Using the transport controls, position the clip to the desired frame for mark-in, then click the **In** button.

b. Using the transport controls, position the clip to the desired frame for mark-out, then click 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. 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 "Moving clip mark-in/mark-out points" on page 54.

3. In Subclip view, click **Accept**.

The subclip is saved and ejected, then Player returns to Subclip view with a new subclip name loaded.

*NOTE: If the **Accept** button does not flash, but instead the clip is saved and a new subclip is loaded, the server is in Auto-subclip mode. See "About Auto Subclip mode" on page 60.*

*NOTE: Clicking 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 exit Subclip mode.*

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. In Auto-Subclip mode, 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 display.

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 Player application Control view, click **Control | Auto Subclips**.

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. Click **Control | Create Clip**.

To create a subclip using a selected cue point as mark-in:

1. Select the cue point to use as the mark-in for the new clip.

2. Click **Control | Create Clip**.

The subclip is terminated by the source clip mark-out point.

To create a subclip for all cue points:

• Click **Control | Create All**.

In some cases, a progress dialog is displayed as the clips are generated.

Each subclip is terminated using the mark-out of the source clip.

Viewing clip properties

To view the properties of a clip loaded in Player:

• Click the **Properties** button.

- or -

• Select **Control | Properties.**

Viewing clip options

Clip options allow you to choose which audio channels to monitor.

To view the options of a clip loaded in Player:

• **Select Control | Options.**

Chapter **6**

Working with playlists

Information in this chapter includes:

Introducing Playlist application

In addition to playing a single clip, the K2 Media Client play channels can also play lists that contain clips and programs stored on the K2 system.

The following table summarizes the basic features supported in playlist application.

Basic Feature	Description
Editing playlists	Events in a playlist can be rearranged or removed, and new events added between existing ones.
Editing events in the list	Events can be renamed and trimmed. Trimming an event moves the mark-in and mark-out points. This only affects the event, not the source clip.
Event transitions	Transitions between all events in a list are made by a cut, i.e. the last frame of an event is followed by the first frame of the next event.
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.
Pause at the end of events	Events can pause playout at their end. At event pauses, you can choose to show black, freeze on last frame, or freeze on next event.
Pause at the end of sections	Sections can pause playout at their end. At section pauses, you can choose to show black, freeze on last frame, or freeze on next event. If using an SDA-00 K2 Media Client, you can choose to show E-to-E.
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 a program into a playlist, or play a program in the standard Player application.
GPI output triggers	The K2 Media Client provides 12 GPI output signals through a rear panel connector for controlling external equipment. You can configure events 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.
GPI Input triggers	You can assign any of the 12 GPI inputs to control one or more play channels and the action you want the K2 Media Client channel(s) to take—play, VAR play, cue next event, or cue next section, etc. AppCenter includes more extensive GPI output trigger features.

Before using Playlist application

Read the following sections before using Playlist application.

- "Terms used in Playlist application" on page 91
- "Symbols used in Playlist application" on page 91
- "Working with programs" on page 92
- "Using mixed aspect ratios in a playlist" on page 92
- "Inserting a clip that is still recording" on page 93
- "Inserting a playlist in a playlist (workarounds)" on page 93

Terms used in Playlist application

The following terms are used in the Playlist application.

Term	Definition
Playlist	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	Playlists created in AppCenter contain at least one section. All events in a playlist are contained in sections. Sections have properties that include repeat and pause. A playlist can have up to 100 sections. Each section can contain up to 1000 events.
Source Clip	The clip inserted in a list to create a play event.
Program	Playlists can be saved as a program in the K2 Media Client. Programs created from a 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.

Symbols used in Playlist application

The following table describes the symbols used 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.
	Loop At the end of playout, the item will repeat.
	GPI Output Trigger This event or section triggers one or more GPI outputs.

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 file or a video network stream. (For more information on which types of file types you can send a program to, see "Importing and exporting streaming media" on page 166.)

Using mixed aspect ratios in a playlist

The K2 Media Client can play clips with different aspect ratios in a single playlist.

The HD-00 K2 Media Client models support playout of mixed format clips displayed with default or selectable modes such as bars, crop, or stretch on both SD and HD outputs.

The following table describes how the HD-00 K2 system displays mixed aspect ratios.

Event Aspect Ratio	Play Channel Widescreen Setting	
	Standard (4:3)	Widescreen (16:9)
Standard (4:3)	No conversion	Bar (Pillarbox)
		Half Bar (Half-Pillarbox)
		Crop (zoom)
		Stretch
Widescreen (16:9)	Bar (Letterbox)	No conversion
	Half Bar (Half-letterbox)	
	Crop	
	Stretch	
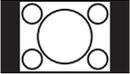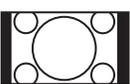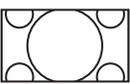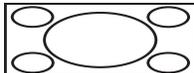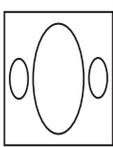
The SD-00 K2 system records in 4:3 aspect ration and plays in 4:3 aspect ratio only, so the aspect ratio is unchanged at playout.

Using mixed video resolutions in a single playlist

Playlists can contain events with different video resolutions. When the list is played, the media is converted as needed to match the play channel video output type selected.

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. You can move the event-out timecode as needed while the clip is still recording or after record is stopped.

Improving performance while modifying a playlist

If you are making multiple changes to a playlist, especially a long playlist, you can improve response time by playing the list while editing it. This allows you to add/ remove/modify events without waiting for database updates, since changes to the playlist are not saved until playout stops.

Inserting a playlist in a playlist (workarounds)

While K2 Media Client does not support a true "nested" playlist, you can retain some of the functionality of inserting a playlist in a playlist in the following ways.

• Save the list as a program, then insert it into another playlist as an event.

• Use multi-item select and copy/paste.

• Copy/paste events or sections within the same list or from other lists.

• Copy the list in the Clips pane, then load and edit the list.

Selecting Playlist application

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

To start Playlist application on a play channel, in the channel's monitor pane, select the application drop-down list and choose **Playlist**. The channel switches to Playlist application and becomes the selected channel.

Changing the channel application in AppCenter to Playlist switches the working bin to the bin displayed in the Clips pane rather than the bin specified for that channel. This behavior is also observed if you have the working bin set to one bin but load a clip from another bin onto the channel.

Guide to using Playlist application

Playlist allows you to manage a list— insert, move, or modify events, and to control playout of the list. You can select the type of display for the asset list– text view, or thumbnail view. (See "Selecting Text or Thumbnail view" on page 97.) The following describes the basic controls.

List in text display mode

① **Playlist Timecode**
② **Section (A playlist has at least one section)**
③ **Countdown (Can display time to next event, section, or end of list)**
④ **View Tab**

⑤ **Assignable Buttons (Default buttons are shown)**
⑥ **Time Cursor (Displays the current play position.)**
⑦ **Event List (Text View)**
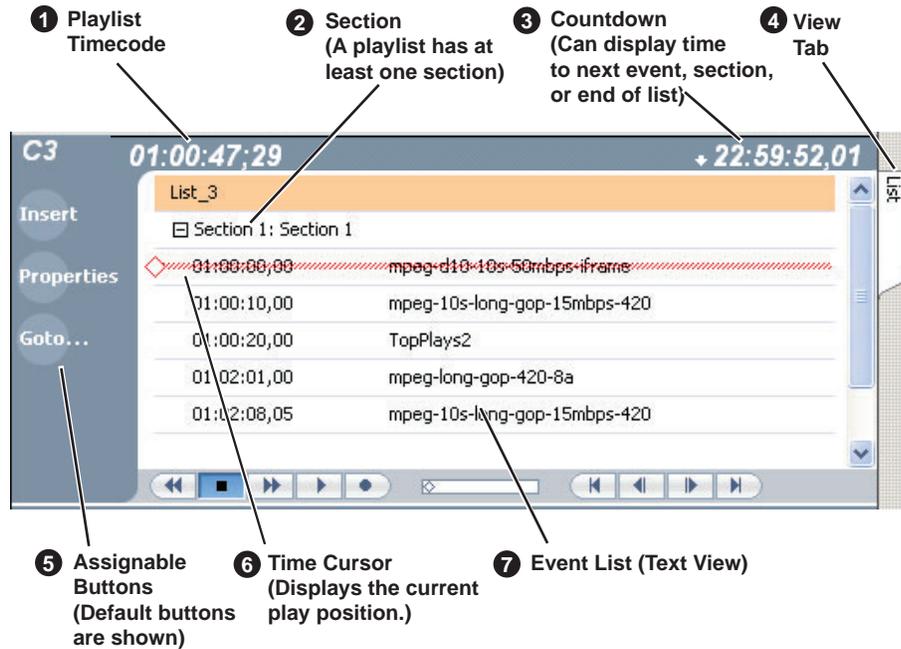
List in image display mode

⑦ **Event List (Image View) (Time Domes display list and section play progress.)**
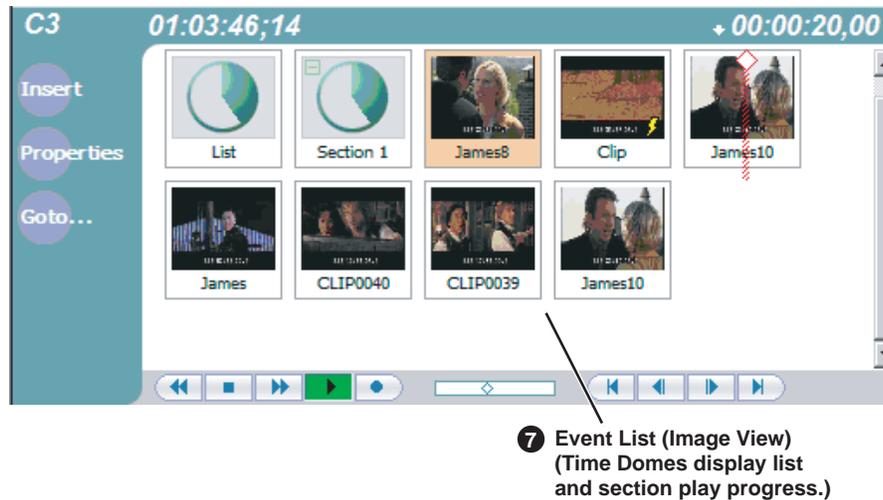
	Control	Description and User Operation
1	**List Timecode** `01:01:25,16`	Though each play event contains the timecode information from its source clip, the timecode for the list is generated internally. This timecode can be an offset from a specific timecode (the default is 01:00:00;00).See "Setting the playlist timecode" on page 112.

	Control	Description and User Operation
2	**Section (Text View)** Section 1: **Section (Thumbnail View)** Section 1:	A list has at 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 Thumbnail 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.
3	**Countdown Timecode** 00:00:03,12	Displays the time to the next event, section or end of the list.
4	**View tab**	Displays the List tab.
5	**Assignable Buttons**	Assignable buttons allow you to modify the buttons located in the Playlist toolbar to best suit your workflow. Holding down a button opens the button pop-up menu that lists the alternative button choices.
6	**Time Cursor** Clip_2	The time cursor indicates the current play position. The time cursor is displayed over the event currently being played.
7	**Event List**	The Event List contains play events. Play events are created from clips or programs that can be added to the list in two ways: drag and drop from the Clips pane or using the Insert button in the Clips pane. By default, play events added to a list inherit the source clip's name, but you can rename events. 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 follow it. See "Adding GPI output triggers to playlists" on page 109. You can view the Event List in either the text view or thumbnail view. Thumbnail 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 Playlist menu.

Control	Description and User Operation
Playlist Menu PlayList Insert Event... Add Section New List... Open List... Rename List Save As Program... Set Event In Set Event Out Locate Properties Move Up Move Down Goto... Options...	**Insert Event**– Opens the Insert Event dialog box, which allows you to insert all event types. See "Inserting media in a playlist" on page 99. **Add Section**– Adds a section to the end of the list. Once you add the section, you can move it. See "Managing sections in a list" on page 104. **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. See "Creating a simple playlist" on page 98. **Open List**– Closes the current list and allows you to open an existing list. See "Playing a list" on page 101. **Rename List**– Rename the list currently loaded in Playlist application. **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 application. See "Saving a list as a program" on page 114. **Set Event In**– Used to change the in point of the event. 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. **Set Event Out**– Used to change the out point of the event. 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. **Locate**– Locates the list or source clip for an event, depending on the selection, in the Clips pane. See "Locating a playlist in the Clips pane" on page 113 or "Locating the event source clip" on page 103. **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 playlist properties" on page 113. Section properties and event properties dialog boxes include options for setting the end behavior— repeat or pause, and GPI output properties. See "Viewing playlist properties" on page 113. **Move Up**– Moves the selected event up in the list. See "Editing and rearranging events in a playlist" on page 102. **Move Down**– Moves the selected event down in the list. See "Editing and rearranging events in a playlist" on page 102. **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 101. **Options**– Opens the Options dialog box which allows you to choose the list monitoring information displayed in the Playlist application and the monitor pane.

Selecting Text or Thumbnail view

The event list has two viewing modes: Thumbnail view and Text view. Thumbnail 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. Select **Playlist | Options**.

   The Options dialog box appears with the View settings tab selected.
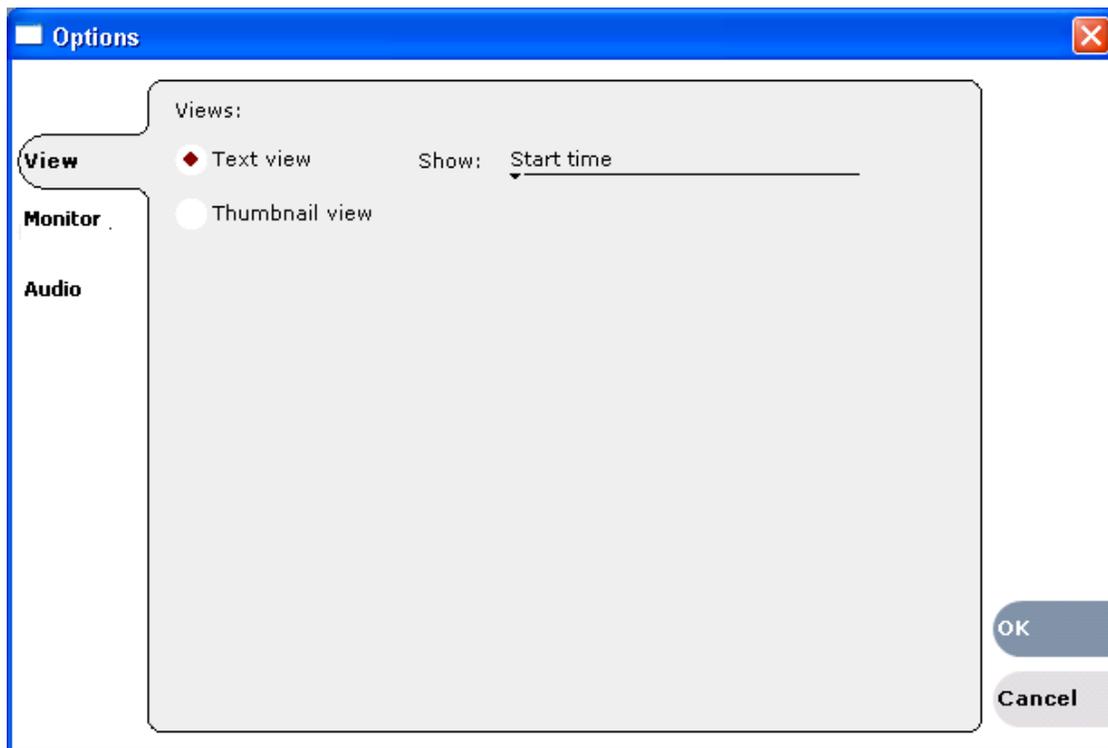
2. Select a view mode:

   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 are: **Duration**, **Name only**, **Start time**, or **Start time and duration**.

   Thumbnail View - displays events in thumbnail form along with the event name.

3. Click **OK** to save settings and close the Options dialog box.

Selecting 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 thumbnail 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. Select **Playlist | Options**.

   The Options dialog box appears.

2. Click the **Monitor** tab.

   The Monitor settings page appears.
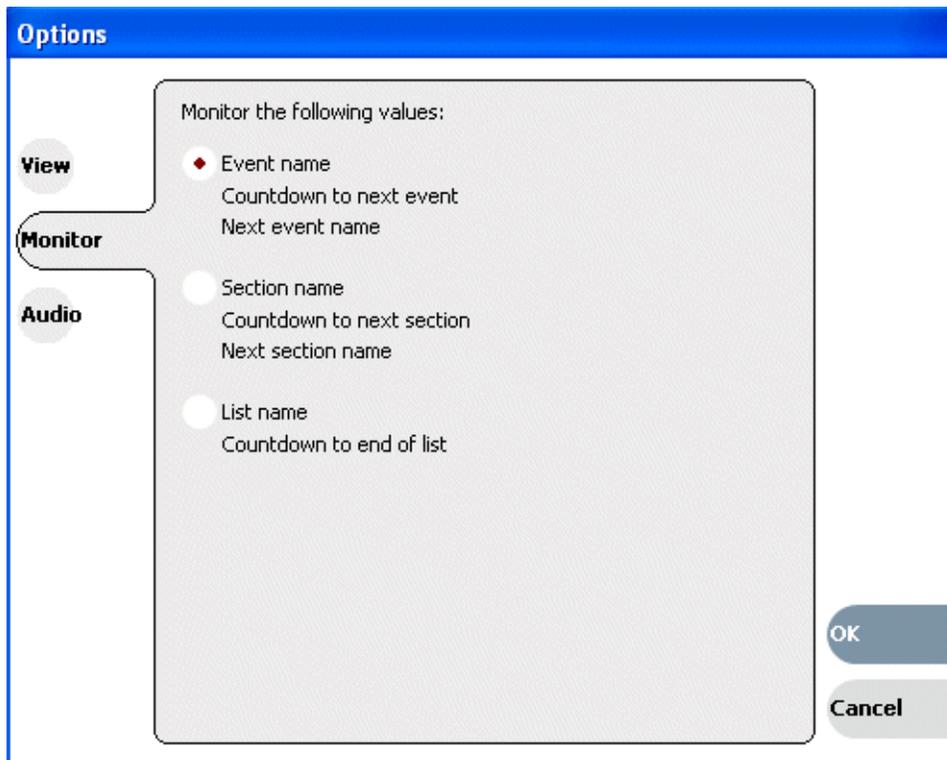
3. Select one of the monitor information options.

4. Click **OK** to save settings and close the Options dialog box.

Creating a simple playlist

When Playlist application is started, an empty channel pane displays "No List". You must create a new list. New lists are named "List_n", where n is the first number that results in a unique file name.You cannot eject a list; instead, create a new list or open an existing playlist.

To create a new list:

1. Select **Playlist | New List**.

   The New List dialog box is displayed.

   -- or --

Click the Insert button and select an event

2. Select the bin where you want to store the list, edit the default name for the new list, then click **OK**.

The current list closes and the new list is created containing one section and no events.

Inserting media in a playlist

A new list contains one section and no events. Events are played in the order they are inserted. 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 in a playlist

• 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 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 events

To insert a play event, 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 of a play channel. Select the thumbnail or video image, then drag to the playlist channel. 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. Click **Insert** in the Clips pane to insert the event after the insert point.

• Select an event in the list as the insert point, then click **Insert** in the Playlist channel, and select one or more assets in the Insert Event dialog box. Click **OK** to insert the events.

- In the Insert Event dialog box you can click on the **Event Name** text entry control and type the name of a clip. This selects the clip for insertion into the playlist. With this method it is no longer necessary to browse to the clip in order to select it.

- Press CTRL + N to open a text entry dialog in which you can type the name of a clip. This selects the clip for insertion into the playlist.

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 the Playlist application on one play channel and paste it into the Playlist application on another play channel. 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, by using the standard keyboard shortcuts (CTRL+C, CTRL+X, CTRL+V), or by using the right-click menus of cut, copy and paste.

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.

Playing a list

Once the list is complete, you can open it and play it, as described in the following sections.

Opening a playlist

If you want to open the same playlist simultaneously on multiple channels, the channels must be running on the same K2 Media Client, otherwise, a "Failed to open…" message is displayed.

To open a list, do the following:

1. Select **Playlist | Open List**.

   The Open List dialog box appears.

2. Locate and select the list you want to open, then click **Open**.

   Before the list is opened, the currently loaded list is closed. In Playlist application there is no eject button, so you can open an existing list or create a new list without manually closing the currently loaded list.

NOTE: If a playlist has been locked, you cannot open it.

Playing a playlist

You can perform the following operations to play a playlist using the AppCenter user interface. You can also use the keyboard shortcuts for all transport controls.

To...	Do this...
Begin playing at the top of the list	Open the list, then press the Play button on the onscreen transport controls.
Continue playout after a pause in the list	Press the **Play** button on the onscreen transport controls.
Play the specified timecode	Select **Goto**, and then choose **Timecode** in the Goto pop-up menu. Specify a timecode in the dialog box and click **OK**.
Play the next event	Select **Goto**, and then choose **Next Event** in the Goto pop-up menu.
Play the next section	Select **Goto**, and then choose **Next Section** in the Goto pop-up menu.
Play an event or section	First, select the event or section, then click **Goto**, and choose **Selection** in the Goto pop-up menu. Then press the **Play** button on the onscreen transport controls.
Avoid delays when jumping to a new event or section	First select the new event or section, then wait until the diamond or standby icon is filled in before jumping to the new event or section.

Playlists always play the default audio tracks, even when named mapping is in place.

Editing and rearranging events in a playlist

The following topics explain how to work with events in a playlist:

Editing event marks

You cannot edit events while the list is playing. Every event has a event-in point and an event-out point that 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.

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 is displayed beneath the current event mark timecode.

Setting the Event In/Out marks

To move clip marks:

1. Use the transport controls to locate the desired frame.

2. Select **Playlist | Set Event In** to set mark-in point or **Playlist | Set Event Out** to set mark-out point. The Confirm Marks dialog box opens.

3. Click **Yes** to accept the edited mark.

Modifying the Event In/Out marks

To modify event marks:

1. Select the event you are modifying.

2. Open the properties dialog box by doing one of the following:

   - Select **Playlist | Properties**.

   - Click the **Properties** button.

3. Click the **General** tab.

4. Select the Event In, Event Out, or Length edit control and do one of the following:

   - To modify marks, enter the timecode value to specify mark locations.

• To clear marks, click the **Clear** button or delete the timecode value.

5. Click **OK**.

Moving events

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, then choose **Move Up** or **Move Down** buttons on the **Playlist** menu. The event moves up or down one position in the list.

• Use the **Edit** menu 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 a list running on another playlist channel.

Removing events

To remove an event, perform one of the following:

• Select the event, then press the Delete key on your keyboard.

• Select the event, right-click, then select **Remove**.

• Use the **Edit** menu to **Cut** the event. (When you paste the event elsewhere, it is removed from this playlist.)

• Right-click on the event and select **Cut**. (When you paste the event elsewhere, it is removed from this playlist.)

Copying events

To copy an event, perform one of the following:

• Use the **Edit** menu to **Copy** the event.

• Right-click on the event and select **Copy**.

Renaming events

To rename an event, perform the following:

• Select the event, then select **Playlist | Properties**. Click on the name of the event in the Properties dialog box and use the on-screen keyboard to change the name; click **OK**.

Locating the event source clip

The Locate menu item is used to locate and select the source clip in the Clips pane that generates an event.

To locate the source clip:

• Select the event, then select **Playlist | Locate**.

The source clip is selected in the Clips pane.

Viewing event properties

1. Select the event.

2. Open the properties dialog box by doing one of the following:

   • Select **Playlist | Properties**.

   • Click the **Properties** button.

   • Right-click the event and select **Properties**.

Related topics

   • "To pause at the end of an event" on page 107

Managing sections in a list

A list has at least one section, and all events belong to a section. Sections management tasks include the following:

   • "Adding and removing sections"

   • "Moving and copying sections"

   • "Renaming sections"

Adding and removing sections

A playlist has at least one section, but can have up to 100 sections. All events belong to a section, and each section can have up to 1000 events.

To add a section:

1. Select **Playlist | Add Section.** The new section is inserted at the end of the list.

2. Use the **Edit** menu to **Cut**, **Copy**, or **Paste** a section. When you paste the section, it is inserted after the currently selected section.

NOTE: You can paste a section that you copied from a list running on another play channel.

3. Right-click on the section and select **Cut**, **Copy**, or **Paste**.

To remove a section, perform one of the following:

   • Select the section in the list, right-click and select **Remove**, or

   • Use the **Edit** menu to **Cut** a section, or

   • Select the section, then click the **Remove** button. This button only appears in full screen viewing mode (unless you have customized your user interface to include it as one of the assignable buttons).

Moving and copying sections

To the change the order of sections in a list, perform one of the following:

   • Drag and drop the section into another location in the list Or,

- Select an section, then select **Playlist | Move Up** or **Move Down**. (The section moves up or down one position in the list.) Or,

- Use the **Edit** menu in the AppCenter toolbar or standard keyboard shortcuts to **Cut**, **Copy**, or **Paste** the section. When you paste the section, it is inserted after the currently selected section. Or, Right-click on the section and select **Cut**, **Copy**, or **Paste**.

NOTE: You can paste sections that you copied from a list running on another play channel.

Renaming sections

To rename a section:

1. Select the section.

2. Open the properties dialog box by doing one of the following:

   - Select **Playlist | Properties**. Or
   - Click the **Properties** button. Or
   - Right-click on the section and select **Properties**.
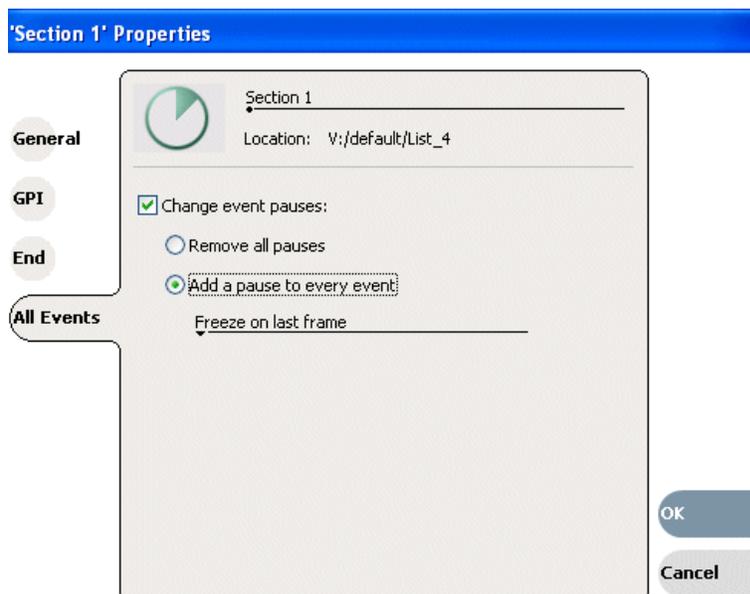
3. Select the section name, then enter a new name.

4. Click **OK**.

Adding play effects

These settings determine what happens at the end of the list, section, or event when the list is played.

Topics in this section include:

To repeat at the end of a playlist

You can loop on a list until you manually stop playing.

1. Open the list properties dialog box by doing one of the following:

   - Select the list icon in the event list, then click the **Properties** button.

   - Right-click on a list and select **Properties**.

2. Click **End**, then choose the **Repeat** option.
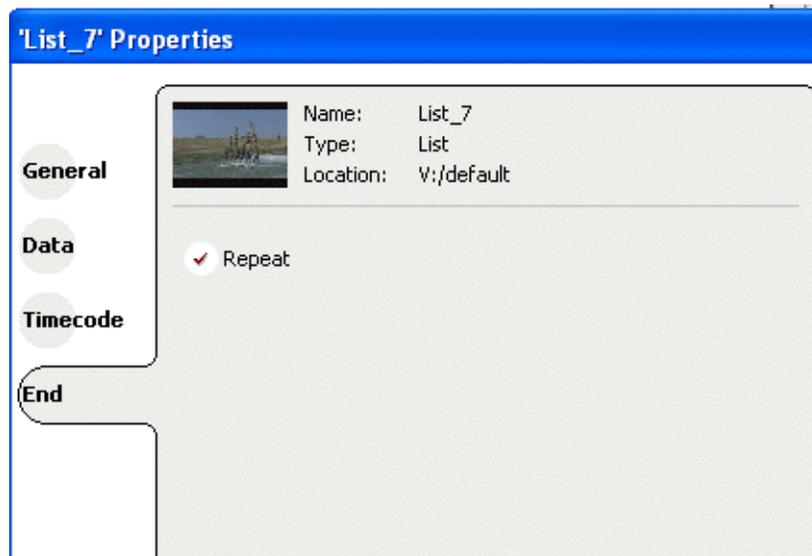
3. Click **OK** to close.

NOTE: If you leave a player channel in Loop mode, a remote protocol-controlled playlist might either miss all of the events and stop or simply cue the clip and not play.

To repeat or pause at the end of a section

To repeat or pause at the end of a section:

1. Select the section.

2. Open the properties dialog box by doing one of the following:

   - Select the section icon in the event list, then click the **Properties** button.

   - Right-click on a section and select **Properties**.

3. Click **End**.

4. Select the **Repeat** or **Pause at end** check box. If you select **Pause at end**, use the drop-down list to choose whether to **Freeze on last frame, Freeze on next event, Show black** or **Show E-to-E** (if using an SDA-00 K2 Media Client).
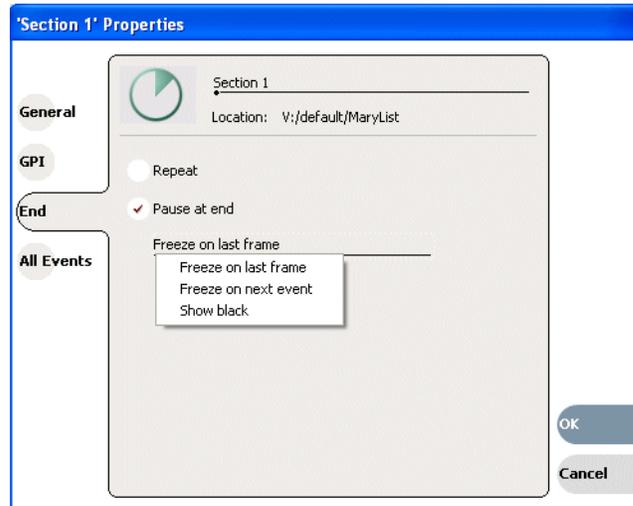
5. Click **OK**.

   Based on your selection, the section repeats when it comes to the end or 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 in the corner of the event thumbnail.

To pause at the end of an event

1. Select the event.

2. Open the properties dialog box by doing one of the following:

   • Select the list icon in the event list, then click the **Properties** button.

   • Right-click on a list and select **Properties**.

3. Click **End**.
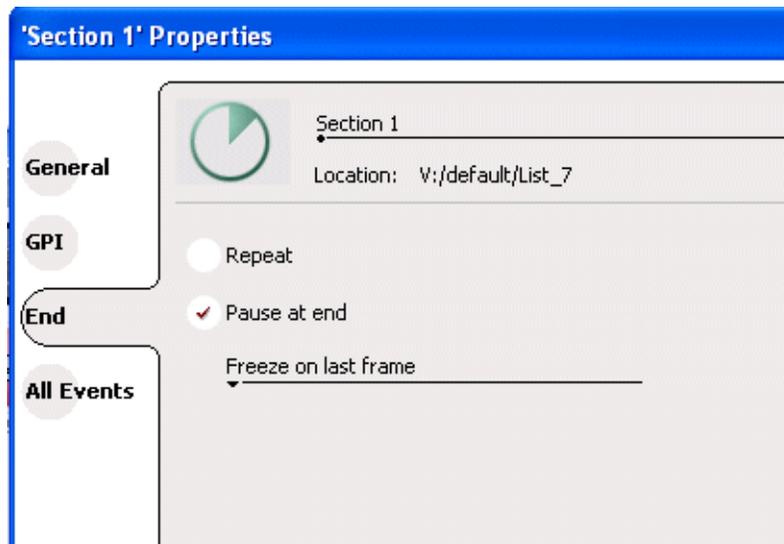
4. In the End page, select the **Pause at end** option.

5. Use the drop down list to choose whether to **Freeze on last frame, Freeze on next event, Show black** or **Show E-to-E** (if using the SDA-00 K2 Media Client).

6. Click **OK**.

   The pause symbol ⬤ appears in the corner of the event thumbnail.

Related topics

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To add pause to all events in a section

To force a pause at the end of all section events:

1. Select the section.

2. Open the properties dialog box by doing one of the following:

   - Click the **Properties** button.

   - Right-click on a section and select **Properties**.

3. Click **All Events**.

4. Select the **Change event pauses** check box, then choose the **Add a pause to every event** option.
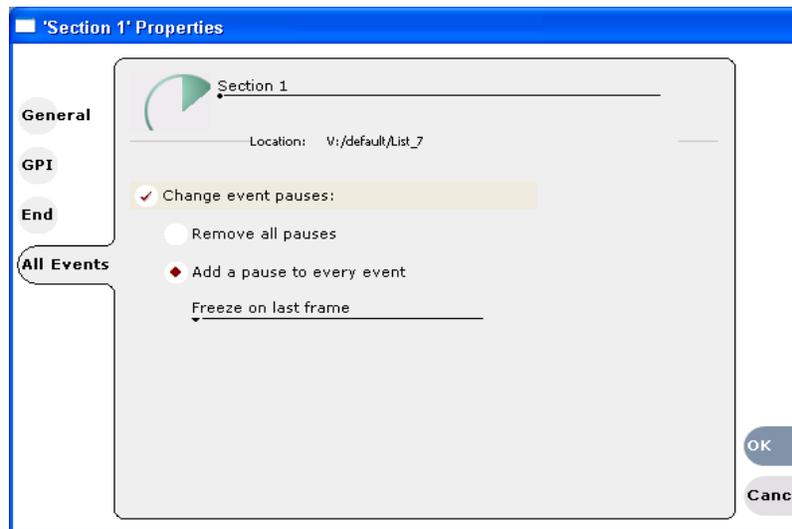
5. Use the drop-down list to choose whether to **Freeze on last frame, Freeze on next event, Show black** or **Show E-to-E** (if using the SDA-00 K2 Media Client).

6. Click **OK**.

    Properties for each event currently in this section of the playlist are modified to include the specified pause type. If you later add an event to this section and you want it to have the same pause type, you must manually modify its properties. Properties of events added later are not automatically modified.

    During playback, each event will remain paused at its end until you intervene. The pause symbol appears in the corner of the event thumbnail.

To remove pause from all events in a section

To remove pauses at the end of all section events:

1. Select the section.

2. Open the properties dialog box by doing one of the following:

    *   Click the **Properties** button.

    *   Right-click on a section and select **Properties**.

3. Click **All Events**.

4. Select the **Change event pauses** check box, then choose the **Remove all pauses** option.

5. Click **OK**.

    Pauses are removed from all events in the section. The section now plays without pausing between any events.

Adding GPI output triggers to 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 use Configuration Manager to assign GPI

outputs to a channel that is running the Playlist application. If you want to play a list that was created on another channel, you must ensure that GPI triggers assigned to all applicable channels use the same names, otherwise the GPI triggers will not occur. Using identical GPI naming also allows copying and pasting sections and events between lists to be played on different channels.

To trigger GPI outputs:

1. Use Configuration Manager to assign GPI outputs to the current Playlist channel.

   • Select **System | Configuration**. Make the changes to the GPI settings.

2. Select an event or section in the playlist, then open the properties dialog box by doing one of the following:

   • Click the **Properties** button.

   • Right-click on an event or section and select **Properties**.
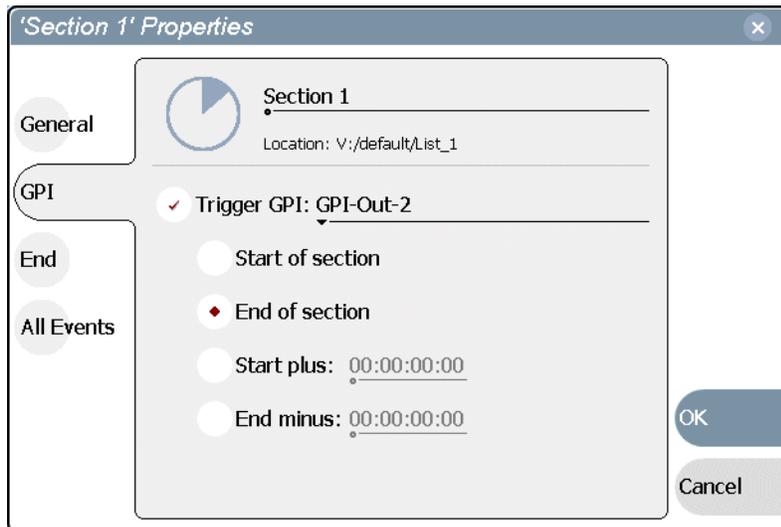
3. Select Trigger GPI, then use the drop-down list to select a GPI output. If no GPI outputs are listed, use Configuration Manager to assign GPI outputs to the current channel, then return to this step.

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 plus	Start of event or section plus the time you enter. Offset should not exceed the event or section total length.If the offset time entered exceeds the event or section length, a warning message is displayed.

Action	Trigger point
End minus	End of event or section minus the time you enter. Offset should not exceed the event or section total length. If the offset time entered exceeds the event or section length, a warning message is displayed.

5. Click **OK** to save settings.

Managing playlists

Managing lists includes the following tasks:

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Saving a copy of a playlist

When you are creating a new playlist, you might find it easier to use an existing, similar playlist as your starting point, rather than creating a list from scratch. To do this you must first save a copy of the playlist with a new name. Then you can alter it without changing the original playlist.

To save a copy of a playlist:

1. In the Clips pane, select the playlist.

2. Copy the playlist onto the clipboard, using the **Edit** menu or standard keyboard shortcuts.

3. Paste the playlist into the Clips pane. If you paste the list into the same bin that you copied it from, a dialog box appears giving you the choice to Abort, Ignore, or Retry (saving as a different name).

4. Load the copied playlist into the Playlist application, and alter it to create your new playlist.

Renaming a playlist

You can rename a playlist using the Playlist menu.

1. Select the playlist in the Clips pane.

2. In the Playlist file menu, select **Playlist | Rename** List.

3. Use the on-screen keyboard to enter and new name and click **OK**.

The renamed list appears in the Clips pane.

Locking a playlist

You can lock a list to prevent changes from being made.

1. Make sure that the list to be locked is selected in the list pane.

2. Open the list properties dialog box, doing one of the following:

   • Select the list icon in the event list, then click the **Properties** button.

   • Right-click on the list and select **Properties**.

3. Click **General**, then choose the **Locked** option.
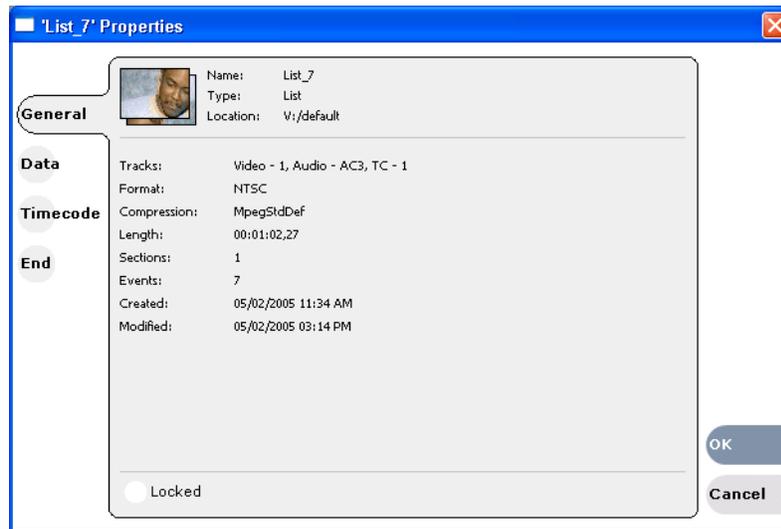
4. Click **OK** to close. The lock symbol 🔒 appears.

Setting the playlist timecode

The playlist timecode is displayed in the toolbar. This selection is also used to generate LTC timecode for the play channel. You cannot stripe the playlist timecode; however, you can stripe the timecode of the loaded clip. See "Striping timecode (replacing the timecode track)" on page 84.

To select the playlist timecode:

1. Open playlist properties dialog by performing one of the following:

   • Click the **Properties** button.

   • Right-click on a list and select **Properties**.

   The List Properties dialog box is displayed.

2. Click **Timecode** in the properties dialog box.
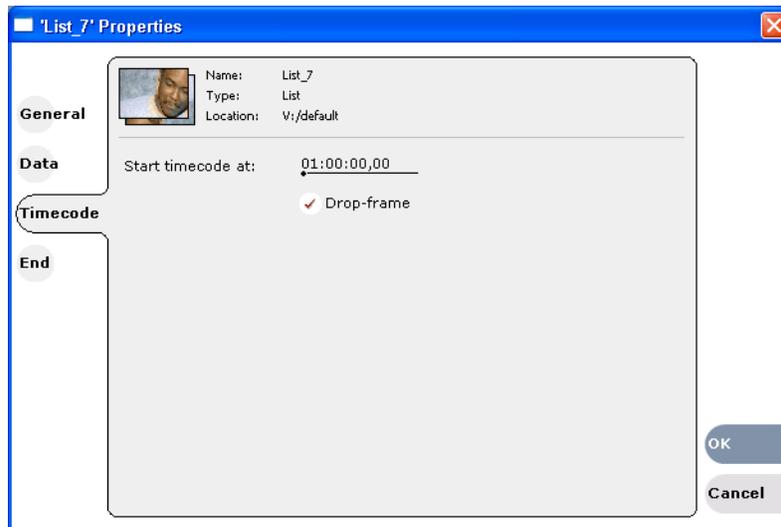
3. Select **Drop Frame**.

   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. Specify a start time, then click **OK**.

   The start timecode is displayed in the toolbar.

Locating a playlist in the Clips pane

• Select **Playlist | Locate**.

   The bin containing the list is shown in the Clips pane.

Viewing playlist properties

Select the playlist, then open the properties dialog box by doing one of the following:

• Select **Playlist | Properties**.

• Click the **Properties** button.

• Right-click on a playlist and select **Properties**.
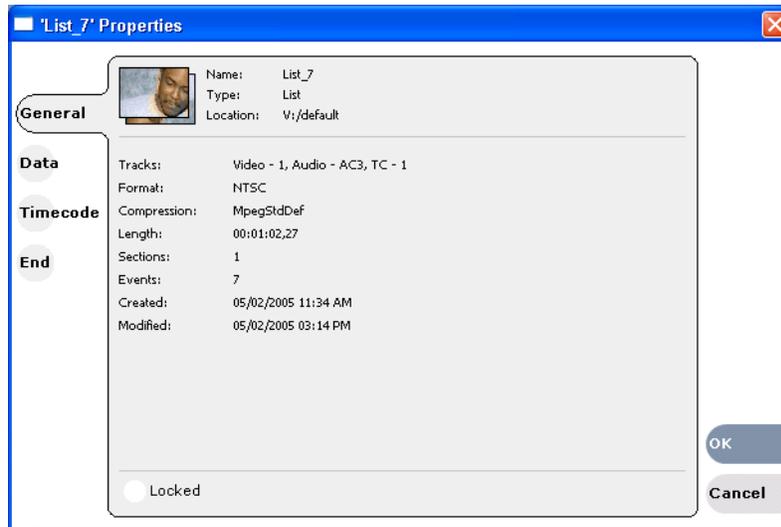
Refer to the following for more information on these properties pages:

- Timecode Page – see "Setting the playlist timecode" on page 112
- End – see "Locking a playlist" on page 112

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.

You can insert programs into other playlists, or load and play them using the standard Player application. In Player application, 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 application.

2. Select **Playlist | Save As Program**.

3. Use the **Save In** control to change the current bin if required.

4. Select the **Program Name** text entry control to change the program name, then click **OK**.

The list is saved as a program in the current bin.

Importing a text file as a playlist

This feature is part of the licensable AppCenter Pro option.

Import text file as playlist — If you are licensed for AppCenter Pro, you receive the import text file as playlist feature. With this feature you can specify a playlist as a text file and then import it into AppCenter. You can choose to import the playlist as a new list or append to an existing list. When appending to an existing list, the imported playlist is added as a section at the end of the existing list.

The information in the text file must be arranged as follows:

- The text file must have at least three columns, separated by spaces or tabs.

- For each row, one column must specify the clip name, one column must specify the mark in point, and one column must specify the duration.

- The clip name can include a path, or it can be a simple clip name with no path. Spaces in the path/name are not allowed.

- The format for specifying a path with the clip name is volume:/binname/clipname. For example, *V:/default/Clip_1*.

- If the clip name has no path, the clip must be in the current bin.

- Timecode can be formatted with separators or without separators. If without separators, it must be in format HHMMSSFF. If with separators, it can be in single-digit format H:M:S:F, it can be in double-digit format HH:MM:SS:FF, or it can have the single-digit and double-digit formats combined. Colon, semicolon, period, and comma are all legal timecode separators.

- Timecode values are allowed to be out of range, as AppCenter normalizes

timecode values when the playlist is played out. For example, if in the text file, the seconds value is greater than 60, as in 00:25:75:00, AppCenter rounds up the minutes value and converts the timecode to 00:26:15:00.

- You can specify sections in the imported playlist by adding a row at the beginning of a section that contains just the *<section>* specifier.

The following example shows the contents of a text file that specifies a playlist with two sections.

```
Clip01 00:00:00:00 00:00:30:00
Clip03 00:25:00:00 00:01:00:00
Clip10 00:00:20:00 00:00:05:00
Clip11 00:00:04:00 00:00:02:00
Clip12 00:00:25:00 00:00:02:00
Clip13 00:00:00:00 00:00:05:00
<section>
V:/abin/Clip15 00:41:46:00 00:00:04:00
V:/abin/Clip16 00:10:00:00 00:00:05:00
V:/abin/Clip17 00:20:00:00 00:00:05:00
V:/abin/Clip18 00:30:00:00 00:00:05:00
V:/abin/Clip19 00:10:00:00 00:00:05:00
V:/abin/Clip04 00:00:00:00 00:10:00:00
```

To import a text file as a playlist into AppCenter, do the following:

1. Select a channel with its application set to playlist.

2. If the text file contains simple clip names with no path, in the Clips pane select the bin that contains those clips.

3. Click **Playlist | Import List**.

   The Import dialog box opens.

4. Browse to and select the text file that specifies the playlist, then click **Import**.

   The Import File Layout dialog box opens.
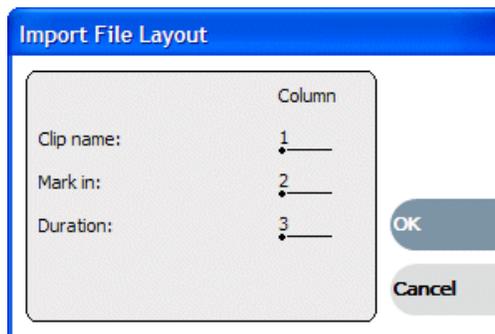
5. Specify which column in the text file contains names, which column contains mark in points, and which column contains durations, then click **OK**.

   The playlist appears in AppCenter.

All playlist sections added during an import have a pause added automatically at the end.

Chapter **7**

Managing clip media

The AppCenter Clips pane is used to manage the assets stored on the K2 Media Client. Almost all the media management tasks you'll perform fall in the following topics.

- *"Guide to using the Clips pane"*
- *"Modifying the asset list view"*
- *"Working with bins"*
- *"Working with assets"*
- *"Working with the Recycle Bin"*
- *"Locating assets"*
- *"Working with asset metadata"*
- *"Viewing asset properties"*

Guide to using the Clips pane

The Clips pane in the K2 Media Client 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.

When using a K2 Media Client remotely from a Control Point PC, you can have channel suites with channels from K2 Media Clients that access internal storage or shared K2 storage systems. The storage displayed is the storage accessed by the active channel, that is, the channel currently selected.

Viewing the Clips pane

The Clips pane is always displayed in AppCenter. The size of the Clips pane changes when you resize the monitor pane or the channel pane. At its minimum size the Clips pane displays a single column of clip thumbnails.

① **Current Bin Label**
(Click to change the current bin.)

② **Context Button**

③ **Assignable Buttons**
(Click and hold to assign)

④ **Asset List**
(Image view shown here. Text or Details views are also available.)

	Control	Description and User Operation
1	**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. Click the current bin label to change the current bin and organize bins. See "About the Current Bin drop-down list" on page 123.

	Control	Description and User Operation
2	**Context Button**	The operation and label of the context button changes with the application of the selected channel. **Load** – Displayed when the selected channel is in Player application or Recorder mode. Loads the asset selected in the asset list. **New Event**– Displayed when the selected channel is in Playlist application Event View. Creates an unattached event in the playlist that can be previewed and then inserted. **Insert** – Displayed when the selected channel is in Playlist application List View. Inserts selected assets into the playlist. *Note: Double-clicking the asset in the asset list performs the same function as clicking the context button.*
3	**Assignable Buttons**	Assignable buttons allow you to modify the button assignments to best suit your workflow. Hold down a button to open the button pop-up menu that lists the alternative button choices. **Properties**– Opens the Properties dialog for the selected asset. See "Viewing clip properties" on page 151. **Search**– Opens the search dialog box. See "Locating assets" on page 139. **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 127. **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 125. **Delete**– Deletes the selected item(s). See "Deleting a bin" on page 129, or "Deleting an asset" on page 133. **Rename**– Opens the Rename dialog box. See "Renaming an asset" on page 130. **Send to**– Opens the Send to dialog box used to send the asset to a file, or streaming transfer to another networked device.
4	**Asset List** Select from three view options— Text, Image, or Details	Displays the list of assets located in the current bin. You can scroll through the list using the up/down arrow keys on an external keyboard. Right-click to open the Asset Context menu. See "About the asset context menu" on page 124. 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). See "Modifying the asset list view" on page 125. Assets recorded using a different video standard or compression type than the current system setting cannot be loaded and played on the K2 Media Client. For example, if you record a PAL clip, you cannot play it on a channel that is configured for NTSC. Also, if an SD channel is currently active, you cannot load an HD clip, as the SD-00 model of the K2 Media Client records and plays SD clips only. These assets appear "grayed" in the Clips pane asset list. This example shows the appearance of a PAL clip when the K2 system is set to NTSC: Clip_1

Control	Description and User Operation
Clips Menu Clips New Bin... Organize Bins... Empty Recycle Bin Rename Delete Select All Search... Links... Send To... Import... Properties Options...	See "About the asset context menu" on page 124.

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 K2 system 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. The name *default* cannot be edited and the bin cannot be deleted.
Disk Volume	The K2 Media Client disk volume is formatted using the K2 system media file system. The disk volume uses the drive letter 'V:' The disk volume can be internal or it can be part of the K2 external storage system.
Playlist	A sequence of events that can be loaded and played using the Playlist mode. Playlists are created in the Playlist application by adding clips or programs to a list.
Media	Media is the video, audio, and timecode source material recorded on the disk drives. Each media type is stored in its own file, which is 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 145.

Asset	Description
Program	Programs are generated from continuous record mode or from a playlist using the Playlist mode. Programs generated in Playlist application 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.

About the Current Bin drop-down list

To access the Current Bin drop-down list, click the Current Bin label ⬚.
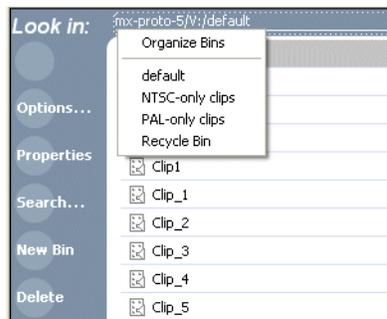
Current bin menu items

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 127.
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 138.

About the Clips menu

Click **Clips** in the AppCenter main menu to display the Clips pane context menu. The following table describes the 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 129.
Organize Bins	Allows you to manage the bins. See "Working with bins" on page 127.
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 139 for information on deleting assets without using the Recycle Bin.

Menu Item	Description
Rename	Opens the **Rename** dialog box for the selected asset. See "Renaming a bin" on page 130 or "Renaming an asset" on page 130.
Delete	Deletes the selected asset. See "Deleting a bin" on page 129 or "Deleting an asset" on page 133.
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 131.
Search	Opens the **Search** dialog box, which is used to perform basic or advanced searches. See "Locating assets" on page 139.
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 139.
Send To	Opens the **Send To** dialog box, which is used to send assets to a different location– another bin, disk volume, or another K2 Media Client. Send To is also used to export clips or programs to local windows drives or networked devices.
Import	Opens the **Import** dialog box, which is used to import assets from the following sources: – Media streams from another K2 Media Client. – Other media file formats from a local drive or over the network.
Properties	Opens the **Properties** dialog box for the selected asset. See "Viewing clip properties" on page 151.
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 125.

About the asset context menu

To open the asset context menu, right-click the asset.

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 125.

Menu Item	Description
Send To	Opens the **Send To** dialog box which is used to send assets to a different location– another bin, disk volume, or another K2 Media Client. Send To is also used to export clips or programs to local windows drives or networked devices.
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 131.
Rename	Opens the **Rename** dialog box for the selected asset. See "Renaming a bin" on page 130 or "Renaming an asset" on page 130.
Delete	Deletes the selected asset. See "Deleting a bin" on page 129 or "Deleting an asset" on page 133.
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 145.
Properties	Opens the **Properties** dialog box for the selected asset. See "Viewing clip properties" on page 151.

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 **Clips | Options**.
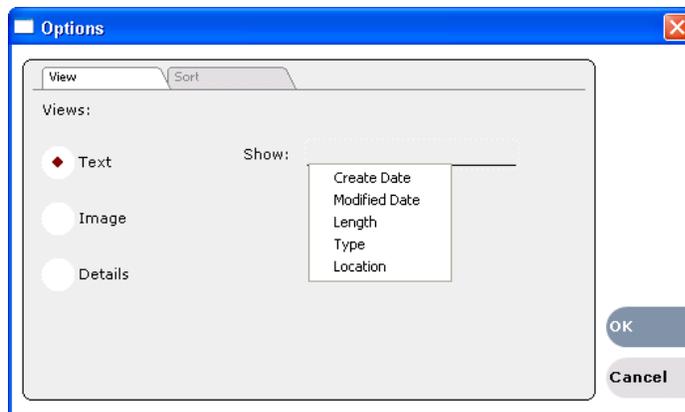
2. In the View tab, select one of the following view options:

   Image view
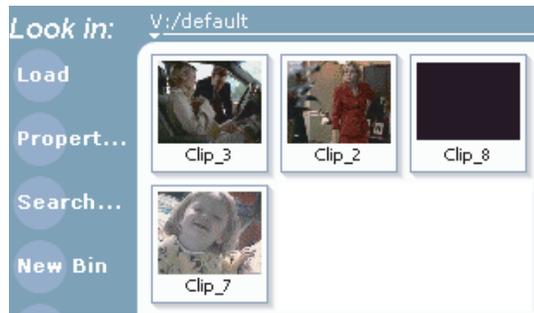
Displays the asset name and thumbnail image for each asset in the bin. Playlists are displayed as a stack of thumbnails. You can change the video frame used to generate the thumbnail.

Text view
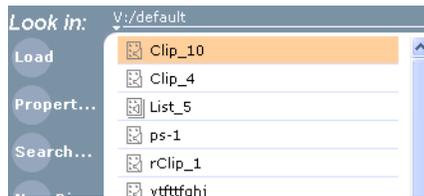
The text view displays an icon and name for each asset and one attribute of your choice. To select an asset attribute, select the **Show** drop-down list in the View Options dialog box, then select one of the following attributes.

Attribute display options:

- Create Date

- Modified Date

- Length

- Type

- 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
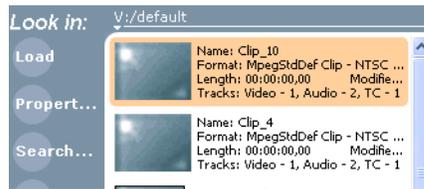
Details view displays assets with both a thumbnail and a detailed text description.

3. If you want to sort the assets, click the Sort tab, then choose how you want assets sorted:
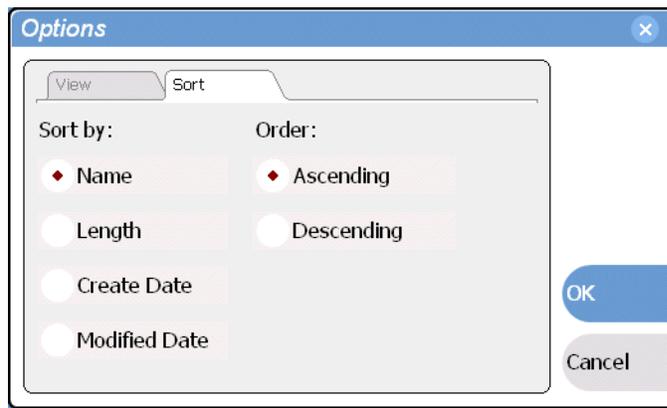
4. Click **OK**.

The clips pane displays with the new view and sort order.

Working with bins

This section includes:

Using security with bins

Security permissions are set on channels and on bins. By default, permission is set to Full Control for "Everyone" on K2 bins. In case of conflicts arising from a user belonging to multiple groups, the Deny permission always overrides the Allow permission. K2 administrators may create users and groups and set permissions for them. For information on how to implement security permissions, see the *K2 Media Client system guide*.

Changing current (working) bin.

- In the Clips pane, click the Current Bin label [Look in: V:/default] , then choose a bin from the list.

- You can also change the working bin by loading a clip into a channel (for example, by using drag-and-drop) from a bin that is not the current working bin for that channel. The bin from which you loaded the clip then becomes that channel's working bin.

Exploring bins

Exploring a bin in the Organize Bins dialog box causes it to display in the Media Monitor pane. Exploring a bin does not make that bin the default setting for recording clips. A clip that is being recorded is stored in the working bin that has been specified for its channel. Each channel has its own working bin. To change the current bin where a clip will be recorded, click the Options button on the channel pane Loading a clip from a bin into a play channel changes the working bin for that channel.

1. In the Clips pane, select the Current Bin drop-down list [Look in: V:/default] , then select **Organize Bins**.
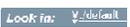
2. In the Organize Bins dialog box, select a bin, then click **Explore**.
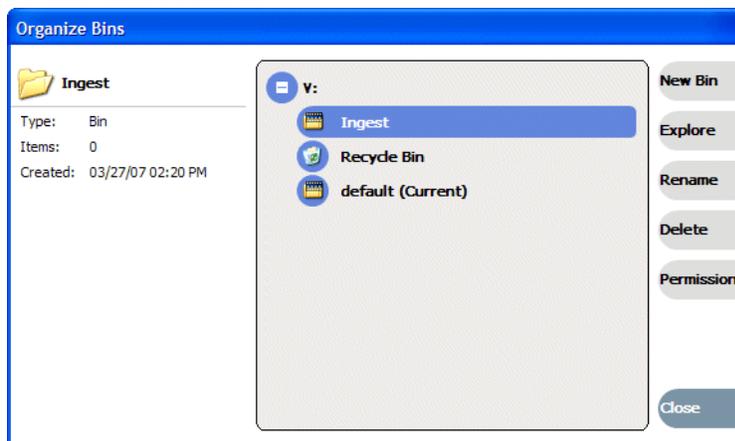
NOTE: If the Explore button is grayed out, you do not have Explore permission. Without permission to explore a bin, you cannot rename or delete a bin either. For information on security and permissions, see the K2 Media Client system guide.

3. Close the Organize Bins dialog box.

Creating a new bin

1. Open the Organize Bin dialog box using one of the following methods:

   • Select **Clips | New Bin**.

   • Click the **New Bin** button in the clips pane.

   • In the Clips pane:

     - Select the Current Bin drop-down list , then select **Organize Bins**.

     - In the Organize Bins dialog box, select a disk volume, then click **New Bin**.
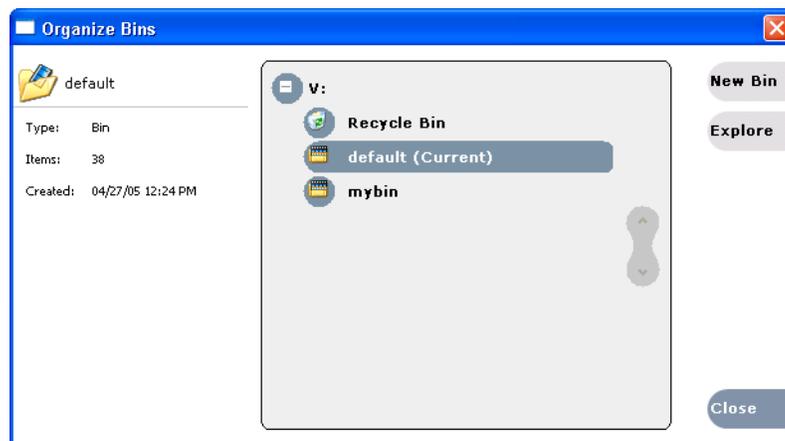
2. Enter the new bin name, then click **OK**.

   The new bin appears in the Organize Bins dialog box. Note that there are additional buttons displayed, which permit you to rename or delete the bin.

3. Close the Organize Bins dialog box.

Once you have created a bin, you may assign or deny permissions to access or modify the bin. These permissions apply to users and groups. For more information on permissions, see "Using security with bins" on page 127.

Deleting a bin

NOTE: Even with the appropriate permissions, you cannot delete a bin containing assets that are locked or in use. However, the unlocked assets in the bin can be deleted.

1. In the Clips pane, select the Current Bin label , then select **Organize Bins**.

2. In the Organize Bins dialog box, choose the bin you want to delete.

3. Click the **Delete** button.

   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

). Holding down the SHIFT key during delete also bypasses the Recycle Bin.

4. Click **Yes** in the Confirm Delete dialog box.

5. Close the Organize Bins dialog box.

Renaming a bin

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.

1. In the Clips pane, select the Current Bin label Look in: ▼default, then select **Organize Bins**.

2. In the Organize Bins dialog box, choose the bin you want to rename, then click **Rename**.

NOTE: If the Rename button is grayed out, you do not have permission to rename the bin.

3. Edit the bin name, then click **OK**.

   Asset names can contain up to 32 characters, including spaces. Spaces count as two characters, and the following characters are not allowed: \ (backward slash), / (forward slash), : (colon), *(asterisk), ? (question mark), < (less than), >(greater than), and | (pipe) as well as " (double quote).

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 130
- "Selecting multiple assets" on page 131
- "Moving an asset to another bin" on page 131
- "Copying an asset" on page 132
- "Deleting an asset" on page 133
- "Erasing a clip's unused media" on page 134
- "Locking an asset" on page 137

Renaming an asset

1. Select the asset in the Asset List.

2. Select **Rename** using one of the following:

   - Select **Clips | Rename**, or
   - Select **Rename** in the asset context menu, or
   - Click 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 120.

The Rename dialog box appears.

3. Edit the asset name, then click **OK**.

Asset names can contain up to 32 characters, including spaces. Spaces count as two characters, and the following characters are not allowed: \ (backward slash), / (forward slash), : (colon), * (asterisk), ? (question mark), < (less than), >(greater than), and | (pipe) as well as " (double quote), and ~ (tilde) at the beginning of the name.

The renamed asset is not automatically re-sorted.

NOTE: Assets that are locked or in use cannot be renamed.

Selecting multiple assets

You can select multiple assets in the Clips pane as follows:

• Select **Clips | Select All**.

• 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.

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 main menu, then choose **Cut**.

   • Use keyboard shortcut **Ctrl + X**.

3. Change the current bin to the target bin. (Refer to "Changing current (working) bin." on page 128.)

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 currently being recorded, 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.

2. To open the Send To dialog box using do one of following:

   • Select **Clips | Send To**, or

   • Select **Send To** in the asset context menu, or

• Click 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 120.

The Send dialog box appears.

3. Click the Bin tab.

4. Select **Move to** in the right-hand drop-list.
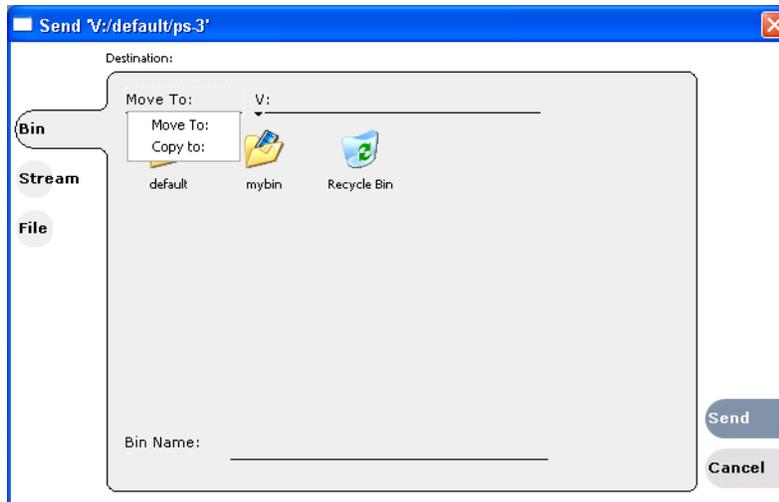
5. Select the target bin name.

6. Click the **Send** button to close the Send dialog box, and move the file.

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 impact the media storage space available.

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.

You can copy or move assets in two ways, as follows:

Using the copy and paste commands

1. Select the asset(s) in the asset list.

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 (working) bin." on page 128.)

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 currently being recorded, 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.

2. To open the Send To dialog box using do one of following:

   • Select **Clips | 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 120.

   The Send dialog box appears.

3. In the Send dialog box, click **Bin**, then **Copy to** in the left-hand drop-list.
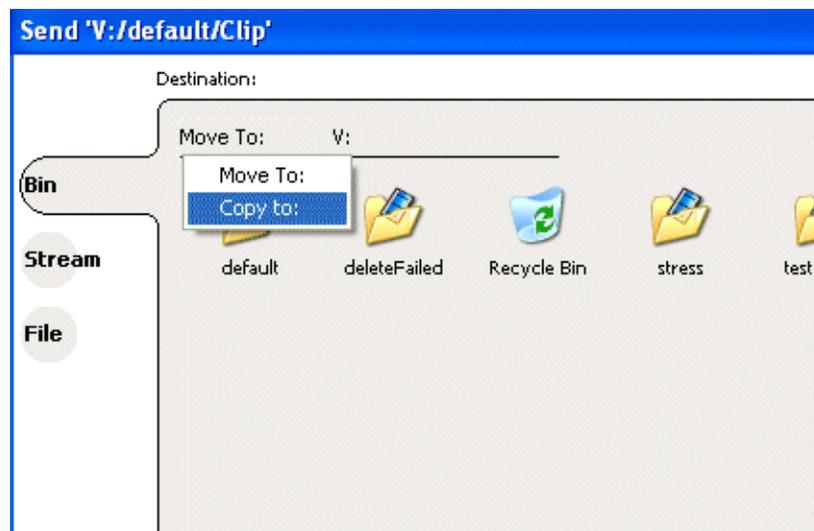
4. Select the target bin name.

5. Click the **Send** button to close the Send dialog box and copy the file.

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 139.) You must empty the Recycle Bin to free storage space.

To delete an asset:

1. Select the asset or assets in the Asset List.

2. Select **Delete** using one of the following:

   • Select **Clips | Delete**, or

   • Select **Delete** in the asset context menu, or

   • Click the **Delete** button in the Clips pane.
     If the Delete button is not displayed in the Clips pane, refer to assignable buttons in See "Guide to using the Clips pane" on page 120.

   A progress dialog box 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 See "Bypassing the Recycle Bin when deleting" on page 139.)

   NOTE: Assets that are locked or currently being recorded 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. The effect of field dominance on trimming media is discussed in "Understanding field dominance" on page 137.

NOTE: Subclips and playlist events retain an extra 1 second of media before and after their mark points to allow some trimming.

One extra second is retained before and after the clip for trimming
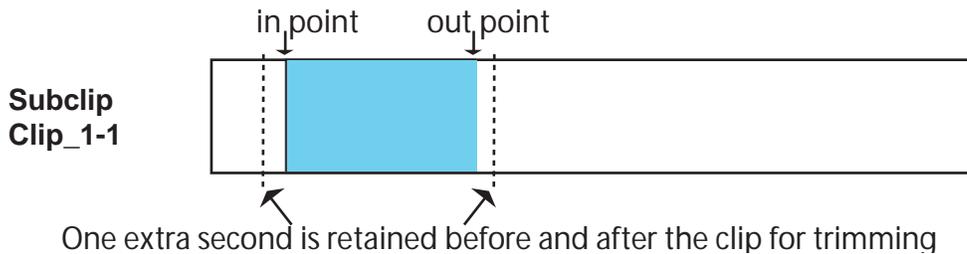
If you attempt to erase unused media from a subclip, make sure that you have first deleted the source clip. Otherwise, since they both reference the same media, the material is not erased. The following diagrams illustrate how the Erase Unused Media option works with source clips and subclips.

Erase Media scenarios

If you delete a source clip that references multiple subclips, the Erase Unused Media option calculates the unused sections and trims them.

Source clip Clip_3

Subclip Clip_3-1

Subclip Clip_3-2

Delete the source clip, then erase media

Media erased   Clip_3-1 NOT erased   Media erased   Clip_3-2 NOT erased   Media erased
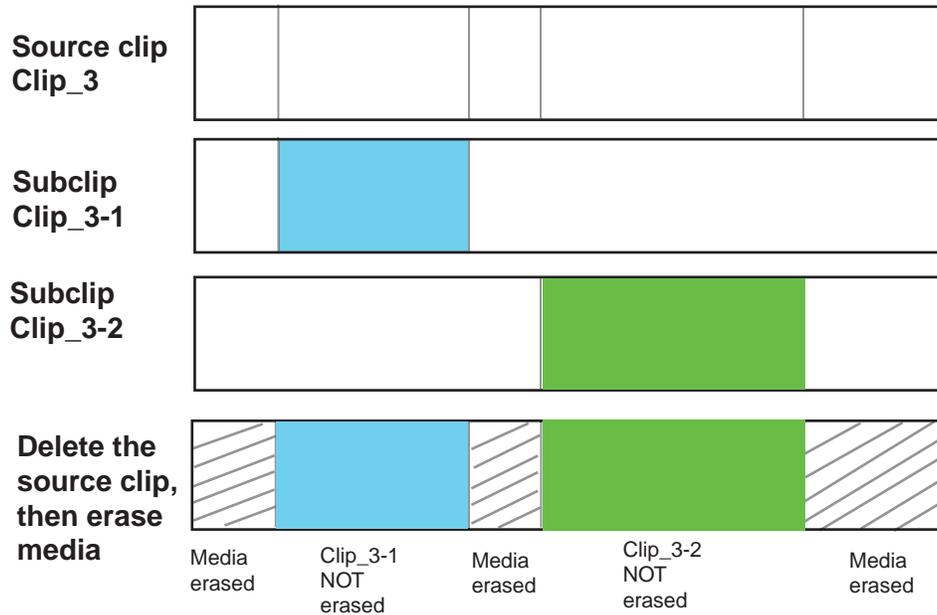
Both Clip_2 and Clip_2-1 reference the same media. Delete Clip_2 before attempting to erase media on Clip_2-1.

Source clip Clip_2

in point   out point

Subclip Clip_2-1

Delete source clip Clip_2

Erase media subclip Clip_2-1

Media erased   Clip_2-1 NOT erased   Media erased
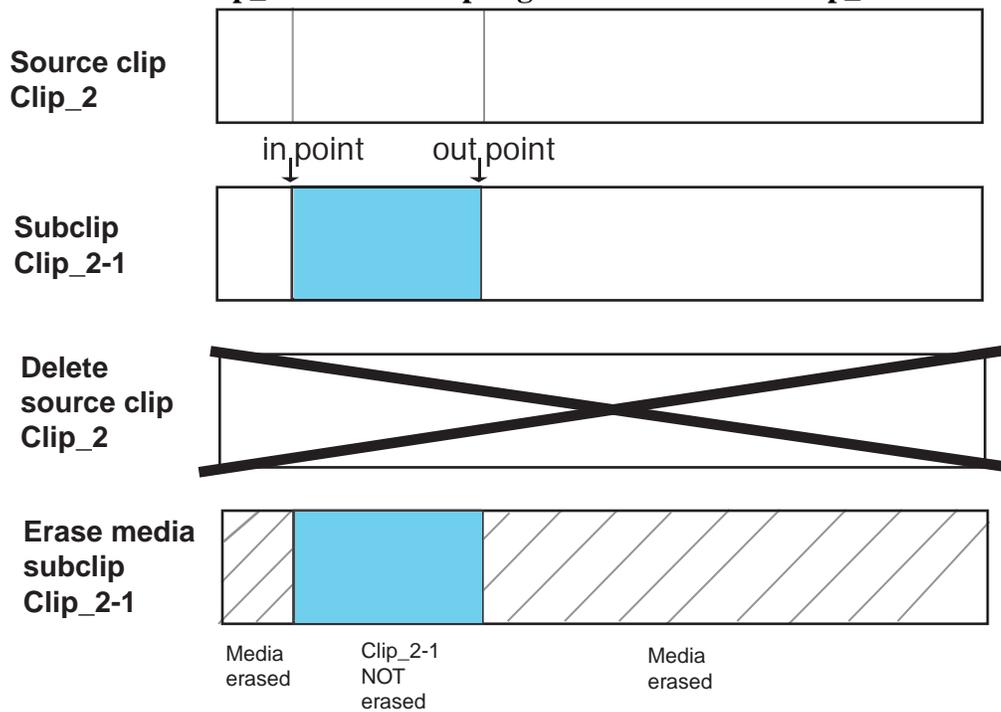
To erase unused media:

1. Select the clip in the asset list.

2. Open the Clip Properties dialog box using one of the following:

   • Select **Clips | Properties**, or

   • Select **Properties** in the asset context menu, or

   • Click 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 120.

   The Clip Properties dialog appears.

```
┌─────────────────────────────────────────────────────────────┐
│ 'Clip_3' Properties                                          │
├─────────────────────────────────────────────────────────────┤
│                     Name:     Clip_3                         │
│          [img]      Type:     Clip                           │
│  General            Location: MX-PROTO-B22/V:/default        │
│                                                              │
│  Media                       Marks:        File:            │
│                                                              │
│  Data              In:     00:00:00,00   00:00:00,00         │
│             ⬤      Out:    00:01:31,18   00:01:31,18         │
│  Tracks            Length: 00:01:31,18   00:01:31,18         │
│                                                              │
│                        ☑ Erase Unused Media                 │
│                                                              │
│          Aspect ratio conversion:  Default                   │
│                                                              │
│                                              [ OK ]          │
│                                              [Cancel]        │
└─────────────────────────────────────────────────────────────┘
```
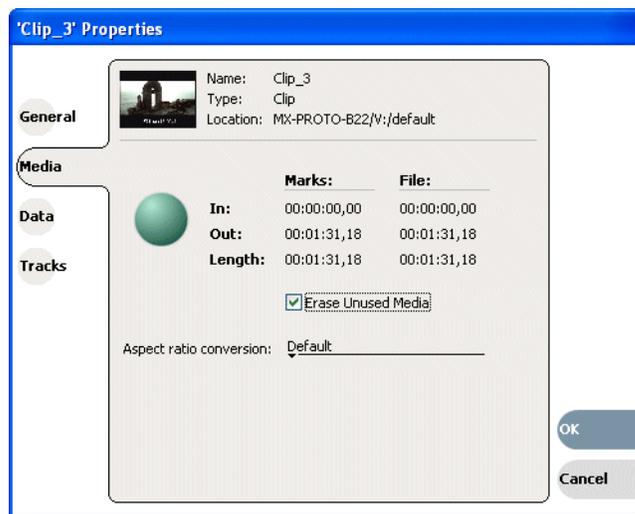
3. In the Clip Properties dialog box, click **Media**.

4. On the Media page, select the **Erase Unused Media** option.

5. Click **OK**.

   Unused media is erased when you click 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 retain 1 second of media
     before the mark-in and after the mark-out.

   • Event-in becomes the first video frame of the file

   • Event-out becomes the last video frame of the file

   • Clip length becomes the total file length.

Understanding field dominance

In interlaced video, each frame is composed of two fields. In Grass Valley systems such as M-Series or K2, video is field-1 dominant; each frame consists of field 1 followed by field 2. For example, when you navigate through the clip to the beginning, the K2 system goes to field 1. When you navigate through a clip to the end, K2 goes to field 2.

Out mark is always
1 frame past the stop
point of the clip.

FRAME	:00	:01	:02	:03	:04	:05	:06
FIELD	F1 | F2	F1|F2	F1|F2	F1|F2	F1|F2	F1|F2	F1|F2

A clip
always
starts on
field 1.

A clip
always
stops on
field 2.
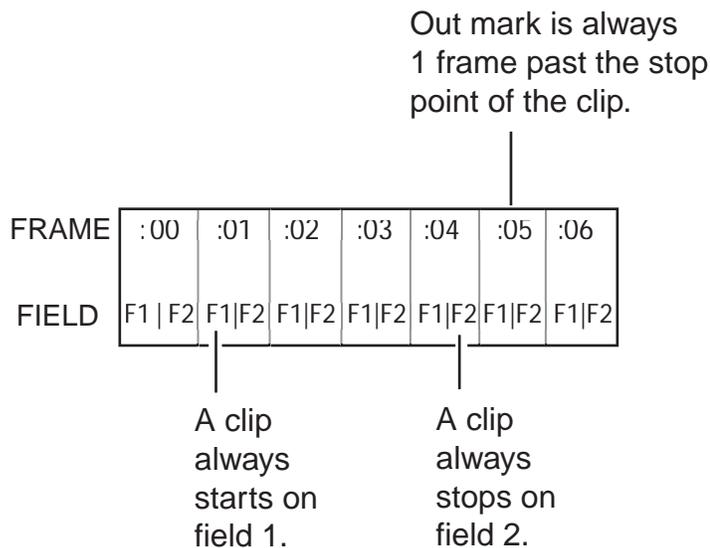
The in point of any trimmed clip always starts at field 1 of a frame. The out point of a trimmed clip is always one frame past the stop point of the clip. For example, if the last playable frame is 01:15:00,04 then the out-point mark is 01:15:00;05.

Locking an asset

Locked assets cannot be renamed, deleted, or modified in any way.

To lock an asset:

1. Select the asset in the Asset List.

2. To view the Properties dialog box for the selected asset, do one of the following:

   • Select **Clips | Properties**, or

   • Select **Properties** in the asset context menu, or

   • Click 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 120.

The Asset Properties dialog box appears.
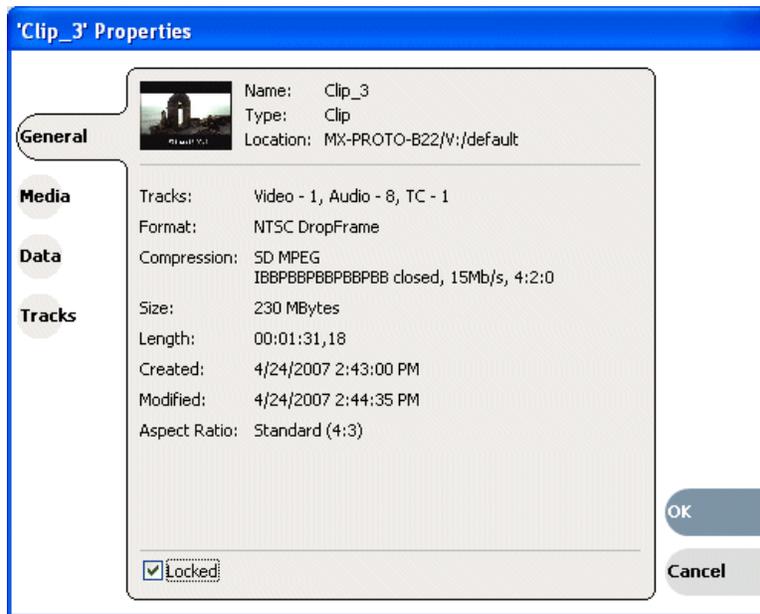
3. Click the General tab, then select the **Locked** check box to lock the asset.

4. Click **OK** to close the Properties dialog box.

Working with the Recycle Bin

Topics in this section:

- "Viewing the Recycle Bin contents" on page 138
- "Emptying the Recycle Bin" on page 138
- "Bypassing the Recycle Bin when deleting" on page 139

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.

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. Click **Empty**, then **Yes** to confirm.

4. Close the Organize Bins dialog box.

Bypassing the Recycle Bin when deleting

NOTE: Holding down the SHIFT key during delete also bypasses the Recycle Bin.

1. In the Clips pane, select the Current Bin label ⌷Look in: ▾default⌷ , then select the **Organize Bins**.

2. In the Organize Bins dialog box, choose **Recycle Bin**.
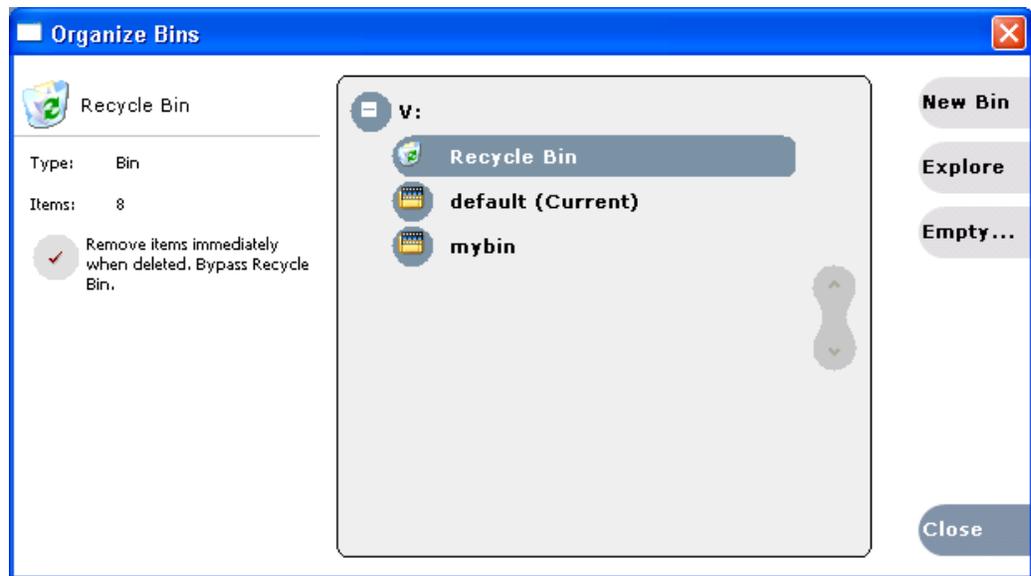
3. Select **Remove items immediately when deleted** or hold down the SHIFT key during delete.

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 K2 system 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 140
- "Using Basic search" on page 140
- "Using Advanced Search" on page 143
- "Advanced Search Criteria" on page 145
- "Finding linked assets" on page 145

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 methods:

   • Select **Clips | Options**, or

   • Right-click an asset, then select **Options** in the asset context menu, or

   • Click 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 120.

2. Click the **Sort** tab in the Options dialog box.
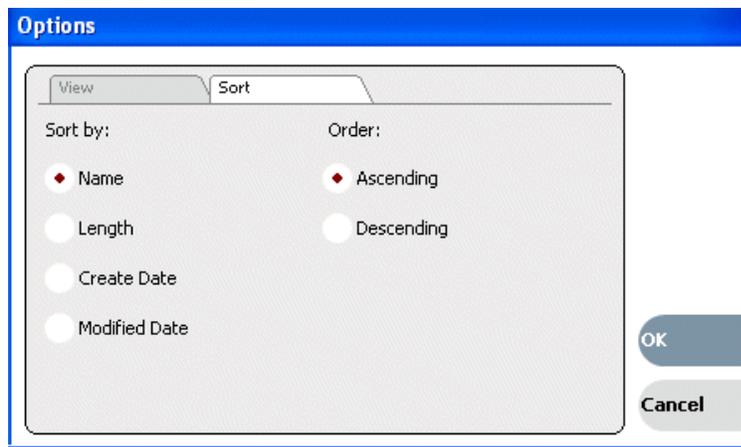
3. Choose the desired sorting attribute and order, then click **OK**.

   The Asset List sorts 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 to refresh the Asset List.

Using Basic search

The Search dialog box provides the basic search mode for locating assets anywhere in the K2 system media storage.

1. Open the Search dialog box by doing one of the following:

   • Select **Clips | Search**, or

   • Click 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 120.

2. 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 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 147.
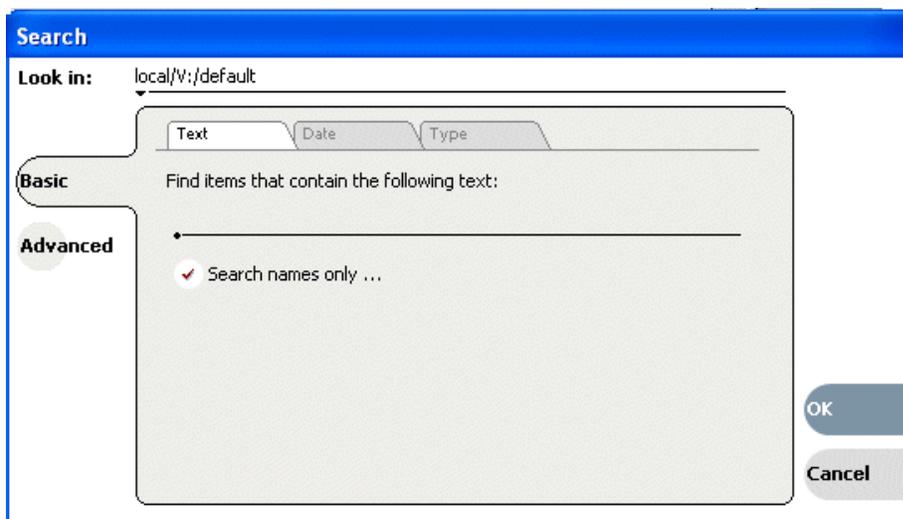
Search by date – If you are searching for assets created or modified within a specific date or time range, use the **Date** tab. By default, the **All Dates** box is selected. To specify date criteria, select the **Find items** option to enable the controls under it. Use the drop-down list to choose **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.
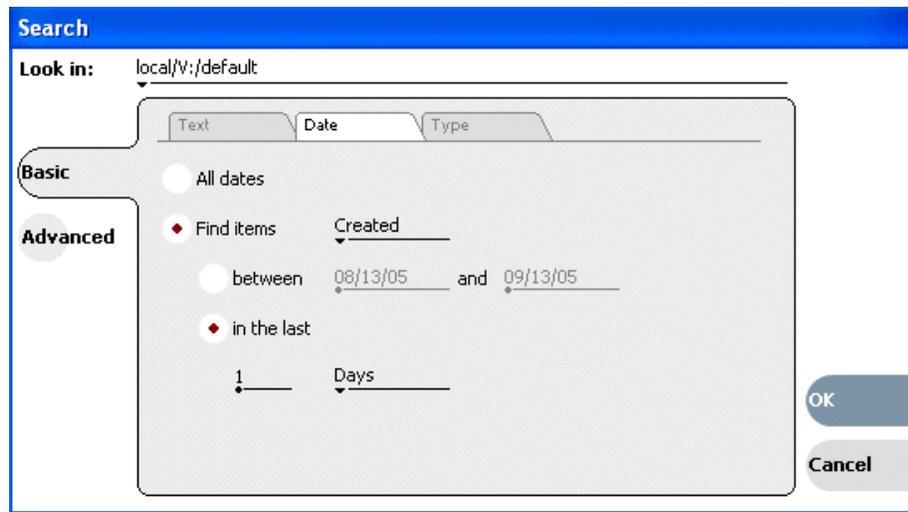
Search by Type – In the **Type** tab, select the type of assets— clips, programs or lists to be searched. Search results will only include the selected types.
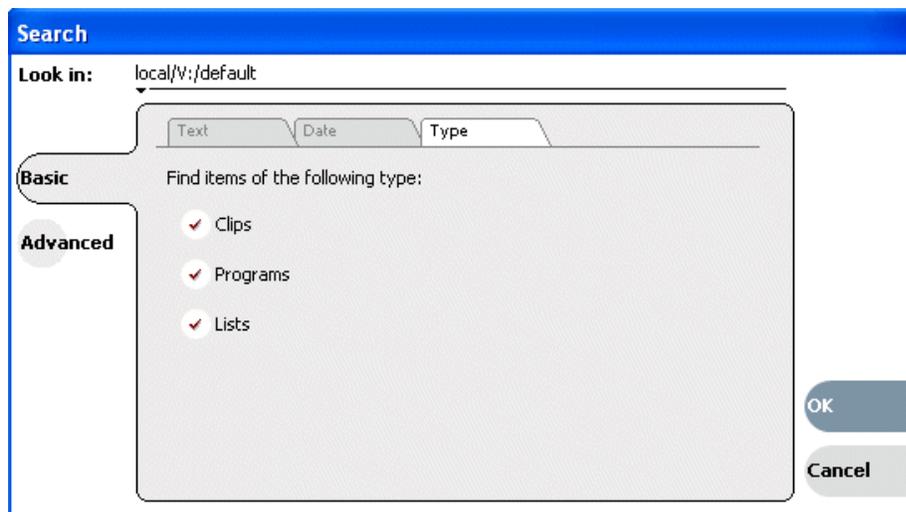
3. Once you have selected the search criteria, click **OK** to start the search.

   The search results are displayed in the Clips pane. 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.
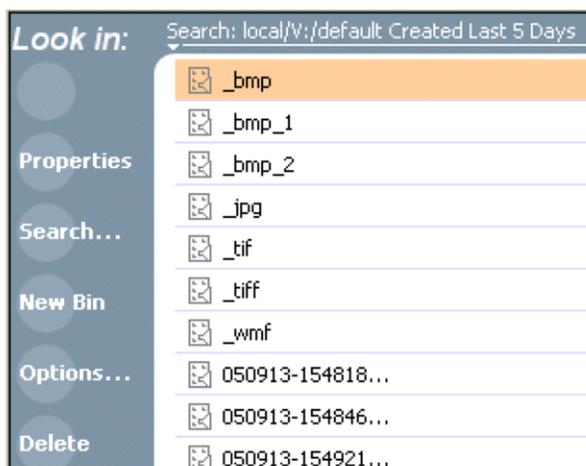
When you perform a search, the most recent four searches are displayed. The older ones get removed. At any one time, you see four searches at most in the bin list. There is no way to delete these.

Using Advanced Search

The Search dialog box provides the advanced search mode that provides an extended set of attributes for locating assets anywhere in the K2 system media storage.

1. Open the Search dialog box by doing one of the following:

   • Select **Clips | Search**, or

   • Click 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 120.

2. Choose **Advanced** search to create and view advanced search criteria.

   When Advanced search is used, Basic search criteria are ignored.

3. Click **Add** to add new search criteria, or click **Remove** to remove it, then click **OK** to start the search.
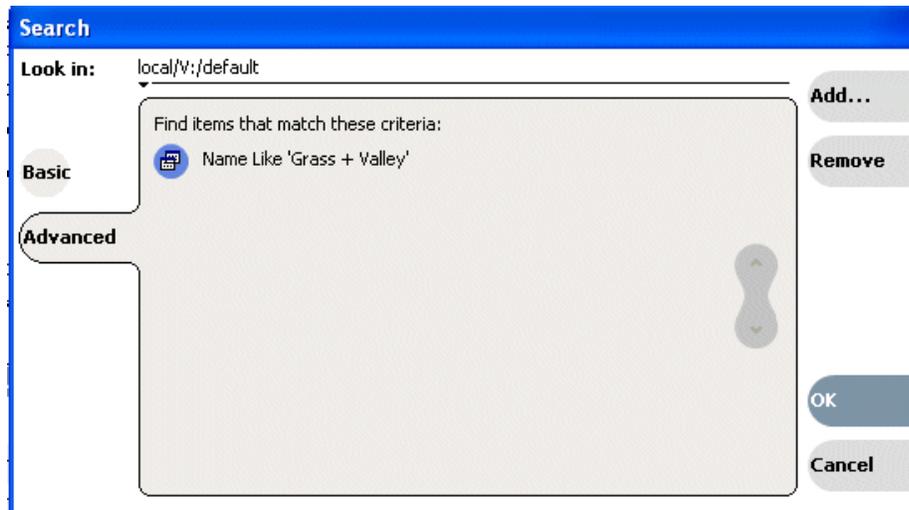
The following table lists the advanced search attributes along with their conditions and value choices. Advanced searches can include metadata attributes. Since these are user defined, only their types and conditions are listed here. See also "Working with asset metadata" on page 147.

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	NTSC PAL	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 Between Equals	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

4. Once you have added all the search criteria, click **OK** to add the criteria.

5. Click **OK** to start the search.

   The search results are displayed in the Clips pane. 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 **Clips | Links**, or

- Right-click an asset, then select **Links**, or

- Click 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 120.
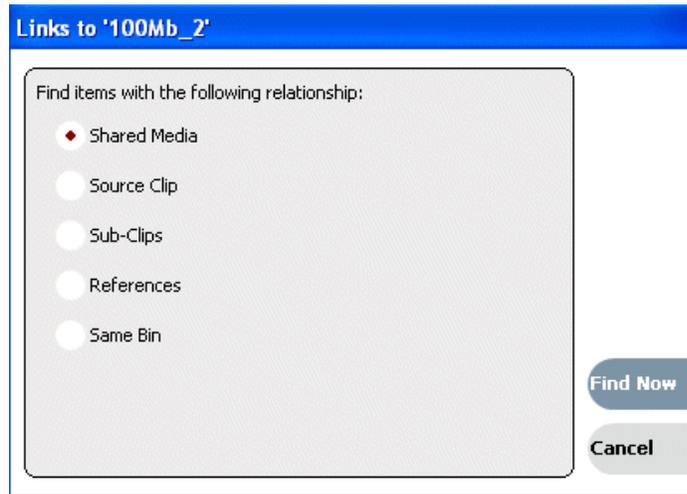
3. Choose one of the link relationships to use.

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. Click **Find Now**.

The results of the link operation are displayed in the Clips pane. 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 each time to discover linked assets.
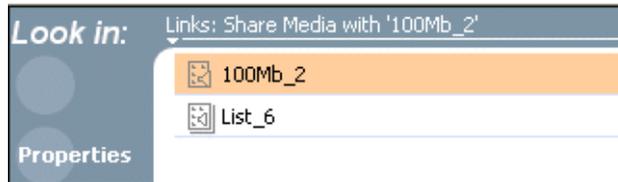
Working with asset metadata

The properties dialog box displays information about an asset as described in "Viewing asset properties" on page 151. 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 147
- "Clearing metadata" on page 149
- "Deleting asset metadata" on page 150

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 150.

1. Select an asset in the Clips pane asset list.

2. Open the Properties dialog box using one of the following methods:

   - Select **Clips | Properties**, or

   - Select **Properties** in the asset context menu, or

- Click 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 120.

The properties dialog box appears:
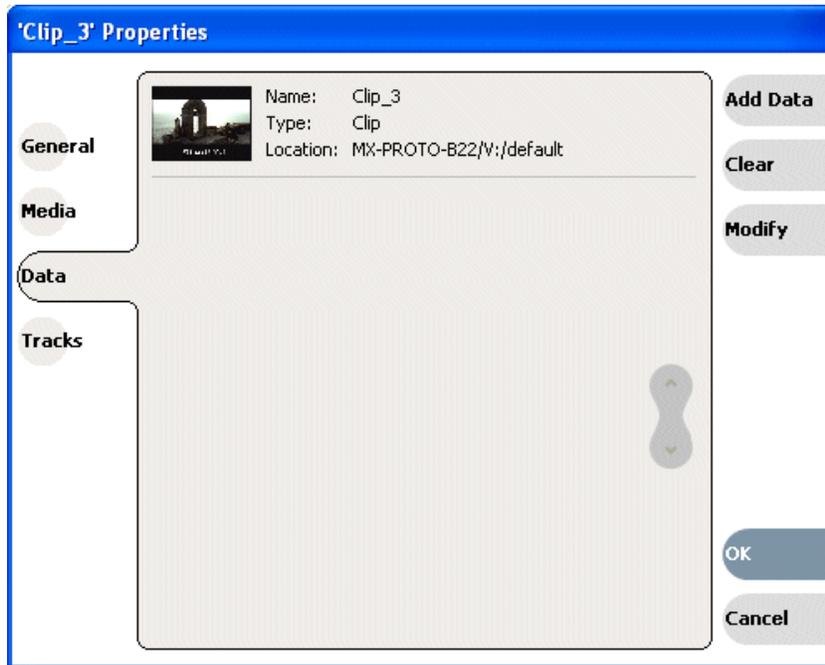
3. Click the **Data** tab, then click **Add Data** or **Modify** on the data page.
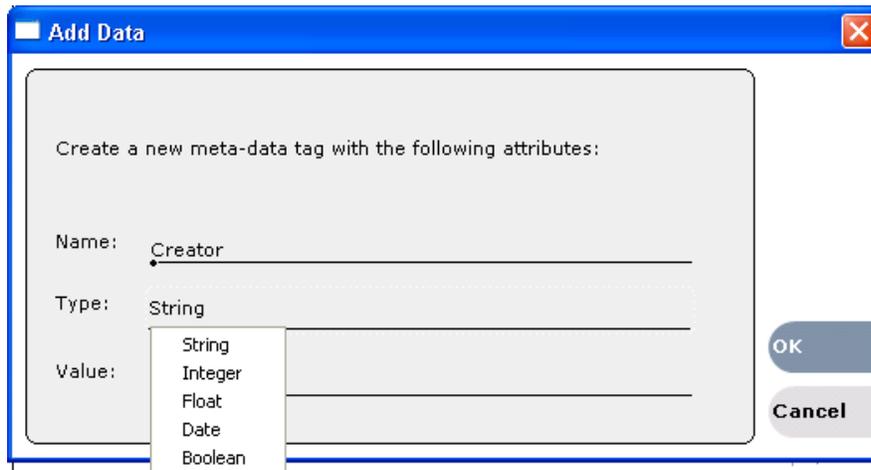
4. Define or modify metadata using the following steps:

   a. Select **Name**, then 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 150.

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 147.)

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.

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 **Clips | Properties**, or

   • Select **Properties** in the asset context menu, or

   • Click 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 120.

   The properties dialog box appears:
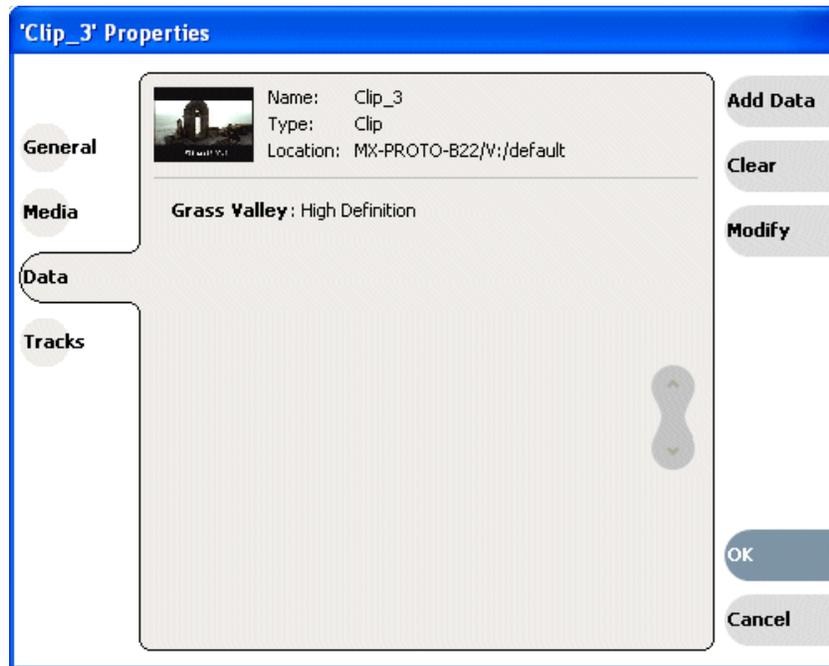
3. Click the **Data** tab, then scroll to locate and select the metadata entry you want to clear.

4. Click **Clear**.

   The metadata value is now blank.

5. Repeat step 3 and step 4 to clear other metadata values.

6. Click **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 150.

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. 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 "Clearing metadata" on page 149.

Viewing asset properties

The properties dialog box varies depending on the asset.

- "Viewing clip properties" on page 151
- "Viewing playlist properties" on page 153
- "Viewing program properties" on page 153
- "Viewing bin properties" on page 154
- "Viewing volume properties" on page 154

Viewing clip properties

1. Select the clip in the Clips pane asset list.

2. Open the Clip Properties dialog box using one of the following:

   - Select **Clips | Properties**, or

   - Select **Properties** in the asset context menu, or

   - Click 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 120.

   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 147.

Viewing the General properties page

The General properties page displays basic information about the clip, including tracks, format, compression, size, etc. A radio button enables you to lock the clip.
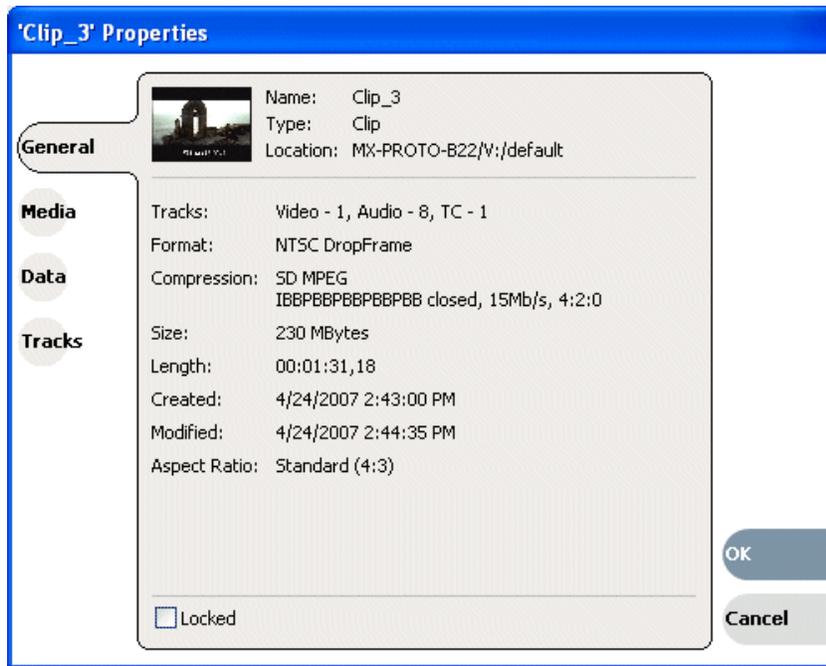
Viewing Media Properties page

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. The Aspect Ratio Conversion drop-down list allows you to specify how you want K2 Media Client to handle an aspect ratio conversion. For more information, see "About video scaling settings" on page 196.
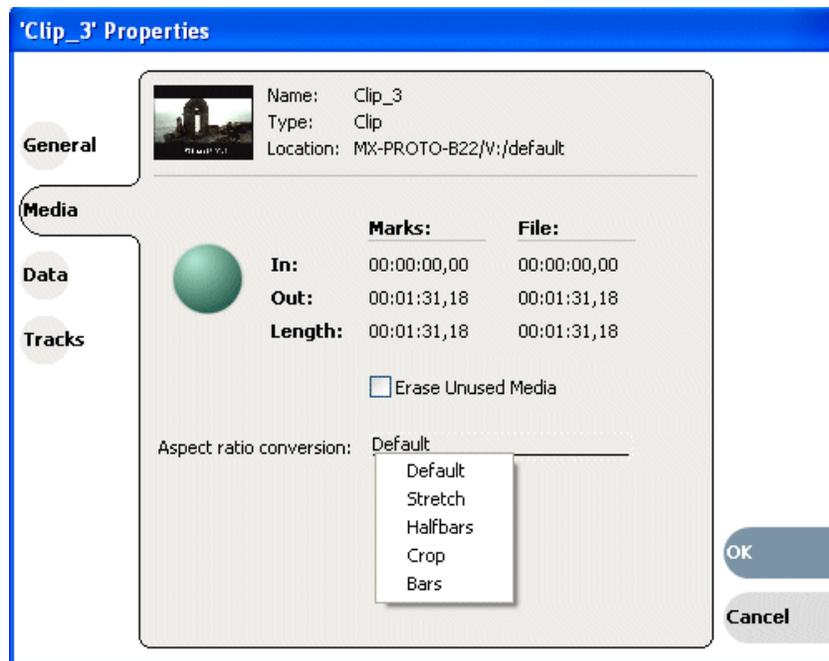
Viewing Data properties page

This page allows you to define your own metadata and specify values for that metadata. Refer to "Working with asset metadata" on page 147.

Viewing playlist properties

The playlist properties dialog box includes features that control list playback in the Playlist mode. "Viewing playlist properties" on page 113.

Viewing program properties

1. Select the program in the Clips pane asset list.

2. Open the Program Properties dialog box using one of the following methods:

   • Select **Clips | Properties**, or

   • Select **Properties** in the asset context menu, or

   • Click 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 120.
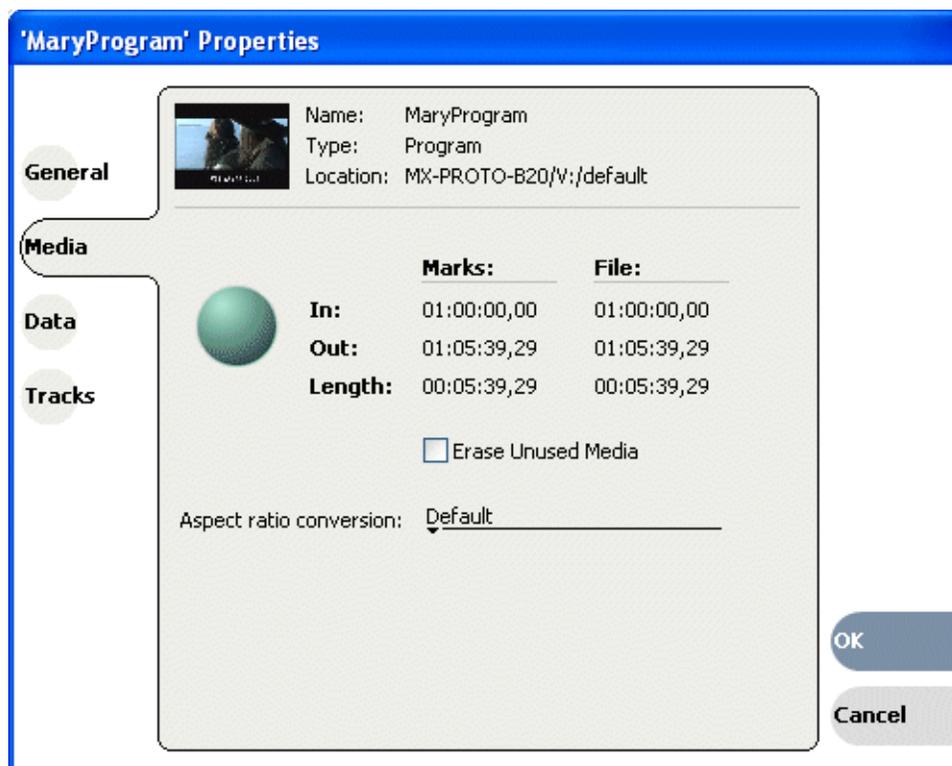
The Program Properties dialog box is displayed; it has three pages, **General**, **Media** and **Data**. The General page is self explanatory. The Media page has information about mark in- and mark-out times. The Data page is used to add metadata to the program. To learn more, refer to "Working with asset metadata" on page 147.

Viewing bin properties

1. In the Clips pane, select the Current Bin label ▭, then select **Organize Bins**.

2. In the Organize Bins dialog box, select a bin. The bin properties are displayed in the Organize Bins dialog box.
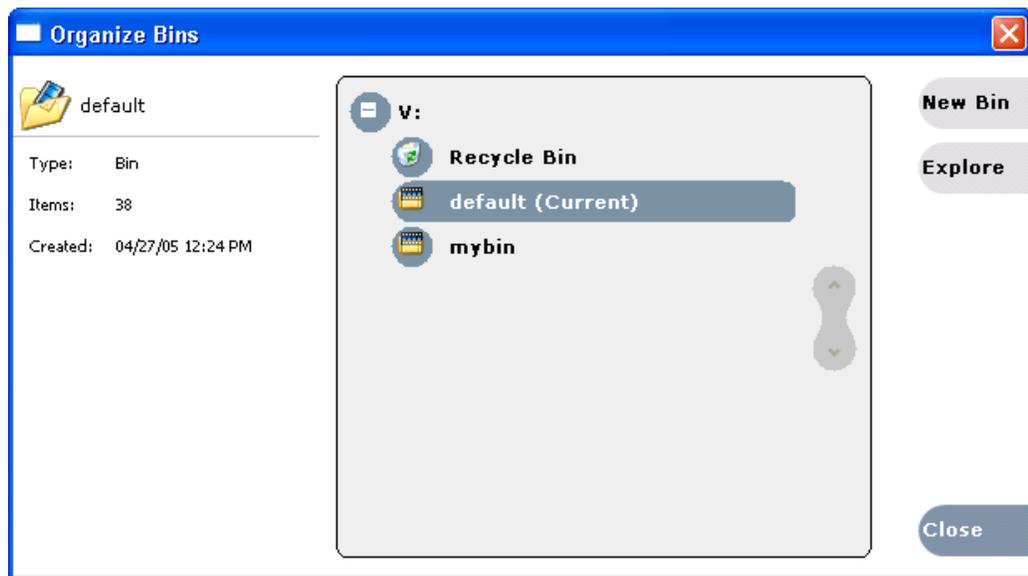
Viewing volume properties

1. In the Clips pane, select the Current Bin label ▭, then select **Organize Bins**.

2. In the Organize Bins dialog box, select a disk volume. The volume properties are displayed in the Organize Bins dialog box.
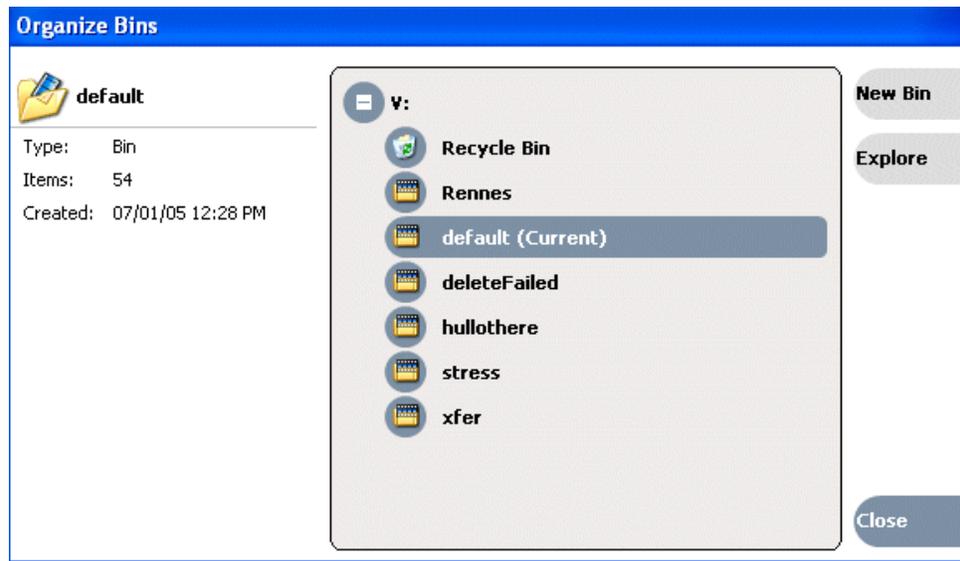
Chapter **8**

Importing and Exporting Media

This chapter describes importing and exporting files and streaming media using AppCenter. You can also transfer media using an FTP application. For information on using FTP with the internal storage K2 Media Client, see the *K2 Media Client System Guide*. For information on using FTP with the K2 Storage System (which includes connected external storage K2 Media Clients) or the Nearline K2 Storage System, refer to the *K2 Storage System Instruction Manual.*

This chapter is divided into two sections:

Importing and exporting assets

This section is divided into two parts:

Importing and exporting files

This part includes the following topics:

About importing and exporting files

You can import and export files using standard multimedia. Source files can be located on a local K2 Media Client disk drive (fixed or removable media) or a mapped networked drive. The source and destination devices must be in the same domain.

If importing or exporting files by accessing a K2 Media Client with remote AppCenter on a network-connected Control Point PC, your view of the "local" Windows file system is a view of the Control Point PC. However, the "local" drives (such as C:) that AppCenter uses for source and destination are not the local drives of the Control Point PC. Therefore you must map a network drive on the Control Point PC to create a verified source or destination. To do this, go to the source or destination

machine, create a shared folder, then on the Control Point PC map that shared folder as a network drive. Then you can import or export using the shared network drive. Refer to procedures later in this section.

If importing or exporting files on an external storage K2 Media Client, while it appears as if your view of the "local" Windows file system is that of the external storage K2 Media Client, in actuality the "local" drives (such as C:) that AppCenter uses for source or destination are the local drives of the K2 Media Server. Therefore you must similarly map a network drive on the external storage K2 Media Client to create a verified source or destination, even if the source or destination you intend is in fact a local drive on the external storage K2 Media Client itself. To do this, on the source or destination machine create a shared folder, then on the external storage K2 Media Client map that shared folder as a network drive. Then you can import or export using the shared network drive. Refer to procedures later in this section.

Exporting to the V: drive is not recommended. The V: drive is reserved for the primary media storage and should not be used for file import/export. The location of the V: drive differs based on the type of K2 System you are using.

NOTE: If you import to a file or stream media that has the same name as an asset already existing in the destination location, an Abort/Rename/Retry dialog box appears.

Supported multimedia file formats

K2 Media Client supports GXF, MXF, and other multimedia file formats for import/export. For more information, see *K2 Media Client System Guide*.

Movie formats for GXF imports/exports:

Depending on system software versions on source and destination devices, it might be required that all video and audio segments in a GXF transferred file be of the same media type. Refer to release notes for the software version for more information.

Interchange Standards:

General Exchange format: SMPTE 360M GXF

Material Exchange format: SMPTE 377M MXF (SMPTE 378M or 1a)

Adding a remote host

Grass Valley recommends manually adding each remote host that you want to import or export files to. Do this for K2 systems, Profile XP and M-Series.

To import/export between systems using AppCenter, follow these steps:

1. Open Configuration Manager and select the Remote tab.

2. Add each system that you want to have available as a source or a destination.

• Enter the name or the IP address of the K2 Media Client where you want to import or export streaming media assets. (Grass Valley recommends that you use host names. For more information on host files, see the *K2 Media Client System Guide*.)

• When adding a remote host that uses AMP remote control protocol, select a Controller id.

To map a source or destination drive

This procedure provides a mapped network drive for file import/export on the machine on which you are using AppCenter, such that you can use the drive as a verified source or destination via AppCenter's Import or Send To features. This is required in the following cases:

• When using AppCenter on a Control Point PC for any file import or export.

• When using AppCenter on an external storage K2 Media Client for any file import or export.

• When using AppCenter on an internal storage K2 Media Client and the source or destination is not on the local K2 Media Client.

To map a drive for use as a verified source or destination for file import/export, do the following:

1. On the machine that is the source or destination, create a folder to be used for file import and export. For example, create the folder *C:\ImportExport*.
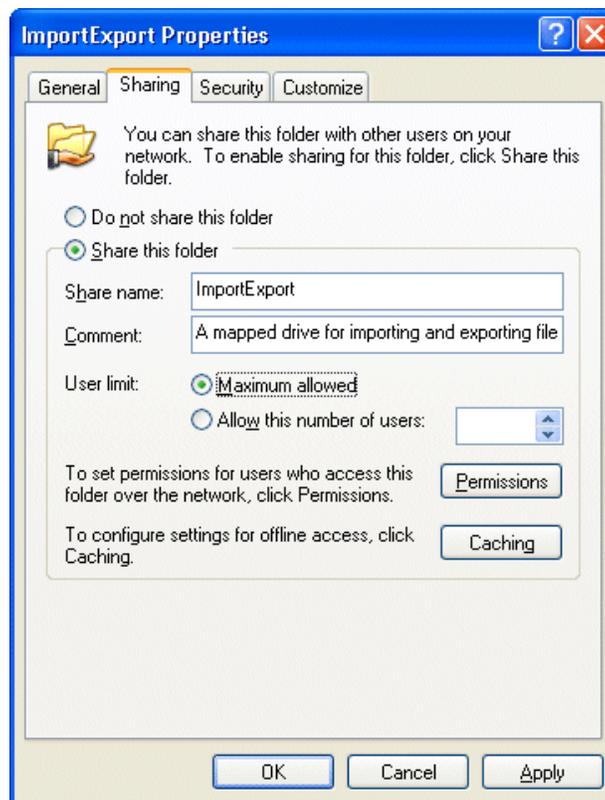
2. Share the folder using standard Windows procedures.
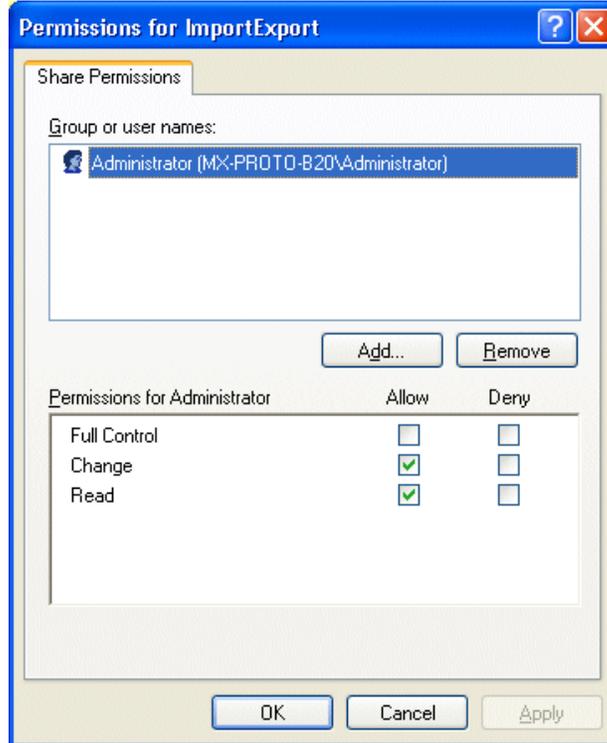
3. Make sure that permissions are set to allow read and write access to the appropriate user or group accounts, according to your site's security policies.

4. On the machine on which you are using AppCenter, map the shared folder as a network drive. For example, if the shared folder is on *K2Client1*, map the T: drive to *\\K2Client1\ImportExport*.

5. You can now use the mapped network drive as a source or destination for file transfer using the AppCenter Import or Send To features.

To import a file

Use the following procedures to import a video file.

When you import media from a file, the media is converted and stored using the K2 system native file format.

The file to be imported must be in a verified source location for file import. Examples of verified sources are as follows:

• When using AppCenter on an internal storage K2 Media Client and the source is a local drive on the K2 Media Client, the local drive is a verified source. It is not necessary to share a folder or map a drive.

• When using AppCenter on an external storage K2 Media Client and the source is a local drive on the external storage K2 Media Client, create a verified source as follows:

  - On the external storage K2 Media Client, share a folder.

  - On the external storage K2 Media Client, map the shared folder as a network drive.

• When using AppCenter on a Control Point PC and the source is a local drive on the Control Point PC, create a verified source as follows:

  - On the Control Point PC, share a folder.

  - On the Control Point PC, map the shared folder as a network drive.

• When using AppCenter on a Control Point PC and the source is a local drive on a K2 Media Client you are accessing with AppCenter, create a verified source as follows:

  - On the K2 Media Client, share a folder.

  - On the Control Point PC, map the shared folder as a network drive.

Refer to "About importing and exporting files" on page 157 and "To map a source or destination drive" on page 159 for more information.

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 89.)

To import a video file, do the following:

1. Verify the current bin. The current bin is the destination directory for the import operation. For help, see "Exploring bins" on page 92.

2. Place the file to be imported in a verified source location.

3. In the AppCenter main menu, select **Clips | Import**.

   The Import dialog box opens.
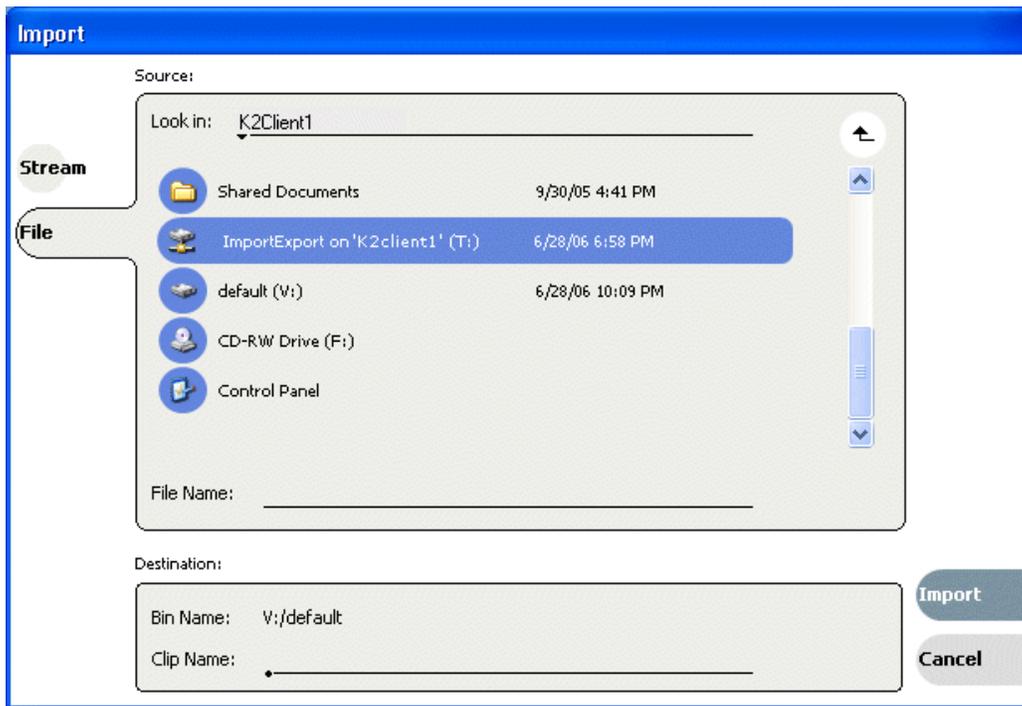
4. Click **File**.

5. In the Source section, browse to locate and select the source file.

   The **Look in** label shows the current location. The list under the **Look in** label displays the contents of the current location. The Import dialog automatically filters the list of files to show only the type of files that can be imported (such as .gxf, .mxf, and so on). You can select items in the list (such as a *machine*, 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).

6. Verify the destination directory indicated next to **Bin Name**. This is where the imported file is placed.

7. Modify the clip name, if needed, by selecting the **Clip Name** edit control.

8. Click **Import** and proceed as follows.

NOTE: Import is a background task and can be monitored using the Transfer Monitor.

   • If you are importing a video file the import begins. You do not need to continue with the next step in this procedure.

9. Once you have specified how to import the file, click **OK**..

About exporting files

You can export K2 system clips using standard media file formats. The following table describes the file formats supported.

Export: File Formats Supported
AVI (.avi)
General Exchange Format [SMPTE 360M] (.gxf)
Material Exchange Format [SMPTE 377M] (.mxf)
QuickTime (.mov)

Files can be exported over an Ethernet connection to network drives or to common forms of removable media. Refer to "About importing and exporting files" on page 157 for considerations about destination locations.

NOTE: If you export to a file or stream media that has the same name as an asset already existing in the destination location, an Abort/Rename/Retry dialog box appears.

About sending files to external drives

Transferring to and from a USB drive is supported on a local internal storage K2 Media Client only. USB drive transfers on external storage K2 Media Clients, K2 Media Servers, or control point PCs are not supported. Grass Valley recommends that the USB drives be disabled except when in use. To transfer to or from a USB drive on an internal storage K2 Media Client, the Windows administrator should thus first enable the USB port using Windows Device Manager. When the transfer is complete, the Windows administrator should then disable the USB port to prevent unauthorized use. Assets must be exported to a USB drive one at a time. Attempts to export more than one asset at the same time will result in the transfer aborting.

The following are operational considerations when sending files to external drives:

• **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. 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 are handled concurrently, up to four at a time. Additional transfer requests are queued.

• **USB drive security** - Grass Valley recommends that you keep the USB connectors in a disabled state when not in use. To enable a USB drive, you must log in as Windows administrator and enable the drive. For more information on user-level access, see "Types of K2 users" on page 22.

• **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 K2 system 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 export to a file

The destination must be a verified destination for file export. Examples of verified destinations are as follows:

- When using AppCenter on an internal storage K2 Media Client and the destination is a local drive on the K2 Media Client, the local drive is a verified destination. It is not necessary to share a folder or map a drive.

- When using AppCenter on an external storage K2 Media Client and the destination is a local drive on the external storage K2 Media Client, create a verified destination as follows:

    - On the external storage K2 Media Client, share a folder.

    - On the external storage K2 Media Client, map the shared folder as a network drive.

- When using AppCenter on a Control Point PC and the destination is a local drive on the Control Point PC, create a verified destination as follows:

    - On the Control Point PC, share a folder.

    - On the Control Point PC, map the shared folder as a network drive.

- When using AppCenter on a Control Point PC and the destination is a local drive on a K2 Media Client you are accessing with AppCenter, create a verified destination as follows:

    - On the K2 Media Client, share a folder.

    - On the Control Point PC, map the shared folder as a network drive.

Refer to "About importing and exporting files" on page 157 and "To map a source or destination drive" on page 159 for more information.

To export to a file, do the following:

1. Verify that the source and destination devices are in the same domain.

2. Select the clip or clips in the Clips Pane that you want to send to a file.

3. Open the Send to dialog box using one of the following steps:

    - Select **Clips | Send to**, or

    - Right-click the clip in the Clips Pane and select **Send to**.

    The Send dialog box opens.
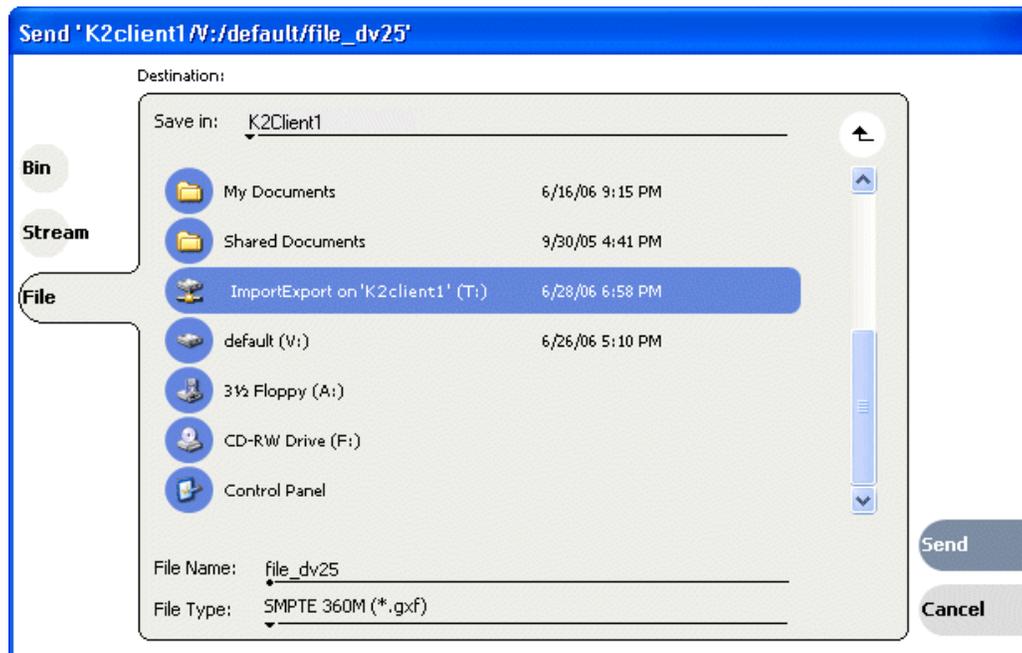
4. Click **File,** then locate and select the destination directory.

   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*, drive, or folder) to explore its contents.

   Clicking the up-arrow button ⬆ 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).

5. Use the **File Type** drop-down list to select the file format.

6. If desired, modify the destination file name using the **File Name** File Name: MyClip edit control.

7. Click **Send**.

NOTE: Export is a background task and can be monitored using the Transfer Monitor. If the operation fails for any reason, the asset is deleted from the target location.

If the file export does not behave as expected…

If you have trouble locating an exported file, you might not be using a verified destination. Refer to "About importing and exporting files" on page 157 for an explanation of verified destinations. Check that the destination is really at the location

you expect. For example, if you select what appears to be the local C: drive in the Send dialog box, you might discover that the file actually goes to a different machine, as explained in the following table.

If you are using AppCenter on a...	The C: drive is located on...
K2 Media Client with internal storage	The local K2 Media Client with internal storage
K2 Media Client with external shared storage	The K2 Media Server that takes the role of FTP server for that K2 Media Client.
Control Point PC remotely accessing a K2 Media Client with internal storage	The K2 Media Client with internal storage
Control Point PC remotely accessing a K2 Media Client with external storage.	The K2 Media Server that takes the role of FTP server for the external storage K2 Media Client.

Importing and exporting streaming media

This section includes the following:

About importing and exporting streaming media

You can transfer media between a K2 Media Client and other Grass Valley media devices using the **Import** and the **Send to** features. The K2 Media Client supports streaming media transfers over the 1Gb Ethernet port. Source or destination devices for a streaming transfer include K2 Media Client, Profile XP, or M-Series system (which requires M-Series software version 2.0.10 or higher).The format for such streaming is SMPTE 360M (*.gxf). You must configure your network for streaming transfers prior to using these features.

NOTE: If importing to or exporting from other products, such as a Profile XP or an M-Series system, you must first add the remote host in Configuration Manager. For more information, see "Adding a remote host" on page 148. To import or export from a Profile XP, the Windows host file needs to be edited for Profiles. Refer to release notes for specifications regarding cross-product transfers supported by the particular software versions. For more information on host files, see the K2 Media Client System Guide.

A transfer job is created for each "import" or "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. Transfer jobs are handled in the order they appear in the queue. K2 Media Client can handle up to four concurrent transfer jobs. Any additional, up to 100 requests at a time, wait in the queue. You can use the Transfer Monitor to check the status of your transfer requests.

NOTE: The bit rate while streaming clips between machines is not symmetrical. For example, when streaming to a remote machine the data rate can be twice as fast as the rate streaming from a remote machine. This is due to the way transfer statistics are measured.

Movie formats for GXF imports/exports:

Depending on system software versions of source and destination devices, it might be required that all video and audio segments in a GXF transferred file be of the same media type. Refer to release notes for the software version for more information.

Interchange Standards:

General Exchange format: SMPTE 360M GXF

Material Exchange format: SMPTE 377M MXF (SMPTE 378M or 1a)

Transfer timings

The timing of the transfer with record/play operations depends on the clip's storage location. Refer to specifications in the *K2 Media Client System Guide*.

Importing streaming media

K2 Media Client allows playout of movies that are still transferring in. Make sure the bandwidth of the import task is greater than the media bitrate.

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.

1. In the Clips Pane, select the bin to which you want to stream media. The current bin will be the *destination* bin for the import operation.

2. Select **Clips | Import**.

   The Import dialog box opens.
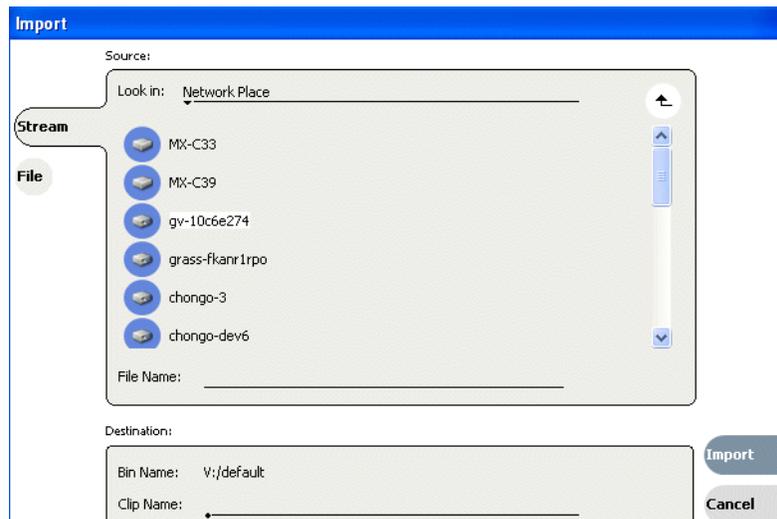
3. Click **Stream**.

4. In the Source section, browse to locate and select the source clip. (For some cross-product transfers, depending on software versions, you might need to specify the volume, bin, and media asset name. Refer to release notes for specifications.)

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 specifies the destination bin.

6. Specify a clip name, if desired, by clicking the **Clip Name** edit control.

7. Click **Import** to start the transfer.

NOTE: Import is a background task and can be monitored using the Transfer Monitor.

Exporting streaming media

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 **Clips | Send to**, or

   • Right-click the clip and select **Send to**.

   The Send to dialog box appears.
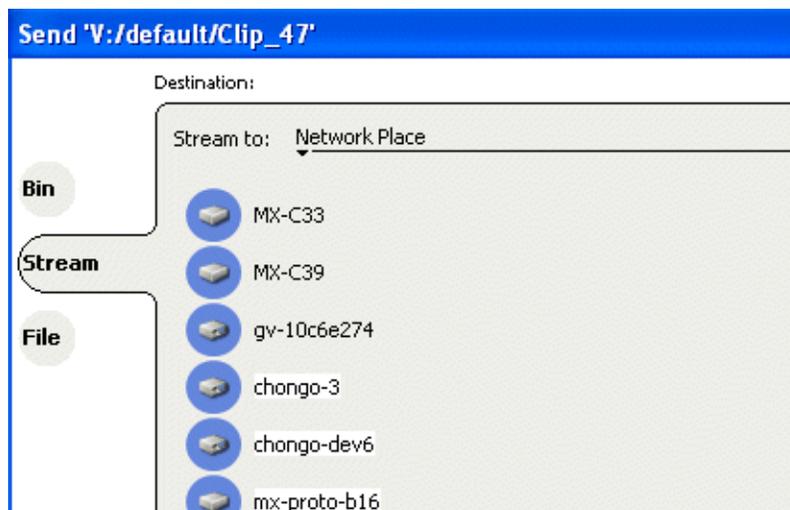
3. Click **Stream,** then locate and select the stream destination.

   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 devices (history).

4. Click **Send** to transfer the asset(s).

*NOTE: **Send to** is a background task and can be monitored using the K2 system Transfer Monitor tool.*

Monitoring media file transfers

The Transfer Monitor is used to monitor all K2 Media Client transfer jobs and their status. A transfer job is created for each "send to" or "import/export" 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.

*NOTE: If the **System | Transfer Monitor** menu option is grayed out, review your level of user access. For more information, see "Types of K2 users" on page 22.*

Topics in this section include:

• "Starting the Transfer Monitor"

• "Transfer Monitor pages and buttons"

• "Viewing transfer jobs in Transfer Monitor"

• "Viewing detailed transfer job properties"

• "Removing transfer jobs from the completed list"

Starting the Transfer Monitor

To start Transfer Monitor, perform one of the following:

• Select **System | Transfer Monitor**

-or-

• In the AppCenter Statusbar, double-click the Transfer Monitor button . The Transfer Monitor button appears when a transfer job is present.

Transfer Monitor pages and buttons

In the Transfer Monitor, transfer jobs are categorized and displayed on one of three pages— Receiving, Sending, 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 with a red circle next to a brief description of the error(s).

• **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 can find the full path of all the source files from the Properties page.

• **Destination** – The destination of the transfer job. You can find the full path of all the destination 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 an error or errors are displayed with a red circle next to a brief description of the error(s).

• **Properties Button** – Used to view more detailed information about a transfer job. See "Viewing detailed transfer job properties" on page 172.

• **Remove Button** – Used to abort and remove jobs from the transfer queue.

Receiving Page

The Receiving page displays all import transfer jobs.
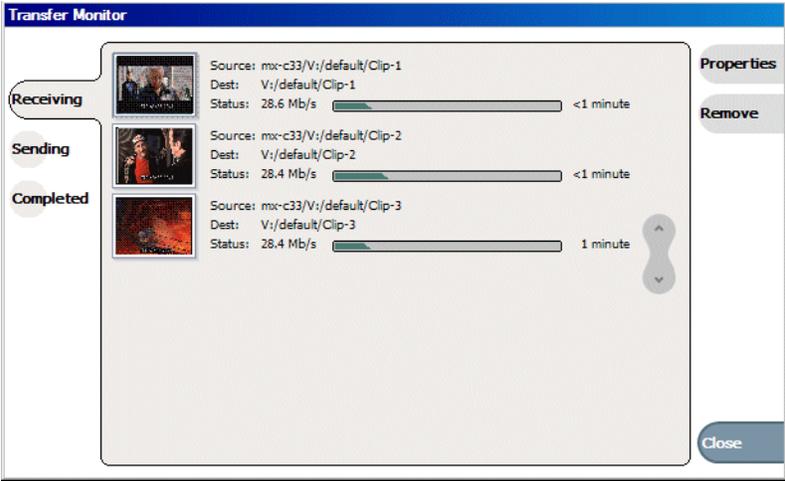
Sending Page

The Sending page displays all "Send to" transfer jobs and their status.
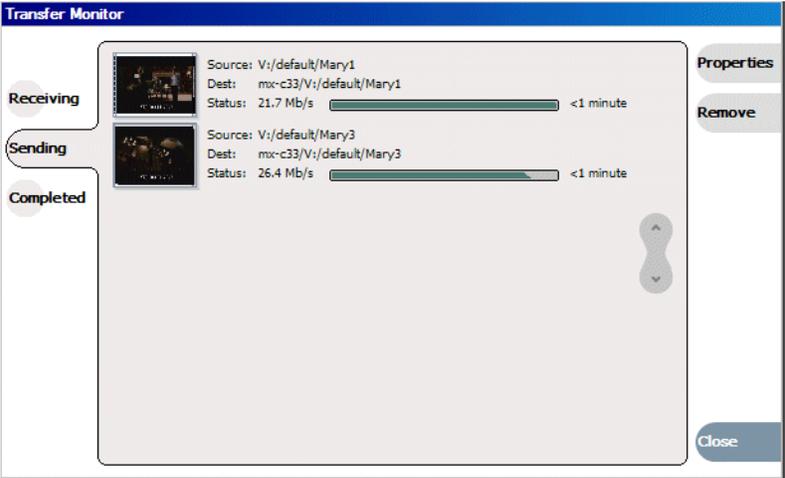
Completed Page

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**.
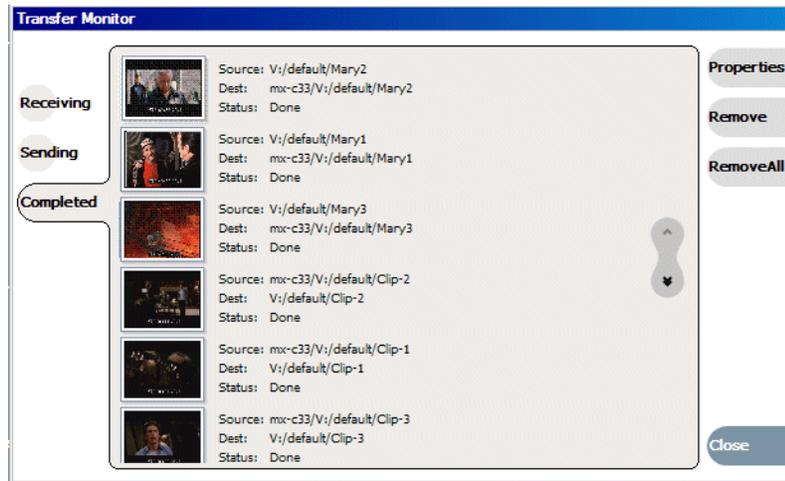
Viewing transfer jobs in Transfer Monitor

Each transfer job is displayed in the Transfer Monitor with a thumbnail image along with a brief description of its source, destination and status. Jobs that have encountered errors are shown with a red circle by them.

NOTE: When viewing transfers to or from a K2 Media Client that uses shared (external) storage, be aware that the transfer will display in Transfer Monitor referencing the name of the K2 Media Client. However, in the Import or Export dialog box, you will need to specify the name of the shared storage itself. For example, the source would listed as K2-StorageSystem/V:/TransferTest/ in the import menu but in transfer monitor it would be displayed as K2-MediaClient-B22/V:/TransferTest/.

You can find more detailed information about a transfer job from its Properties page. The Properties information can be accessed while the transfer is taking place or after it has finished, regardless of whether the media has been transferred successfully or not.

• 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 destination 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.
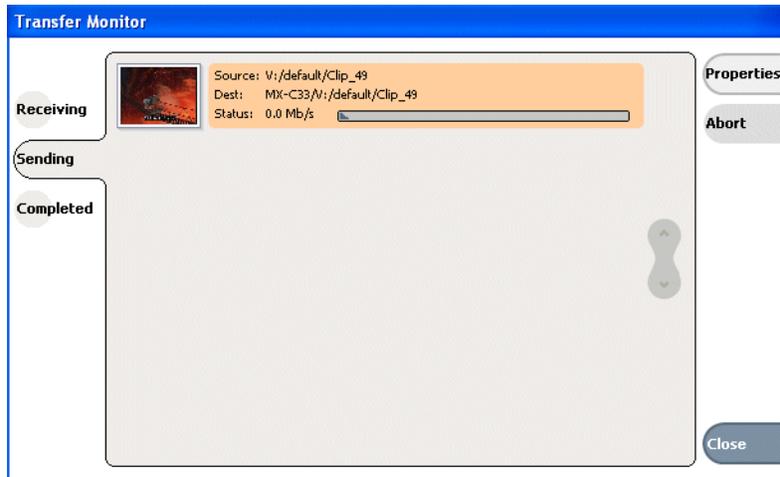
2. Click **Properties.**

3. When the Transfer Job Properties dialog box appears, select the **Transfer** tab to examine transfer properties.

Transfer properties
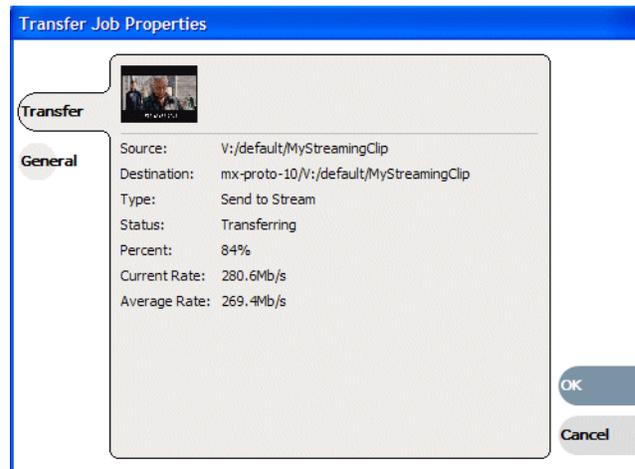
You can view the general clip properties by selecting the General tab.

General properties
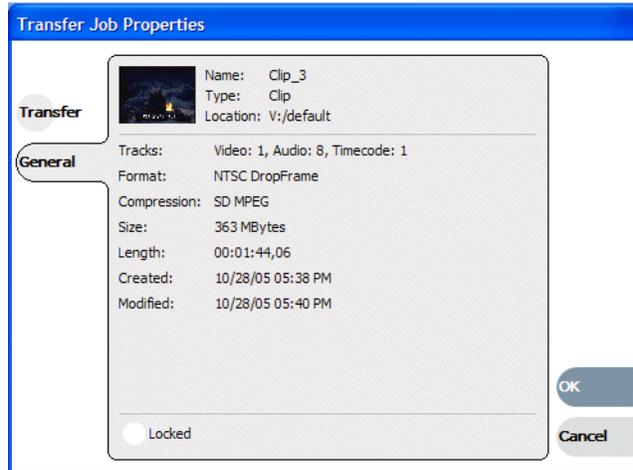
Removing transfer jobs from the completed list

You can remove transfer jobs from the Completed page.

1. In Transfer Monitor, click **Completed**.

2. Remove the transfer jobs using one of the following:

   • Select the job to remove, then click **Remove**. Or,

   • Select the jobs to remove, then click **Remove All**.

Chapter **9**

Using Channel Suites

The channel suites explained in this section run only on a PC running Control Point software as part of using AppCenter for remote operation of one or more K2 Media Clients. You cannot use channel suites on a local K2 Media Client.

This chapter is divided into the following sections:

Using channel suites

You can manage your channel suites from the System menu. When you open AppCenter, the system automatically opens the last-used channel suite. If you have a channel suite already running when you open a channel suite or create a new one, a dialog box displays asking if AppCenter should shut down or suspend current channel suite and applications in it.

If you select **Close Channel Suite**, you exit AppCenter and close the channel suite. Any channels that are running are stopped.

If you select **Suspend**, you exit AppCenter but the K2 system keeps running any current application. (For example, if recording, the application keeps recording.) In this state, any channels in the channel suite may be commandeered by another user. If all the channels in the channel suite are taken over in this manner, a suspended channel suite is shut down. For more information, see "Sharing channels with other users" on page 177.

If there is an unplanned shut down on the K2 Media Client, the channels in remote AppCenter display a "disconnected" status in the channel title bar. Select **System | Reconnect** to connect to the K2 Media Client again. If the AppCenter application crashes on your network-connected Control Point PC, connections with the K2 Media Client are put into a suspended state while waiting for the PC to reconnect. The K2 Media Client continues to run any current applications or protocol.

A channel suite is saved as an XML file on the Control Point PC. The default location is *C:\Profile\ChannelSuites*. In this XML file, information for channel order, alias names, and the application that runs on a channel is stored. For example, if you run the Recorder application on a channel, the next you open the channel suite the Recorder application persists on that channel.

Managing channel suites

The following table describes the basic channel suites tasks and the actions necessary to complete them.

Task	Action
Add a channel to the currently active channel suite	In AppCenter, select **System	Suite Properties** and click **Add**. You can add up to 16 channels to a channel suite.

Task	Action
Configure the channel settings	In AppCenter, select **System	Configuration.**
Create a new channel suite	In AppCenter, select **System	New Suite**, name the channel suite, and add channels. **Note:** you can create a new channel suite while currently running a different channel suite. When you finish creating the suite, you are offered the choice of closing down or suspending the current channel suite. By default, the new channel suite is saved in the C:\Profile\ChannelSuites directory. You can overwrite an existing channel suite by selecting **System	New Suite**, highlighting the name of the channel suite you want to overwrite, and then proceeded as if it were an entirely new channel suite.
Delete a channel from the currently active channel suite	In AppCenter, select **System	Suite Properties** and click **Remove.** Deleting a channel removes it from the channel suite. It does not affect the channel itself.
Delete a channel suite	In the Windows Explorer application, locate the channel suite. Channel suites are saved by default in the C:\Profile\ChannelSuites directory in XML format. Highlight the file and hit the **Delete** key.
Open a channel suite	In AppCenter, select **System	Open Suite.** Channel suites are saved by default in the C:\Profile\ChannelSuites directory in XML format. **Note:** to open one of the last four recently used channels, select **System	Recent Suites**.
Organize channels in a channel suite	In AppCenter, select **System	Suite Properties.** Highlight the channel you want to reorder and click either **Move Up** or **Move Down**.
Rename a channel in a channel suite	In AppCenter, select **System	Suite Properties** and click **Rename**. Channel names must be 16 characters or less. **Note:** to rename an open channel suite, AppCenter must shut down all the channels and then re-open the suite.
Rename a channel suite	In AppCenter, select **System	Suite Properties.** In the Suite Properties dialog box, enter the new suite name and click **Save**. **Note**: renaming a channel suite while it is running causes all the channels to stop and any clips to be ejected. AppCenter needs to reconnect to the K2 Media Client(s) that are affected by this change.

Using channel suites with multiple K2 systems or storage locations

Channel suites have the capability to operate channels from multiple K2 Media Client machines from one Control Point PC. You can move from a channel on one K2 Media Client to a channel on another without disrupting playout.

You can use a channel suite with channels that access media stored on different K2 Media Clients or K2 Storage Systems. The clip bin displayed is the bin where the channel currently active stores its clips.

Take care when loading clips into channels. When the clips for the currently active channel are displayed in the Clips pane, you might not be able to load those clips into a channel that is not currently active, if that channel is on a different K2 Media Client.

For example, if you have channels in your channel suite from internal storage K2 Media Client "A" and from internal storage K2 Media Client "B", you cannot drag and drop a clip from the "A" system to load it into a "B" system channel. To load a clip across storage locations in this manner requires a transfer of the clip from system "A" to system "B." You must perform that transfer as a separate task, as attempting a cross-system load of a clip does *not* trigger a transfer. For more information, see Chapter 8, *Importing and Exporting Media*.

Accessing a K2 system from multiple Control Point PCs

You can have the same channel suite saved on different Control Point PCs. This is useful in the event of a Control Point PC crash while running AppCenter. Within two minutes of an unplanned shut down, the K2 system suspends the channels in the affected channel suite. If you have the same channel suite on another Control Point PC (that is, a channel suite with the exact same name), you can open the channel suite on the other Control Point PC. When you do this you must use the same user credentials. Then you can continue your work.

Sharing channels with other users

Channels are used exclusively by one application and one user, but multiple users on different PCs can access different channels on the same server at the same time. You can share channels with users who are accessing the same K2 Media Client from networked-connected Control Point PCs. To release a channel, select **<None>** in the application drop-down list in the channel monitor pane. The title bar of the channel changes to "Available".
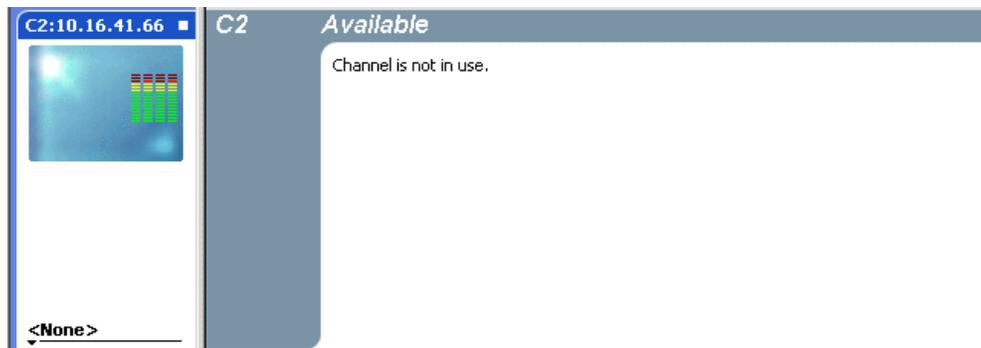
If a channel is in use by another user, you can still have the channel as part of your channel suite. In this status, the channel says "in use" in the title bar of the clip and includes information on the current user, computer, and application.
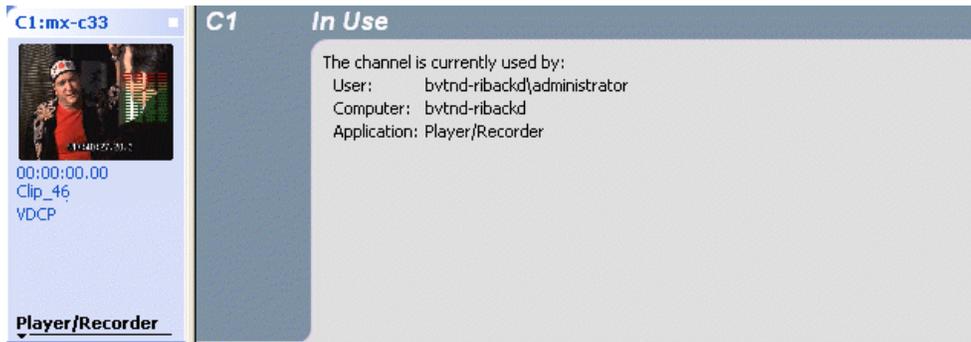
Taking over a channel

>   While you are using a channel, another user can commandeer it. When this happens the channel says "in use" in the title bar of the clip and includes information on the current user, computer, and application.

>   If you click on an application drop-down list in a channel that another user has assigned an application to, a pop-up message asks you to confirm that you want to take the channel over.

>   For example, if user1 has designated Channel 1 to run a Player application on Control Point PC1, user2 can go into Channel 1 in his channel suite on Control Point PC2 and select Recorder from the application drop-down list. User2 will see this message:

>>   'Channel1:*K2 system*' is currently used by 'user1' running 'Player' on 'PC1'. Are you sure you want to eject this clip and launch a 'Recorder'?

>   Clicking **Yes** will allow the second user to begin the new application on this channel.

Channel suites and channel configuration considerations

>   While you can separate the channels on a single K2 Media Client for operation by using one or more channel suites, the channels on a K2 Media Client are always combined in one interface when you use Configuration Manager. This means that it is possible to open Configuration Manager from within a channel suite and configure a channel that is not present in that channel suite. Therefore, make sure you know the control and operating status of a channel before you modify its configuration.

>   Likewise, if your channel suite has channels from multiple K2 Media Clients, it is possible to open Configuration Manager on each of those K2 Media Clients from within the one channel suite. Therefore, make sure you select a channel from the K2 Media Client with the channel you intend to configure before you open Configuration Manager.

>   When you modify channel configuration in Configuration Manager, the changes are saved in a configuration file on the K2 Media Client, not on the network-connected Control Point PC.

>   Administrators can set user permissions for each channel. Depending on your security settings, you could be denied permission to operate a channel. For more information, see the *K2 Media Client System Guide*.

>   Take special care when modifying a channel configuration as follows:

- Changes that apply to all channels on a K2 Media Client. This can affect media operations in other channel suites that contain channels from that K2 Media Client.

- Changes that require rebooting the K2 Media Client, such as switching the video reference from NTSC to PAL. This can stop the media operations in other channel suites that contain channels from that K2 Media Client.

NOTE: Configuration changes require K2 admin access privileges.

Chapter **10**

SDA-00: Audio/Video Configuration

Information in this chapter includes:

Using Configuration Manager

To modify settings in Configuration Manager, you must be currently logged in to AppCenter with administrator privileges. Refer to "Types of K2 users" on page 26.

Open Configuration Manager from the AppCenter menu bar at **System | Configuration**. Refer to "Configuration Manager" on page 34 for more information on opening Configuration Manager and saving settings.

NOTE: If you are accessing a K2 Media Client from a Control Point PC with a channel suite that has channels from multiple K2 Media Clients, make sure that you select a channel from the K2 Media Client that you want to configure before opening Configuration Manager.

About video scaling settings

The K2 Media Client video scaling feature allows you to play clips with different aspect ratios and picture resolutions on the same play channel.

The SDA-00 K2 Media Client handles video scaling as follows:

• When recording a clip, you should specify whether the clip is standard or widescreen video. This sets the clip aspect ratio attribute. This attribute is saved as part of the media file.

• Both 16:9 and 4:3 SD resolution formats are supported for playout on the same timeline. However, there is no automatic aspect ratio conversion on playout. If a clip has the widescreen attribute set, that attribute is recognized and passed through, but it does not alter the playout aspect ratio when played out on a SD-00 K2 Media Client. If that clip is played out on a HD-00 K2 Media Client, the widescreen attribute is recognized and the configured aspect ratio conversion mode is applied.

• You can only set a clip's aspect ratio attribute when it is recorded. Once a clip is recorded or imported, you cannot change the attribute. If you want to change the clip's aspect ratio attribute, you must re-record or import the clip.

• In some cases you might want to deliberately set a SD clip's aspect ratio attribute "opposite." For example, if a clip is being recorded on a SD-00 K2 Media Client and it already has an aspect ratio treatment, such as letterbox bars as part of the media itself, you would not want to again apply letterbox bars when the clip is played out. This could occur if the clip is played out to a SD output on a HD-00 K2 Media Client and the aspect ratio conversion mode setting is set to apply letterbox bars. If this happens, it results in double-boxing. In this case, if you know the clip is destined for such a SD output, you can set the widescreen clip's attribute to standard screen so that no aspect ratio conversion takes place on the SD playout.

• The K2 Media Client can play clips with different aspect ratio attributes in a single playlist.

NOTE: Some video output connectors become inactive for some video type selections. For more information on video output connectors, see the K2 Media Client System Guide.

Applying AFD settings

Active Format Description (AFD) can be used to automatically determine the proper aspect ratio to use for up- and down-conversions. Previous versions of the K2 Media Client let you set the aspect ratio conversion (ARC) on a clip-by-clip basis or per channel. Now, you can use the AFD code to set the aspect ratio of the clip and the ARC performed. If no AFD is set, the ARC setting operates as it did in previous versions of the K2 software. For more information about AFD, see "Active Format Description specifications" on page 277.

In AppCenter, you can specify the AFD settings:

• in the Clip Properties dialog box, for that clip only

• in the Channel Options dialog box, for newly recorded clips on that channel

You can also set up the Configuration Manager to specify under what conditions AppCenter should process AFD (for output only, on a per-channel basis). For more information, see "Setting AFD in the Configuration Manager" on page 184.

When recording, the following AFD settings are available:

SD	HD
Undefined[a]	Undefined
16:9 Full screen	4:3 Pillarbox
4:3 Full screen	16:9 Full screen
16:9 Letterbox	14:9 Pillarbox
14:9 Letterbox	16:9 Full screen with 4:3 center

    [a.] Undefined means no AFD has been set; the clip remains as is.

The following sub-sections describe how to apply the AFD settings in AppCenter.

Setting AFD in the Clip Properties

Any modification to the AFD settings made here applies to the selected clip only.

To set the AFD on a clip, follow these steps:

1. In the Clips pane, right-click on the clip.

2. Select **Properties**.

3. In the Clip Properties dialog box, click on the **Media** tab.

4. Click the AFD drop-down list. Select the AFD setting and click **OK**.

    For a list of all the AFD conversion settings, see "Specifications" on page 269.

Setting AFD in the Channel Options

Any modification to the AFD settings made here applies to input on the selected recorder or player/recorder channel only.

1. In AppCenter, select the channel where you want to set the AFD value.

2. Click the **Options** button.

3. In the Options dialog box, click on the Bin & AFD tab.

4. Click the AFD drop-down list. Select the AFD setting and click **OK**.

   For a list of all the AFD conversion settings, see "Specifications" on page 269.

Setting AFD in the Configuration Manager

AFD settings made in Configuration Manager apply only to output on the specified channel.

1. From the File menu, select **System | Configuration**.

2. In Configuration Manager, click the Channel tab and the specific channel tab that you want to modify.

3. Scroll down to AFD settings and select one of the options:

   • Always— AFD is always generated on the output, if both of the following conditions apply:

     - AFD was not specified in the Clip Properties or the Channel Options

     — and—

     - The original source did not contain AFD (in the data track or the SDI input)

   • When Known — AFD is only generated if one of the following conditions apply:

     - The original source contained AFD (in the data track or in the SDI input)

     —or—

     - AFD was specified in the Clip Properties or the Channel Options

   • Never — AFD is not generated. If the data track contains AFD, it is played without any change.

4. Click **OK** to apply the setting.

Video reference standard setup

The video reference standard setting is global to the K2 Media Client and applies to all channels. For the reference standard currently selected, the only clips available for playout are those that use that reference standard. Clips that use a different reference standard are disabled (grayed out).

NOTE: When you change the video reference standard setting, a restart is required to put the change into effect

To access video reference standard settings, open Configuration Manager and click **System**.

For this setting...	Configure as needed…	
Reference Standard	**NTSC (59.94Hz)**	Choose for the NTSC standard.
	PAL (50Hz)	Choose for the PAL standard.
	🟢 **Reference present**	Green LED indicates source is present. Black LED indicates source is not present.
	🟢 **Reference locked**	Green LED indicates system is locked. Black LED indicates system is not locked.

Refer to "Data track setup" on page 1 and "Adjusting audio reference level" on page 193 for other settings that appear on the System tab.

Record channel video setup

Video record compression settings are not global; they can be set on a channel by channel basis.

On the SDA-00 K2 Media Client, available settings change depending on the video compression format selected, as in the following sections:

• "DV compression format setup"

• "MPEG compression format setup"

• "MPEG:D10 compression format setup"

NOTE: If you are using a channel suite with channels from multiple K2 Media Clients, make sure that you have selected a channel from the K2 Media Client that you want to configure before accessing Configuration Manager.

⚠️ *CAUTION: When using a K2 Media Client with shared storage, bear in mind that any configuration changes that result in an increased bandwidth (such as increasing the bit rate, media formats, and ratio of record channels to play channels) affect load balancing. Therefore, if you change your intended use of a K2 Media Client and increase its bandwidth requirements, you risk losing media access. For a more detailed description of load balancing, see the K2 Media Client System Guide.*

DV compression format setup

To access record channel video settings, open Configuration Manager, click **Channel**, and select a record channel (R1, R2).

For this setting...	Configure as needed…	
Compression format	**DV25**	Selecting one of these DV formats makes settings available as documented in this table. DV50 is a licensable option.
	DV50	
	DVCAM	For other format settings, refer to "MPEG compression format setup" on page 186 and "MPEG:D10 compression format setup" on page 188.
Input type	**SDI**	—
	Analog Composite	When the reference standard is NTSC and this setting is selected, it makes the following setting(s) available below: *Input pedestal*
Input pedestal	**On**	If you are operating with a standard NTSC input signal with 7.5 IRE setup, then make this selection. You must make this selection for both record channels.
	Off	—
Automatic VITC detection	**On**	When selected, settings available below for VITC lines are *Starting VITC line* and *Ending VITC line*
	Off	When selected, settings available below for VITC lines are *VITC line 1* and *VITC line 2*
Starting VITC line -or- **VITC line 1**	NTSC: Between 10 and 20 PAL: Between 6 and 22	
Ending VITC line -or- **VITC line 2**	NTSC: Between 10 and 20. PAL: Between 6 and 22	
	🟢 **VITC present**	Green LED indicates VITC is present. Black LED indicates VITC is not present.

MPEG compression format setup

To access record channel video settings, open Configuration Manager, click **Channel**, and select a record channel (R1, R2).

For this setting...	Configure as needed…	
Compression format	**MPEG**	Selecting this format makes settings available as documented in this table. For other format settings, refer to "DV compression format setup" on page 186 and "MPEG:D10 compression format setup" on page 188.

For this setting...	Configure as needed…	
Long GOP	**Yes (IBPBPBPBPB)** **No (I-frame only)**	—
Chroma format	**4:2:0**	Makes the following setting(s) available below: *Recording data rate: 2-15 Mb/s*
	4:2:2	Makes the following setting(s) available below: *Recording data rate: 4-50 Mb/s* *Compress VBI*
Recording data rate	Selectable, with range dependent on Chroma format selection above. Data rates above 25 Mb/s are a licensable option.	
Compress VBI	**Yes (Active picture plus VBI)**	—
	No (Active picture only)	—
Input type	**SDI**	—
	Analog Composite	When the reference standard is NTSC and this setting is selected, it makes the following setting(s) available below: *Input pedestal*
Input pedestal	**On**	If you are operating with a standard NTSC input signal with 7.5 IRE setup, then make this selection. You must make this selection for both record channels.
	Off	—
Automatic VITC detection	**On**	Makes the following setting(s) available below: *Starting VITC line* *Ending VITC line*
	Off	Makes the following setting(s) available below: *VITC line 1* *VITC line 2*
Starting VITC line -or- **VITC line 1**	NTSC: Between 10 and 20 PAL: Between 6 and 22	
Ending VITC line -or- **VITC line 2**	NTSC: Between 10 and 20. PAL: Between 6 and 22	
	🟢 **VITC present**	Green LED indicates VITC is present. Black LED indicates VITC is not present.

MPEG:D10 compression format setup

To access record channel video settings, open Configuration Manager, click **Channel**, and select a record channel (R1, R2).

For this setting...	Configure as needed…	
Compression format	**MPEG:D10**	Selecting this format makes settings available as documented in this table. MPEG:D10 is a licensable option. For other format settings, refer to "DV compression format setup" on page 186 and "MPEG compression format setup" on page 186.
Recording data rate	**30 Mb/s** **40 Mb/s** **50 Mb/s**	
Input type	**SDI**	—
	Analog Composite	When the reference standard is NTSC and this setting is selected, it makes the following setting(s) available below: *Input pedestal*
Input pedestal	**On**	If you are operating with a standard NTSC input signal with 7.5 IRE setup, then make this selection. You must make this selection for both record channels.
	Off	—
Automatic VITC detection	**On**	Makes the following setting(s) available below: *Starting VITC line* *Ending VITC line*
	Off	Makes the following setting(s) available below: *VITC line 1* *VITC line 2*
Starting VITC line -or- **VITC line 1**	NTSC: Between 10 and 20 PAL: Between 6 and 22	
Ending VITC line -or- **VITC line 2**	NTSC: Between 10 and 20. PAL: Between 6 and 22	
	🟢 **VITC present**	Green LED indicates VITC is present. Black LED indicates VITC is not present.

Record channel audio setup

On the SDA-00 K2 Media Client, available settings change depending on the audio input selected, as in the following sections:

- "Analog audio setup"

- "AES/EBU audio setup"

- "Embedded audio setup"

Analog audio setup

To access record channel audio settings, open Configuration Manager, click **Channel**, and select a record channel (R1, R2):

For this setting...	Configure as needed…	
Audio input type	**Analog**	Makes settings available as documented in this table.
Audio input trim	Between -12 and +12 dBu. The default value is 0 dBu The slider control trims the audio input levels of channel 1/2 simultaneously prior to sampling. Use this control to adjust the audio input when working with analog audio signals that are too low or high.	
Timing offset	Between -200 ms and +200 ms. The default value is 0 ms	
Audio Input Tags	Add tags for languages or other purposes to this channel's audio tracks. Refer to "Adding audio tags" on page 238.	
Display audio meters	**Yes** **No**	Displays meters on the channel pane for audio level monitoring.

AES/EBU audio setup

To access record channel audio settings, open Configuration Manager, click **Channel**, and select a record channel (R1, R2):

For this setting...	Configure as needed…	
Audio input type	**AES/EBU**	Makes settings available as documented in this table.
Number of audio inputs	**2**	Makes the following setting(s) available below: *A1/A2 input format*
	4	Makes the following setting(s) available below: *A1/A2 input format* *A3/A4 input format.*
A1/A2 input format **A3/A4 input format**	**16-bit PCM** **24-bit PCM** **AC-3** **Dolby-E**	
Timing offset	Between -200ms and +200ms. The default value is 0 ms.	
Audio Input Tags	Add tags for languages or other purposes to this channel's audio tracks. Refer to "Adding audio tags" on page 238.	

Embedded audio setup

To access record channel audio settings, open Configuration Manager, click **Channel**, and select a record channel (R1, R2):

For this setting...	Configure as needed…	
Audio input type	**Embedded**	Makes settings available as documented in this table.
Number of audio inputs	**2**	Makes the following setting(s) available below: *A1/A2 input format*
	4	Makes the following setting(s) available below: *A1/A2 input format* *A3/A4 input format.*
Embedded input group(s)	**Group 1** **Group 2** **Group 3** **Group 4**	
A1/A2 input format	**16-bit PCM**	
A3/A4 input format	**24-bit PCM** **AC-3** **Dolby-E**	
Timing offset	Between -200ms and +200ms. The default value is 0 ms.	
Audio Input Tags	Add tags for languages or other purposes to this channel's audio tracks. Refer to "Adding audio tags" on page 238.	
Display audio meters	**Yes** **No**	Displays meters on the channel pane for audio level monitoring.

SDI embedded audio is supported on either the first two channels of a group or all four channels from a single group.

Play channel video setup

NOTE: If you are using a channel suite with channels from multiple K2 Media Clients, make sure that you have selected a channel from the K2 Media Client that you want to configure before accessing Configuration Manager.

To access play channel video settings, open Configuration Manager, click **Channel**, and select a play channel (P1, P2).

For this setting...	Configure as needed…	
Output pedestal	**On**	This setting available only when the reference standard is set to NTSC.
	Off	
Still-play mode[a]	**Field (interpolated)**	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 (interlaced)	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.

For this setting...	Configure as needed…	
Test Mode (Colorbars + Tone)	**On** **Off**	Temporarily displays 75% colorbar signal on the channel output. It also generates an audio tone on all audio outputs. This setting is for test purposes only, so it is not saved.
ProcAmp Control (Composite Output)	**Video gain**	Between 0 and 255. The default value is 128.
	Chroma gain	Between 0 and 255. The default value is 128.
	Chroma phase	Between -127 and +128. The default value is 0.
	Black level	Between 0 and 15. The default value is 0.
	Sharpness	Between 0 and 12. The default value is 6.
Video Output Timing	**Frame offset**	Delays video output. Range: NTSC 0-1 frames, PAL 0-3 frames.
	Line offset (coarse)	Delays the video output. Range: NTSC (525 lines) 0-524 lines, PAL (625 lines) 0-624 lines.
	Sample offset (fine)	Delays the video output. Range: NTSC (525 lines) 0-1715 clock samples, PAL (625 lines) 0-1727 clock samples.
	Analog sub-pixel offset (SC)	This setting applies to analog video only. Between 0 and 255. The default value is 5.
VITC output generator	**On**	Makes the following setting(s) available below: *VITC line 1* *VITC line 2*
	Off	—
VITC line 1	Selectable between 10 and 20 (NTSC) or between 6 and 22 (PAL).	
VITC line 2	Selectable between 10 and 20 (NTSC) or between 6 and 22 (PAL).	

[a.] 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 interpolated or interlaced.

Play channel audio setup

To access play channel audio settings, open Configuration Manager, click **Channel**, and select a play channel (P1, P2).

For this setting...	Configure as needed…	
Embedded output group(s)	**None** **Group 1** **Group 2** **Group 3** **Group 4**	
Timing offset	Between -200 ms and +200 ms. The default is 0 ms.	

For this setting...	Configure as needed…	
Audio Output Tags	Add tags for languages or other purposes to this channel's audio tracks. Refer to "Adding audio tags" on page 238.	
Display audio meters	**Yes** **No**	Displays meters on the channel pane for audio level monitoring.

Adjusting play speed options

To access play speed settings, open Configuration Manager and click **Panel**.

For this setting…	Configure as needed…	
Jog speed	-1X to 1X -1X to 3X	Playback advances or retards one frame at a time according to the direction of the setting.
Shuttle speed	-16X to 16X -32X to 32X	Sets the speed for shuttle play or playback.
VAR setting	**0.25X** **0.50X** **0.75X**	Variable speed play. Specify the play speed; otherwise, the speed remains at the preset play speed or the last variable play speed used.
Always start at VAR preset	**Yes** **No**	Initial play speed can be set to start at the preset speed.

Timecode setup

To access timecode settings, open Configuration Manager and click **System**.

For this setting...	Configure as needed…		
Time of Day	**Time of day source**	**System Clock**	This settings uses the Windows operating system clock. If you select this source you should verify that the clock's time is correct.
		LTC Input	Choose if using LTC timecode. Makes the following setting(s) available below: *Time of day LTC source*
	Time of day LTC source	**R1** **R2**	Select which channel you want to use as the Time of Day source.

Refer to "Video reference standard setup" on page 184 and "Adjusting audio reference level" on page 193 for other settings that appear on the System tab.

Adjusting audio reference level

To access audio reference settings, open Configuration Manager and click **System**.

For this setting...	Configure as needed…	
Audio reference level	**0 dBu** **+4 dBu** **+8 dBu**	This setting applies to all record and play channels.

Refer to "Video reference standard setup" on page 184 and "Data track setup" on page 1 for other settings that appear on the System tab.

Other Configuration Manager settings

Settings documented in other sections are as follows:

Configuration Tab	Description
Ganging	Configure channels to play or record together. Refer to "Channel Ganging and Track Mapping" on page 229.
GPI	Make settings for your GPI triggers. Refer to "GPI and other configurations" on page 223.
Remote	Manage other systems as remote hosts for importing or exporting media. Refer to "Adding a remote host" on page 227.
Security	Set permission levels for media access. Refer to the *K2 Media Client System Guide*.

Chapter **11**

SD-00: Audio/Video Configuration

Information in this chapter includes:

Using Configuration Manager

To modify settings in Configuration Manager, you must be currently logged in to AppCenter with administrator privileges. Refer to .

Open Configuration Manager from the AppCenter menu bar at **System | Configuration**. Refer to for more information on opening Configuration Manager and saving settings.

NOTE: If you are accessing a K2 Media Client from a Control Point PC with a channel suite that has channels from multiple K2 Media Clients, make sure that you select a channel from the K2 Media Client that you want to configure before opening Configuration Manager.

About video scaling settings

The K2 Media Client video scaling feature allows you to play clips with different aspect ratios and picture resolutions on the same play channel.

The SD-00 K2 Media Client handles video scaling as follows:

• When recording a clip, you should specify whether the clip is standard or widescreen video. This sets the clip aspect ratio attribute. This attribute is saved as part of the media file.

• Both 16:9 and 4:3 SD resolution formats are supported for playout on the same timeline. However, there is no automatic aspect ratio conversion on playout. If a clip has the widescreen attribute set, that attribute is recognized and passed through, but it does not alter the playout aspect ratio when played out on a SD-00 K2 Media Client. If that clip is played out on a HD-00 K2 Media Client, the widescreen attribute is recognized and the configured aspect ratio conversion mode is applied.

• You can only set a clip's aspect ratio attribute when it is recorded. Once a clip is recorded or imported, you cannot change the attribute. If you want to change the clip's aspect ratio attribute, you must re-record or import the clip.

• In some cases you might want to deliberately set a SD clip's aspect ratio attribute "opposite." For example, if a clip is being recorded on a SD-00 K2 Media Client and it already has an aspect ratio treatment, such as letterbox bars as part of the media itself, you would not want to again apply letterbox bars when the clip is played out. This could occur if the clip is played out to a SD output on a HD-00 K2 Media Client and the aspect ratio conversion mode setting is set to apply letterbox bars. If this happens, it results in double-boxing. In this case, if you know the clip is destined for such a SD output, you can set the widescreen clip's attribute to standard screen so that no aspect ratio conversion takes place on the SD playout.

• The K2 Media Client can play clips with different aspect ratio attributes in a single playlist.

NOTE: Some video output connectors become inactive for some video type selections. For more information on video output connectors, see the K2 Media Client System Guide.

Applying AFD settings

Active Format Description (AFD) can be used to automatically determine the proper aspect ratio to use for up- and down-conversions. Previous versions of the K2 Media Client let you set the aspect ratio conversion (ARC) on a clip-by-clip basis or per channel. Now, you can use the AFD code to set the aspect ratio of the clip and the ARC performed. If no AFD is set, the ARC setting operates as it did in previous versions of the K2 software. For more information about AFD, see "Active Format Description specifications" on page 277.

In AppCenter, you can specify the AFD settings:

- in the Clip Properties dialog box, for that clip only

- in the Channel Options dialog box, for newly recorded clips on that channel

You can also set up the Configuration Manager to specify under what conditions AppCenter should process AFD (for output only, on a per-channel basis). For more information, see "Setting AFD in the Configuration Manager" on page 198.

When recording, the following AFD settings are available:

SD	HD
Undefined[a]	Undefined
16:9 Full screen	4:3 Pillarbox
4:3 Full screen	16:9 Full screen
16:9 Letterbox	14:9 Pillarbox
14:9 Letterbox	16:9 Full screen with 4:3 center

    a. Undefined means no AFD has been set; the clip remains as is.

The following sub-sections describe how to apply the AFD settings in AppCenter.

Setting AFD in the Clip Properties

Any modification to the AFD settings made here applies to the selected clip only.

To set the AFD on a clip, follow these steps:

1. In the Clips pane, right-click on the clip.

2. Select **Properties**.

3. In the Clip Properties dialog box, click on the **Media** tab.

4. Click the AFD drop-down list. Select the AFD setting and click **OK**.

   For a list of all the AFD conversion settings, see "Specifications" on page 269.

Setting AFD in the Channel Options

Any modification to the AFD settings made here applies to input on the selected recorder or player/recorder channel only.

1. In AppCenter, select the channel where you want to set the AFD value.

2. Click the **Options** button.

3. In the Options dialog box, click on the Bin & AFD tab.

4. Click the AFD drop-down list. Select the AFD setting and click **OK**.

   For a list of all the AFD conversion settings, see "Specifications" on page 269.

Setting AFD in the Configuration Manager

AFD settings made in Configuration Manager apply only to output on the specified channel.

1. From the File menu, select **System | Configuration**.

2. In Configuration Manager, click the Channel tab and the specific channel tab that you want to modify.

3. Scroll down to AFD settings and select one of the options:

   • Always— AFD is always generated on the output, if both of the following conditions apply:

     - AFD was not specified in the Clip Properties or the Channel Options

     — and—

     - The original source did not contain AFD (in the data track or the SDI input)

   • When Known — AFD is only generated if one of the following conditions apply:

     - The original source contained AFD (in the data track or in the SDI input)

     —or—

     - AFD was specified in the Clip Properties or the Channel Options

   • Never — AFD is not generated. If the data track contains AFD, it is played without any change.

4. Click **OK** to apply the setting.

Video reference standard setup

The video reference standard setting is global to the K2 Media Client and applies to all channels. For the reference standard currently selected, the only clips available for playout are those that use that reference standard. Clips that use a different reference standard are disabled (grayed out).

NOTE: When you change the video reference standard setting, a restart is required to put the change into effect

To access video reference standard settings, open Configuration Manager and click **System**.

For this setting...	Configure as needed…	
Reference Standard	**NTSC (59.94Hz)**	Choose for the NTSC standard.
	PAL (50Hz)	Choose for the PAL standard.
	🟢 **Reference present**	Green LED indicates source is present. Black LED indicates source is not present.
	🟢 **Reference locked**	Green LED indicates system is locked. Black LED indicates system is not locked.

Refer to for other settings that appear on the System tab.

Record channel video setup

Video record compression settings are not global; they can be set on a channel by channel basis.

On the SD-00 K2 Media Client, channels are bi-directional, so the record and play channel settings are both located on the same channel configuration page.

Available settings change depending on the video compression format selected, as in the following sections:

- "DV compression format setup"
- "MPEG compression format setup"
- "MPEG:D10 compression format setup"

NOTE: If you are using a channel suite with channels from multiple K2 Media Clients, make sure that you have selected a channel from the K2 Media Client that you want to configure before accessing Configuration Manager.

⚠ *CAUTION: When using a K2 Media Client with shared storage, bear in mind that any configuration changes that result in an increased bandwidth (such as increasing the bit rate, media formats, and ratio of record channels to play channels) affect load balancing. Therefore, if you change your intended use of a K2 Media Client and increase its bandwidth requirements, you risk losing media access. For a more detailed description of load balancing, see the K2 Media Client System Guide.*

DV compression format setup

To access record channel video settings, open Configuration Manager, click **Channel**, and select a channel (C1, C2, C3, C4).

For this setting...	Configure as needed…	
Compression format	**DV25**	Selecting one of these DV formats makes settings available as documented in this table. DV50 is a licensable option.
	DV50	
	DVCAM	For other format settings, refer to "MPEG compression format setup" on page 200 and "MPEG:D10 compression format setup" on page 201.
Input type	**SDI**	SD-00 K2 Media Client is SDI only.
	🟢 **Video input present**	Green LED indicates video input is present. Black LED indicates video input is not present.
Automatic VITC detection	**On**	Makes the following setting(s) available below: *Starting VITC line* *Ending VITC line*
	Off	Makes the following setting(s) available below: *VITC line 1* *VITC line 2*
Starting VITC line -or- **VITC line 1**	NTSC: Between 10 and 20 PAL: Between 6 and 22	
Ending VITC line -or- **VITC line 2**	NTSC: Between 10 and 20. PAL: Between 6 and 22	
	🟢 **VITC present**	Green LED indicates VITC is present. Black LED indicates VITC is not present.

MPEG compression format setup

To access record channel video settings, open Configuration Manager, click **Channel**, and select a channel (C1, C2, C3, C4).

For this setting...	Configure as needed…	
Compression format	**MPEG**	Selecting this format makes settings available as documented in this table. For other format settings, refer to "DV compression format setup" on page 200 and "MPEG:D10 compression format setup" on page 201.
Long GOP	**Yes (IBP…)** **No (I-frame only)**	The GOP structure is IBBPBBPBBPBBPBB
Chroma format	**4:2:0**	Makes the following setting(s) available below: *Recording data rate: 2-15 Mb/s*
	4:2:2	Makes the following setting(s) available below: *Recording data rate: 4-50 Mb/s* *Compress VBI*

For this setting...	Configure as needed…	
Recording data rate	Selectable, with range dependent on Chroma format selection above. Data rates above 25 Mb/s are a licensable option.	
Compress VBI	**Yes (Active picture plus VBI)**	—
	No (Active picture only)	If "Record Uncompressed VBI and captioning to data track:" is set to "No", makes the following setting(s) available below: *Uncompressed VBI lines*
Uncompressed VBI lines	Select up to 6 lines. A line may be selected as either Luma or Chroma, but not both.	
Input type	**SDI**	SD-00 K2 Media Client is SDI only.
	🟢 **Video input present**	Green LED indicates video input is present. Black LED indicates video input is not present.
Automatic VITC detection	**On**	Makes the following setting(s) available below: *Starting VITC line* *Ending VITC line*
	Off	Makes the following setting(s) available below: *VITC line 1* *VITC line 2*
Starting VITC line -or- **VITC line 1**	NTSC: Between 10 and 20 PAL: Between 6 and 22	
Ending VITC line -or- **VITC line 2**	NTSC: Between 10 and 20. PAL: Between 6 and 22	
	🟢 **VITC present**	Green LED indicates VITC is present. Black LED indicates VITC is not present.

MPEG:D10 compression format setup

To access record channel video settings, open Configuration Manager, click **Channel**, and select a channel (C1, C2, C3, C4).

For this setting...	Configure as needed…	
Compression format	**MPEG:D10**	Selecting this format makes settings available as documented in this table. MPEG:D10 is a licensable option. For other format settings, refer to "DV compression format setup" on page 200 and "MPEG compression format setup" on page 200.
Recording data rate	**30 Mb/s** **40 Mb/s** **50 Mb/s**	
Input type	**SDI**	SD-00 K2 Media Client is SDI only.
	🟢 **Video input present**	Green LED indicates video input is present. Black LED indicates video input is not present.

For this setting...	Configure as needed…	
Automatic VITC detection	**On**	Makes the following setting(s) available below: *Starting VITC line* *Ending VITC line*
	Off	Makes the following setting(s) available below: *VITC line 1* *VITC line 2*
Starting VITC line -or- **VITC line 1**	NTSC: Between 10 and 20 PAL: Between 6 and 22	
Ending VITC line -or- **VITC line 2**	NTSC: Between 10 and 20. PAL: Between 6 and 22	
	🟢 **VITC present**	Green LED indicates VITC is present. Black LED indicates VITC is not present.

Record channel audio setup

On the SD-00 K2 Media Client, channels are bi-directional, so the record and play channel settings are both located on the same channel configuration page.

Available settings change depending on the audio input selected, as in the following sections:

- "AES/EBU audio setup"
- "Embedded audio setup"

AES/EBU audio setup

To access record channel audio settings, open Configuration Manager, click **Channel**, and select a channel (C1, C2, C3, C4).

For this setting...	Configure as needed…	
Audio input type	**AES/EBU**	Makes settings available as documented in this table.
Number of audio inputs	**2**	Makes the following setting(s) available below: *A1/A2 input format*
	4	Makes the following setting(s) available below: *A1/A2 input format* *A3/A4 input format.*
A1/A2 input format	**16-bit PCM** **24-bit PCM** **AC-3** **Dolby-E**	
A3/A4 input format		
Timing offset	Between -200ms and +200ms. The default value is 0 ms.	
Audio Input Tags	Add tags for languages or other purposes to this channel's audio tracks. Refer to "Adding audio tags" on page 238.	

Embedded audio setup

To access record channel audio settings, open Configuration Manager, click **Channel**, and select a channel (C1, C2, C3, C4).

For this setting...	Configure as needed…	
Audio input type	**Embedded**	Makes settings available as documented in this table.
Number of audio inputs	**2**	Makes the following setting(s) available below: *Embedded input group(s): Group 1, Group 2, Group 3, Group 4.* *A1/A2 input format*
	4	Makes the following setting(s) available below: *Embedded input group(s): Group 1, Group 2, Group 3, Group 4.* *A1/A2, A3/A4 input formats*
	6	Makes the following setting(s) available below: *Embedded input group(s): Group 1 & 2, Group 3 & 4.* *A1/A2* through *A5/A6 input formats*
	8	Makes the following setting(s) available below: *Embedded input group(s): Group 1 & 2, Group 3 & 4.* *A1/A2* through *A7/A8 input formats*
	12	Makes the following setting(s) available below: *Embedded input group(s): Groups 1, 2, 3.* *A1/A2* through *A11/A12 input formats*
	16	Makes the following setting(s) available below: *Embedded input group(s): Group 1, 2, 3, 4.* *A1/A2* through *A15/A16 input formats*
Embedded input group(s)	Selections available are dependent on "Number of audio inputs" setting above.	
A1/A2 input format . . . **A15/A16 input format**	**16-bit PCM** **24-bit PCM** **AC-3** **Dolby-E**	
Timing offset	Between -200ms and +200ms. The default value is 0 ms.	
Audio Input Tags	Add tags for languages or other purposes to this channel's audio tracks. Refer to "Adding audio tags" on page 238.	

Play channel video setup

NOTE: If you are using a channel suite with channels from multiple K2 Media Clients, make sure that you have selected a channel from the K2 Media Client that you want to configure before accessing Configuration Manager.

On the SD-00 K2 Media Client, channels are bi-directional, so the record and play channel settings are both located on the same channel configuration page.

To access play channel video settings, open Configuration Manager, click **Channel**, and select a channel (C1, C2, C3, C4).

For this setting...	Configure as needed…	
Still-play mode[a]	**Field (interpolated)**	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 (interlaced)	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.
Test mode (colorbars + tone)	**On** **Off**	Temporarily displays 75% colorbar signal on the channel output. It also generates an audio tone on all audio outputs. This setting is for test purposes only, so it is not saved.
Video Output Timing	**Line offset (coarse)**	Delays the video output. Range: NTSC 0-524 lines; PAL 0-624 lines.
	Sample offset (fine)	Delays the video output. Range: NTSC 0-1715 clock samples; PAL 0-1727 clock samples.
VITC output generator	**On**	Makes the following setting(s) available below: *VITC line 1* *VITC line 2*
	Off	—
VITC line 1	Selectable between 10 and 20 (NTSC) or between 6 and 22 (PAL).	
VITC line 2	Selectable between 10 and 20 (NTSC) or between 6 and 22 (PAL).	

a. 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 interpolated or interlaced.

Play channel audio setup

On the SD-00 K2 Media Client, channels are bi-directional, so the record and play channel settings are both located on the same channel configuration page.

To access play channel audio settings, open Configuration Manager, click **Channel**, and select a channel (C1, C2, C3, C4).

For this setting...	Configure as needed…	
Embedded output group(s)	**None** **Groups 1, 2, 3, 4**	
Timing offset	Between -200 ms and +200 ms. The default is 0 ms.	
Audio Output Tags	Add tags for languages or other purposes to this channel's audio tracks. Refer to "Adding audio tags" on page 238.	
Display audio meters	**Yes** **No**	Displays meters on the channel pane for audio level monitoring.

Adjusting play speed options

To access play speed settings, open Configuration Manager and click **Panel**.

For this setting…	Configure as needed…	
Jog speed	-1X to 1X -1X to 3X	Playback advances or retards one frame at a time according to the direction of the setting.
Shuttle speed	-16X to 16X -32X to 32X	Sets the speed for shuttle play or playback.
VAR setting	**0.25X** **0.50X** **0.75X**	Variable speed play. Specify the play speed; otherwise, the speed remains at the preset play speed or the last variable play speed used.
Always start at VAR preset	**Yes** **No**	Initial play speed can be set to start at the preset speed.

Data track setup

To access data track settings, open Configuration Manager, click **Channel**, select a channel (C1, C2, C3, C4), and scroll down to locate **Data Track** settings.

For this setting...	Configure as needed…	
Record ancillary data	**Yes**	Makes the following setting(s) available below: *Record Uncompressed VBI and captioning to data track*
	No	A data track is not created. Ancillary data packets are not stored. Media recorded with this setting is compatible with Profile XP systems.
Record Uncompressed VBI and captioning to data track	**Yes**	Makes the following setting(s) available below: If NTSC or PAL: *Uncompressed VBI lines* If PAL: *Teletext lines* A data track is created. If the incoming media has ancillary data packets, they are stored on the data track and played back without modification. Allows VBI information to be recorded onto the data track. Refer to the "Data track support on SD channels" on page 269 for specifications. Media recorded with this setting is not compatible with Profile XP systems.
	No (Profile compatible)	A data track is created. If the incoming media has ancillary data packets, they are stored on the data track and played back without modification. No VBI information is recorded on the data track. Media recorded with this setting is compatible with Profile XP systems.
Uncompressed VBI lines	Select up to 5 lines to be recorded onto the data track. A line may be selected as either Luma or Chroma, but not both. Select Chroma line 13 for Video Indexing.	
Teletext lines	Select up to 5 lines to be recorded onto the data track.	

Timecode setup

To access timecode settings, open Configuration Manager and click **System**.

For this setting...	Configure as needed…	
Time of day source	**System Clock**	This settings uses the Windows operating system clock. If you select this source you should verify that the clock's time is correct.
	LTC Input	Choose if using LTC timecode. Makes the following setting(s) available below: *Time of day LTC source*
Time of day LTC source	**C1** **C2** **C3** **C4**	Select which channel you want to use as the Time of Day source.

Refer to "Video reference standard setup" on page 198 for other settings that appear on the System tab.

Other Configuration Manager settings

Settings documented in other sections are as follows:

Configuration Tab	Description
Ganging	Configure channels to play or record together. Refer to "Channel Ganging and Track Mapping" on page 229.
GPI	Make settings for your GPI triggers. Refer to "GPI and other configurations" on page 223.
Remote	Manage other systems as remote hosts for importing or exporting media. Refer to "Adding a remote host" on page 227.
Security	Set permission levels for media access. Refer to the *K2 Media Client System Guide*.

Chapter **12**

HD-00: Audio/Video Configuration

Information in this chapter includes:

Using Configuration Manager

To modify settings in Configuration Manager, you must be currently logged in to AppCenter with administrator privileges. Refer to "Types of K2 users" on page 26.

Open Configuration Manager from the AppCenter menu bar at **System | Configuration**. Refer to "Configuration Manager" on page 34 for more information on opening Configuration Manager and saving settings.

NOTE: If you are accessing a K2 Media Client from a Control Point PC with a channel suite that has channels from multiple K2 Media Clients, make sure that you select a channel from the K2 Media Client that you want to configure before opening Configuration Manager.

About video scaling settings

The K2 Media Client video scaling feature allows you to play clips with different aspect ratios and picture resolutions on the same play channel.

The HD-00 K2 Media Client handles video scaling as follows:

• When recording a SD clip, you should specify whether the clip is standard or widescreen video. This sets the clip aspect ratio attribute. This attribute is saved as part of the media file. If the SD clip is played out on a HD channel, the aspect ratio attribute is recognized and the configured aspect ratio conversion mode is applied.

• SD material that is transferred or recorded into the system, along with its audio and metadata, is upconverted with selected aspect ratio when played on an HD channel. HD material is downconverted along with its audio, ancillary data, and metadata when played on SD channel. HD and SD clips can be played back-to-back.

• Agile playout of mixed format clips displays with default or selectable modes such as bars, crop, or stretch on both SD and HD outputs.

• During play channel setup, you must select the video output for each play channel– standard or high definition. This will determine if the clip picture resolution needs up-conversion or down-conversion. To set up the play channel video type, see "Play channel video setup" on page 218.

• For each play channel you must specify aspect ratio conversion modes to use when the picture image needs to be resized. Selections include crop, bars, halfbars and stretch. For more information, see "About aspect ratio conversion modes" on page 211.

• For the highest video quality, select a video output format that eliminates the need for up or down conversion.

• Some video output connectors become inactive depending on the video output format selected.

• In some cases you might want to deliberately set a SD clip's aspect ratio attribute "opposite." For example, if a clip is being recorded on a SD-00 K2 Media Client and it already has an aspect ratio treatment, such as letterbox bars as part of the media itself, you would not want to again apply letterbox bars when the clip is played out. This could occur if the clip is played out to a SD output on a HD-00 K2 Media Client and the aspect ratio conversion mode setting is set to apply letterbox
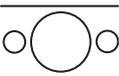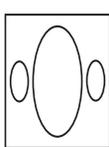
bars. If this happens, it results in double-boxing. In this case, if you know the clip is destined for such a SD output, you can set the widescreen clip's attribute to standard screen so that no aspect ratio conversion takes place on the SD playout.
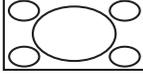
• The K2 Media Client can play clips with different aspect ratio attributes in a single playlist.

NOTE: Some video output connectors become inactive for some video type selections. For more information on video output connectors, see the K2 Media Client System Guide.

About aspect ratio conversion modes

The aspect ratio conversion mode setting for the play channel determines how the picture image is resized for playout. The following table shows the results of selecting different aspect ratio conversion modes for various video input types and play channel aspect ratio settings. Use the table to determine the settings required for your media type and display device.

Clip	Clip Example	Play Channel Aspect Ratio	conversion Mode Setting	Output Example	Comments
SD (4:3)		(4:3)	NA		Output same as clip. No rule necessary.
HD (16:9)		(4:3)	Bars		No information lost.
HD (16:9)		(4:3)	Half Bar		Some information lost.
HD (16:9)		(4:3)	Crop		More information lost.
HD (16:9)		(4:3)	Stretch		No information lost. Image distorted (stretched) vertically.
HD (16:9)		(16:9)	NA		Output same as clip. No rule necessary.
SD (4:3)		(16:9)	Bars		No information lost.
SD (4:3)		(16:9)	Half Bar		Some information lost.
SD (4:3)		(16:9)	Crop		More information lost.

Clip	Clip Example	Play Channel Aspect Ratio	conversion Mode Setting	Output Example	Comments
SD (4:3)		(16:9)	Stretch		No information lost. Image distorted (stretched) horizontally.

Applying AFD settings

Active Format Description (AFD) can be used to automatically determine the proper aspect ratio to use for up- and down-conversions. Previous versions of the K2 Media Client let you set the aspect ratio conversion (ARC) on a clip-by-clip basis or per channel. Now, you can use the AFD code to set the aspect ratio of the clip and the ARC performed. If no AFD is set, the ARC setting operates as it did in previous versions of the K2 software. For more information about AFD, see "Active Format Description specifications" on page 277.

In AppCenter, you can specify the AFD settings:

• in the Clip Properties dialog box, for that clip only

• in the Channel Options dialog box, for newly recorded clips on that channel

You can also set up the Configuration Manager to specify under what conditions AppCenter should process AFD (for output only, on a per-channel basis). For more information, see "Setting AFD in the Configuration Manager" on page 213.

When recording, the following AFD settings are available:

SD	HD
Undefined[a]	Undefined
16:9 Full screen	4:3 Pillarbox
4:3 Full screen	16:9 Full screen
16:9 Letterbox	14:9 Pillarbox
14:9 Letterbox	16:9 Full screen with 4:3 center

  [a.] Undefined means no AFD has been set; the clip remains as is.

The following sub-sections describe how to apply the AFD settings in AppCenter.

Setting AFD in the Clip Properties

Any modification to the AFD settings made here applies to the selected clip only.

To set the AFD on a clip, follow these steps:

1. In the Clips pane, right-click on the clip.

2. Select **Properties**.

3. In the Clip Properties dialog box, click on the **Media** tab.

4. Click the AFD drop-down list. Select the AFD setting and click **OK**.

For a list of all the AFD conversion settings, see "Specifications" on page 269.

Setting AFD in the Channel Options

Any modification to the AFD settings made here applies to input on the selected recorder or player/recorder channel only.

1. In AppCenter, select the channel where you want to set the AFD value.

2. Click the **Options** button.

3. In the Options dialog box, click on the Bin & AFD tab.

4. Click the AFD drop-down list. Select the AFD setting and click **OK**.

For a list of all the AFD conversion settings, see "Specifications" on page 269.

Setting AFD in the Configuration Manager

AFD settings made in Configuration Manager apply only to output on the specified channel.

1. From the File menu, select **System | Configuration**.

2. In Configuration Manager, click the Channel tab and the specific channel tab that you want to modify.

3. Scroll down to AFD settings and select one of the options:

   • Always— AFD is always generated on the output, if both of the following conditions apply:

     - AFD was not specified in the Clip Properties or the Channel Options

     — and—

     - The original source did not contain AFD (in the data track or the SDI input)

   • When Known — AFD is only generated if one of the following conditions apply:

     - The original source contained AFD (in the data track or in the SDI input)

     —or—

     - AFD was specified in the Clip Properties or the Channel Options

   • Never — AFD is not generated. If the data track contains AFD, it is played without any change.

4. Click **OK** to apply the setting.

Video reference standard setup

The video reference standard setting is global to the K2 Media Client and applies to all channels. For the reference standard currently selected, the only clips available for playout are those that use that reference standard. Clips that use a different reference standard are disabled (grayed out).

NOTE: When you change the video reference standard setting, a restart is required to put the change into effect

To access video reference standard settings, open Configuration Manager and click **System**.

For this setting...	Configure as needed…	

Reference Standard	**NTSC (59.94Hz)**	Choose for the NTSC standard. Makes the following setting(s) available on channel tabs:
		    Video input format: *NTSC* (but not PAL)
		    Video output format: *NTSC* (but not PAL)

	PAL (50Hz)	Choose for the PAL standard. Makes the following setting(s) available on channel tabs:
		    Video input format: *PAL* (but not NTSC)
		    Video output format: *PAL* (but not NTSC)

	🟢 **Reference present**	Green LED indicates source is present. Black LED indicates source is not present.
	🟢 **Reference locked**	Green LED indicates system is locked. Black LED indicates system is not locked.

Refer to "Data track setup" on page 221 for other settings that appear on the System tab.

Record channel video setup

Video record compression settings are not global; they can be set on a channel by channel basis.

On the HD-00 K2 Media Client, only the MPEG video compression format is available.

NOTE: If you are using a channel suite with channels from multiple K2 Media Clients, make sure that you have selected a channel from the K2 Media Client that you want to configure before accessing Configuration Manager.

⚠ *CAUTION: When using a K2 Media Client with shared storage, bear in mind that any configuration changes that result in an increased bandwidth (such as increasing the bit rate, media formats, and ratio of record channels to play channels) affect load balancing. Therefore, if you change your intended use of a K2 Media Client and increase its bandwidth requirements, you risk losing media access. For a more detailed description of load balancing, see the* K2 Media Client System Guide*.*

To access record channel video settings, open Configuration Manager, click **Channel**, and select a record channel (R1, R2).

For this setting...	Configure as needed...	
Input format[a]	**NTSC (SD)** or **PAL (SD)**	NTSC or PAL available depending on video reference standard setting. Selecting a SD format makes the following setting(s) available below: *VITC Input*
	720p	Makes the following setting(s) available below: *Compression format:* *MPEG:XDCAM-HD422* *MPEG:XDCAM-EX* *Ancillary data timecode inputs*
	1080i	Makes the following setting(s) available below: *Compression format:* *MPEG:XDCAM-HD* *MPEG:XDCAM-HD422* *MPEG:XDCAM-EX* *Ancillary data timecode inputs*
Compression format	**MPEG**	Available for all Video input formats. The HD-00 K2 Media Client is MPEG only.
	MPEG:XDCAM-HD	Encodes to XDCAM-HD specifications. With this setting, also configure two or four 16-bit PCM audio tracks. Makes the following setting(s) available below: *Recording data rate: 25, 35 Mb/s*
	MPEG:XDCAM-HD422	Encodes to XDCAM-HD422 specifications. With this setting, also configure eight 24-bit PCM audio tracks.
	MPEG:XDCAM-EX	Encodes to XDCAM-EX specifications. With this setting, also configure two or four 16-bit PCM audio tracks.
Long GOP	**Yes (IBBP…)**	The GOP structure is IBBPBBPBBPBBPBBP
	No (I-frame only)	—
Chroma format	**4:2:0**	When a SD format is selected above and this setting is selected, it makes the following setting(s) available below: *Uncompressed VBI line (luma only)*
	4:2:2	When a SD format is selected above and this setting is selected, it makes the following setting(s) available below: *Compress VBI*

For this setting...	Configure as needed…	
Recording data rate[b]	Between 2-15 Mb/s.	If configured above as SD 4:2:0
	Between 4-50 Mb/s.	If configured above as SD 4:2:2
	Between 12-80 Mb/s.	If configured above as 720 4:2:0
	Between 20-100 Mb/s.	If configured above as 720 4:2:2
	Between 20-80 Mb/s.	If configured above as 1080 4:2:0
	Between 20-100 Mb/s.	If configured above as 1080 4:2:2
	Select 25 or 35 Mb/s.	If configured above as 1080 XDCAM-HD
Compress VBI	**Yes (Active picture plus VBI)**	—
	No (Active picture only)	If "Record Uncompressed VBI and captioning to data track:" is set to "No", makes the following setting(s) available below: *Uncompressed VBI lines*
Uncompressed VBI lines	Select up to 6 lines. A line may be selected as either Luma or Chroma, but not both.	
Input type	**SDI**	HD-00 K2 Media Client is SDI only.
Video input	🟢 **Video input present**	Green LED indicates input is present. Black LED indicates input is not present.
Ancillary data timecode inputs	🟢 **Ancillary LTC present**	
	🟢 **Ancillary VITC present**	
Automatic VITC detection	**On**	Makes the following setting(s) available below: *Starting VITC line* *Ending VITC line*
	Off	Makes the following setting(s) available below: *VITC line 1* *VITC line 2*
Starting VITC line -or- **VITC line 1**	NTSC: Between 10 and 20 PAL: Between 6 and 22	
Ending VITC line -or- **VITC line 2**	NTSC: Between 10 and 20. PAL: Between 6 and 22	
	🟢 **VITC present**	Green LED indicates VITC is present. Black LED indicates VITC is not present.

[a.] Changing video input format does not require a restart of the HD/SD K2 Media Client. If changing between SD and HD, however, there is a wait time up to 24 seconds for each recorder channel after clicking the OK button in Configuration Manager.

[b.] Grass Valley does not recommend low bit rates for HD I-frame MPEG.

Record channel audio setup

On the HD-00 K2 Media Client, available settings change depending on the audio
input selected, as in the following sections:

- "AES/EBU audio setup"

- "Embedded audio setup"

AES/EBU audio setup

To access record channel audio settings, open Configuration Manager, click **Channel**,
and select a record channel (R1, R2).

For this setting...	Configure as needed…	
Audio input type	**AES/EBU**	Makes settings available as documented in this table.
Number of audio inputs	**2**	Makes the following setting(s) available below: *A1/A2 input format*
	4	Makes the following setting(s) available below: *A1/A2 input format* *A3/A4 input format.*
A1/A2 input format A3/A4 input format	**16-bit PCM** **24-bit PCM** **AC-3** **Dolby-E**	
Timing offset	Between -200ms and +200ms. The default value is 0 ms.	
Audio Input Tags	Add tags for languages or other purposes to this channel's audio tracks. Refer to "Adding audio tags" on page 238.	
Display audio meters	**Yes** **No**	Displays meters on the channel pane for audio level monitoring.

Embedded audio setup

To access record channel audio settings, open Configuration Manager, click **Channel**, and select a record channel (R1, R2).

For this setting...	Configure as needed…	
Audio input type	**Embedded**	Makes settings available as documented in this table.
Number of audio inputs	**2**	Makes the following setting(s) available below: *Embedded input group(s): Group 1, Group 2, Group 3, Group 4.* *A1/A2 input format*
	4	Makes the following setting(s) available below: *Embedded input group(s): Group 1, Group 2, Group 3, Group 4.* *A1/A2, A3/A4 input formats*
	6	Makes the following setting(s) available below: *Embedded input group(s): Group 1 & 2, Group 3 & 4.* *A1/A2* through *A5/A6 input formats*
	8	Makes the following setting(s) available below: *Embedded input group(s): Group 1 & 2, Group 3 & 4.* *A1/A2* through *A7/A8 input formats*
	12	Makes the following setting(s) available below: Embedded input group(s): *Groups 1, 2, 3.* *A1/A2* through *A11/A12 input formats*
	16	Makes the following setting(s) available below: *Embedded input group(s): Group 1, 2, 3, 4.* *A1/A2* through *A15/A16 input formats*
Embedded input group(s)	Selections available are dependent on "Number of audio inputs" setting above.	
A1/A2 input format **.** **.** **.** **A15/A16 input format**	**16-bit PCM** **24-bit PCM** **AC-3** **Dolby-E**	
Timing offset	Between -200ms and +200ms. The default value is 0 ms.	
Audio Input Tags	Add tags for languages or other purposes to this channel's audio tracks. Refer to "Adding audio tags" on page 238.	
Display audio meters	**Yes** **No**	Displays meters on the channel pane for audio level monitoring.

Play channel video setup

NOTE: If you are using a channel suite with channels from multiple K2 Media Clients, make sure that you have selected a channel from the K2 Media Client that you want to configure before accessing Configuration Manager.

To access play channel video settings, open Configuration Manager, click **Channel**, and select a play channel (P1, P2).

For this setting...	Configure as needed…	
Video Output[a]	**NTSC (SD)** or **PAL (SD)**	NTSC or PAL available depending on video reference standard setting. Selecting a SD format makes the following setting(s) available below: *VITC Output*
	720p	—
	1080i (1920x1080i)	—
Aspect ratio conversion	**Bar** **Crop** **Half Bar** **Stretch**	Refer to "About video scaling settings" on page 210.
Still-play mode[b]	**Field (interpolated)**	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 (interlaced)	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.
Test Mode (Colorbars + Tone)	**On** **Off**	Temporarily displays 75% colorbar signal on the channel output. It also generates an audio tone on all audio outputs. This setting is for test purposes only, so it is not saved.
Video Output Timing	**Line offset (coarse)**	Delays the video output. Range: NTSC 0-524 lines; PAL 0-624 lines.
	Sample offset (fine)	Delays the video output. Range: NTSC 0-1715 clock samples; PAL 0-1727 clock samples.
Ancillary data timecode output[c]	**Ancillary LTC (Yes/No)**	Inserts the recorded timecode track as LTC ancillary timecode on playout. Overrides any LTC ancillary timecode packets stored on data track. Refer to the "Data track support on HD channels" on page 270 for specifications.
	Ancillary VITC (Yes/No)	Inserts the recorded timecode track as VITC ancillary timecode on playout. Overrides any VITC ancillary timecode packets stored on data track. Refer to the "Data track support on HD channels" on page 270 for specifications.
VITC output generator	**On**	Makes the following setting(s) available below: *VITC line 1* *VITC line 2*
	Off	—
VITC line 1	Selectable between 10 and 20 (NTSC) or between 6 and 22 (PAL).	
VITC line 2	Selectable between 10 and 20 (NTSC) or between 6 and 22 (PAL).	

a. For information on HD/SD up and down conversions, see *"Aspect ratio conversions on HD-00 models" on page 265*.

b. 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 interpolated or interlaced.

c. Refer to "Changing the timecode source" on page 18

Play channel audio setup

To access play channel audio settings, open Configuration Manager, click **Channel**, and select a play channel (P1, P2).

For this setting...	Configure as needed…	
Embedded output group(s)	**None** **Groups 1, 2, 3, 4**	
Timing offset	Between -200 ms and +200 ms. The default is 0 ms.	
Audio Output Tags	Add tags for languages or other purposes to this channel's audio tracks. Refer to "Adding audio tags" on page 238.	
Display audio meters	**Yes** **No**	Displays meters on the channel pane for audio level monitoring.

Adjusting play speed options

To access play speed settings, open Configuration Manager and click **Panel**.

For this setting…	Configure as needed…	
Jog speed	-1X to 1X -1X to 3X	Playback advances or retards one frame at a time according to the direction of the setting.
Shuttle speed	-16X to 16X -32X to 32X	Sets the speed for shuttle play or playback.
VAR setting	**0.25X** **0.50X** **0.75X**	Variable speed play. Specify the play speed; otherwise, the speed remains at the preset play speed or the last variable play speed used.
Always start at VAR preset	**Yes** **No**	Initial play speed can be set to start at the preset speed.

Data track setup

To access data track settings, open Configuration Manager, click **Channel**, select a record channel (R1, R2), and scroll down to locate **Data Track** settings.

For this setting...	Configure as needed…	
Record ancillary data	**Yes**	When a SD format is selected above and this setting is selected, it makes the following setting(s) available below: *Record Uncompressed VBI and captioning to data track*
	No	A data track is not created. Ancillary data packets are not stored.

Record Uncompressed VBI and captioning to data track:	**Yes**	Makes the following setting(s) available below:
		   If NTSC or PAL:
		     Uncompressed VBI lines
		   If PAL:
		     Teletext lines
		Allows VBI information to be recorded onto the data track. Refer to the "Data track support on HD channels" on page 270 for specifications. Media recorded with this setting is not compatible with Profile XP systems.

	No (Profile compatible)	No VBI information is recorded on the data track. Media recorded with this setting is compatible with Profile XP systems.
Uncompressed VBI lines:	Select up to 5 lines to be recorded onto the data track. A line may be selected as either Luma or Chroma, but not both. Select Chroma line 13 for Video Indexing.	
Teletext lines:	Select up to 5 lines to be recorded onto the data track.	

Timecode setup

To access timecode settings, open Configuration Manager and click **System**.

For this setting...	Configure as needed…		
Time of Day	**Time of day source**	**System Clock**	This settings uses the Windows operating system clock. If you select this source you should verify that the clock's time is correct.
		LTC Input	Choose if using LTC timecode. Makes the following setting(s) available below: *Time of day LTC source*
	Time of day LTC source	**R1** **R2**	Select which channel you want to use as the Time of Day source. These settings available only on models with record channels (HD-12, HD-13, HD-22).
		System	This selects the "House LTC" input on the rear panel as the Time of Day source.

Refer to "Video reference standard setup" on page 213 for other settings that appear on the System tab.

Other Configuration Manager settings

Settings documented in other sections are as follows:

Configuration Tab	Description
Ganging	Configure channels to play or record together. Refer to "Channel Ganging and Track Mapping" on page 229.
GPI	Make settings for your GPI triggers. Refer to "GPI and other configurations" on page 223.
Remote	Manage other systems as remote hosts for importing or exporting media. Refer to "Adding a remote host" on page 227.
Security	Set permission levels for media access. Refer to the *K2 Media Client System Guide*.

GPI and other configurations

This chapter is divided into the following topics:

Using GPI input and output triggers

The K2 Media Client provides 12 GPI inputs and 12 GPI outputs on a single DB-25 pin rear panel connector. GPI input triggers can be used to control channels, including recording, playing, stopping, and skipping a playlist event. GPI output triggers can be defined for channels and inserted in playlists to control external equipment as the list is played.

If you want to trigger record via GPI input on four channels simultaneously, make sure all the channels have new clips waiting for the GPI input, in the cue record state.

For information about GPI connectors, see the *K2 Media Client System Guide*.

Configuring GPI triggers

Use the configuration tool provided in the AppCenter file menu. Select **System | Configuration** to define the GPI input or output triggers for a channel. For more information, see "GPI triggers" on page 226.

The following features are part of the licensable AppCenter Pro option.

The Control drop-down list has three selections: Application, Position Trigger, and Channel State.

- Application — allows you to select the GPI trigger on the level of the Playlist application. Must be used in conjunction with a specified channel. For example, if after having selected a channel in the Configuration Manager, you then select Application, you can open up the Playlist Properties dialog box and assign a GPI output event to each clip or event in a Playlist.

- Position Trigger — indicates the position when the GPI output is triggered, e.g. at the beginning or the end of a clip.

- Channel State — indicates the status of the channel when the GPI output is triggered, e.g. when recording or when idle. Used in conjunction with a trigger state. For example, in a Playlist application, you can set the trigger so that the GPI output is triggered when clip is first loaded but not when it's playing or when it's re-cued to beginning.
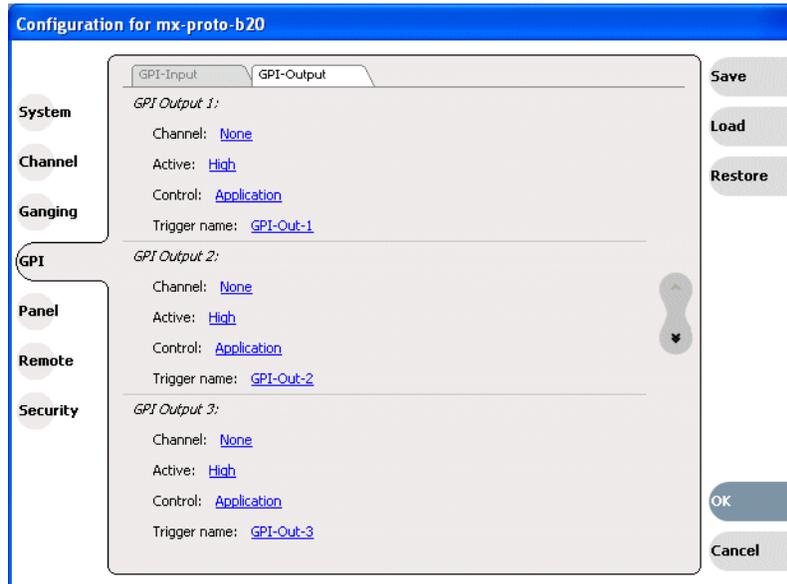
GPI triggers

To access GPI settings, select **System | Configuration** and click on the GPI tab. The settings are located under two tabs: GPI-Input and GPI-Output. GPI output triggers have user-assignable names. The following tables describe the GPI functions under each tab.

GPI Input

On the GPI tab, select GPI-Input…	Make settings as needed…		
GPI Input 1 . . . GPI Input 12	Trigger channel(s)	R1, R2, P1, P2, P3 (HD-00, SDA-00) or C1, C2, C3, C4 (SD-00)	Select the channel to trigger the GPI input.
GPI Input 1 . . . GPI Input 12	Trigger action	Play	Play current loaded clip or playlist in assigned Player channel.
		Record	Start recording a clip in Recorder channel.
		Stop	Stop playback or record of assigned channel.
		Rewind	Rewind playback of assigned channel. Channel stays 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 stays 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 End	Cue to end of clip loaded in assigned channel.
		Eject	Ejects the current clip.
		Preview	The current clip in the record channel is loaded in a play channel. *NOTE: You can use* **Eject** *prior to* **Preview** *if a clip is already loaded in the Play channel.*
		Cue Next Event	Goes to next event in a Playlist and stops.
		Cue Prev Event	Goes to previous event in a Playlist and stops.
		Cue Next Section	Goes to next section in a Playlist and stops.
		Cue Prev Section	Goes to previous section in a Playlist and stops.
		VAR Playback	Plays loaded clip in VAR mode with pre-set speed as set in "Adjusting play speed options" on page 192 (SDA-00) or page 205 (SD-00) or page 220 (HD-00).
GPI Input 1 . . . GPI Input 12	Active	High Low	Select the active signal (high or low) required. This is determined by the external equipment connected to the GPI input.

GPI Output

On the GPI tab, select GPI-Output…	Make settings as needed…		
GPI Output 1 . . . GPI Output 12	Channel	None R1, R2, P1, P2, P3 (HD-00, SDA-00) or C1, C2, C3, C4 (SD-00)	Select the channel on which to trigger the GPI Output.
GPI Output 1 . . . GPI Output 12	Active	High Low	Select the active signal (high or low) required. This is determined by the external equipment connected to the GPI Output.
GPI Output 1 . . . GPI Output 12	Control (This menu and the items on it are part of the licensable AppCenter Pro option)	Application Position trigger Channel state	Determines whether the GPI output is triggered by the application (e.g., by the Properties dialog box in Playlist), the position (e.g. at the beginning or end of a clip) or the state of the selected channel (e.g. playing, recording, idle, etc.)
GPI Output 1 . . . GPI Output 12	Trigger name (Available when Application selected)	GPI-Out-X	Enter the name of the action triggered by the GPI output.
GPI Output 1 . . . GPI Output 12	Trigger at (Available when Position trigger selected)	Start of material End of material Start of material plus End of material minus	When Start/End of material plus/minus offset appears
GPI Output 1 . . . GPI Output 12	Activate when (Available when Channel state selected)	Playing Recording Cued for play Cued for record Idle	Once a channel has been selected, this setting triggers the GPI output when the channel is in the specified state.

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. Using identical GPI names also allows copying and pasting sections and events between lists.

Adding a remote host

Open Configuration Manager to access remote host settings.

On the Remote tab…	Make settings as needed…
Host name	Enter the name or the IP address of the K2 Media Client where you want to import or export streaming media assets. (Grass Valley recommends that you use host names. For more information on host files, see the *K2 Media Client System Guide*.)
Controller Id	When adding a remote host that uses AMP remote control protocol, select a Controller id.

Setting security access permissions

Open Configuration Manager to access security settings. For more information, see the *K2 Media Client System Guide*.

Other Configuration Manager settings

Settings documented in other sections are as follows:

Configuration Tab	Description
System	Configure the video reference, audio reference, and the timecode input. Note that choices made on this tab might affect options offered on other tabs. For example, if you designate the video reference standard to be NTSC, you do not see any options for PAL on the Channel tab. Refer to sections later in this document, "SDA-00: Audio/Video Configuration", "SD-00: Audio/Video Configuration", and "HD-00: Audio/Video Configuration", as appropriate for the type of K2 Media Client.
Channel	Configure the audio and video inputs and outputs on record and play channels. Refer to "SDA-00: Audio/Video Configuration", "SD-00: Audio/Video Configuration", and "HD-00: Audio/Video Configuration", as appropriate for the type of K2 Media Client.
Ganging	Configure channels to play or record together. Refer to "Channel Ganging and Track Mapping" on page 231.
Panel	Set play speed options. Refer to Refer to "SDA-00: Audio/Video Configuration", "SD-00: Audio/Video Configuration", and "HD-00: Audio/Video Configuration", as appropriate for the type of K2 Media Client.
Remote	Manage other systems as remote hosts for importing or exporting media. Refer to "Importing and exporting assets" on page 157.
Security	Set permission levels for media access. Refer to *K2 Media Client System Guide*.

Chapter *14*

Channel Ganging and Track Mapping

The features in this section are part of the licensable AppCenter Pro option.

Channel ganging allows you to link two or more channels in a 'gang' to synchronize control of the channels. Track mapping lets you label video and audio tracks, and control audio input and routing.

This chapter is divided into two sections:

- "Channel ganging"
- "Track Mapping"

Channel ganging

This section is divided into the following topics:

- "About channel ganging"
- "Configuring channel ganging"
- "Using channel ganging"

About channel ganging

This feature is part of the licensable AppCenter Pro option.

Channel ganging allows you to control the playing or recording of clips on all the channels in the gang. Ganging record channels together allows you to record up to 4 video or 32 audio tracks. When you gang play channels together, you can play one clip on all channels or control the playing of different clips on all the channels in the gang.

If a clip is created with more than 16 audio tracks, but only one video track, when you play it back on a gang of play channels, only the first video channel plays the video track (A ganged clip with 16 audio tracks or less plays the video track in all the play channels in the gang.).

NOTE: Do not gang play and record channels together. Do not gang playlists.

Configuring channel ganging

This feature is part of the licensable AppCenter Pro option.

Channels are assigned to a gang through the Ganging tab in the Configuration Manager.

To gang channels, follow these steps:

1. In AppCenter, select the application in the channel pane. (For an HD-00 or SDA-00 K2 Media Client, select Player or Recorder. For an SD-00, select Player/ Recorder.)

2. Select **System | Configuration** and click on the Ganging tab.
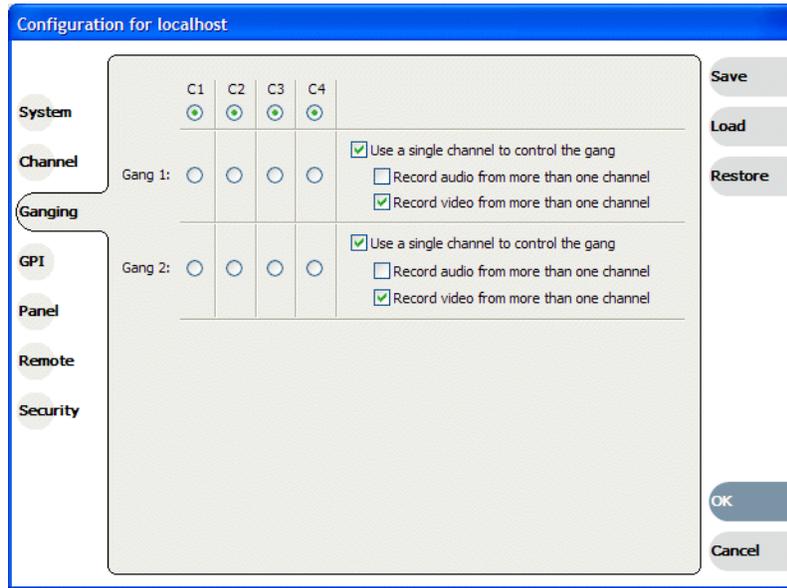
3. Assign the channels to a gang, and check the appropriate boxes. For a description of the configuration choices, see "Components of the channel ganging configuration" on page 233.

4. To have the changes apply to this configuration file, click **OK**.

   —or—

   To save the changes in a new configuration file, click **Save**, save the configuration file, and then click **OK**.

5. If the **Use a single channel to control the gang** box has been checked, the channel pane label switches to G1 or G2 in the first channel in the gang. The other channels in the gang display "In Use" in the channel pane and "Gang" in the application drop-down list.

NOTE: You cannot remove a channel from a gang by setting the channel application to <none>. To remove a channel from a gang, change the channel's ganging assignment in Configuration Manager.

Components of the channel ganging configuration

The following table describes the main components in the Ganging Configuration window.

Feature	Description
Gang 1, Gang 2	Allows you to select which channels to gang together. You can have up to two gangs on any one K2 Media Client.
Use a single channel to control the gang	**If this box is checked:** Ganged channels can record multi-track audio and video. The controls on the first channel affect all the channels in the gang, including settings for loop playback, continuous record, and E-to-E. Starting a record causes the same clip to be recorded on all the record channels in the gang. The first channel displays the name of the clip and the number of the gang, i.e. G1 or G2. The other record channels in the gang display "The channel is currently used by" in the channel pane. If you configure a gang of play channels and load a multi-track clip onto one channel, the tracks are automatically loaded on the other channels in the gang. For example, if you have four ganged play channels and load a clip with three tracks, the first three channels load the three tracks. **If this box is not checked:** The settings on the first channel for loop playback, continuous record, and E-to-E affect all the channels in the gang. Though the channels are labeled as a gang (G1 or G2), if recording each channel functions as a single record channel. To begin recording, eject any existing clip, select **New Clip** and press the **Record** button on each channel. If playing, the ganged channels can play different clips on each channel. The play and stop controls are synchronized, but each clip must be loaded or ejected on a each channel. Adding cue points to one clip does not affect the cue points on different clips in the other channels.
Record audio from more than one channel	**If this box is checked:** The audio from more than one channel in the gang is recorded. Up to 32 audio tracks can be recorded on one clip: for example tracks 1-16 from the first channel and tracks 17-32 from the second channel, or four tracks from each channel in a gang of four channels, and so on. To direct the routing, you can assign label tags to the audio tracks before or after the clip is recorded. When you play the clip, unless you specify otherwise, the first 16 audio tracks play on the first channel and the second 16 audio tracks (tracks 17-32) play on the second channel. If there is only one video track and you play the clip on a gang of player channels, the video plays on the first channel only. The other video channels, if any, play black. (For more information on input or output audio tags, see "Configuring track mapping" on page 239.) **If this box is not checked:** The audio from the first channel in the gang is recorded, up to a total of 16 audio tracks. If there is only one video track and you play the clip on a gang of player channels, the video plays on all the channels in the gang.

Feature	Description
Record video from more than one channel	**If this box is checked:** Video from all channels in the gang is recorded. You can record up to four video tracks on one clip. The order of video tracks in the clip is determined by the order of channels in the group. (For information on how to rearrange the video tracks, see "Re-arranging the order of the tracks" on page 245.) **If this box is not checked:** Only video from the first channel in the gang is recorded.

Using channel ganging

Ganging record channels allows you to create multi-track clips with one record session. Ganging play channels allows you to play different audio or video simultaneously on two different channels. For example, you could have an English audio track on one play channel, while another channel played a Spanish audio track. Or you could play one video on two channels, with SD output on one channel and HD output on the other. (If using HD video, the SD channel would down-convert and the HD channel would pass the video through.) Once configured, a gang of channels can be controlled by clicking on the channel controls. You cannot gang play and record channels together, or playlists.

The following illustration shows two gangs: the first gang (G1) recording a clip and the second gang (G2) playing another clip. Both gangs have been configured to record audio and video on more than one channel. In G1, if you click the **Record** button on the first channel pane, both channels record the clip. Any of the controls in the first channel affect both channels in the gang, including settings for loop playback, continuous record, and E-to-E.In G2, the same clip is playing out on both channels. The first channel displays the name of the clip and a thumbnail of the video. The top

of the monitor pane for each channel displays the channel number, machine name, and either a red circle or a green play symbol to indicate whether the gang is a play or a record.

NOTE: An SD-00 K2 Media Client treats all the channels in a gang as if they were set to the same application. If you create a four-channel gang but set two of the ganged channels to Player/Recorder and the other two to <none>, the resulting clip will have four video tracks. Playing a clip on a gang with extra channels can result in hearing audio on channels that aren't playing video. For example, if you play a clip with two video tracks on a three-channel gang, the last channel has no video, but audio is still embedded.

Unganging channels

You can only ungang a channel from Configuration Manager; you cannot change the allocation of the channel by changing the selection on the application drop-down list. Unganging the channels again causes all of the channels to stop recording or playing.

Track Mapping

This feature is part of the licensable AppCenter Pro option.

This section is divided into the following topics:

- "About track mapping"
- "Configuring track mapping"
- "Using track mapping"

About track mapping

This feature is part of the licensable AppCenter Pro option.

The K2 Media Client lets you configure audio input and output routing, assign labels to audio tracks, or specify which video track you want to be the key. You can have multiple tracks with the same name in a clip.

- To label a track, see "Renaming a video or audio track" on page 243.
- To label audio input or output channels, see "Adding audio tags" on page 240.

Labeling the audio tracks in a clip and the output channels in Configuration Manager allows you to map specific tracks to specific output channels. You can assign output labels to primary output channels alone or to both primary and secondary output channels. (If there is no label on the primary output channel, you cannot assign a label to the secondary output.)

The K2 Media Client maps the audio tracks to the output channels based on specific criteria. The following sections give a detailed description of the track mapping that results based on each of these criteria:

- "If no labels are assigned to any output channel"
- "If unique labels are assigned to audio tracks and output channels"
- "If language groups are used"
- "If the primary output alone is labeled"
- "If both primary and secondary outputs are labeled"
- "If no output labels match the track labels"
- "If no labels are assigned to any output channel"

If no labels are assigned to any output channel

If no audio output routing is specified, the K2 Media Client plays out the audio tracks according to their order in the clip, regardless of the labels of the individual tracks. In the following illustration, the first four audio tracks are routed to audio output channels 1 through 4.

Figure 14-1. Output routing if no output channels have been assigned labels
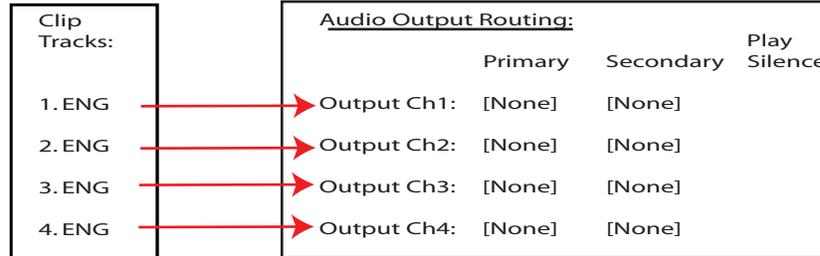
If unique labels are assigned to audio tracks and output channels

If you assign unique labels to each of the tracks in a clip, and assign the same labels to a corresponding output channel, the K2 Media Client routes each track exclusively to its matching output channel. The following illustration shows one example of how unique labels are evaluated.

Figure 14-2. Track mapping with unique labels
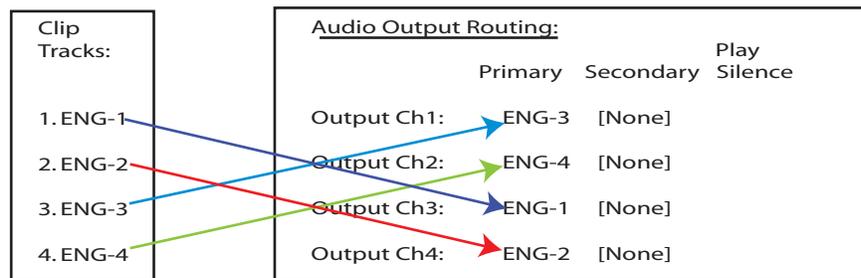
If language groups are used

You can have multiple tracks and output channels with the same label. If multiple tracks have the same label, the K2 Media Client evaluates where to map the tracks as follows:

• An output channel's primary and secondary output labels are considered together as a "language group" when assigning an audio track for playout. If two channels have the same primary label but have different secondary labels, then those channels have different language groups. For example, a channel with labels FRE + GER is considered a different language group than a channel with labels FRE + ENG.

• Each output channel, in order from first to last, is evaluated to determine if the label or language group matches a labeled audio track in the clip.The first channel with a label or language group that matches the track label plays that audio track. If the clip has several audio tracks with the same label, the first matching output channel plays the first audio track, the second matching output channel plays the second audio track, and so on.

• The Play Silence box. If the K2 Media Client does not find a matching label or language group for the output channels, and the Play Silence box has been checked in Configuration Manager, the channel plays silence. Otherwise, if the K2 Media Client finds no match, the output channel plays the correspondingly numbered audio track.

The rest of this section describes this evaluation process in detail.

If the primary output alone is labeled

If the output routing channels are assigned primary labels, the K2 Media Client evaluates the labels to see if they match with the track labels in the clip as follows:

• If there are no secondary labels assigned, then the primary labels only are evaluated.

• Labels are evaluated in numerical order, that is, from the first to last.

• After labels are evaluated in numerical order, the Play Silence check box is evaluated to determine if it is checked or un-checked.

The following illustration shows an example of how the K2 Media Client maps non-unique labeled audio tracks to non-unique labeled output channels. In this example, the first four output channels have primary output labels that do not match with any of the track labels, so they are bypassed.

Because the K2 Media Client maps the first track label to the first matching output label, the first ENG track is routed to the first audio output labeled ENG (in this example, output channel 5), the second ENG track is routed to the next audio output labeled ENG (output channel 6), and so on.

Figure 14-3. Track mapping based on the labels of the primary output channels.

Clip Tracks:	Audio Output Routing:	Primary	Secondary	Play Silence
1. ENG	Output Ch1:	SPA	[None]	
2. ENG	Output Ch2:	SPA	[None]	
3. ENG	Output Ch3:	FRE	[None]	
4. ENG	Output Ch4:	FRE	[None]	[Silence]
5. ENG	Output Ch5:	ENG	[None]	
6. ENG	Output Ch6:	ENG	[None]	
7. ENG	Output Ch7:	ENG	[None]	
8. ENG	Output Ch8:	ENG	[None]	
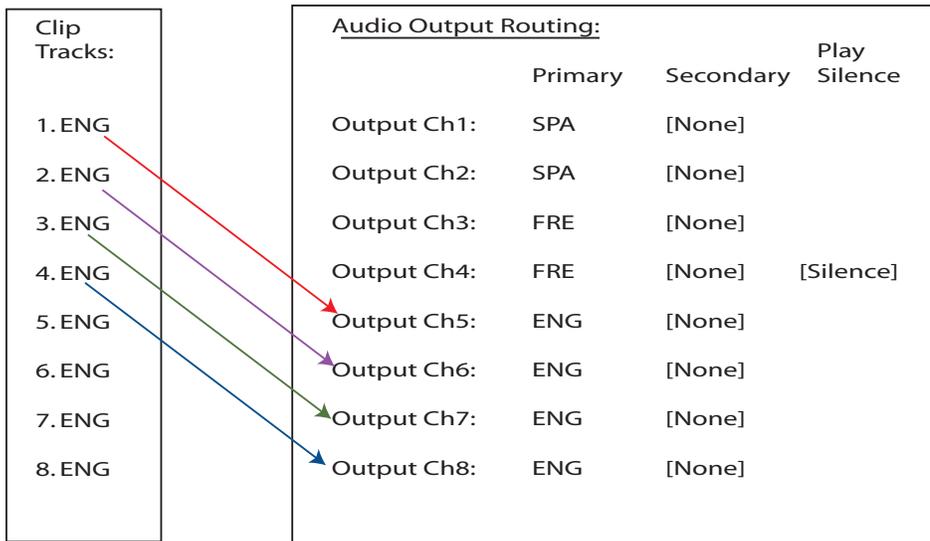
If both primary and secondary outputs are labeled

The primary and secondary labels of an output channel are considered a "language group". A clip's audio track label is matched to a language group's primary label. For example, consider the following illustration:

Figure 14-4. Track mapping based on primary/secondary language group
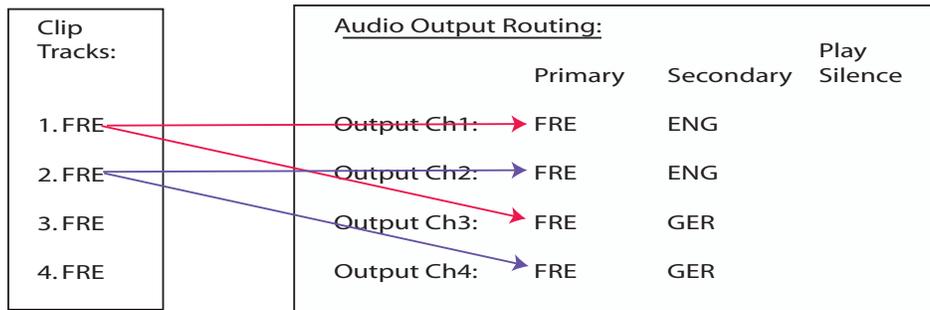
The language group for channel 1 and channel 2 (FRE + ENG) is different than the language group for channel 3 and channel 4 (FRE + GER). If a clip has audio tracks 1–4 labeled "FRE", channels 1–2 play out clip tracks 1–2, and channels 3–4 also play out clip tracks 1–2.

If no output labels match the track labels

If no output labels match any track labels in the clip, the K2 Media Client evaluates the output routing based on whether the Play Silence box is checked or not. (The Play Silence box is configured in Configuration Manager. For more information, see "Configuring track mapping" on page 239.)

This section is divided into two parts:

- "If Play Silence is checked" on page 239
- "If Play Silence is not checked" on page 239

If Play Silence is checked

If the K2 Media Client finds an output channel with a label that matches the label on an audio track in the clip, the Play Silence box is ignored.

However, if no matching label is found, and the Play Silence box has been checked in Configuration Manager, the channel plays silence.

If Play Silence is not checked

If there are no matching labels for output channels and the Play Silence box has *not* been checked in Configuration Manager, the output channel plays the matching numbered audio track. Basically, the output channel behaves as if it were unlabeled.

See also

- To label audio input and output, see "Adding audio tags" on page 240.
- To label the tracks in a clip, see "Renaming a video or audio track" on page 243
- To group the tracks, see "Re-arranging the order of the tracks" on page 245

Configuring track mapping

To set up track mapping on your K2 Media Client, you need to add audio tags in Configuration Manager and name the tracks in the clip itself.

This section is divided into the following topics:

"Adding audio tags"

"Renaming a video or audio track"

Adding audio tags

This feature is part of the licensable AppCenter Pro option.

Before recording a clip, you can add audio tags to the audio input and output. Select a name from the drop-down list or enter a track name. Adding input and output tags before recording a clip can help streamline the routing of the tracks. A track name cannot be more than 16 characters long. You can also label audio tags after recording a clip. For more information, see "Renaming a video or audio track" on page 243.

To configure audio tags before recording, follow these steps:

1. In the Channel tab of the Configuration Manager, scroll down to the Audio Input or Audio Output section. In an HD-00 or SDA-00 K2 Media Client, the Input and Output tag sections are on the Recorder and Player tabs respectively. In an SD-00, the sections are grouped under each channel tab.
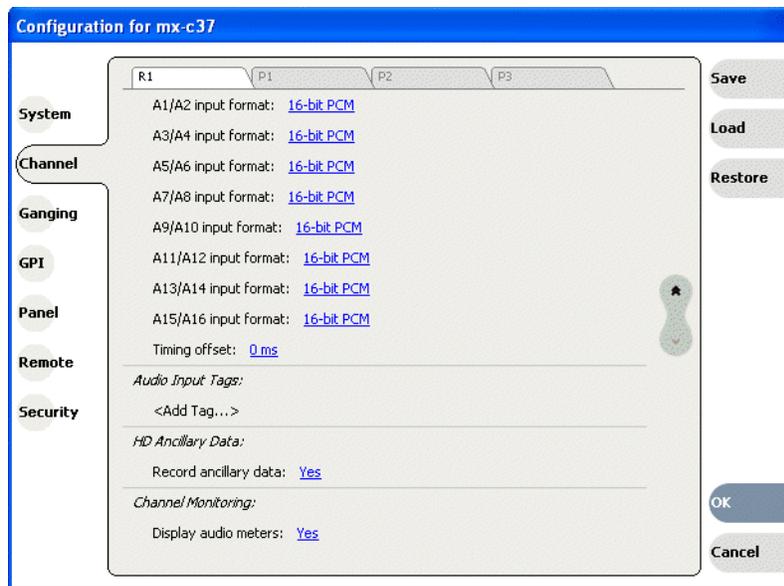
2. Click **<Add Tags...>**.

• To assign a label to audio input tracks, click on the drop-down list next to the track you want to label, and select the label, or enter in a name.

Audio Input Tags

A1	<No audio tag>
A2	<No audio tag>
A3	<No audio tag>
A4	<No audio tag>
A5	<No audio tag>
A6	<No audio tag>
A7	<No audio tag>
A8	<No audio tag>
A9	<No audio tag>
A10	<No audio tag>
A11	<No audio tag>
A12	<No audio tag>
A13	<No audio tag>
A14	<No audio tag>
A15	<No audio tag>
A16	<No audio tag>

OK

Cancel
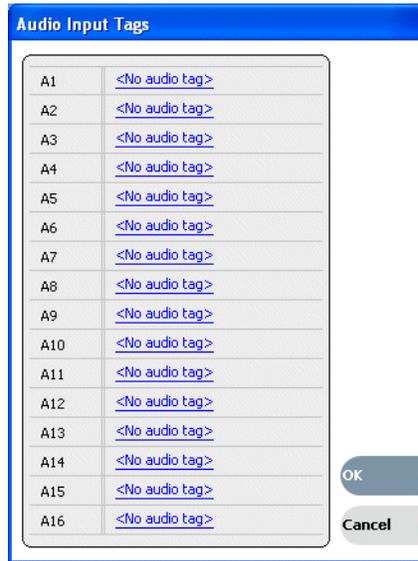
- If you are labeling audio output tracks, you can assign primary or secondary labels

or check the Play Silence box
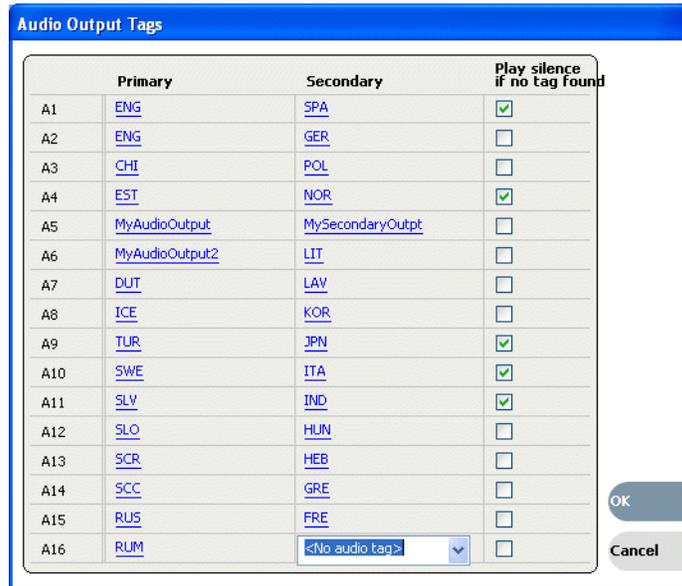
3. Click **OK**. The tags are now displayed in the Configuration Manager.
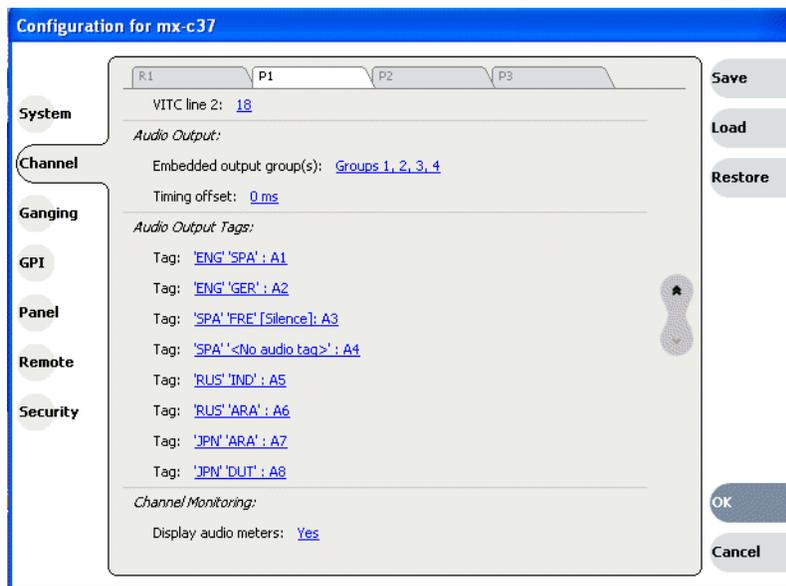
4. To have the changes apply to this configuration file, click **OK**.

—or—

To save the changes in a new configuration file, click **Save**, save the configuration file, and then click **OK**.

Renaming a video or audio track

If no input tags have been specified, any audio tracks that you have recorded appear in the Clip Properties dialog box as **A1**, **A2**, etc. The video tracks by default are labeled **Video**. Multiple video and audio tracks can be labeled with the same name.

To rename a video or audio track, follow these steps:

1. Open the Clip Properties dialog box and select the Tracks tab.

2. Highlight the track and perform one of the following actions:

• Click the **Rename** button.

—or—

• Right-click with the mouse and select Rename.

—or—

• Double-click on the track name.

3. A drop-down list displays, allowing you to select a new name for the track. You can also enter in a name. Track names can be up 16 characters long.
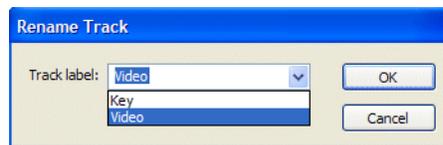
Using track mapping

You can add, remove, or re-arrange audio or video tracks in a clip through the Tracks tab of the Clip Properties dialog box.

This section covers the following topics:

"Importing audio tracks"

"Adding a video or audio track"

"Removing a video or audio track"

"Re-arranging the order of the tracks"

Importing audio tracks

This feature is part of the licensable AppCenter Pro option.

You can import an audio track from an audio file. The file must be in the .wav format with a sample rate of 48 kHz. The imported file is aligned to the start of the clip.

To import an audio file, follow these steps.

1. Highlight the clip that you want to import the track into.

2. Open the Clip Properties. (list ways) and select the Track tab.

3. Click the Import button.

4. The Windows Open dialog box displays

NOTE: If you're using a PC running Control Point software to access a K2 Media Client, your view of the "local" Windows file system is a view of the Control Point PC. However, the "local" drives (such as C:) that AppCenter uses for importing .wav files are not the local drives of the Control Point PC. You cannot import directly from your Control Point PC to the K2 Media Client unless you map a network drive. To do this, go to the source or destination machine, create a shared folder, then on the Control Point PC map that shared folder as a network drive. For a more detailed description of this process, see "To map a source or destination drive".

5. Browse to the .wav file to import and click **OK**.

When you import a file, the new track appears at the end of the working asset's track list.The file name is used as the initial audio track label. After the file has been imported, you can highlight the track and rename it with the Rename button.

Adding a video or audio track

This feature is part of the licensable AppCenter Pro option.

You can view, edit, add or remove video and audio tracks in an clip. The tracks should be of the same format. (For example, if you have an NTSC clip, do not add a PAL track to it.) You can have up to four video tracks or 32 audio tracks in one clip. Added tracks are aligned to the start of the clip.

Clips may contain tracks of different lengths. The length of the overall clip is limited to the length of the original track. For example, if you have a clip that is thirty seconds long and you add a two-minute audio track, the K2 Media Client adds only the first thirty seconds of audio from the added track.

If an additional track is longer than the original track, any material beyond the length of the original track is not played.

If an additional track is shorter than the original track, video plays black, ancillary data tracks are blank, and audio is silent.

To add a video or audio track, follow these steps:

1. In the Clips Properties dialog box, select the Tracks tab.

2. Click the **Add Track** button. The Select Asset dialog box displays.

3. Browse to the asset that has the tracks you want to add. Click **OK**. The Select Tracks dialog box displays.

4. You can select a track by checking the box next to the track or, within the audio or video sections, by highlighting the track you want to add, right-clicking with the mouse, and then checking the box. When you have selected the tracks, click **OK**. The Clip Properties dialog box shows yellow sunbursts next to the track icons of the newly added tracks.

5. To accept the changes, click **OK**.

Removing a video or audio track

To remove a video or audio track, follow these steps:

1. Open the Clip Properties dialog box and select the Tracks tab.

2. Highlight the track and perform one of the following actions:

• Click the **Remove** button.

—or—

• Right-click with the mouse and select Remove.

—or—

• Press the Delete key on the keyboard.

Re-arranging the order of the tracks

You can change the order of the tracks, by using the mouse to drag and drop tracks within the video and audio sections. Grass Valley recommends grouping tracks with the same label together. Grouping like tracks together can be helpful if you have

several tracks with the same label and you need to configure the audio output routing in the Configuration Manager. For more information on audio output routing, see "About track mapping" on page 236.

Other Configuration Manager settings

Settings documented in other sections are as follows:

Configuration Tab	Description
System	Configure the video reference, audio reference, and the timecode input. Note that choices made on this tab might affect options offered on other tabs. For example, if you designate the video reference standard to be NTSC, you do not see any options for PAL on the Channel tab. Refer to "SDA-00: Audio/Video Configuration", "SD-00: Audio/Video Configuration", and "HD-00: Audio/Video Configuration", as appropriate for the type of K2 Media Client.
Channel	Configure the audio and video inputs and outputs on record and play channels. Refer to "SDA-00: Audio/Video Configuration", "SD-00: Audio/Video Configuration", and "HD-00: Audio/Video Configuration", as appropriate for the type of K2 Media Client.
GPI	Make settings for your GPI triggers. Refer to "GPI and other configurations" on page 225.
Panel	Set play speed options. Refer to Refer to "SDA-00: Audio/Video Configuration", "SD-00: Audio/Video Configuration", and "HD-00: Audio/Video Configuration", as appropriate for the type of K2 Media Client.
Remote	Manage other systems as remote hosts for importing or exporting media. Refer to "Importing and exporting assets" on page 157.
Security	Set permission levels for media access. Refer to *K2 Media Client system guide*.

Appendix **A**

Keyboard Shortcuts

Topics in the appendix include:

- *"About keyboard operation"*
- *"Channel select"*
- *"Basic transport controls"*
- *"Off-speed play controls"*
- *"Shuttle speed controls"*
- *"Stop-Mode transport controls"*
- *"List controls"*
- *"Playlist controls"*

About keyboard operation

A keyboard can be used to control the K2 Media Client. The following describes the keyboard shortcuts available. 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.)

Shuttle speed controls

For this action...	Press	For this action...	Press
+ 0.2X speed	Shift + 1	– 0.2X speed	Ctrl + 1
+ 0.33X speed	Shift + 2	– 0.33X speed	Ctrl + 2
+ 0.5X speed	Shift + 3	– 0.5X speed	Ctrl + 3
+ 1X speed	Shift + 4	– 1X speed	Ctrl + 4
+ 1.5X speed	Shift + 5	– 1.5X speed	Ctrl + 5
+ 2X speed	Shift + 6	– 2X speed	Ctrl + 6
+ 4X speed	Shift + 7	– 4X speed	Ctrl + 7
+ 9X speed	Shift + 8	– 9X speed	Ctrl + 8
+ 16X speed	Shift + 9	– 16X speed	Ctrl + 9
+ 16X speed	Shift + 0[a]	– 16X speed	Ctrl + 0[a]
+ 32X speed	Shift + 0[b]	– 32X speed	Ctrl + 0[b]

[a]. If shuttle speed, as configured in Configuration Manager | Panel, is set to "+16X to –16X".

[b]. If shuttle speed, as configured in Configuration Manager | Panel, is set to "+32X to –32X".

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 and Cue 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
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

Action	Press
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

Appendix A   Keyboard Shortcuts

Appendix **B**

Specifications

This section contains

- Operational Specifications

Operational specifications

Topics include:

- "Video codec description K2 Media Client SDA-00 and SD-00"
- "Video codec description K2 Media Client HD-00"
- "Video codec description K2 Summit Production Client"
- "Playout of multiple formats"
- "Active Format Description (AFD) specifications"
- "VBI/Ancillary/data track specifications"
- "Internationalization"
- "Video network performance"
- "Supported file input/output formats on K2 Media Client and K2 SAN"
- "Supported file input/output formats on K2 Summit Production Client and SAN"
- "MXF export behavior on K2 Media Client"
- "Media file system performance on K2 Media Client and K2 SAN"
- "Media file system performance on K2 Summit Production Client and SAN"
- "Live Play mode specifications"
- "Protocols supported"
- "Transfer compatibility with K2 Media Client"
- "Transfer compatibility with K2 Summit Production Client"
- "Control Point PC system requirements"

Video codec description K2 Media Client SDA-00 and SD-00

Format	Sampling	Frame Rate	Data Rate	Other
DVCAM (720x480/576)	4:1:1/ 4:2:0	29.97, 25	28.8 Mbps	—
DVCPRO25 (720x480/576)	4:1:1	29.97, 25	28.8 Mbps	—
DVCPRO50[a] (720x487.5/585)	4:2:2	29.97, 25	57.6 Mbps	—
MPEG-2 (720x480/576)	4:2:0	29.97, 25	2-15 Mbps	I-frame and long GoP[b]
MPEG-2 (720x480/576)	4:2:2	29.97, 25	4-50[a] Mbps	I-frame and long GoP[b]
MPEG-2 (720x512/608)	4:2:2	29.97, 25	4-50[a] Mbps	I-frame and long GoP[b]
D10/IMX[a] (720x512/608)	4:2:2	29.97, 25	30, 40, 50 Mbps	I-frame only

[a] A licensable option is available that adds D10 and DV50 compression and increases the available MPEG-2 compression data rate up to 50Mbps, 4:2:2.

[b] If an open long GoP clip is imported, it is fully supported, including trimming the clip, playout of the clip, using the clip in playlists, and exporting the clip.

Video codec description K2 Media Client HD-00

Format	Sampling	Frame Rate	Data Rate	GoP[a]
SD formats				
MPEG-2 (720x480/576)	4:2:0	29.97, 25	2-15 Mbps	I-frame and long GoP
MPEG-2 (720x480/576)	4:2:2	29.97, 25	4-50 Mbps	I-frame and long GoP
MPEG-2 (720x512/608)[b]	4:2:2	29.97, 25	4-50 Mbps	I-frame and long GoP
HD formats[c]				
MPEG-2 (1920x1080)	4:2:0	29.97, 25	20-80 Mbps	I-frame and long GoP[d]
XDCAM-HD (1440x1080)	4:2:0	29.97, 25	25 or 35 Mbps	Long GoP
XDCAM-EX (1920x1080 or 1280x720)	4:2:0	1080i: 29.97, 25 720p: 59.94, 50	35 Mbps	Long GoP
XDCAM-HD422 (1920x1080 or 1280x720)	4:2:2	1080i: 29.97, 25 720p: 59.94, 50	50 Mbps	Long GoP
MPEG-2 (1920x1080)	4:2:2	29.97, 25	20-100 Mbps	I-frame and long GoP
MPEG-2 (1280x720)	4:2:0	59.94, 50	12-80 Mbps	I-frame and long GoP
MPEG-2 (1280x720)[e]	4:2:2	59.94, 50	20-100 Mbps	I-frame and long GoP

[a] If an open long GoP clip is imported, it is fully supported, including trimming the clip, playout of the clip, using the clip in playlists, and exporting the clip.

[b] Supports D10/IMX 30/40/50 playout

[c] Low bitrate I-frame encoding is not recommended

[d] Decode of lower bit rate is possible

[e] Includes playout of HDV. There is no IEEE-1394 connection on a K2 system, so HDV is available only via transfer to the K2 system.

Video codec description K2 Summit Production Client

The K2 Summit Production Client specification is shown in the following table.

Format	Other
DVCAM (720x480/576)	Conforms to IEC 61834
DVCPRO25 (720x480/576)	Conforms to SMPTE 314M
DVCPRO50 (720x487.5/585)	Conforms to SMPTE 314M
DVCPRO100[a] (960x720p, 1280x1080i59.94, 1440x1080i50)	Conforms to SMPTE 370M

[a] Requires XDP (HD) license.

Playout of multiple formats

The K2 client automatically handles material of various types and formats as specified in the following sections:

Playout on K2 Media Client SDA-00 and SD-00 models

On SD-00 models, for a given frame rate, you can play clips of any format back-to-back on the same timeline. Refer to the video codec description earlier in this section for a list of the supported formats.

On SD-00 models, both 16:9 and 4:3 SD aspect ratio formats can be played on the same timeline. However, there is no aspect ratio conversion mode applied, as there is on the HD-00 model.

SDA-00, SD-00, and HD-00 models support mixed clips with uncompressed and compressed (Dolby-E) audio on the same timeline. (requires external Dolby-E decoder).

Also refer to "VBI/Ancillary/data track specifications" on page 269.

Playout on K2 Media Client HD-00 models

On HD-00 models, for similar frame rates (25/50 fps or 29.97/59.95 fps), MPEG SD material transferred or recorded into the K2 Media Client along with its audio is up-converted when played on a HD output channel. Likewise, HD material is down-converted along with its audio when played on SD output channel. HD and SD clips can be played back-to-back on the same timeline, and aspect ratio conversion is user configurable. Refer to "Aspect ratio conversions on HD K2 client" on page 262. Refer to the following tables for specifications on SD and HD conversions.

Also refer to "VBI/Ancillary/data track specifications" on page 269.

Playout on K2 Summit Production Client

For a given frame rate, you can play SD clips of any format back-to-back on the same timeline. Both 16:9 and 4:3 SD aspect ratio formats can be played on the same timeline. Refer to video codec description earlier in this section for a list of the supported formats

On channels with the XDP (HD) license, for similar frame rates (25/50 fps or 29.97/59.95 fps), SD material transferred or recorded into the K2 Summit Production Client along with its audio is up-converted when played on a HD output channel. Likewise, HD material is down-converted along with its audio when played on an SD output channel. HD and SD clips can be played back-to-back on the same timeline, and aspect ratio conversion is user configurable. Refer to "Aspect ratio conversions on HD K2 client" on page 262.

The K2 Summit Production Client supports mixed clips with uncompressed and compressed (PCM, AC3, and Dolby) audio on the same timeline.

25/50 fps conversions on HD K2 client models

The following specifications apply to the HD-00 K2 Media Client and to K2 Summit Production Client channels with the XDP (HD) license.

| | | Converted SD format | Converted HD formats | |
		625 at 25 fps	1080i at 25 fps	720p at 50 fps
Source SD format	625 at 25 fps	No conversion	Up-convert SD to HD	Up-convert SD to HD
Source HD formats	1080i at 25 fps	Down-convert HD to SD	No conversion	Cross-convert from 1080i to 720p
	720p at 50 fps	Down-convert HD to SD	Cross-convert from 720p to 1080i	No conversion

29.97/59.95 fps conversions on HD K2 client models

The following specifications apply to the HD-00 K2 Media Client and to K2 Summit Production Client channels with the XDP (HD) license.

		Converted SD format	Converted HD formats	
		525 at 29.97 fps	1080i at 29.97 fps	720p at 59.94 fps
Source SD format	525 at 29.97 fps	No conversion	Up-convert SD to HD	Up-convert SD to HD
Source HD formats	1080i at 29.97 fps	Down-convert HD to SD	No conversion	Convert HD to HD
	720p at 59.94 fps	Down-convert HD to SD	Convert HD to HD	No conversion

Aspect ratio conversions on HD K2 client

The following specifications apply to the HD-00 K2 Media Client and to K2 Summit Production Client channels with the XDP (HD) license.

Source aspect ratio	Source image	Conversion option	Conversion description	Converted aspect ratio	Converted image
4:3		Bar	The 4:3 aspect ratio is maintained, centered on the screen, with black bars filling the left and right portions of the 16:9 display.	16:9	
		Half Bar	The picture aspect ratio is maintained, but the image is slightly enlarged. The top and bottom of the image are slightly cropped, and thin black bars fill the left and right portions of the 16:9 display.	16:9	
		Crop	The picture aspect ratio is maintained, but the image is enlarged so that it horizontally fills the HD display. The top and bottom of the 4:3 SD image are cropped to fit in the 16:9 display.	16:9	
		Stretch	The picture aspect ratio is distorted. The image fills the screen vertically without cropping, and is stretched horizontally to fill the 16:9 display. This conversion up-converts Full Height Anamorphic (FHA) 16:9 SD material.	16:9	
16:9		Bar	The 16:9 aspect ratio is maintained, centered on the screen, with black bars filling the top and bottom portions of the 4:3 display.	4:3	
		Half Bar	The picture aspect ratio is maintained, but the image is slightly enlarged. The left and right sides the image are slightly cropped, and thin black bars fill the top and bottom portions of the 4:3 display.	4:3	
		Crop	The picture aspect ratio is maintained, but the image is enlarged so that it vertically fills the SD display. The left and right sides of the 16:9 HD image are cropped to fit in the 4:3 SD display	4:3	
		Stretch	The picture aspect ratio is distorted. The image fills the screen horizontally without cropping, and is stretched vertically to fill the 4:3 display. This conversion generates Full Height Anamorphic (FHA) 16:9 SD material.	4:3	
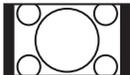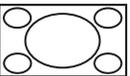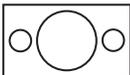
Active Format Description (AFD) specifications

NOTE: This topic only applies to SD and HD channels on K2 Media Clients and K2 Summit Production Clients.

Active Format Description (AFD) can be used to automatically determine the proper aspect ratio to use for up- and down-conversions. Previous versions of the K2 Media Client let you set the aspect ratio conversion (ARC) on a clip-by-clip basis or per channel. Now, you can use the AFD code to set the aspect ratio of the clip and the ARC performed. If no AFD is set, the ARC setting operates as it did in previous versions of the K2 software. For more information about ARC settings, see "Playout of multiple formats" on page 259.

About Active Format Description

The AFD is defined during production. By inserting metadata about the aspect ratio into the vertical ancillary data, AFD can define the aspect ratio of the signal as it progresses through ingest, editing, up/down conversion and playout. If the aspect ratio is altered during processing, then the AFD passed on downstream might need to be modified to ensure the correct aspect ratio is obtained.

NOTE: If ARC leads to unsupported active video format (postage stamp), the new AFD code will be the 'undefined' value of 0000.

The playback aspect ratio conversion is prioritized according to the following table:

Playback aspect ratio conversion priority
1   Clip property (ARC or AFD-based conversion rules)
2   Output channel (ARC configuration property)

To see the full list of AFD input/output settings, refer to "AFD input/output settings" on page 264.

NOTE: Bar data is not supported on the K2 system.

Storing AFD in the K2 Media Client

The K2 Media Client stores clip metadata in clip properties and uses this data throughout the workflow. Users can modify the AFD setting in AppCenter. For more information on applying AFD settings in the UI, see "Applying AFD settings" on page 240.

You can store AFD in a data track. Grass Valley recommends selecting this for HD clips; if using SD, this is optional. This method takes more storage (it is approximately equal to four tracks of audio) but this method enables AFD and CC/Teletext support for HD.

Ingesting SDI

An SDI video signal stores AFD in the vertical ancillary data. If present, the AFD setting from two seconds into the file is copied into the clip properties. (If selected, the ANC data is copied into the K2 data track.)

AFD input/output settings

The following table shows the various AFD input settings, and the resulting output values.

Input and Settings				Output AFD Value					
AFD set in the clip properties	AFD already in the data Track	ARC Performed	AFD in Config Mgr setting	AFD set in Clip property	Translated from the clip property according to the ARC performed[a]	Same as data track settings	Translated from AFD values on the data track[a]	No AFD	Default AFD[b]
n/a	Y	n/a	Never			X			
Y	n/a	N	Always or When Known	X					
Y	n/a	Y	Always or When Known		X				
N	Y	N	Always or When Known			X			
N	Y	Y	Always or When Known				X		
N	N	n/a	Always						X
N	N	n/a	When Known					X	
n/a	N	n/a	Never					X	

[a] For a list of supported AFD conversions, see "Supported conversions from SD to HD using AFD" on page 268 and "Supported conversions from HD to SD using AFD" on page 269.

[b] For a list of default AFD settings, see "Default generated AFD values" on page 266.

Using AFD with file transfers

The following tables describe the AFD file priorities and the AFD behavior with GXF and MXF transfers.

File transfer AFD priority	
1	AFD from the MXF or GXF metadata is copied to the K2 clip properties.
2	If there is no AFD metadata in the MXF/GXF metadata, the AFD is taken from the ancillary data (two seconds in on the data track) and copied to the K2 clip properties.
3	If there is no AFD in either the MXF/GXF or the data track, no AFD is set.

GXF Export: (both AFD and ARC values inserted into XML of stream)	
Condition	**Description**
Exported to pre-3.3 system	Unrecognized AFD is ignored
Exported to 3.3 system	AFD overrides ARC settings

GXF Import	
Condition	**Description**
Imported from pre-3.3 system	ARC remains unchanged
Imported from 3.3 system	AFD overrides ARC settings

MXF Export (No ARC in the MXF stream)	
Condition	**Description**
AFD from clip property added to properties of the video in the header metadata	If clip property is not set, do not add property in stream
AFD from data track in stream's ancillary data	No change required

MXF Import (No ARC in the MXF stream)	
Imported stream has AFD in the header metadata	AFD is stored in the clip property setting of the clip
Imported stream has AFD in the data track	AFD is stored in the clip property setting of the clip. (AFD is taken from the ancillary data two seconds from the beginning, or, if the clip is less than 2 seconds long, from the last valid AFD.)
Imported stream has no AFD	No AFD

Default generated AFD values

Default AFD values are generated when the three following conditions are met:

• The AFD output setting in the Configuration Manager is set to **always**

• The clip does not have AFD in the data track, and

• The clip does not have AFD specified in its clip properties

Under these conditions, default AFD is generated and inserted, based on ARC performed and the source material format. Default generated AFD settings are described in the table below.

Default generated AFD values when up-converting to HD

Source aspect ratio	Presumed[a] source image	Conversion option	Converted AFD and aspect ratio	Converted image
16:9 HD		No conversion	AFD = 1010 AR 16:9 HD	
16:9 SD		Scale up Crop vertical	AFD = 1010 AR 16:9 HD "crop"	
		Scale up	AFD = 1010 AR = 16:9 HD	
		Scale up Crop vertical Pillarbox	AFD = 1011 AR = 16:9 HD "half bars"	
4:3 SD		Scale up Pillarbox	AFD = 1011 16:9 HD "bars"	
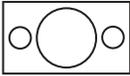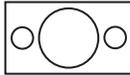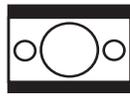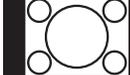
[a] Source image is presumed based on the conversion that has been selected.

Default generated AFD values when down-converting to SD

Source aspect ratio	Presumed[a] source image	Conversion option	Converted AFD and aspect ratio	Converted image
4:3 SD		No conversion	AFD = 1001 AR 4:3 SD	
16:9 SD		No conversion (only if ARC set to 'stretch')	AFD = 1010 AR 16:9 SD	
16:9 HD		Scale down letterbox	AFD = 1010 AR 4:3 SD "bars"	
		Scale down Crop horizontal	AFD = 1001 AR 4:3 SD "crop"	
		Scale down	AFD = 1010 AR = 16:9 SD "stretch"	
		Scale down Crop horizontal Letterbox	AFD = 1011 AR = 4:3 SD "half bars"	
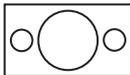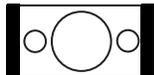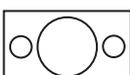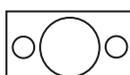
a   Source image is presumed based on the conversion that has been selected.

Supported conversions from SD to HD using AFD

Source AFD and aspect ratio	Source image	Conversion performed	Converted AFD and aspect ratio	Converted image
AFD = 1010 AR 4:3 SD		Scale up crop vertical	AFD = 1010 AR 16:9 HD	
AFD = 1001[a] AR 4:3 SD		Scale up pillarbox	AFD = 1001 AR 16:9 HD	
AFD = 1010[a] AR 16:9 SD		Scale up	AFD = 1010[a] AR 16:9 HD	
AFD = 1011 AR = 4:3 SD		Scale up Crop vertical pillarbox	AFD = 1011 AR 16:9 HD	
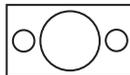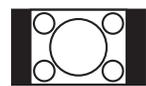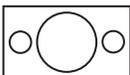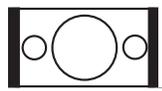
[a] The SMPTE standard describes two valid AFD codes. The K2 system uses the second value.

Supported conversions from HD to SD using AFD

Source AFD and aspect ratio	Source image	Conversion performed	Converted AFD and aspect ratio	Converted image
AFD = 1010[a] AR = 16:9		Scale down letterbox	AFD = 1010 AR = 4:3	
AFD = 1001 AR = 16:9		Scale down crop horizontal	AFD = 1001 AR = 4:3	
AFD = 1010[a] AR = 16:9		Scale down	AFD = 1010[a] AR = 16:9	
AFD = 1011 AR = 16:9		Scale down Crop horizontal letterbox	AFD = 1011 AR = 4:3	
AFD = 1111 AR = 16:9		Scale down crop horizontal	AFD = 1001 AR = 4:3	
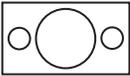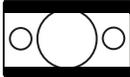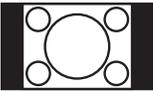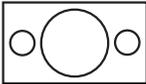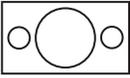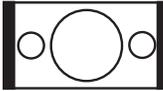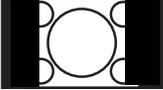
[a] The SMPTE standard describes two valid AFD codes. The K2 system uses the second value.

VBI/Ancillary/data track specifications

This section contains the following topics:

- "Definitions"
- "Data track support on K2 Summit Production Client HD channels"
- "Subtitling system support"
- "Data compatibility between K2 Summit Production Client and PVS models"

Definitions

Terms in this section are defined as follows:

Ancillary data	Ancillary data (ANC data) as specified in this section is primarily a means by which timecode, Closed Captioning, and Teletext information is embedded within the serial digital interface. Other Type 2 ancillary data packets are stored and played back without modification. Ancillary data is standardized by SMPTE 291M.
Closed Captioning (CC)	Line 21 NTSC Closed Captioning as defined in EIA-608 and used as a subset of EIA-708. EIA-708 has been updated and renamed to CEA-708. Includes other Line 21 services such as V-Chip.
Teletext (TT)	Teletext System B subtitles as defined ETSI EN 300 706 and other documents. The Australian standard for digital TV is Free TV Operational Practice OP-47. It has been ratified as SMPTE RDD 8.
Captioning	Denotes both NTSC Closed Captioning and Teletext subtitling.

Luma/Chroma VBI support on SD K2 Media Client

The following table applies when in Configuration Manager, the Data Track settings are configured as:

• Record ancillary data: No

Or as:

• Record ancillary data: Yes
• Record Uncompressed VBI and captioning data to track: No

Use these Data Track settings to retain compatibility with legacy systems, such as the Profile XP Media Platform.

Model	Luma: Record[a] VBI, CC	Luma: Playout VBI	Chroma: Record[a] VBI	Chroma: Playout VBI
SDA-00	No	Yes	No	No
SD-00	Yes	Yes	Yes	Yes
SD channel on HD-00	Yes	Yes	Yes	Yes

[a] A given line of VBI data can be stored as either Luma or Chroma, but not both.

VBI data support on K2 Media Client SDA-00 and SD-00 models

The following table applies when in Configuration Manager, the Data Track settings are configured as:

• Record ancillary data: No

Or as:

• Record ancillary data: Yes
• Record Uncompressed VBI and captioning data to track: No

Use these Data Track settings to retain compatibility with legacy systems, such as the Profile XP Media Platform.

Video format	Compressed VBI	Uncompressed VBI[a]	Captioning	Comments
DVCPRO25 525 line (NTSC)	Not supported	Not supported by DVCPRO25 format	CC supported, as native to DVCPRO25. VCHIP data supported.	—
DVCPRO25 625 line (PAL)	Not supported	Not supported by DVCPRO25 format	TT not supported as VBI data.	
DVCPRO50 525 line (NTSC)	Supported	Not supported by DVCPRO50 format	CC supported, as native to DVCPRO50 (compressed VBI). VCHIP data supported.	DVCPRO50 is a licensable option.
DVCPRO50 625 line (PAL)	Supported	Not supported by DVCPRO50 format	TT supported, as native to DVCPRO50 (compressed VBI).	
DVCAM 525 line (NTSC)	Not supported	Not supported by DVCAM format	CC supported, as native to DVCAM.	—
DVCAM 625 line (PAL)	Not supported	Not supported by DVCAM format	TT supported, as native to DVCAM.	—
MPEG-2 525 line (NTSC)	Supported as 16 lines per field. Range: 7–22	Supported. Six lines per field. User selectable. Range: 10–22 Selected lines are saved in MPEG user data space and restored on playout.	CC supported and always on. Not selectable.	—
MPEG-2 625 line (PAL)	Supported as 16 lines per field. Range: 7–22	Supported. Six lines per field. User selectable. Range: 6–22 Selected lines are saved in MPEG user data space and restored on playout.	TT supported only as compressed or uncompressed VBI.	—
MPEG-D10 525 line (NTSC)	Supported	Not supported by D10 format.	CC supported, as native to D10.	—
MPEG-D10 625 line (PAL)	Supported	Not supported by D10 format.	TT supported, as native to D10.	—

[a]   SDA-00 model does not support recording uncompressed VBI.

VBI data support for SD channels configured on K2 Media Client HD-00 models

The following table applies when in Configuration Manager, the Data Track settings are configured as:

• Record ancillary data: No

Or as:

• Record ancillary data: Yes
• Record Uncompressed VBI and captioning data to track: No

Use these Data Track settings to retain compatibility with legacy systems, such as the Profile XP Media Platform.

Video format	Compressed VBI	Uncompressed VBI	Captioning	Comments
SD MPEG-2 525 line (NTSC)	Supported for record. Not supported for playback.	Supported as six selectable lines per field. Range: 10–22 Selected lines are saved in MPEG user data space and restored on playout.	CC supported and always on. Not selectable.	—
SD MPEG-2 625 line (PAL)	Supported for record. Not supported for playback.	Supported as six selectable lines per field. Range: 6–22 Selected lines are saved in MPEG user data space and restored on playout.	TT not supported	—

Data track support on K2 Media Client SD channels

The following table applies to SD channels on both SD-00 models and HD-00 models, when in Configuration Manager the Data Track settings are configured as follows:

• Record ancillary data: Yes

• Record Uncompressed VBI and captioning data to track: Yes

Data track is not supported for record or playout on SDA-00 models.

Video format	Data	Supported as follows:
525 line (NTSC)	Closed Captioning	Stored in EIA-708 packets. On playback, modulate to VBI line 21.
625 line (PAL)	Teletext	Stored in OP-47 packets. On playback, modulate to VBI line specified in OP-47 packet.
All supported SD formats	Uncompressed VBI	Selectable per line. Limited to 5 lines. The 5 line limit does not include any lines used for CC or TT. Can select either Luma or Chroma for each line, but not both.
	Ancillary timecode	Ancillary timecode is preserved only. No timecode track is constructed from ancillary timecode data. The timecode track is not inserted as ancillary timecode on playout.

Data track support on K2 Media Client HD channels

The data track can contain ancillary data and other types of data. Luma ancillary data packets are stored. Chroma ancillary data packets are not supported. Both VANC and HANC packets are stored if they are Luma packets.

Video format	Data	Supported as follows:
HD MPEG-2	Vertical interval ancillary data packets	Extracted at input and stored on an ancillary data track. Upon playout, the data packets are inserted into the video stream on specified lines. Maximum 8 packets per field.
	Ancillary timecode	For record, selectable to use VITC or LTC ancillary timecode as timecode source. For playout, selectable to insert recorded timecode track as ancillary data VITC or LTC timecode packets. If the recorded timecode track is inserted as VITC ancillary timecode and VITC ancillary timecode packets are already stored on the data track, then the recorded timecode track overrides the stored VITC ancillary timecode packets. If the recorded timecode track is inserted as LTC ancillary timecode and LTC ancillary timecode packets are already stored on the data track, then the recorded timecode track overrides the stored LTC ancillary timecode packets.

Data track support on K2 Summit Production Client HD channels

On K2 Summit Production Client channels with the XDP (HD) license, the data track can contain ancillary data and other types of data. Luma ancillary data packets are stored. Chroma ancillary data packets are not supported.

Video format	Data	Supported as follows:
DVCPRO100	Ancillary timecode	For record, selectable to use VITC or LTC ancillary timecode as timecode source. For playout, selectable to insert recorded timecode track as ancillary data VITC or LTC timecode packets. If the recorded timecode track is inserted as VITC ancillary timecode and VITC ancillary timecode packets are already stored on the data track, then the recorded timecode track overrides the stored VITC ancillary timecode packets. If the recorded timecode track is inserted as LTC ancillary timecode and LTC ancillary timecode packets are already stored on the data track, then the recorded timecode track overrides the stored LTC ancillary timecode packets.

Subtitling system support

An API is provided for access to subtitling data, allowing Closed Captioning and Teletext systems to produce timecode correlated subtitles for an existing K2 clip.

Data bridging of VBI information on K2 Media Client HD-00 models

Data is bridged as follows:

Source format	Source data	Conversion ➝	Converted format	Converted data
SD 525 line	Closed-captioning (CC) on line 21 (EIA-608) can be stored as UserData CC packets[a] or UserData VBI Line21 (Uncompressed VBI Line21)	Up-convert	HD	Ancillary Closed Caption EIA-708-B packets
	EIA-708	Up-convert	HD	EIA-708
SD 625 line	Teletext (except as below)	No up-conversion to HD		
	5 lines of VBI Teletext in OP-47 packets	Up-convert	HD	OP-47 ancillary data packet in SD data track file. SD Teletext is in ancillary data location as specified in OP-47 packet.
SD 625 line 525 line	Ancillary data	Up-convert	HD	Moved to valid lines
HD	EIA-708 & 608 Ancillary data packets	Down-convert	SD	Closed-captioning on line 21 (EIA-608 standard).
HD	Teletext as OP-47 packets	Down-convert	SD	Output as VBI waveforms on lines specified in OP-47 packet.
HD 1080i	Ancillary data	Cross-convert	HD 720p	Moved to valid lines.
HD 720p	Ancillary data	Cross-convert	HD 1080i	Moved to valid lines. Any data on lines 21-25 is moved to line 20 on 1080i output.

[a] UserData CC packets always on. If CC exists, it is recorded and played back.

Data compatibility between K2 Media Client and PVS models

When material is transferred between a PVS Profile XP Media Platform and a K2 Media Client, data is supported as follows:

Source device	Source format	Source data	Destination device	Data support: SD Playout	Data support: HD Playout
PVS	SD MPEG-2	Any supported on PVS	SD-00 K2 Media Client	All supported	NA
		Luma VBI from MPEG user data	SDA-00 K2 Media Client	Yes	NA
		Uncompressed VBI	HD-00 K2 Media Client	Yes	Yes, with data bridging for CC only. Other VBI lines are discarded.
		Closed captioning	HD-00 K2 Media Client	Yes	Yes. Ancillary data packets
		Compressed VBI	HD-00 K2 Media Client	No	No
		Ancillary data	HD-00 K2 Media Client	Yes	Yes
	HD MPEG-2	Ancillary data	HD-00 K2 Media Client	Yes	Yes
SDA-00 K2 Media Client	SD MPEG-2	NA	PVS	No	No
SD-00 K2 Media Client	SD MPEG-2	Recorded on K2 Media Client with Profile compatible setting.[a]	PVS	All supported	NA
		Uncompressed VBI and captioning on data track	PVS	Not supported. Do not attempt to transfer to PVS.	
HD-00 K2 Media Client	SD MPEG-2	Compressed VBI	PVS	Yes	No
		Uncompressed VBI	PVS	Yes	No, except for bridging of CC data, which requires Profile software v5.4.9.
		Closed captioning	PVS	No	No
		Uncompressed VBI and captioning on data track	PVS	Not supported. Do not attempt to transfer to PVS.	
	HD MPEG-2	Ancillary data	PVS	Yes. CC bridging requires data-bridging SDI board.	Yes.

[a]   When Record ancillary data = No or when Record Uncompressed VBI and captioning data to track = No

Data compatibility between K2 Summit Production Client and PVS models

When material is transferred between a PVS Profile XP Media Platform and a K2 Summit Production Client, data is supported as follows:

Source device	Source format	Source data	Destination device	Data support: SD Playout	Data support: HD Playout
PVS	DVCPRO25, DVCPRO50	Closed captioning	K2 Summit Client	Yes	No
		Ancillary data	K2 Summit Client	No	No
	DVCPRO50	Compressed VBI	K2 Summit Client	Yes	No
K2 Summit Client	DVCPRO25, DVCPRO50	Any supported on K2 Summit Client	PVS	Yes	NA
	DVCPRO100	Any supported on K2 Summit Client	PVS	NA	NA

Internationalization

When you enable internationalization on a K2 client, you can name your media assets in a local language. The K2 client supports the local language name as specified in the following table:

System	Internationalization support
Media database	• All external views of movie assets can be represented as wide-file names • AppCenter runs in Unicode • Only movie assets and searchable User Data keys are Unicode.
Media file system	• Support for Kanji and wide-character file and folder names. • File-folder representation of movie are internationalized, as well as the QuickTime reference file it contains. • Key names (V:\PDR) remain unchanged, but are Unicode. • Elementary streams remain as GUIDs, but are Unicode.
K2 Media Client applications	• Movie assets are described in Unicode. • Application user interfaces are Unicode compliant.
Protocols	Refer to Appendix A, Remote control protocols, in the K2 Media Client System Guide.
FTP transfers	Refer to "FTP internationalization" in the K2 Media Client System Guide.

Video network performance

K2 systems support streaming transfers to and from K2 Summit Production Clients, K2 Media Clients, K2 SANs, M-Series iVDRs, Profile XP Media Platforms, or any device that supports General Exchange Format (GXF) as described in SMPTE 360M.

Parameter	Specification	Comments
Transfer bandwidth per internal storage K2 client	Up to 50 MBytes per second	—
Transfer bandwidth per Level 2 K2 Storage	50 MBytes per second	—
Transfer bandwidth per Level 3 K2 Storage	80 MBytes per second	Additional K2 Media Servers dedicated as FTP servers add 80 MBytes per second each
Maximum concurrent transfers per transfer engine	4 to 10, configurable	Additional transfers are queued.
Minimum delay from start of record to start of transfer	20 seconds	This applies to both 60Hz timing and 50Hz timing.
Minimum delay between start of transfer into destination and start of play on destination	20 seconds.	—

Supported file input/output formats on K2 Media Client and K2 SAN

The K2 Media Client and K2 SAN can send and receive files of various formats using import, export, and transfer mechanisms. Formats supported are as follows:

Streaming file format	Video elementary format	Audio elementary format	File based[a] Import	File based[a] Export	FTP stream Import	FTP stream Export	Other information
GXF[b]	DV25/50 DVCAM MPEG-2[c]	48 kHz, 16 bit, or 24 bit PCM, Dolby-E, or AC-3	Yes	Yes	Yes	Yes	Streaming between online K2 Systems supports complex movies and agile playlists of mixed format. See "Transfer compatibility with K2 Media Client" on page 284.
MXF	DV25/50 DVCAM D10[d] MPEG-2	48 kHz, 16 bit, or 24 bit PCM, Dolby-E, or AC-3	Yes	Yes	Yes	Yes	MXF OP 1A. Standard Definition and High Definition supported. Supports XDCAM-HD transfer. See "MXF export behavior on K2 Media Client" on page 281.
AVI[e]	DV25 DV50 DVCAM	48 kHz, 16 bit, or 24 bit PCM	Yes	Yes	No	No	Type-2 (non-interleaved) DV video only. Audio tracks handled as stereo pairs.
QuickTime[e]	DV25 DV50 DVCAM	48 kHz, 16 bit, or 24 bit PCM	Yes	Yes	No	No	Audio tracks handled as stereo pairs
	D10/IMX XDCAM-HD XDCAM-EX XDCAM-422 HDV	48 kHz, 16 bit, or 24 bit PCM	Yes	No	No	No	Audio tracks handled as stereo or mono audio channels
MPEG	MPEG-2	48kHz MPEG-1 (layer 1 & 2) SMPTE 302M AES3 LPCM AC-3 DVD/VOB LPCM DVD/VOB AC-3	Yes	No	Yes	No	Supports import of MPEG-2 program and transport streams. If the transport stream contains multiple programs, the first detected program in the transport stream is imported as a K2 clip.
WAV audio	NA	48 kHz 16 bit stereo PCM	Yes	No	No	No	Audio tracks handled as stereo pairs

[a] Based on a file that is visible from the operating system. For example, AppCenter import/export features are file based.

[b] GXF supports all formats that can be stored on a K2 system.

c Includes all MPEG-2 formats (IMX, XDCAM, etc.) that can be stored on a K2 system.

d A D10 MXF stream is handled as an eVTR style D10AES3 stream. Uncompressed audio only. Maximum 8 channels audio. If you want to export clips with more than 8 audio tracks, export as GXF

e K2 software version 3.2.7 or higher required to export as AVI or MOV with SD data track.

Supported file input/output formats on K2 Summit Production Client and SAN

The K2 Summit Production Client and K2 SAN can send and receive files of various formats using import, export, and transfer mechanisms. Formats supported are as follows:

Streaming file format	Video elementary format	Audio elementary format	File based[a]		FTP stream		Other information
			Import	Export	Import	Export	
GXF	DVCPRO25 DVCPRO50 DVCPRO100 DVCAM	48 kHz, 16 bit, or 24 bit PCM, Dolby-E, or AC-3	Yes	Yes	Yes	Yes	Streaming between online K2 Systems supports complex movies and agile playlists of mixed format. See "Transfer compatibility with K2 Summit Production Client" on page 285.
MXF	DVCPRO25 DVCPRO50 DVCPRO100 DVCAM	48 kHz, 16 bit, or 24 bit PCM, Dolby-E, or AC-3	Yes	Yes	Yes	Yes	MXF OP 1A. Standard Definition and High Definition supported.
AVI	DVCPRO25 DVCPRO50 DVCPRO100 DVCAM	48 kHz, 16 bit, or 24 bit PCM	Yes	Yes	No	No	Type-2 (non-interleaved) DV video only. Audio tracks handled as stereo pairs.
QuickTime	DVCPRO25 DVCPRO50 DVCPRO100 DVCAM	48 kHz, 16 bit, or 24 bit PCM	Yes	Yes	No	No	Audio tracks handled as stereo pairs on export
WAV audio	NA	48 kHz 16 bit stereo PCM	Yes	No	No	No	Audio tracks handled as stereo pairs

a Based on a file that is visible from the operating system. For example, AppCenter import/export features are file based.

MXF export behavior on K2 Media Client

The following sections specify how a K2 Media Client handles file formats when they are exported as MXF.

XDCAM (SD and HD): Behavior on MXF export from K2 systems

Upon MXF export the K2 system checks media for XDCAM specifications as listed in the table below. If specifications match, the media is exported as the appropriate XDCAM format.

Format Designation	Compression Type	Sampling Format	Sampling Resolution	Recorded Video Bit Rate	Audio Format	# Audio Tracks	Audio Sample Resolution
XDCAM	DV	4:1:1 (525/60i)	720x486	25 Mbps	Uncompressed	4	16
XDCAM	DVCAM	4:2:0 (625/50i)	720x576	25 Mbps	Uncompressed	4	16
XDCAM	D10 (MPEG-2 4:2:2 MP@ML)	4:2:2 (525/60i)	720x486	50/40/30 Mbps	Uncompressed	2/4/8	16-24
XDCAM-HD	MPEG-2 MP@H-14	4:2:0	1440x1080	25/35Mbps CBR	Uncompressed	2/4	16
XDCAM-HD422	MPEG-2 422P@HL	4:2:2	1920x1080i or 1280x720p	50Mbps CBR	Uncompressed	8	24
XDCAM-EX	MPEG-2 MP@HL	4:2:0	1920x1080i or 1280x720p	35Mbps VBR	Uncompressed	2/4	16

The K2 Media Client allows you to alter clips so that they no longer match the standard XDCAM specifications. For example, you can add audio tracks to exceed the "# of Audio Tracks" specification. If you alter a XDCAM clip in this way, on MXF export the K2 system exports the clip but it is not XDCAM compatible.

Media file system performance on K2 Media Client and K2 SAN

Parameter	Internal Storage Specification	Shared Storage Specification
Maximum number of clips[a]	20,000	50,000
Minimum delay between start record and start playout when record and play is on the same K2 Media Client	10 seconds	20 seconds
Minimum delay between start record and start playout when record and play is on different K2 Media Clients	NA	20 seconds
Maximum length continuous record	24 hours	24 hours

[a] The maximum number of clips is based on clips with 16 or less audio tracks. Large quantities of clips with more than 16 audio tracks proportionally reduce the maximum number of clips.

Media file system performance on K2 Summit Production Client and SAN

NOTE: For performance specifications on Live Play, see "Live Play mode specifications"

Parameter	Internal Storage Specification	Shared Storage Specification
Maximum number of clips[a]	20,000	50,000
Minimum delay between start record and start playout when record and play is on the same K2 Summit Production Client.	6 seconds	6 seconds[b]
Minimum delay between start record and start playout when record and play is on different K2 Summit Production Clients	NA	8 seconds[b]
Maximum length continuous record	24 hours	24 hours

[a] The maximum number of clips is based on clips with 16 or less audio tracks. Large quantities of clips with more than 16 audio tracks proportionally reduce the maximum number of clips.

[b] Qualified at up to 48 channels. Performance with larger systems is not tested.

Live Play mode specifications

Live Play mode is available only on the K2 Summit Production Client with the AppCenter Pro license. When using Live Play mode, specifications are as follows:

Parameter	Internal Storage Specification	Shared Storage Specification
Minimum delay between start record and start playout when record and play is on the same K2 Summit Production Client.	Less than 0.5 seconds	Less than 0.5 seconds
Maximum length continuous record	24 hours	24 hours

Protocols supported

AMP, VCDP, and BVW protocols are supported. Refer to Appendix A, Remote control protocols in the *K2 System Guide* for more information.

Transfer compatibility with K2 Media Client

When transferring material between a K2 Media Client and other Grass Valley products, you must consider the specifications of the different products. The following table illustrates some of these considerations:

Source device	Destination device	Material transferred	Compatibility
K2 Media Client	Turbo iDDR	SD MPEG 4:2:0 long GoP clips up to 15 Mbps. HD MPEG 1920x1080 and 1280x720 4:2:0 long GoP clips up to 25 Mbps.	Playout supported.
		SD clips above 15 Mbps. HD clips above 25 Mbps. DV25, DVCPRO50, D10, XDCAM-HD, HDV formats.	Supported for storage only. Transfer is successful but playout not supported. Avoid transfer of clips with ancillary data. These clips include data that cannot be played or deleted.
K2 Media Client	Profile XP Media Platform	HD 4:2:0 80 Mb or less SD 4:2:2, XDCAM-HD422, XDCAM-EX	Supported. Can be played out.
		720p/50 HD 4:2:2 XDCAM-HD HDV 1440x1080	Supported for storage only. Transfer is successful but playout not supported.
K2 Media Client	M-Series iVDR	DVCPRO25, DVCPRO50, and MPEG I-frame	Playout supported
		1080i	Not supported.
K2 Media Client	K2 Summit Client	DVCPRO25, DVCRPRO50, DVCAM	Playout supported
		MPEG	Not supported.
Turbo iDDR	K2 Media Client	All types of material supported, according to the SD and/or HD capability of the model. For example, ancillary data in SD not supported.	
Profile XP Media Platform	K2 Media Client		
M-Series iVDR	K2 Media Client		
K2 Summit Client	K2 Media Client	DVCPRO25, DVCPRO50, DVCAM	Supported
		DVCPRO100	Not supported

Transfer of media with mixed format might not be supported between a K2 system and a non-K2 system, depending on system software versions. Refer to the release notes for the software version.

Transfer compatibility with K2 Summit Production Client

When transferring material between a K2 Summit Production Client and other Grass Valley products, you must consider the specifications of the different products. The following table illustrates some of these considerations:

Source device	Destination device	Material transferred	Compatibility
K2 Summit Production Client	K2 Media Client, Turbo iDDR, M-Series iVDR, Profile XP Media Platform	DVCPRO25, DVCPRO50	Playout supported.
		DVCPRO100	Not supported
K2 Media Client, Turbo iDDR, M-Series iVDR, Profile XP Media Platform	K2 Summit Production Client	DVCPRO25, DVCPRO50	Playout supported.
		MPEG	Not supported

Control Point PC system requirements

If you are building your own Control Point PC, the machine you chose must meet the following requirements. These requirements assume that the PC is dedicated to its function as the control point for the K2 system and that no other applications run on the PC that could interfere with system performance.

Control Point PC system requirements are as follows:

Requirements	Comments
Operating System	Microsoft Windows (Must be a U.S. version): XP Professional Service Pack 2, Server 2003, or Vista Enterprise Service Pack 1.
RAM	Minimum 512 MB, 1 GB recommended
Graphics acceleration	Must have at least 128 MB memory
Processor	Pentium 4 or higher class, 2 GHz or greater
Hard disk space	400 MB
Microsoft .NET Framework	Version 1.1, Version 1.1 hotfix, Version 3.5 SP1
Sun Java 2 Runtime Environment	Version 1.5.0_11, Version 1.6.0 or higher Required for the HP Ethernet Switch configuration interface, which is used for K2 SAN (shared storage).
XML	Microsoft XML 4 Service Pack 2 is required. You can install it from the *msxml4sp2* file on the K2 System Software CD.
Quicktime	Version 7 or higher
Acrobat Reader	Version 8 or higher

Find software at Internet locations such as the following:

- http://msdn.microsoft.com/en-us/netframework/default.aspx

- http://java.sun.com/javase/downloads/index.jsp

- http://www.microsoft.com/downloads/details.aspx?FamilyId=3144B72B-B4F2-46DA-B4B6-C5D7485F2B42&displaylang=en

- http://www.apple.com/quicktime/download/

- http://get.adobe.com/reader/

To fix the screen resolution problem seen with NetCentral on the Grass Valley Control Point PC, do the following:

1. Go to Display properties (right mouse selection of properties on the display area)

2. Select Settings tab

3. Select the Advanced button

4. In the General tab, set the DPI setting to Normal size (96 DPI)

5. Restart the PC

MIB specifications

This section specifies Management Information Base (MIB) information for monitoring K2 devices with the Simple Network Management Protocol (SNMP). This information is intended for SNMP developers. MIB files can be obtained from the Grass Valley Developers website.

In addition to the MIBs specified in this section, a K2 device might support other MIBs based on third party software/hardware. To determine whether other MIBs are supported by the operating system or independent hardware/software vendors, perform a "MIB walk" operation on the K2 device using conventional SNMP utilities and determine MIBs supported.

MIBs specified in this section are as follows:

- "K2 client MIBs"

- "K2 Media Server MIBs"

- "K2 Appliance (Generic Windows computer based) MIBs"

K2 client MIBs

Grass Valley MIBs

MIB	Description
gvg-reg.mi2 (GVG-REG)	Grass Valley SMI enterprise namespace
gvg-element.mi2 (GVG-ELEMENT-MIB)	Common object definitions for a Grass Valley device. - Generic device tracking information - SNMP trap target configuration - Generic IO/signal status information
gvg-prod.mi2 (GVG-PROD-REG)	Product sysObjectOID registrations for the Grass Valley devices
gvg-drs.mi2 (GVG-DRS-MIB)	Video disk recorder/server status information
gvg-tcm.mi2 (GVG-TCM-MIB)	Media transfer (import/export) statistical information
gvg-manclient.mi2 (GVG-MANCLIENT-MIB)	SAN client status information. Available only when the K2 client is connected to a SAN.

Other MIBs

MIB	Description
RFC1213-MIB.mib (RFC1213-MIB)	MIB-2 support as implemented by Microsoft for the Windows operating system.
hostmib.mib (HOST-RESOURCES-MIB)	Generic system information as implemented by Microsoft for the Windows operating system
lmmib2.mib (LanMgr-Mib-II-MIB)	Generic Windows networking, user account and service information as implemented by Microsoft for the Windows operating system
SUPERMICRO-SMI.my (SUPERMICRO-SMI)	Motherboard electromechanical sensor information (motherboard temperature hotspots, CPU fan, voltages, etc.)
SUPERMICRO-HEALTH-MIB.my (SUPERMICRO-HEALTH-MIB)	
MEGARAID.mib (RAID-Adapter-MIB)	Internal RAID-1 SCSI drive and controller information

K2 Media Server MIBs

Grass Valley MIBs

MIB	Description
gvg-reg.mi2 (GVG-REG)	Grass Valley SMI enterprise namespace
gvg-element.mi2 (GVG-ELEMENT-MIB)	Common object definitions for a Grass Valley device. - Generic device tracking information - SNMP trap target configuration
gvg-prod.mi2 (GVG-PROD-REG)	Product sysObjectOID registrations for the Grass Valley devices
gvg-ssr.mi2 (GVG-SSR-MIB)	K2 Storage roles configured for the server by the K2 System Configuration application and their status information
gvg-sbs.mi2 (GVG-SBS-MIB)	K2 iSCSI Bridge and TOE (TCP Offload Engine) related status information. Available only if the K2 Media Server has the iSCSI Bridge role.
gvg-manfsm.mi2 (GVG-MANFSM-MIB)	Video File System and Clip Database (FSM) related status information. Available only if the K2 Media Server has role(s) of media file system server and/or database server.
gvg-tcm.mi2 (GVG-TCM-MIB)	Media transfer (import/export) statistical information. Available only if the K2 Media Server is configured to be a transfer/FTP/hotbins server.
gvg-manclient.mi2 (GVG-MANCLIENT-MIB)	SAN client status information. Available only when the K2 Media Server is a media system and/or database client. For example, if the K2 Media Server has the role of FTP server only, then it must be a media file system/database client to another K2 Media Server that is the media file system/database server.

Other MIBs

MIB	Description
RFC1213-MIB.mib (RFC1213-MIB)	MIB-2 support as implemented by Microsoft for the Windows operating system.
hostmib.mib (HOST-RESOURCES-MIB)	Generic system information as implemented by Microsoft for the Windows operating system
lmmib2.mib (LanMgr-Mib-II-MIB)	Generic Windows networking, user account and service information as implemented by Microsoft for the Windows operating system
mssql.mib (MSSQLSERVER-MIB)	Microsoft SQL Server information
10892.mib (MIB-Dell-10892)	Dell PowerEdge chassis related electro-mechanical status information
arymgr.mib (ArrayManager-MIB)	Dell RAID1 system disk (PERC) and controller information

K2 Appliance (Generic Windows computer based) MIBs

For details on the hardware/chassis running the K2 Appliance, check the chassis vendor's MIBs.

Grass Valley MIBs

MIB	Description
gvg-reg.mi2 (GVG-REG)	Grass Valley SMI enterprise namespace
gvg-element.mi2 (GVG-ELEMENT-MIB)	Common object definitions for a Grass Valley device. - Generic device tracking information - SNMP trap target configuration
gvg-prod.mi2 (GVG-PROD-REG)	Product sysObjectOID registrations for the Grass Valley devices
gvg-ssr.mi2 (GVG-SSR-MIB)	K2 Storage roles configured for the server by the K2 System Configuration application and their status information
gvg-tcm.mi2 (GVG-TCM-MIB)	Media transfer (import/export) statistical information. Available only if the K2 Media Server is configured to be a transfer/FTP/hotbins server.
gvg-manclient.mi2 (GVG-MANCLIENT-MIB)	SAN client status information. Available only when the K2 appliance is a media system and/or database client.

Other MIBs

MIB	Description
RFC1213-MIB.mib (RFC1213-MIB)	MIB-2 support as implemented by Microsoft for the Windows operating system.
hostmib.mib (HOST-RESOURCES-MIB)	Generic system information as implemented by Microsoft for the Windows operating system
lmmib2.mib (LanMgr-Mib-II-MIB)	Generic Windows networking, user account and service information as implemented by Microsoft for the Windows operating system

Appendix B   Specifications

Glossary

Ancillary Data

Digital data carried in the non-active video regions of a serial digital interface (SDI) stream as defined by SMPTE 291M.

AppCenter

An application framework that runs on a K2 Media Client. AppCenter provides a single interface to control channels and channel suites to record, play, or manage media assets such as clips and playlists.

Assignable Buttons

Buttons that can be assigned to different functions than their current ones. You can change the order that buttons appear in some button groups to better suit your workflow. Clicking and holding on a button causes a pop-up menu to appear that lists the alternative button choices for the button.

Bin

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.

Channel

A set of resources that together have the ability to record or play media. Also used to refer to an audio input or output track, as used in SMPTE 272M.

Channel Application

An application in a setting in an AppCenter channel that designates the channel to perform a specific task such as recording or playing. When AppCenter starts, each channel comes up in an application.

Channel Pane

Displays each channel in its current mode. Only one channel can be selected at a time. The currently selected channel is displayed with transport controls, View tabs, and a white background.

Channel Suite

A collection of up to 16 channels. Channels can be accessed through channel suites. Channel suites allow you to customize the channels to run particular applications or save the clips to specific locations.

CIFS

CIFS (Common Internet File System) protocol permits client access to assets through a common file-sharing method that provides the ability to remotely browse shared folders and to read, write, edit, copy, delete and update files. CIFS access is appropriate for applications that don't require real-time response to file access or for applications that don't require the movement of large volumes of media.

Clip Thumbnail

Used for visual identification of a clip. By default, the thumbnail is generated from the 16th frame of video. You can select a new thumbnail using Player. If no thumbnail is available, an icon is displayed showing there is no thumbnail.

Clips Pane

Displays media stored on the K2 system and provides controls for media management.

Configuration Manager

A tool in K2 Media Client that configures system settings.

Control Point PC

The software application used to run AppCenter on a K2 Media Client from a network-connected PC.

Crash Record Mode

A mode that occurs when you start recording without specifying a clip name. The clip is given a default name.

Cross Conversion

Conversion between two video formats of the same definition (SD or HD). Primarily used when converting from 1080i to 720p and vice versa.

direct-connect storage

K2 Media Client models access their own external media storage drives that are contained in a Lx0 RAID chassis. Referred to as stand-alone systems. *See* internal storage, shared storage.

Down Conversion

Conversion of an HD (high definition) video format to an SD (standard definition) video format.

Drop Frame

Drop frame is a timecode adjustment that applies to NTSC video only. Due to the framerate of NTSC, a system that normally outputs 30 frames per second must adjust timecode by subtracting two frames every minute except every tenth minute to achieve the effective framerate.

Drop Frame Timecode

Drop-frame time code yields precise running times, but frames are not all numbered sequentially. A frame number must be dropped periodically to keep the clock right. In non-drop time code, all frames are numbered sequentially, but the ending time code of a program does not accurately give the program's length.

Ethernet

A local area network used with some remote protocol applications; it operates over twisted wire and over coaxial cable.

Fibre Channel

A general set of integrated standards developed by ANSI for flexible information transfer over multiple physical interface types.

FTP

File Transfer Protocol is a common IT protocol for the bulk movement or transfer of large volumes of data. K2 Media Servers can handle multiple FTP transfers simultaneously at faster than real-time speeds.

GPI

General Purpose Interface. GPI triggers are physical connections between two pieces of equipment. Typically GPI triggers are based on a change of state on a monitored pin of the serial port. For instance you could create a GPI trigger that was operated by a port on a piece of broadcast equipment.

HD

High Definition video.

internal storage

K2 Media Client models with internal storage access their own internal media storage drives. Referred to as a stand-alone system. *See* also direct-connect storage, shared storage.

iSCSI

Internet SCSI (small computer storage interface) is a storage access protocol that can use a transport layer such as Gigabit Ethernet rather than be restricted to the short distances determined by computer hardware buses. K2 Media Servers use iSCSI for clients that need to deliver media assets with real-time performance. The tuning and optimizing done by Grass Valley permits the use of iSCSI to deliver unparalleled, high-throughput, and deterministic performance.

K2 Media Client

A Broadcast Enterprise Server that incorporates IT server platform and storage technologies. The K2 Media Client can be used with internal, direct-connect, or shared storage.

Meter Bar

Contains the audio record level controls and signal meters for a channel in AppCenter.

Monitor Pane

Displays the current information for the channel. Displays a thumbnail of the clip currently loaded in the channel and indicates the current application for the channel. Contains a drop down menu for changing the channel's application. For the currently selected channel, the monitor pane is larger and has a white background.

Non-Drop Frame Timecode

In non-drop frame timecode, all frames are numbered sequentially, but the ending timecode of a program does not accurately give the program's length. Drop frame timecode yields precise running times, but frames are not all numbered sequentially. A frame number must be dropped periodically to keep the clock right.

Pane

A viewing area in a primary window that contains one or more controls. The AppCenter interface is divided into three panes, which are used to display the channel monitors, control applications, and manage clips. To activate a pane, click on it. Only one pane is active at a time.

Program

A clip generated from a playlist. 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.

Protocol

A convention for data transmission that defines timing, control, format, and data transmission.

RS-422

A standard interface, 9-pin serial port connector used with some remote protocol applications; it supports multipoint connections.

SD

Standard Definition video.

shared storage

K2 Media Client models with shared storage access RAID protected media storage drives that are part of a K2 Storage System (SAN). The K2 Storage System incorporates one or more RAID chassis, such as K2 Lx0 RAID. *See* also direct-connect storage, internal storage.

Status Bar

Displays status and error messages.

Subclip

A clip created by referencing a portion of media from another clip.

Timecode Striping

Striping a timecode allows you to overwrite the existing timecode track for a loaded clip.

Time Dome

A multi-function indicator that displays either record progress only, or available storage and record progress. It also indicates when the record channel is in Loop Record mode.

Transfer Monitor

A tool in AppCenter that monitors media transfers and file imports and exports.

Up Conversion

Conversion of an SD (standard definition) video format to an HD (high definition) video format.

Volume

The set of media drives that functions as a single physical disk in the K2 Media Client. The K2 system uses 'V:' for the volume name.

Widescreen Mode

An aspect ratio of 16:9, as opposed to an aspect ratio of 4:3.

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