grass valley

K2 AppCenter

Application Software

User Manual

Software version 9

www.grassvalley.com

071-8723-04
October 2012

CERTIFICATE

Certificate Number: 510040.001

The Quality System of:

Grass Valley USA, LLC and its Grass Valley Affiliates

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Including its implementation, meets the requirements of the standard:

ISO 9001:2008

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

This Certificate is valid until: June 14, 2015
This Certificate is valid as of: June 14, 2012
Certified for the first time: June 14, 2000

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Grass Valley Web Site

The http://www.grassvalley.com/support web site offers the following:

Online User Documentation — Current versions of product catalogs, brochures, data sheets, ordering guides, planning guides, manuals, and release notes in .pdf format can be downloaded.

FAQ Database — Solutions to problems and troubleshooting efforts can be found by searching our Frequently Asked Questions (FAQ) database.

Software Downloads — Download software updates, drivers, and patches.

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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, and ask to be connected to the EH&S Department. Additional information concerning the program can be found at: www.grassvalley.com/about/environmental-policy

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Contents

Preface

About this document

This user manual describes the K2™ AppCenter user interface, which is supported on the first generation K2 Summit™ Production Client, K2 Summit™ Transmission Client/Server models, the K2 Summit™ 3G Production Client, first generation K2 Solo™ Media Server, and the K2 Solo™ 3G Media Server. The manual contains complete information for these K2 Summit/Solo models and options, including ChannFlex™ Suite. Refer to the sections that apply to your particular model and options.

For more information

The following sections help you find the information you need in product manuals and elsewhere.

For the installer of a standalone K2 product with internal storage

If you are installing a K2 system, such as a K2 Summit/Solo system, with standalone internal storage, refer to documentation in the following sequence:

	Find this document…	In these locations…	In these formats:
1	K2 Release Notes	Grass Valley Website	PDF file
2	Quick Start Guide for the K2 product	K2 product shipping box	Printed
		K2 Documentation Set	PDF file
		Grass Valley Website	PDF file
3	K2 System Guide	K2 Documentation Set	PDF file
		Grass Valley Website	PDF file

For the installer of a K2 product with direct connect storage

If you are installing a standalone K2 system, such as a K2 Summit system, with direct connect external RAID storage, refer to documentation in the following sequence:

	Find this document…	In these locations…	In these formats:
1	K2 Release Notes	Grass Valley Website	PDF file
2	K2 Storage Cabling Guide	K2 RAID shipping box	Printed
		K2 Documentation Set	PDF file
		Grass Valley Website	PDF file

	Find this document…	In these locations…	In these formats:
3	Quick Start Guide for the K2 product	K2 product shipping box	Printed
		K2 Documentation Set	PDF file
		Grass Valley Website	PDF file
4	K2 System Guide	K2 Documentation Set	PDF file
		Grass Valley Website	PDF file

For the installer of K2 Summit systems with K2 SAN shared storage

If you are installing a K2 SAN with connected K2 Summit systems, refer to documentation in the following sequence:

	Find this document…	In these locations…	In these formats:
1	K2 Release Notes	Grass Valley Website	PDF file
2	K2 Storage Cabling Guide	K2 RAID shipping box	Printed
		K2 Documentation Set	PDF file
		Grass Valley Website	PDF file
3	Quick Start Guide for the K2 product	K2 product shipping box	Printed
		K2 Documentation Set	PDF file
		Grass Valley Website	PDF file
4	K2 SAN Installation and Service Manual	K2 Documentation Set	PDF file
		Grass Valley Website	PDF file
5	K2 System Guide	K2 Documentation Set	PDF file
		Grass Valley Website	PDF file

K2 Release Notes

Contains the latest information about the software shipped on your system, including software upgrade instructions, software specifications and requirements, feature changes from the previous releases, and any known problems. You should always check the Grass Valley Website to determine if there is an updated version of release notes available.

Quick Start Guides

The Quick Start Guide is a printed document, shipped in the product packaging with K2 Summit/Solo systems and K2 Dyno Replay Controllers. The Quick Start Guide provides step-by-step installation instructions for basic installation and operation of the product.

K2 Storage Cabling Guide

The K2 Storage Cabling Guide is a printed document, shipped in the product packaging with the primary RAID storage chassis. The cabling guide provides instructions for K2 Storage Area Network (SAN) cabling and external configuration. The cabling guide provides instructions for each level of K2 SAN and covers both redundant and basic (non-redundant) systems. It also provides instructions for connecting direct-connect external RAID storage to K2 Summit systems.

K2 Documentation Set

Except for the release notes, the full set of support documentation, including this manual, is available in the K2 or K2/STRATUS Documentation Set. You can find the Documentation Set on the Grass Valley website. The following URL allows you to browse by K2 software version:

http://www.grassvalley.com/dl/k2_summit

You can also find the Documentation Set on the USB Recovery Flash drive that ships with your K2 Summit/Solo system.

The Documentation Set includes the following K2 product documents:

K2 AppCenter User Manual	Provides instructions for configuring and operating the media channels of product.
Quick Start Guides	The Quick Start Guide provides step-by-step installation instructions for basic installation and operation of the product.
K2 System Guide	Contains the product specifications and instructions for modifying system settings.
K2 Service Manuals	Contains information on servicing and maintaining the K2 product.
K2 SAN Installation and Service Manual	Contains installation, configuration, and maintenance procedures for shared storage options.
K2 Storage Cabling Guide	The cabling guide provides instructions for K2 Storage Area Network (SAN) cabling and external configuration. The cabling guide provides instructions for each level of K2 SAN and covers both redundant and basic (non-redundant) systems. It also provides instructions for connecting direct-connect external RAID storage to K2 Summit systems.
Fibre Channel Switch Installation Manual	Contains information on configuring and servicing the Fibre Channel switch.

On-line Help Systems

You can find documentation online with products as follows:

K2 AppCenter Help	Contains information on using K2 AppCenter. In the AppCenter user interface menu bar select **Help**, then choose **AppCenter Help Topics** from the drop-down menu.

SiteConfig Help	Contains information on using SiteConfig. In the SiteConfig user interface menu bar select **Help**, then choose **SiteConfig Help Topics** from the drop-down menu.

K2 FCP Connect documentation

The K2 FCP Connect product has its own documentation set, described as follows:

GV Connect User Manual	Provides instructions for using GV Connect, which is a Final Cut Pro plugin, to access and work with K2 assets. GV Connect is part of the K2 FCP Connect product.
GV Browse User Manual	Provides instructions for using GV Browse, which is a Final Cut Pro plugin, to access and work with assets on a MediaFrame server in an Aurora Browse system. GV Connect is part of the K2 FCP Connect product.
K2 FCP Connect Installation Manual	Provides detailed instructions to install and configure the K2 FCP Connect product.
K2 FCP Connect Release Notes	Contains the latest information about the K2 FCP Connect product, including software upgrade instructions, software specifications and requirements, feature changes from the previous releases, and any known problems. You should always check the Grass Valley Website to determine if there is an updated version of release notes available.

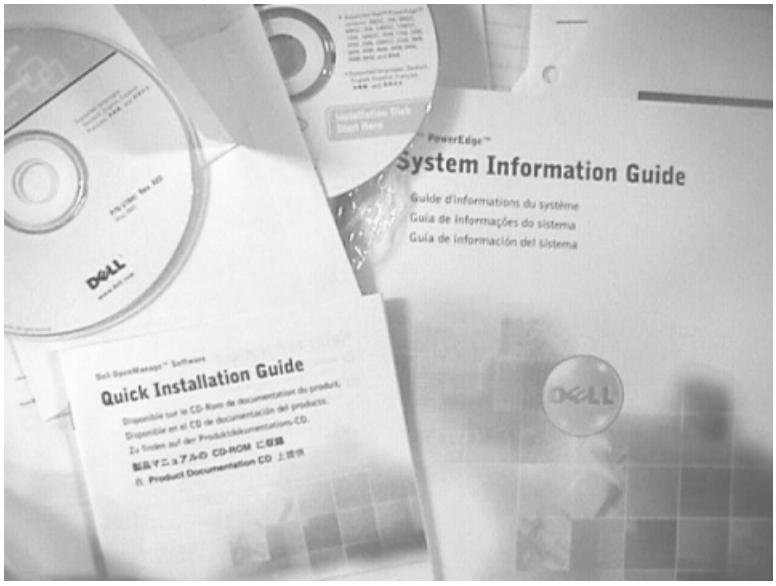
Grass Valley Website

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

http://www.grassvalley.com

Dell Server Documentation

If your system includes a Grass Valley product on a Dell server platform, refer to the applicable Grass Valley product manual for installation and configuration information. However, a full set of Dell server documentation has been provided on the *Dell Product Documentation* CD-ROM. Refer to the documents on this CD-ROM only as required by procedures in Grass Valley product manual.



Information referenced on the *Dell Product Documentation* CD-ROM includes, but is not limited to:

- Unpacking and rack-mounting
- Important safety and regulatory information
- Status indicators, messages, and error codes
- Troubleshooting help

⚠ ***CAUTION: Do not use the Dell Quick Installation Guide provided with the Dell CD-ROM package. This guide includes instructions for using the OpenManage software CD-ROM to install an operating system, which is not necessary on the Grass Valley product.***

Chapter 1

Product description

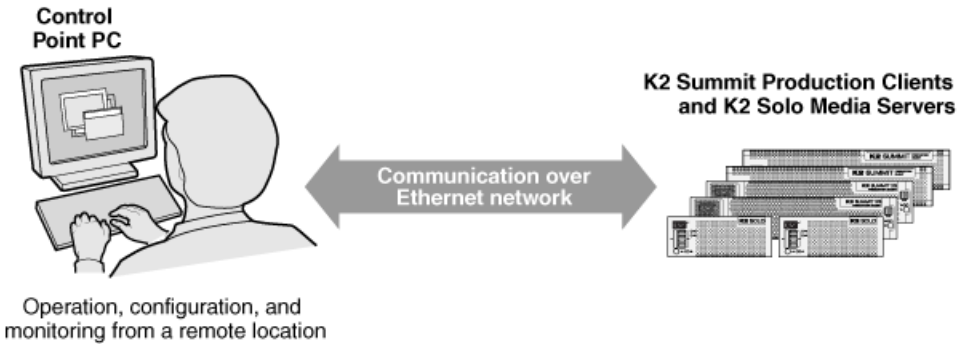
This section contains the following topics:

Product Description

Topics in this section describe Grass Valley products.

About K2 systems

The K2 Summit/Solo system is a cost-effective Broadcast Enterprise Server that incorporates IT server platform and storage technologies to deliver a networked solution to facilities for ingest, playout, news integration, sports, and media asset management. Each K2 system model is a comprehensive platform that provides a suite of user applications, system tools, and the largest range of third-party interactivity in the industry.



The K2 Summit/Solo system is designed for "headless" operation from a remote control point using Grass Valley Control Point software. You can also use the Microsoft Windows Remote Desktop Connection application on your PC to connect to the K2 system for configuration or administration.

The K2 Summit/Solo system is further described in the following topics. Also refer to topics on Transmission models for information unique to those products.

K2 Summit 3G system features

The following features apply to the K2 Summit 3G Production Client:

- Windows 7 64-bit embedded operating system
- Embedded Security Solution for protection against viruses and other unauthorized programs.
- Bidirectional channels (channel can be either an input channel or it can be an output channel)
- Two or four channels per chassis
- SDI video inputs and outputs
- AES/EBU or embedded audio inputs and outputs.
- Standard Definition (SD) video formats and High Definition (HD) video formats
- AVCHD and H.264 play output (decode) as an option.
- 3G codec module hosts codec option cards that are programmable for multiple formats and functions.
- Mixed format playback of SD or HD clips on the same timeline

- Up/down/cross HD/SD conversion (e.g. SD and HD clips ingested, then played back as SD or HD clips) or as a different SD or HD format (e.g. 720p to 1080i).
- VGA monitoring capability
- Redundant power supply, cooling fans for reliability
- 2.5 inch media storage drives
- mSATA SSD system drive
- 8 GB RAM on CPU module.
- USB 3.0 interface for file exchange
- Ability to create nested bins, i.e. sub-bins within bins
- Freeze mode can be frame or field
- Various video mix effects (e.g. dissolves between two video and audio tracks on the same channel, or fade thru matte color)
- Remote operation and configuration via AppCenter
- NetCentral™ provides remote error reporting and monitoring via SNMP (Optional for models using local storage only)
- Gigabit Ethernet
- AMP, VDCP, and BVW remote control protocols supported
- Remote control over RS-422 or Ethernet
- Super Slo-Mo, Multi-cam, and 3D/Video + Key features are available as part of the ChannelFlex Suite
- Low-resolution proxy files created during record and live streaming from SDI In/out are available as part of the AppCenter Pro and Elite licenses
- RAID media storage
- Stand-alone internal storage, stand-alone external direct-connect storage, and external shared (SAN) storage

K2 Summit system features

The following features apply to the first-generation K2 Summit Production Client:

- Bidirectional channels (channel can be either an input channel or it can be an output channel)
- Two or four channels per chassis
- SDI video inputs and outputs
- AES/EBU or embedded audio inputs and outputs.
- Standard Definition (SD) video formats and High Definition (HD) video formats
- Mixed format playback of SD or HD clips on the same timeline
- Up/down/cross HD/SD conversion (e.g. SD and HD clips ingested, then played back as SD or HD clips) or as a different SD or HD format (e.g. 720p to 1080i).
- VGA monitoring capability
- Redundant power supply, cooling fans for reliability
- 3.5 inch media storage drives
- System drive — compact flash protected by a file-based write filter
- Ability to create nested bins, i.e. sub-bins within bins
- Freeze mode can be frame or field

- Various video mix effects (e.g. dissolves between two video and audio tracks on the same channel, or fade thru matte color)
- Remote operation and configuration via AppCenter
- NetCentral™ provides remote error reporting and monitoring via SNMP (Optional for models using local storage only)
- Gigabit Ethernet
- AMP, VDCP, and BVW remote control protocols supported
- Remote control over RS-422 or Ethernet
- Super Slo-Mo, Multi-cam, and 3D/Video + Key features are available as part of the ChannelFlex Suite.
- Low-resolution proxy files created during record and live streaming from SDI In/out are available as part of the AppCenter Pro and Elite licenses. This requires the Type II carrier module.
- RAID media storage
- Stand-alone internal storage, stand-alone external direct-connect storage, and external shared (SAN) storage

K2 Solo 3G system features

The following features apply to the K2 Solo 3G Media Server:

- Windows 7 64-bit embedded operating system
- Embedded Security Solution for protection against viruses and other unauthorized programs.
- Bidirectional channels (channel can be either an input channel or it can be an output channel)
- Two channels per chassis
- SDI video inputs and outputs
- AES/EBU or embedded audio inputs and outputs.
- Standard Definition (SD) video formats and High Definition (HD) video formats
- AVCHD and H.264 play output (decode) as an option.
- 3G codec module. Codec option card not supported on K2 Solo system.
- Mixed format playback of SD or HD clips on the same timeline
- Up/down/cross HD/SD conversion (e.g. SD and HD clips ingested, then played back as SD or HD clips) or as a different SD or HD format (e.g. 720p to 1080i). Aspect ratios are adjusted.
- VGA monitoring capability
- Redundant power supply, cooling fans for reliability
- Compact Flash System drive
- 8 GB RAM on CPU module.
- USB 3.0 interface for file exchange
- Ability to create nested bins, i.e. sub-bins within bins
- Freeze mode can be frame or field
- Various video mix effects (e.g. dissolves between two video and audio tracks on the same channel, or fade thru matte color)
- Remote operation and configuration via AppCenter
- Gigabit Ethernet
- AMP, VDCP, and BVW remote control protocols supported
- Remote control over RS-422 or Ethernet

- ExpressCard
- Super Slo-Mo, Multi-cam, and 3D/Video + Key features are available as part of the ChannelFlex Suite.
- Low-resolution proxy files created during record and live streaming from SDI In/out are available as part of the AppCenter Pro and Elite licenses. This requires the Type II carrier module.
- RAID 0 internal media storage
- Support for Dyno S.

K2 Solo system features

The following features apply to the first-generation K2 Solo Media Server:

- Bidirectional channels (channel can be either an input channel or it can be an output channel)
- Two channels per chassis
- SDI video inputs and outputs
- AES/EBU or embedded audio inputs and outputs.
- Standard Definition (SD) video formats and High Definition (HD) video formats
- Mixed format playback of SD or HD clips on the same timeline
- Up/down/cross HD/SD conversion (e.g. SD and HD clips ingested, then played back as SD or HD clips) or as a different SD or HD format (e.g. 720p to 1080i). Aspect ratios are adjusted.
- VGA monitoring capability
- Redundant power supply, cooling fans for reliability
- System drive — compact flash protected by a file-based write filter
- Ability to create nested bins, i.e. sub-bins within bins
- Freeze mode can be frame or field
- Various video mix effects (e.g. dissolves between two video and audio tracks on the same channel, or fade thru matte color)
- Remote operation and configuration via AppCenter
- NetCentral™ provides remote error reporting and monitoring via SNMP (Optional for models using local storage only)
- Gigabit Ethernet
- AMP, VDCP, and BVW remote control protocols supported
- Remote control over RS-422 or Ethernet
- ExpressCard
- Super Slo-Mo, Multi-cam, and 3D/Video + Key features are available as part of the ChannelFlex Suite.
- Low-resolution proxy files created during record and live streaming from SDI In/out are available as part of the AppCenter Pro and Elite licenses. This requires the Type II carrier module.
- RAID 0 internal media storage

K2 Summit/Solo formats, models, licenses, and hardware support

Formats are supported as in the following tables.

Table 1: First-generation K2 Summit/Solo system

Formats	Compression	1x	Multi-Cam 3D/Video + Key	Super Slo-Mo
SD	DV	Encode/decode	Encode/decode	Not supported.
	MPEG-2	Decode is standard. Encode requires codec option card.	Not supported.	Not supported.
	AVCHD	Not supported.	Not supported.	Not supported.
1080i/720p	DV	Encode/decode. Requires HD license.	Encode/decode. Requires HD license.	Encode/decode. Requires HD license.
	MPEG-2	Decode is standard. Encode requires codec option card. Requires HD license.	Not supported.	Not supported.
	AVC-Intra	Encode/decode. Requires coded option card. Requires HD license.	Encode/decode. Requires coded option card. Requires HD license.	Not supported.
	AVCHD	Not supported	Not supported	Not supported

Table 2: K2 Summit 3G system

Formats	Compression	1x	Multi-Cam 3D/Video + Key	Super Slo-Mo
SD	DV	Encode/decode	Encode/decode	Not supported.
	MPEG-2	Encode/decode	Encode/decode. Requires codec option card.	Not supported.
	AVCHD/H.264	Decode only. Requires AVC license.	Not supported	Not supported
1080i/720p	DV	Encode/decode. HD license is standard.	Encode/decode. HD license is standard.	Encode/decode. HD license is standard.
	MPEG-2	Encode/decode. HD license is standard.	Encode/decode. Requires codec option card. HD license is standard.	Not supported.

Formats	Compression	1x	Multi-Cam 3D/Video + Key	Super Slo-Mo
	AVC-Intra	Encode/decode. Requires AVC license. HD license is standard.	Encode/decode. Requires AVC license. HD license is standard.	Encode/decode. Requires AVC license. HD license is standard.
	AVCHD/H.264	Decode only. Requires AVC license.	Not supported	Not supported

Table 3: K2 Solo 3G system

Formats	Compression	1x	Multi-Cam 3D/Video + Key	Super Slo-Mo
SD	DV	Encode/decode	Encode/decode	Not supported.
	MPEG-2	Encode/decode	Not supported	Not supported
	AVCHD/H.264	Decode only. Requires AVC license.	Not supported	Not supported
1080i/720p	DV	Encode/decode. HD license is standard.	Encode/decode. HD license is standard.	Encode/decode. HD license is standard.
	MPEG-2	Encode/decode. HD license is standard.	Not supported	Not supported
	AVC-Intra	Encode/decode. Requires AVC license. HD license is standard.	Encode/decode. Requires AVC license. HD license is standard.	Encode/decode. Requires AVC license. HD license is standard.
	AVCHD/H.264	Decode only. Requires AVC license.	Not supported	Not supported

Features of internal storage models

K2 Summit/Solo systems have media drives as follows:

- First generation K2 Summit system — Up to eight media drives
- K2 Summit 3G system — Up to twelve media drives
- K2 Solo Media Server — Two media drives
- K2 Solo 3G Media Server — Two media drives

This makes the internal storage K2 system a self-contained, stand-alone unit, with no external devices for storage connections required. You can transfer media in and out of the internal storage K2 system

via Gigabit Ethernet. You can also export media to a mapped drive or USB-attached storage. With the K2 Solo Media Server, you can also export media via an ExpressCard.

Features of external storage models

The external storage K2 Summit system contains only the system drive. There are no media drives in an external storage K2 Summit system. There are two types of external storage for media, as follows:

- Shared storage — Multiple external storage K2 Summit systems connect to the K2 SAN via Gigabit Ethernet or Fibre Channel to share a common pool of storage.
- Direct-connect storage — A single K2 Summit system with the optional Fibre Channel board installed connects directly to its own external (non-shared) RAID storage device. This makes the direct-connect K2 Summit system a self-contained, stand-alone unit, with no additional devices for storage connections required. You can transfer media in and out of the direct-connect K2 Summit system via Gigabit Ethernet.

About remote operation and monitoring

The K2 Summit/Solo system 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 system locally, as you would normally lock a Windows computer, but still access it from a Control Point PC. From this Control Point PC, you can use channels from different sources in one channel suite. The K2 AppCenter application is included with the K2 system and supports this headless functionality.

Automation protocols and other optional applications can also be used to control K2 systems remotely. For more information, refer to "K2 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 K2 AppCenter application. Remote Desktop Connection does not have robust video support. Results can be unreliable.

The K2 AppCenter status bar can be used to monitor the K2 system as it ingests, outputs, or transfers media.

About K2 Summit system storage options

The K2 Summit system can have internal storage for stand-alone use, or it can have storage that directly connects to the K2 Summit system. Multiple K2 Summit systems can share storage on a K2 SAN.

The K2 SAN 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 SAN, refer to "K2 SAN Installation and Service Manual".

Licensing

Grass Valley continues to develop the K2 product family to better meet 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.

AppCenter licenses are as follows:

	AppCenter Standard	AppCenter Pro	AppCenter Elite
Record	X	X	X
Continuous Record	X	X	X
Play	X	X	X
Sub-Clipping	X	X	X
Playlists	X	X	X
"Live" Mode (Chase Play)	X	X	X
Video Monitor in Control View	X	X	X
VM Multi-view	X	X	X
Playlist Import		X	X
Channel Ganging		X	X
Audio Track insert		X	X
CC Track insert		X	X
Audio Track assignments		X	X
Scheduled Record per channel (not playlist)		X	X

	AppCenter Standard	AppCenter Pro	AppCenter Elite
Scheduled Playback per channel (not playlist)		X	X
Super out on SDI 2 output		X	X
Playlist with M/E Transitions		X	X
Flying M/E Transitions		X	X
Proxy encoding - 4 Channels		X	X
Key+ Fill import (QT32)		X	X
Channel Flex Suite			X
- Multi-CAM			X
- Video + Key			X
- 3D - Left + Right Eye			X
- Super Slo-Mo x2			X
- Super Slo-Mo x3			X
Proxy encoding - 8 Channels			X

Other options and applications include the following:

- HD option (first generation Summit)
- AVC option (Summit 3G)
- TimeDelay
- K2 XML Import capture service
- HotBin Export capture service
- P2 Import capture service
- K2 InSync
- K2 FCP Connect

As development continues, new options become available. Contact your Grass Valley representative to learn more about current options.

Chapter 2

Getting Started

This section contains the following topics:

Passwords and security on Grass Valley systems

To provide a basic level of security, Grass Valley systems recognize three different security levels based on Windows users and groups, and the systems ship from the factory with accounts pre-configured accordingly. To access the system you must login with the username and password for one of the pre-configured accounts.

The following table shows the different types of users and their privileges. Passwords are case sensitive.

	Windows administrator	Grass Valley product administrator	Grass Valley product user
Login	Administrator	GVAdmin	GVUser
Password	adminGV!	adminGV!	userGV!
AppCenter Configuration Manager	Full access	Full access	Can view
AppCenter	Full access	Full access	Full access; requires an account on the K2 Summit/Solo system
Storage Utility	Full access	Full access	Can't access
K2Config	Full access	Full access	Can't access
Server Control Panel	Full access	Can view	Can view
Windows Operating System	Full access	Limited access (based on Windows login privileges). Not a member of the Administrators group.	Limited access (based on Windows login privileges)

To support legacy FTP and security features, K2 systems also have *movie*, *mxfmovie*, *mpgmovie*, and *video_fs* accounts. Do not use these accounts to log in to the Windows operating system on K2 systems.

Related Topics

Accessing Configuration Manager on page 40
Storage Utility for standalone K2 Summit/Solo system on page 42

Starting AppCenter

You can start AppCenter by clicking on the AppCenter shortcut on the Windows desktop.

If you are using AppCenter on a local K2 Summit/Solo system, 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.

NOTE: If the* K2 Summit/Solo system *was shut down using Windows XP Standby mode, AppCenter will not start up, even though the* K2 Summit/Solo system *machine itself boots up normally.

Related Topics

Starting AppCenter for the first time with a Control Point PC on page 31

Starting AppCenter after creating a channel suite on page 32

Starting AppCenter for the first time with a Control Point PC

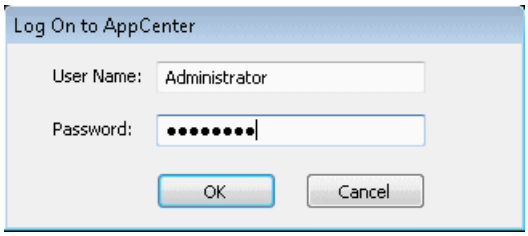
Before you can run AppCenter from a network-connected PC running Control Point software, you must perform two steps:

1. Log on to AppCenter.
2. Configure a channel suite.

Logging on to AppCenter

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 Summit/Solo system*, try logging on as <K2 system>\GVUser.

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



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 the K2 source that you want to use and add its channels to a channel suite. You can add channels from several sources to one channel suite, with a maximum of 16 channels in one channel suite.

1. At the blank Suite Properties dialog box, click the **Add** button. An Add Channel dialog box displays.
2. Enter the K2 Summit/Solo system host name or IP address.
3. Click **OK**. A second Add Channel dialog box displays, listing the channels on the specified K2 Summit/Solo system.
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 sources.

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 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.

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.

Related Topics

Managing channel suites on page 158

Locking AppCenter

You can lock both local AppCenter running on a K2 Summit/Solo system and remote AppCenter running on a Control Point PC.

You can lock the AppCenter interface so that keyboard and mouse input is disabled.

- To lock AppCenter, do the following:
  - 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:
  - 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.

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

AppCenter shut down options

When you shut down AppCenter, you have the following options:

Shutdown Mode	Description
Exit to Windows	Exit AppCenter and display the Windows desktop. If shutting down AppCenter from a Control Point PC, 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.
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 using another Control Point PC. If all channels in a suspended channel suite are taken over in this manner, the channel suite is shut down. 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. 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 Summit/Solo system.

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

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

About system messages

The following messages are displayed to indicate system status:

- Normal BIOS messages — These messages can be observed on a locally connected VGA monitor during normal startup processes.
- BIOS POST error messages — If there is a problem these messages are displayed on a locally connected VGA monitor. During the Power On Self Test (POST), the BIOS checks for problems and displays these messages.
- AppCenter startup messages — As AppCenter opens the system determines if health is adequate by checking critical subsystems. A dialog box is displayed that indicates progress and displays messages.
- Status bar and StatusPane messages — During normal operation AppCenter displays system status messages on the status bar. From the status bar you can open the StatusPane to see both current and previous messages. You can observe these messages in AppCenter on a locally connected VGA monitor or on a network connected control point PC.

- Storage Utility messages — While you are using Storage Utility, pop-up message boxes inform you of the current status of the storage system.

Related Topics

Viewing AppCenter system status messages on page 35

Critical system startup messages on page 34

Critical system startup messages

The following messages appear in the AppCenter system startup message box as critical subsystems are checked during startup processes. If a critical failure is detected, the K2 Summit/Solo system is rendered inoperable and the failure message appears.

Critical subsystem check messages	Failure messages
System Startup	Startup error
	Missing or bad hardware
	A real time processor is not functioning correctly
Checking hardware…	Hardware fault
Checking media disks…	One or more media disks failed to initialize
	Missing or bad hardware
	Missing or bad database
Checking file system…	No file system is running
Checking database…	Database fault
Checking real-time system status…	A real-time system failed to initialize
Updating configuration…	Failed to synchronize configurations
Starting services…	Unable to communicate with <service name>

AppCenter startup errors

If you start AppCenter and the K2 Summit/Solo system 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 Summit/Solo system. 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 system>:<error>	The K2 Summit/Solo system 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 Summit/Solo system; for example, the error might say there is no file system or that the K2 Summit/Solo 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 Summit/Solo system. If working from a network-connected Control Point PC, select **System | Reconnect** from the AppCenter **System** menu.

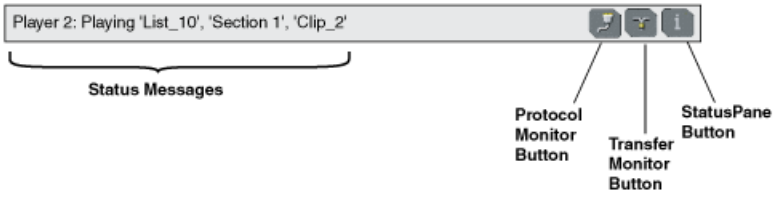
Viewing AppCenter system status messages

System status messages are displayed in the AppCenter status bar. There are two types of system status messages, as follows:

- Channel status messages — In normal operation, this type of message displays the current operating status of the selected channel.
- System error messages — If a problem develops with the system software or a hardware subsystem, this type of message is displayed for approximately 5 seconds. Afterward, the display returns to the channel status message and the error message is written to the status log file. When a message is written to the status log, a *Status Icon* indicates the severity of the message.

Status bar

System status messages appear in the AppCenter status bar, which is located across the bottom of the AppCenter window, and consists of a message area, several tool buttons, and a status icon. The button icons appear only when the related function is active. In the position of the StatusPane button, status icons appear.



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.)

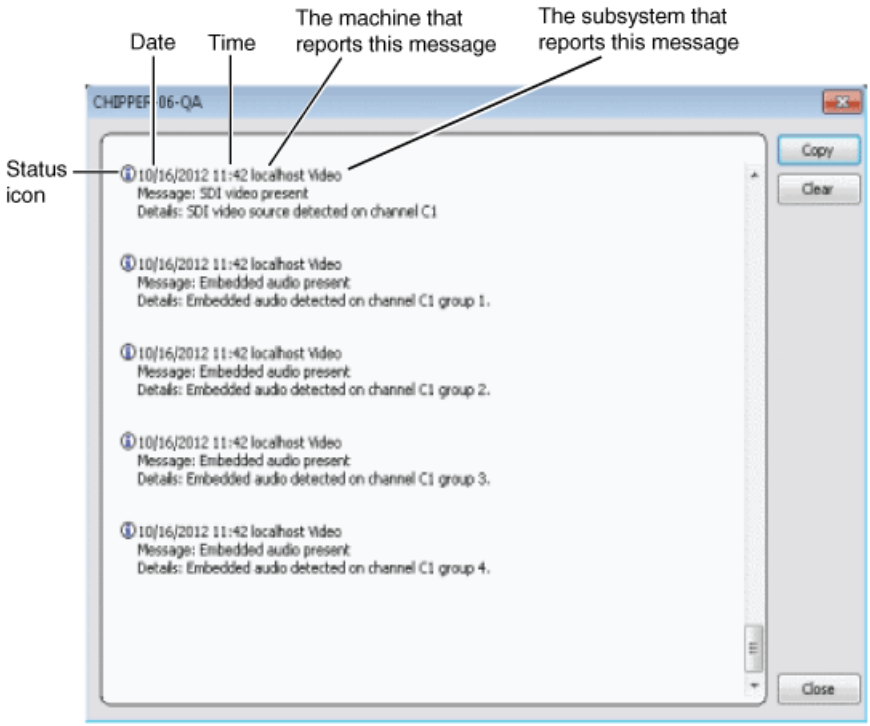
If you select a channel, a status message appears on the left-hand side of the status bar. If a potential error arises while an application is running in a channel, a status message flashes briefly on the left-hand side of the status bar, and an icon displays on the right-hand side. Double click on the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

The status icon changes depending on the status of the current status message.

Icon	Name	Description
	Information	A recent information message is present.
	Warning	There is at least one warning message, and no alert messages.
	Alert	There is at least one uncleared alert message.

Status pane

Current and previous system status messages can be viewed in the StatusPane. The system status pane also displays general information such as the video and audio settings on the channels. To open the StatusPane, click **Help | System Status**.



The StatusPane is used to view detailed system messages including status, warning, and error messages. System status messages provide status icons and a description of the status event reported by the message. If there is a problem, a corrective action is indicated. Use these messages along with troubleshooting problems to determine if a service procedure is necessary.

If you have a remote AppCenter Channel Suite with channels from multiple K2 systems, the messages from the different machines are combined in the StatusPane that you view from the Channel Suite. To help you determine which machine is generating a message, each message lists the machine name.

NOTE: If the Clear button is grayed out, you do not have the necessary privileges to perform this action, based on the type of user account with which you are currently logged on.

Related Topics

Passwords and security on Grass Valley systems on page 30

Copying StatusPane messages to the clip board

1. Select the message or messages in the StatusPane.
2. Click **Copy**.

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

Clearing messages

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

1. Open the StatusPane, then click **Clear**.
2. When a message prompts you to confirm, click **Yes**.

All messages are removed from the StatusPane and logging database.

Exporting log files

This topic describes how to export log files from the K2 Summit/Solo system. The log files include the following:

- All application and media database messages
- Version information
- Configuration file, from Configuration Manger

The exported files are combined in a ZIP file. The ZIP file can be sent to Grass Valley product support where they can analyze the logs to determine the operational status of your system.

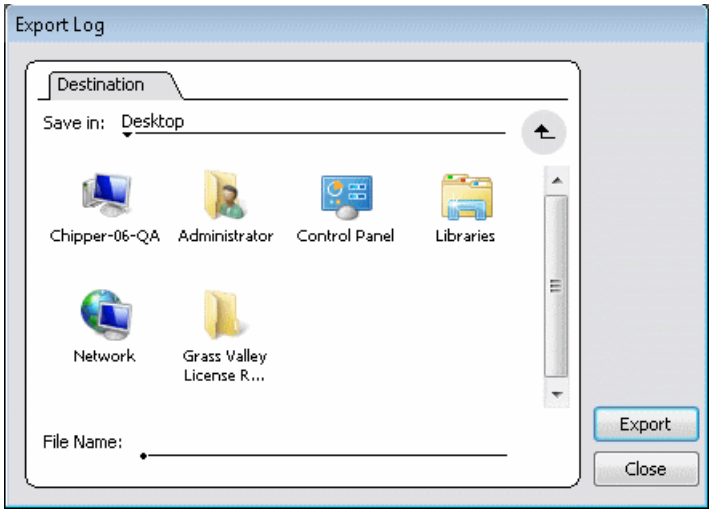
NOTE: ExportLog does not export StatusPane messages. To capture StatusPane messages, you can copy StatusPane messages to the clip board.

1. Log in as Administrator.

2. Do one of the following to open the Export Log dialog box.

   - In AppCenter click **System | Export Log**.
   - From the Windows desktop, click **Start | All Programs | Grass Valley| Export logs**.
   - From the Windows desktop, click **Start | Run**, type `c:\profile\exportlog` in the Run dialog box, then click **OK**.

   The Export Log dialog box opens.



3. Browse to `C:\Logs` to save the log file.
4. Name the log file.
5. Click **Export**. A progress bar appears.
6. When the export process is complete, and message confirms success. Click **OK** and close the Export Log dialog box to continue.
7. Find the log file at the specified location.

Configuration Manager

The Configuration Manager is the primary configuration tool for a K2 Summit/Solo system. It makes settings that apply to the overall internal storage K2 Summit/Solo system as well as settings that apply to individual channels.

Configuration Manager settings are stored in a database. When the K2 Summit/Solo system starts up it reads the current settings from the database and configures itself accordingly. When you modify a setting in Configuration Manager you must save the setting in order to update the database and reconfigure the K2 Summit/Solo system.

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

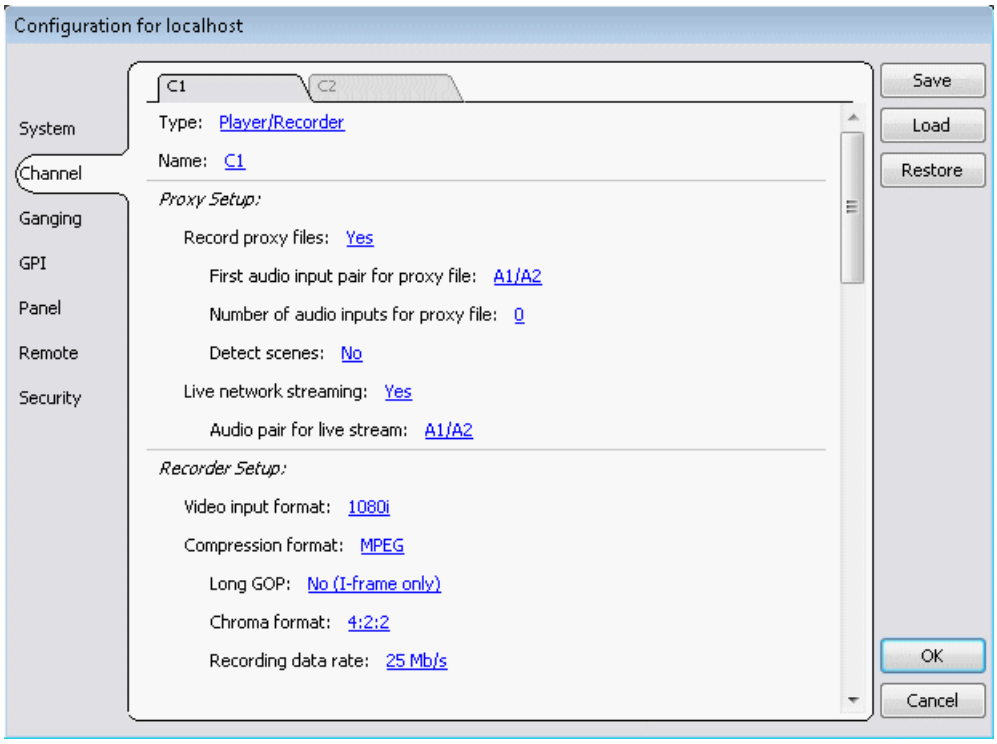
You can use configuration files as a means to back up your settings. You can also use configuration files to save several different groups of customized settings, each with a unique name, so that you can quickly load settings for specialized applications.

If you save a configuration file and then upgrade your K2 system software, there can be compatiblity issues. If the upgraded software version has new features, the saved configuration file might not be compatible.

Accessing Configuration Manager

You access Configuration Manager through the K2 AppCenter application from the local K2 Summit/Solo system or from the Control Point PC.

To access the configuration settings, open AppCenter and select **System | Configuration**.



Related Topics

Saving and restoring Configuration Manager settings on page 41
Passwords and security on Grass Valley systems on page 30

Saving and restoring Configuration Manager settings

Settings can be saved as a configuration file. You can save any number of uniquely named custom configuration files. You can load a configuration file to restore system settings.

To save custom settings:

1. In the Configuration Manager, click the **Save** button.

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

   Do not name the file *Default*Config.xml, as this name is reserved for the factory default configuration file. Otherwise, standard Windows 2000 and up file naming restrictions apply.
4. Click **Save** and **Close**.

To restore custom settings:

1. If you want to save current settings, you should save them as a configuration file before continuing.
2. In the Configuration Manager, click the **Load** button.

   The Open dialog opens.
3. Use the up arrow or select folders to navigate to the custom configuration file.
4. Select the custom configuration file.
5. Click **Open**.

   The custom settings are loaded into Configuration Manager, but they have not been saved and put into effect.
6. Click **OK** to save and apply settings, and to close the Configuration Manager.

Restoring default Configuration Manager settings

You can restore factory default settings as follows:

- Restore some individual settings or groups of settings by selecting the **Default** button which appears below the settings in the configuration screen.
- Restore all the settings in Configuration Manager at once to their default values as explained in the following procedure.

1. If you want to save current settings you should do so before proceeding.
2. In the Configuration Manager dialog, click **Restore**.

   The default settings are loaded into Configuration Manager, but they have not yet been saved and put into effect.
3. Click **OK** to save settings and close Configuration Manager.

Storage Utility for standalone K2 Summit/Solo system

There are two versions of Storage Utility:

- Storage Utility for the K2 SAN
- Storage Utility for stand-alone K2 systems

This manual explains Storage Utility for stand-alone K2 Summit/Solo system. Refer to the *K2 SAN Installation and Service Manual* to learn about Storage Utility for the K2 SAN.

NOTE: For shared storage, run Storage Utility only via the* K2Config *application.

The Storage Utility is your primary access to the media file system, the media database, and the media disks of the K2 Summit/Solo system for configuration, maintenance, and repair. It is launched from the K2 AppCenter application.

⚠ ***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 system inoperable or result in the loss of all your media.***

NOTE: Do not use the MegaRAID utility on a K2 system. This utility is for use by qualified Grass Valley Service personnel only. When this utility is opened it scans the SCSI bus and interferes with record and play operations.

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. 

For Storage Utility procedures for internal storage, refer to *K2 System Guide*. Refer to the *K2 SAN Installation and Service Manual* to learn about Storage Utility for the K2 storage system.

NOTE: 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 system inoperable or result in the loss of all your media.

K2Config

The K2 System Configuration application (K2Config) is the primary tool for configuring systems in the category of a K2 SAN, which include online or production K2 SANs, K2 Nearline systems, and STRATUS Proxy Storage systems. Once the devices of the storage system are cabled and are communicating on the control network, you can do all the configuration required to create a working K2 SAN using the K2Config application. When you use SiteConfig for network configuration, you can import the SiteConfig system description file into the K2Config application to get you started with your SAN configuration.

After your K2 SAN is initially installed and configured, if you need to reconfigure the system you should do so using SiteConfig and the K2Config application. This enforces consistent policy and sequencing for configuration tasks, which makes the system easier to maintain and aids in troubleshooting should a problem arise.

The K2Config application runs on a control point PC and accesses the devices of the K2 SAN via the control network. You can configure the devices of the K2 SAN as follows:

- SAN-attached K2/Summit systems and K2 Media Server — These devices are configured directly by the K2Config application.
- K2 RAID storage devices — The K2Config application launches a remote instance of Storage Utility, which configures RAID storage devices. Storage Utility components run on the K2 Media Server and the configuration actually takes place via the Fibre Channel connection between the K2 Media Server and the RAID storage device.
- Ethernet switches — The K2Config application can launch a switch's web-based configuration application.

You can expand and select nodes in the tree view to view K2 SANs, individual devices, and configuration settings. The configuration file is saved on the V: drive, along with the media files in the shared storage system. The configuration file is updated and saved whenever you change a configuration using the K2Config application. That is why you must always use the K2Config application to change settings on the storage system, so the most recently changed configurations will always be stored in the configuration file and displayed.

About SiteConfig

SiteConfig is Grass Valley's tool for network configuration and software deployment. SiteConfig is a ProductFrame application. ProductFrame is an integrated platform of tools and product distribution processes for system installation and configuration.

You can use SiteConfig as a stand-alone tool for planning and system design, even before you have any devices installed or cabled. You can define networks, IP addresses, hostnames, interfaces, and other network parameters. You can add devices, group devices, and modify device roles in the system.

As you install and commission systems, SiteConfig runs on a designated PC. It discovers devices, configures their network settings, and manages host files. SiteConfig also manages software installations and upgrades and provides a unified software package with compatible versions for deployment across multi-product systems.

You should use SiteConfig for network configuration and software deployment at installation and throughout the life of the system in your facility. This enforces consistent policy and allows SiteConfig to keep a record of changes, which makes the system easier to maintain and aids in troubleshooting should a problem arise.

SiteConfig displays information from a system description file, which is an XML file.

Chapter 3

Using AppCenter

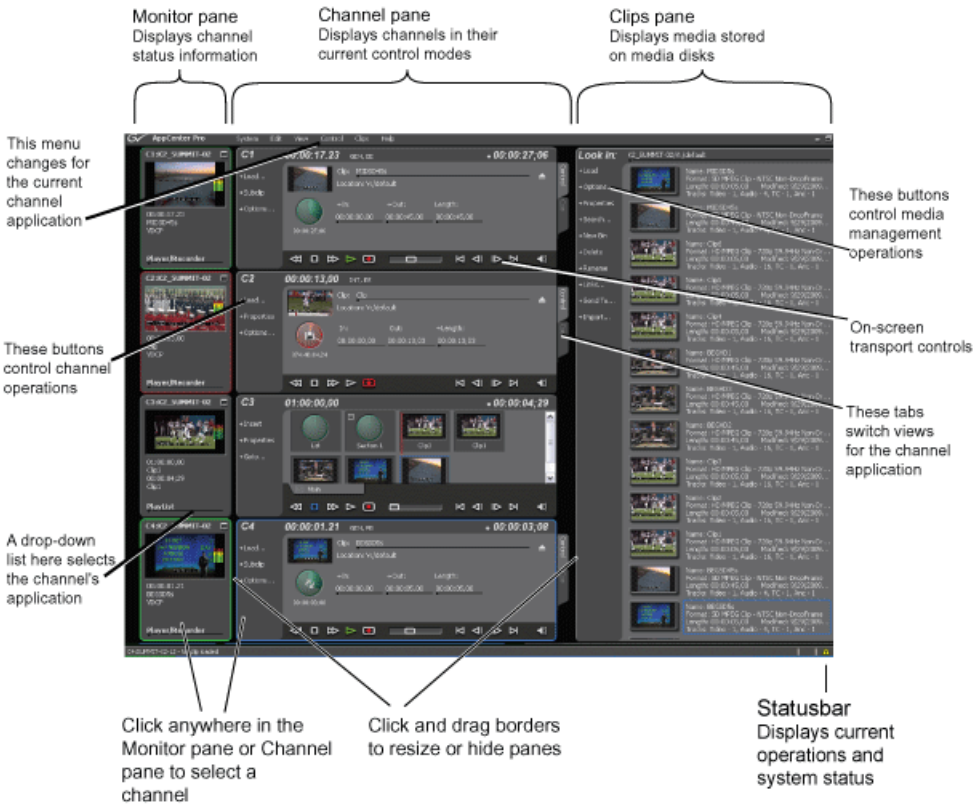
This section contains the following topics:

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 Summit/Solo system. To support live video, the VGA resolution must be 1024 x 768 x 32 or greater to support live (moving) video monitoring. If the monitor resolution is not adequate, 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.



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. Shows EE or playback video. 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 Summit/Solo system and provides controls for media management.
Status Bar	Displays status and error messages, and includes tool buttons for opening Transfer Monitor, Status Pane, or the Protocol Monitor dialog box.

Playing channels in multi-view screen

- Select **View | Video Monitor** to fill the entire screen with a view of all four channels' monitor panes. This is useful when you want to monitor video from several different channels simultaneously.

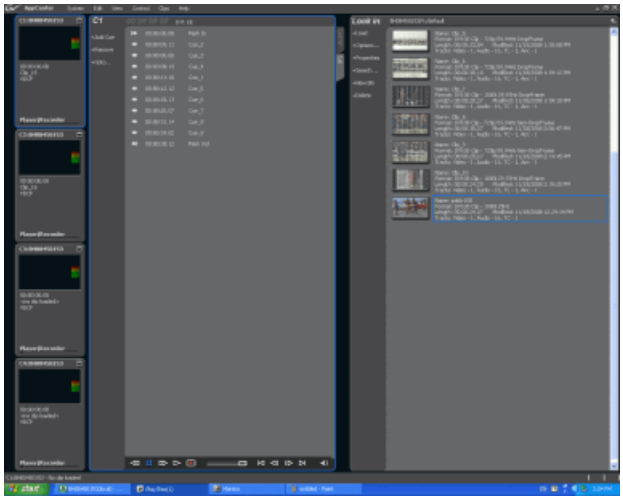
The VGA resolution must be at least 1024 x 768 x 32 to support live video. The multi-view video monitor option is only available on a local K2 Summit/Solo system; it is not accessible from a PC running Control Point software. It requires the Grass Valley AppCenter Pro application, which is separately licensed from the AppCenter application. For more information, consult your Grass Valley representative.

Related Topics

Displaying Super Out information on output/monitor on page 91

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 text view of the player 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 Summit/Solo system and its assets.

Tools	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
❶	Drop-down list	A horizontal line and arrowhead. Select and choose from a list of items in the drop-down list.
❷	Context Menu	This menu changes depending on the application of the selected channel: player/recorder or playlist.
❸	Text Entry Control	A horizontal line and small dot. Select to open the text entry dialog box.
❹	Eject Button	Select to eject the current clip
❺	View Tabs	Select one tab or the other to toggle between different views in Player application or in Playlist application.
❻	Timecode Entry Control	A horizontal line and small dot. Select to open the timecode entry dialog box.
❼	Meter bar Button	Select to toggle between the Meter bar and the application interface. The Meter bar contains audio meters, and the audio level controls.
❽	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. Holding down the left mouse button on an assignable button causes a pop-menu to appear that 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. Bins can be nested inside other bins. 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 blue outline around the channel pane. The monitor pane has a red outline if recording and a green outline if playing a clip or playlist; if selected while the channel is inactive, the monitor pane is also outlined in blue. 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 with a stand-alone K2 Summit/Solo system will be specifically designated as "internal storage" or as "direct connect" storage, which is storage directly attached to the stand-alone.

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.

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 System Guide*.

Channel suites

A channel suite is a collection of channels. If you are using AppCenter 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 sources to one channel suite. Each channel suite can have up to 16 channels.

NOTE: If you are running a* K2 Summit/Solo system *locally, you cannot use channel suites. You can only use the channels on that K2 system.

Channels in AppCenter

In AppCenter, the channels are labeled C1, C2, C3, C4 (for K2 Summit systems) or C1 and C2 (for K2 Solo systems). Each channel is bidirectional, 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 designated to the application until you change it. You can change the channel's application in the Channel monitor. ChannelFlex Suite functionality is configured in Configuration Manager.

Channel applications overview

AppCenter channels have applications for performing essential tasks. When AppCenter starts, each channel comes up in its last used application. You can change the channel application.

Selecting a channel application

1. In the monitor pane, select the channel application drop-down list

for the channel.
2. 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

AppCenter provides standard Playlist and Player/Recorder applications to run on a channel without any special licensing. If licensed, TimeDelay and Event Monitor applications are also available. ChannelFlex Suite functionality requires the AppCenter Elite license and is configured in Configuration Manager.

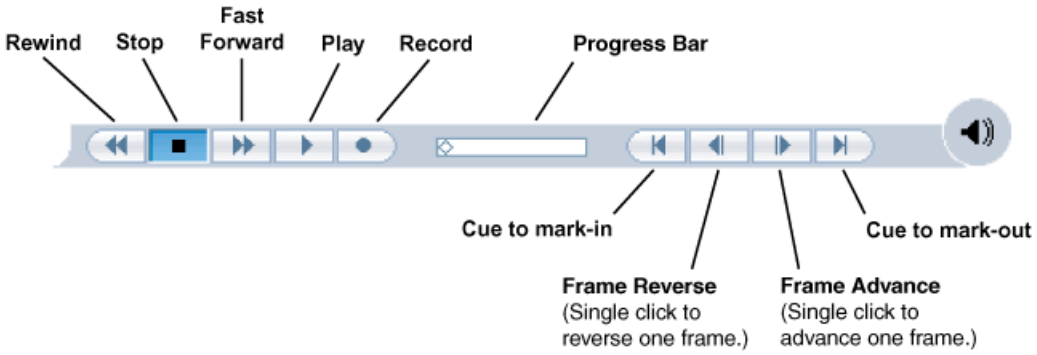
Remote protocol applications are configured on each channel under **Control | Options**. Standard remote protocol applications are AMP, BVW, VDCP. The Event Scheduler license enables the Event Monitor application.

Related Topics

Selecting a channel application on page 52
Configuring a channel for remote control on page 54

Using on-screen transport controls

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



Using remote protocols

You can control AppCenter using remote control devices and applications software developed for the K2 Summit/Solo system that use industry-standard serial or Ethernet control protocols. You can enable remote control mode from AppCenter.

Related Topics

About remote control protocols on page 218

About Event Scheduler support

When licensed for Event Scheduler, the Event Monitor application is available. This application is a monitor-only application that displays the list of events scheduled in Event Server for a channel. The events must be scheduled by another application.

Indicators and controls in Event Monitor are as follows:

black text	For an event whose time has passed (above the time cursor), this event has completed successfully. For an event in the future (below the time cursor), this event is not yet scheduled or pending.
red text	An error occurred when processing this event.

dashed red line	This is displayed over the event that is in progress.
blue text	This event is pending, on the timeline and ready to begin at the specified time.
expand/contract icon	This icon is displayed beside absolute events in the list. Use it to hide or show the events after it.

Configuring a channel for remote control

You can configure a channel for remote control 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 it is not already displayed, select the **Control** tab.
4. Select the desired protocol and remote settings, and click **OK**. If using VDCP protocol to control transfers, you must set up the video network and the *Controller ID*.

   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.

Related Topics

Controlling transfers with VDCP on page 220

Chapter 4

Recording Clips

This section contains the following topics:

About recording clips

The Player/Recorder application records clips in AppCenter. 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.

The Player/Recorder application requires a 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 timecode:

- If VITC, LTC or ANC is the selected timecode source and the signal is missing, the current timecode display shows XX:XX:XX:XX while the clip is being recorded. After the recording has finished, the clip is automatically re-striped starting from 0. 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 display shows XX:XX:XX:XX any time 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, 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 Recorder/Player application.

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; 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 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, AppCenter 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 another Recorder/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.

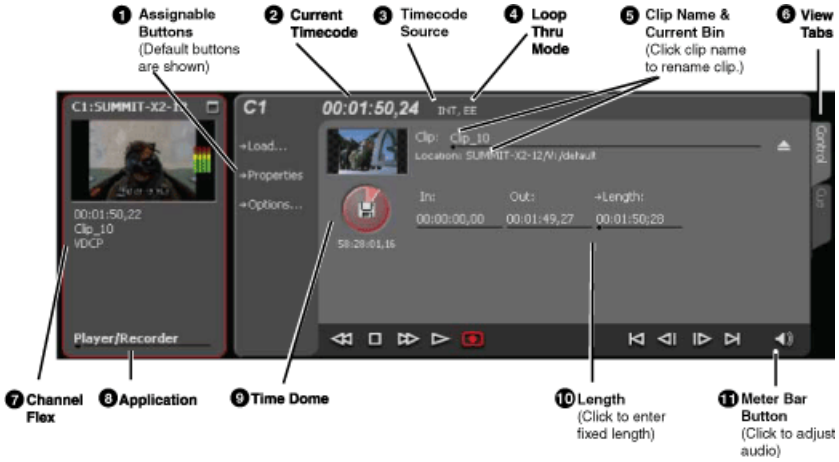
Continuous mode operational considerations

Consider the following when planning for Continuous Record operation:

- 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.
- 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 Recorder/Player application– You cannot pause the continuous record program in Recorder/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/Player application: Control view

The following shows the basic controls in the Recorder/Player application found in AppCenter, which 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
❶	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.
❷	Current timecode	Indicates the current timecode of the timecode source selected for the channel. Text color is white during record, and dimmed at other times. The timecode value of XX:XX:XX:XX is displayed when the timecode source is not present or is invalid.
❸	Timecode source	The text displayed to the right of current timecode indicates the timecode source.
❹	Loop thru mode	This text indicates if “E-to-E (LoopThru) mode” is selected. See Record Menu below.
❺	Clip Name Edit Control	Displays the clip’s name and location in the media storage system. To rename the clip, click and enter text. You can change the current bin. You can use the Clips pane to manage and organize clips.
❻	View tabs	These tabs toggle between Control and Cue Points view.
❼	ChannelFlex	If the channel is configured to be a ChannelFlex type, it is displayed in this area. ChannelFlex requires an AppCenter Elite license.

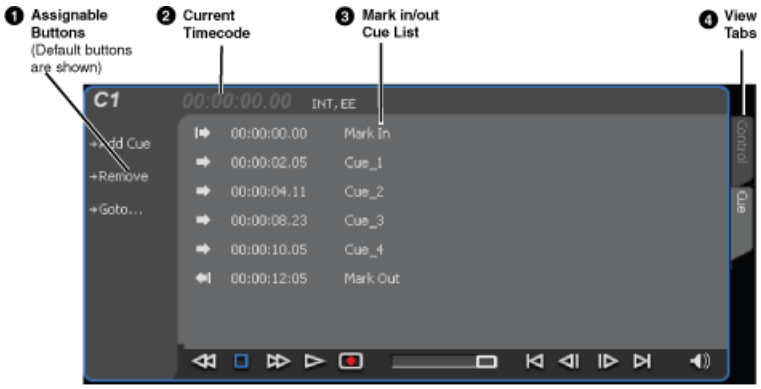
	Control	Description and User Operation
❽	Application	A drop-down list allows you to select between None, Playlist, Player/Recorder, or (if licensed for AppCenter Elite) addition selections. If the Player/Recorder application is selected, you can play or record using the pane controls.
❾	Time Dome	This 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. You can change the Time Dome function by right-clicking on the Time Dome and choosing an application from the pop-up menu.
❿	Length	Select the Length control to enter the clip length, then choose record. Recording continues until you choose stop or the specified fixed length is reached.
⓫	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 **Control** menu	**Load Clip** – Opens the Load Clip dialog box. (Only available on the SD-00 K2 Summit Production 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. **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. **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. **Widescreen** – Sets the channel for recording widescreen format. (720p and 1080i clips are always recorded in widescreen, whether this is selected or not.) **E-to-E (LoopThru) mode** – 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 is passed through; when a record operation stops the clip remains in the Recorder. The signal that is currently present at the channel input passes through (video, audio, and timecode).

Related Topics

Changing the timecode source on page 67
Changing the current bin on page 69
Using Fixed Length record mode on page 64

Guide to using the Recorder/Player application: Cue view



	Control	Description and User Operation
❶	Assignable Buttons	Assignable buttons allow you to modify the button assignments to best suit your workflow. Hold down the left mouse button to open a pop-up menu that lists the alternative button choices.
❷	Current Timecode	Indicates the current timecode of the timecode source selected for the channel. Text color is white during record, and dimmed at other times. The timecode value of *XX:XX:XX:XX* is displayed when the timecode source is not present or is invalid.
❸	Timecode Source	Indicates the mark in, mark out, and cue points of the recording session.
❹	View tabs	These tabs toggle between Control view and Cue Points view.
	Recorder Cue View **Control** Menu	In addition to commands described in the Assignable Buttons section, the Control menu of the Cue view contains the following option: **E-to-E mode** – 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.

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**.

Record Channel Setting	Procedure
Verify the timecode source. Make sure to select a valid timecode source. You can use the internal timecode generator, VITC, or LTC.	Refer to the procedure to change the timecode source.
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 are always recorded in widescreen, whether this is selected or not.)	In AppCenter main menu, select the desired Player/Recorder channel, set the Control view tab, and select **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.	In the Recorder pane, select the **Meter bar** button. 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.
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 **Bin & AFD** 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.

Related Topics

Changing the timecode source on page 67

To record a clip

Topics in this section provide instructions for recording a clip.

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.
2. Select **New Clip** to create and load a clip.
3. To rename the clip, select the default clip name  , then enter a new clip name.
   If a Multi-Cam channel, you can name both clips.
4. Select the record button on the onscreen transport controls.
   The recording progresses until you select **Stop**.

Related Topics

Before you record: Recorder settings checklist on page 61

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.
2. Select the record button on the onscreen transport controls.
   The recording progresses until you select **Stop**.

Related Topics

Before you record: Recorder settings checklist on page 61

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 timecode source, which can be driven by either the system clock or LTC. VITC or Anc VITC/LTC cannot be used to drive the Time of Day.

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.

Related Topics

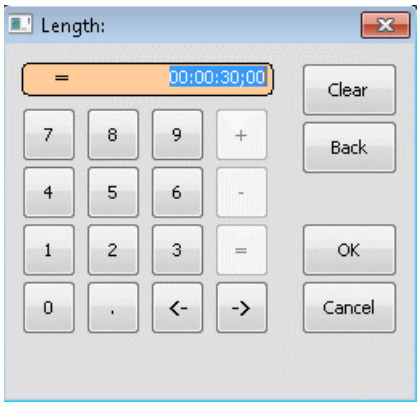
Scheduling a clip to play on page 81
To record a clip on page 63

Before you record: Recorder settings checklist on page 61

Using Fixed Length record mode

You can specify the clip length before recording, or during recording. As long as there is sufficient storage space, a 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.
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**.

Related Topics

Before you record: Recorder settings checklist on page 61

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

Related Topics

Before you record: Recorder settings checklist on page 61

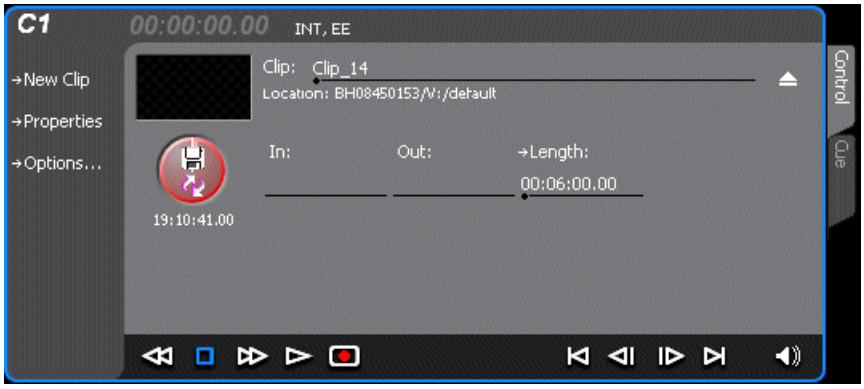
Using continuous record

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.

1. Click the **Time Dome** button. 

   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/Recorder application:

   - Drag and drop from the recording monitor pane to the playing monitor pane.

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

Related Topics

Before you record: Recorder settings checklist on page 61
About recording clips on page 56

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 already playing a clip, no 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.

Adding a cue point while recording

NOTE: While the clip is record mode, do not use the transport controls.

1. Select Player/Recorder from the application drop-down list.
2. Begin recording.
3. In the Record pane, click on the Cue tab. The Cue view displays.
4. 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.

Related Topics

To record a clip on page 63
Scheduling a recording on page 63
Scheduling a clip to play on page 81

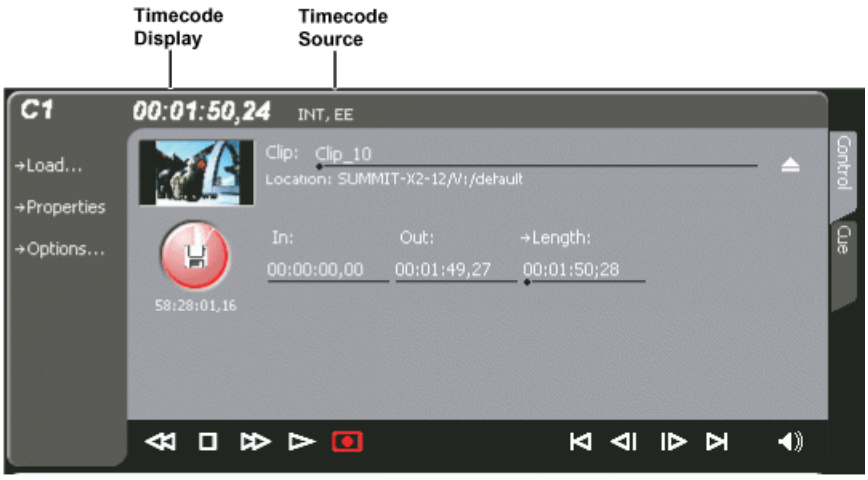
Removing a cue point

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.
   - 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. **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	Available on SD channels only. Timecode is read from the VITC input for the channel.
LTC	Available on HD/SD channels.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	Available on HD or SD recordings. Time of Day is an internal generator. You can select either LTC feeds or Windows system clock as the clock source to drive the generator. LTC feeds can be from Channels 1, 2, 3, or 4.
Start Time	Available in HD or SD. 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.

Configuring the free run timecode setting

When you select this setting along with a timecode source setting, the K2 Summit/Solo system system ignores any dropouts or discontinuities in the incoming timecode after a recording starts. You must make this setting on each channel. It is not a global, system-wide setting.

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. Select the **Free run while recording** checkbox and then click **OK**.

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**.

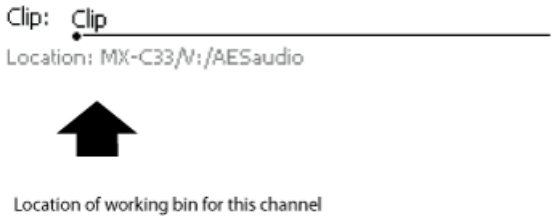
The attribute is saved as part of the video media file. On up-conversion playout, the attribute is used by the Player/Recorder channel to handle aspect ratio on playout when the clip is played on K2 Summit/Solo system.

NOTE: AppCenter always records 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 sources in one channel suite; the clips displayed are those on the source that has the currently selected channel.

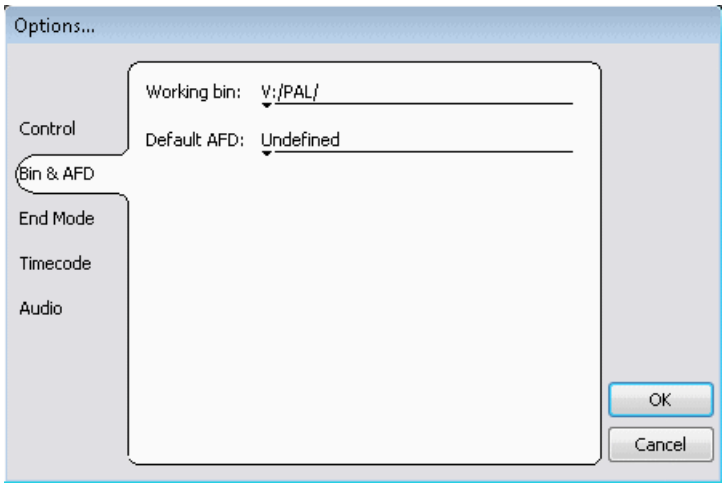
When recording starts, the new clip is stored in the *current bin,* which is also referred to as a working bin. Each channel has its own working bin. You can change the current bin to determine where you want the clip stored. The current bin name is displayed under the clip name in the display.



NOTE: If you rename the working bin, the bin automatically becomes the default bin.

- Change the current bin by doing the following:
  a) Make sure the record channel is selected.
  b) Click the drop-down list showing the clip's location, choose a bin.

- You can also change the current bin by doing the following:
  a) From the main menu, select **Control | Options.**
  b) Click the Bin & AFD 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.

Related Topics

Applying AFD settings on page 165

Renaming a clip

You can rename a clip during or after recording.

To rename a clip:

1. Select the clip name control 

in the Recorder application.
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

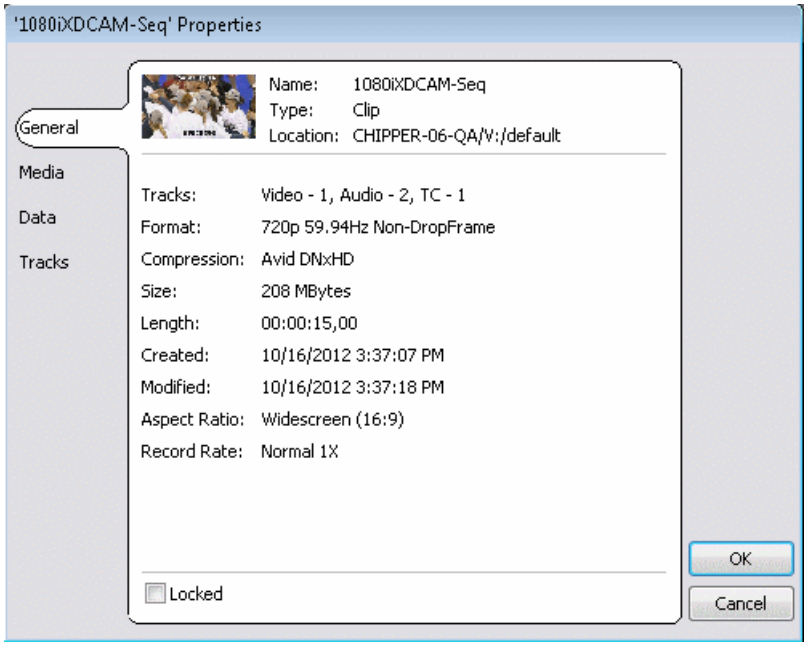
You can view the properties of a clip loaded in the Recorder application.

In the Record application, do one of the following:

- Click the **Properties** button.

- Select **Control | Properties.**

  The Properties dialog box opens.



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 system accessed by the currently selected channel.

1. Select the **Time Dome** button. 

   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 channel recording compression setting in the Configuration dialog box; an HD channel has less available storage than an SD channel. (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 Time Dome. 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

This section contains the following topics:

About playing clips

The information in this chapter describes how to play and edit clips recorded on K2 Summit/Solo system. 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.

The Player/Recorder application allows you to play media stored on the K2 system, 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.

About Live Play (Chase Play)

With AppCenter Pro, you can record an event in one channel, drag the thumbnail into a play channel, and play the clip out while it is being recorded. This feature can also be controlled by the K2 Dyno™ Replay Controller. You can control the Live Play (Chase Play) as follows:

Control + L — The play channel plays **live**, playing the clip as it is recorded.

Spacebar — The play channel stops playing in Live Play mode.

Related Topics

Operational specifications on page 231

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. (However, you can rename the clip in the recording channel or from the Media pane.)
- 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 "Operational Specifications" section 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.

Related Topics

Operational specifications on page 231

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 in the

playlist but does not include any event that breaks the flow of playout, such as a pause or a transition. When a program is loaded in the Player application, it is handled in the same way as a simple clip.

Related Topics

Saving a list as a program on page 114

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:

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.

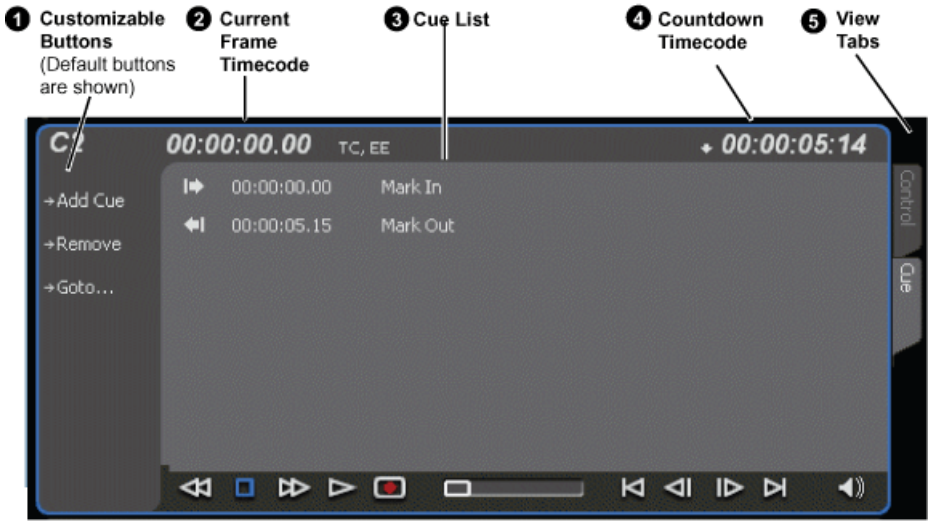
	Control	Description and User Operation
❶	Assignable Buttons	Assignable buttons allow you to modify the button assignments to best suit your workflow. Hold down a button to open a pop-up menu that lists the alternative button choices. The Subclip button toggles between the Source Clip and Subclip settings.
❷	Clip Timecode	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).
❸	Clip Name & Current Bin	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.
❹	Countdown Timecode	Displays the time remaining in the clip .
❺	View tabs	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.
❻	ChannelFlex	If the channel is configured to be a ChannelFlex type, it is displayed in this area. ChannelFlex requires AppCenter Elite license.
❼	Application	A drop-down list allows you to select between none, Playlist, Player/Recorder, or additional selections if licensed for AppCenter Elite. If the Player/Recorder application is selected, you can play or record using the pane controls.
❽	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.
❾	Time Dome Play Progress Media marks Loop playback	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.

	Control	Description and User Operation
⑩	Set Mark-in and Set Mark-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.
⑪	Meter bar Button	Displays the Meter bar, which contains the audio play level controls and signal meters. Click Save to save changes made to the clip audio level. Click Unity to return the audio levels to the last saved level. Click Mute to mute/unmute the audio.

Control	Description and User Operation
Player Menu - Control view	**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. **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. **Locate** – Finds the location of the selected clip. **Properties** – Opens the Properties dialog box 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. **E-to-E (LoopThru) mode** – 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. **Widescreen** – Sets the channel for recording widescreen format. **Options** – Opens the Options dialog for the currently loaded clip.

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.



	Control	Description and User Operation
❶	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.
❷	Current Frame Timecode	Indicates the recorded timecode of the current frame being played. The timecode value of *XX:XX:XX:XX* is displayed when there is no recorded timecode.
❸	Cue List	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.
❹	Countdown Timecode	Displays the time remaining in the clip. To select the countdown mode you want to monitor, open the Options dialog box by selecting Options in the context menu.
❺	View tabs	These tabs toggle between Control view and Cue Points view.

Control	Description and User Operation
Player Menu	**Add Cue** – Used to add a cue to a clip: In the Control view, start the clip playing. Select the Cue tab. 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. **Cue Selection** – Cues the first selected cue point for playback showing a still frame of video for the cue point. **E-to-E (LoopThru) mode** – 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.

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 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.
   - Choose the **Load** button in the clips pane, then select the clip.
   - 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

Using cue points for playback on page 82
Playing a clip on page 81

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 following links to find information on playing clips.

Related Topics

Using on-screen transport controls on page 53
Keyboard Shortcuts on page 211
GPI and other configurations on page 179

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 driven by the system clock or LTC.

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.

Related Topics

Scheduling a recording on page 63
To record a clip on page 63

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** button  , then choose **Loop Mode** in the pop-up menu.

Jumping to a specific timecode

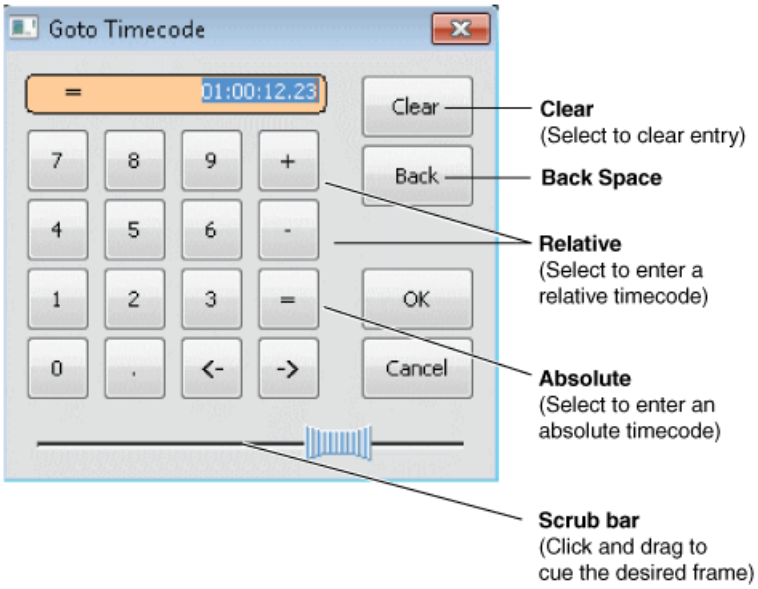
The Goto dialog box allows the player application to jump to the specific clip timecode that you enter. You can enter an absolute timecode value based on recorded timecode, or a relative timecode value, that is, cue the video to a point +/- some value relative the current frame. If you don't know

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 a clip from the Player application on page 80
Playing a clip on page 81
Loading clips from the clips pane on page 80

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.

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** – Jumps 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.

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

Related Topics

Creating subclips in Cue view on page 89

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

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. Using the preview feature, you can play and add cue points to a clip while it is still being recorded.

Related Topics

Adding a cue point while recording on page 66

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.
   - 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.
   a) 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 describe the process of editing a clip.

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.

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.

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
- Moving clip marks: Using the timecode entry controls
- Moving clip marks: Using the clip length control

Related Topics

Clearing mark-in/mark-out points on page 86

Erasing a clip's unused media on page 130

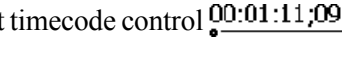
Moving clip marks: Using the In/Out buttons

1. Use the transport controls to locate the desired frame.
2. In Control view, click the **In** button 

to set mark-in point, or click the **Out** button 

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 

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:

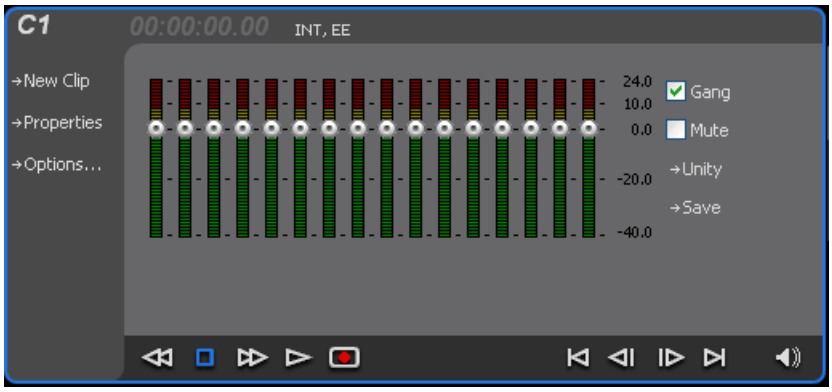
- In Play view, click and hold the **In** or **Out** button, then choose **Clear Mark** in the pop-up menu.
- In Play view, select the mark-in or the mark-out timecode control and click **Clear**, then **OK** to clear the mark.

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 **Mute** to mute or unmute the clip audio level.
5. 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.

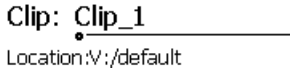
  This resets the clip thumbnail to the 16th frame in the clip.

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.
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:

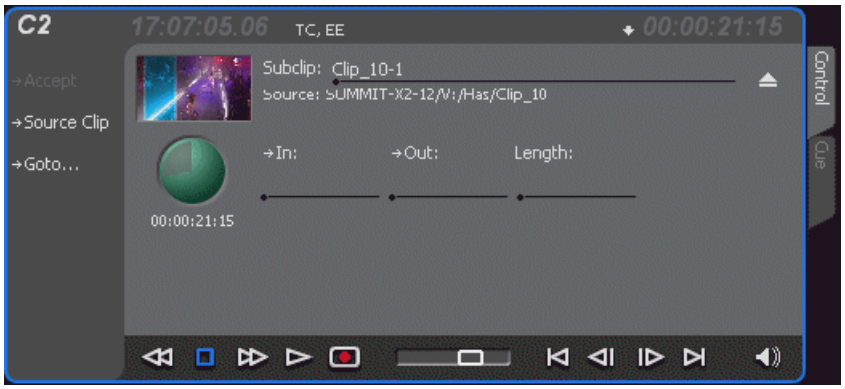
If the source media has been erased, the subclip retains 1 second of media on each side of the mark-in and mark-out points.

Related Topics

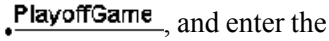
Moving clip mark-in/mark-out points on page 85

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 

, 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.

   NOTE: Until you enter the subclip marks, the Accept button is grayed out.

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

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

   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.

Related Topics

Moving clip mark-in/mark-out points on page 85

About Auto Subclip mode

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 a 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:

1. 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, do one of the following:

- Click the **Properties** button.
- 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:

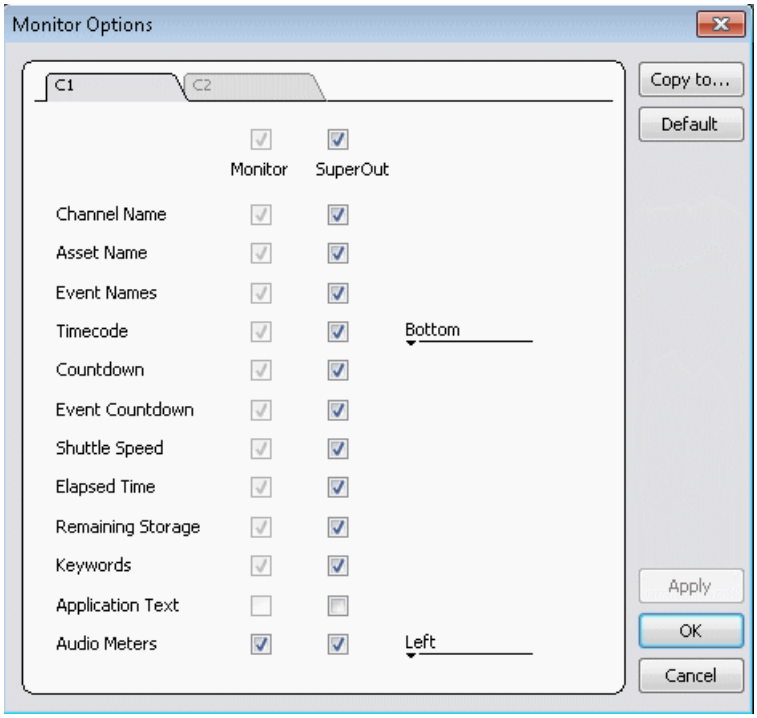
- Select **Control | Options.**

Displaying Super Out information on output/monitor

If licensed for AppCenter Pro or Elite, you can display information on a channel's SDI OUT2 signal and on the VGA video monitor.

1. Click **System | Monitor Options**.

   The Monitor Options dialog box opens.



2. Select the tab for the channel that plays the video with the information you are displaying.
3. Do one or both of the following:
   - To display information on the VGA video monitor for the channel, select the checkbox above **Monitor**.
   - To display information on the channel's SDI OUT2, select the checkbox above **SuperOut**.
4. Select the checkbox for each type of information you are displaying.
5. From the drop-down list, select the location to display the information.
6. Configure other channels as follows:
   - To configure other channels with the same settings as the current channel, click **Copy to**.
   - To configure other channels with their own settings, repeat previous steps as appropriate.
7. When fully configured, click **OK** to apply settings and close.

Chapter 6

Working with playlists

This section contains the following topics:

Introducing the Playlist application

In addition to playing a single clip, AppCenter 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.
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	AppCenter 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 AppCenter 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

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 system. 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.

Related Topics

Importing and exporting streaming media on page 152

Using mixed aspect ratios in a playlist

AppCenter can play clips with different aspect ratios in a single playlist.

The AppCenter supports playout of mixed format clips displayed with default or selectable modes such as bars, crop, or stretch on both SD and HD outputs.

Refer to specifications about how the system displays mixed aspect ratios.

Related Topics

Aspect ratio conversions on HD K2 client on page 235

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 AppCenter 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.

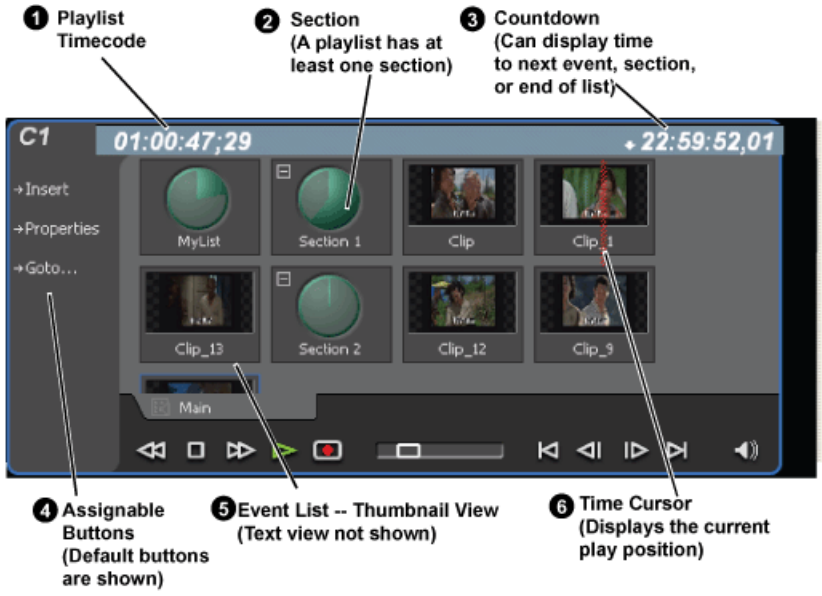
To start Playlist application on a play channel, in the channel's monitor pane, select the application drop-down list and choose **Playlist**. The channel switches to Playlist application and becomes the selected channel.

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 also select the type of display for the asset list– text view, or thumbnail view. The following describes the basic controls.

List in thumbnail mode



	Control	Description and User Operation
1	Playlist Timecode	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).

	Control	Description and User Operation
❷	Section (Text View) Section (Thumbnail View)	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.
❸	Countdown Timecode	Displays the time to the next event, section or end of the list.
❹	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.
❺	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. 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.
❻	Time Cursor	The time cursor indicates the current play position. The time cursor is displayed over the event currently being played.

Control	Description and User Operation
Playlist Menu	**Insert Event** — Opens the Insert Event dialog box, which allows you to insert all event types. **Add Section** — Adds a section to the end of the list. Once you add the section, you can move it. **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. **Open List** — Closes the current list and allows you to open an existing list. **Eject List** — Ejects the current list. **Import List** — Imports a text file and saves it in a playlist format. **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. **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. **Split event** — Used to break one event into two events of the same name. **Combine events** — Used to combine two events into one in a playlist. **Locate** – Locates the list or source clip for an event, depending on the selection, in the Clips pane. **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. Section properties and event properties dialog boxes include options for setting the end behavior— repeat or pause, and GPI output properties. **Move Up** – Moves the selected event up in the list. **Move Down** – Moves the selected event down in the list. **Goto** – Opens the Goto pop-up menu which allows you to jump to selection, next event, next section, or a timecode that you specify. **Options** – Opens the Options dialog box which allows you to choose the list monitoring information displayed in the Playlist application and the monitor pane.

Related Topics

Selecting Text or Thumbnail view on page 100

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. The first list is by default labeled “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.

1. Do one of the following:
   - To create a new list, select **Playlist | New List**.

     The New List dialog box is displayed.
   - For an existing playlist, 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**.

   NOTE: Make sure you do not violate asset naming limitations.

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

Related Topics

Limitations for creating and naming assets and bins on page 248

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:
  a) In the Clips pane, select one or more assets.
  b) Copy the assets to the clip board.
  c) Select an insertion point in the list.
  d) Paste the asset from the clipboard into the list.
- To use the clipboard to move or copy events already in a play list:
  a) Select the event(s) you wish to move or duplicate.
  b) Copy or Cut the selection to the clipboard.
  c) Select the new insertion point in the list.
  d) Paste the event(s) from the clipboard into the list.

Combining events in a playlist

To combine two or more events in a playlist into one event, follow these steps:

1. Highlight all events. A blue line is visible around all the highlighted events.
2. From the file menu, select **Playlist | Combine events**. The events are now combined under the name of the first event in the selection.

   NOTE: The individual assets are not combined, merely the events in the playlist.

Splitting an event in a playlist

To split an event into two events, follow these steps:

1. Highlight the event. A blue line is visible around the highlighted event.
2. Play the event to the point where you want to split it.
3. From the file menu, select **Playlist | Split events**. The event is now split into two events of the same name. You can rename or delete one event without affecting the other.

   NOTE: The asset is not split and renamed, merely the event.

Playing a list

Once the list is complete, you can open it, play it, and eject 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 Summit/Solo system, 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.

Ejecting a playlist

To eject a list, do the following:

Select **Playlist | Eject List**.

The list is ejected from the Playlist channel.

Editing and rearranging events in a playlist

The following topics explain how to edit and rearrange 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:

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

3. Click **OK**.

   NOTE: Make sure you do not violate asset naming limitations.

Related Topics

Limitations for creating and naming assets and bins on page 248

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 108

Managing sections in a list

A list has at least one section; 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**.
- Use the **Edit** menu to **Cut** a section.
- 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 change the order of sections in a list, perform one of the following:

- Drag and drop the section into another location in the list.
- Select a section, then select **Playlist | Move Up** or **Move Down**.

  The section moves up or down one position in the list.
- 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.
- 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**.
   - Click the **Properties** button.
   - Right-click on the section and select **Properties**.
3. Select the section name, then enter a new name.

   NOTE: Make sure you do not violate asset naming limitations.
4. Click **OK**.

Related Topics

Limitations for creating and naming assets and bins on page 248

Adding play effects

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

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 pause at the end of a section

To 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 **Pause** drop-down list. Use the drop-down list to choose whether to **Freeze on last frame, Freeze on next event, none, Show black** or **Show E-to-E**.
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. Use the **Pause** drop-down list to choose whether to **Freeze on last frame, Freeze on next event, Show black** or **Show E-to-E**.

5. Click **OK**.

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

Related Topics

To add pauses or transitions to all events in a playlist, section, or event on page 110

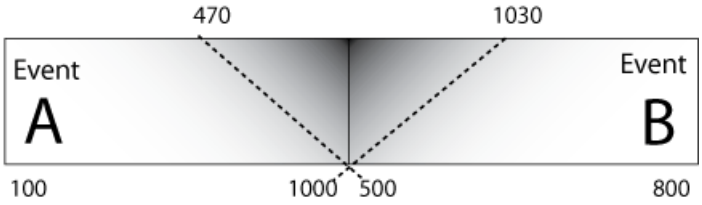
To remove pause from all events in a section on page 111

About transition effects

This feature is part of the licensable AppCenter Pro option on supported formats.

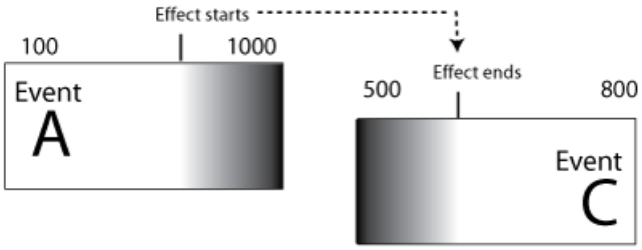
In Summit, AppCenter Pro lets you make transitions to all events in a section or list. There are two types of transitions: you can apply transitions to all the events in a section or playlist, or you can apply transitions that only apply when you skip from one event to another.

Transition effects applied to playlist, section, or event properties



When you use the Properties| All Events feature to apply a transition such as the "Dissolve" effect to adjacent events, there is some overlap. In this example, Event B starts at 500, but AppCenter Pro starts the fade effect at 470. If there is no extra material at 470, a still frame will be displayed until 500 is reached.
This effect can apply to an event, a section, or a whole playlist depending on whether you have selected playlist, section, or clip properties.

Transition effects applied while skipping from one event to another



When you apply a transition effect such as "Dissolve" and skip from one event to another using Options | Go To , AppCenter Pro starts the effect at the indicated point on event A and ends the effect at the indicated point on event C. (There is no overlap.)

Related Topics

Operational specifications on page 231

Transition effects formats and limitations on page 259

To add pauses or transitions to all events in a playlist, section, or event

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

If you have selected Pause, during playback each event will remain paused at its end until you intervene. The pause symbol ● appears in the corner of the event thumbnail.

NOTE: Apart from Freeze, all transition effects require AppCenter Pro licensing.

To add a pause or transition at the end of an event or all events in a playlist or section:

1. Select the event, section, or list.
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. To add a pause, select the **Pause** drop-down list, select **freeze on last frame**, **freeze on next event**, **none**, **show black**, or **show E to E**.
5. To add a transition, select the **Transition** dropdown list, select **none**, **dissolve**, **Fade thru black, Fade thru white, Audio cross-fade**, or **Audio fade thru silence.** If desired, click **include audio**.
6. If you are adding a transition, you can also enter a time for the length of the transition: **.25**, **.50**, **.75**, **1.00**, **1.50**, or **2.00** seconds.
7. To have the effect apply to events added from this point on, Apply to New Events button.

8. When finished, click the **Apply All** button. (If you click **OK**, the dialog box closes without saving any changes.)

To add transitions to all events in a playlist

The AppCenter Pro handles transitions made on the fly.

NOTE: All transition effects require AppCenter Pro licensing.

To add an on-the-fly pause or transition to a playlist:

1. With the playlist open, select **Playlist | Options** and select the **Go To** tab.
2. Select the desired transition, and click **OK**.

   NOTE: Check specifications for limitations on the transition length.

When you use the **Go To** feature to skip from one event, the transition takes effect.

Related Topics

Transition effects formats and limitations on page 259

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 by selecting **System | Configuration**.
2. Make the changes to the GPI settings.

3. 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**.
4. 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.
5. 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.
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.

6. Click **OK** to save settings.

Managing playlists

You can manage playlists by doing the following tasks.

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**.

   NOTE: Make sure you do not violate asset naming limitations.

   The renamed list appears in the Clips pane.

Related Topics

Limitations for creating and naming assets and bins on page 248

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.

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.

Related Topics

Striping timecode (replacing the timecode track) on page 87

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**.

Related Topics

Locking a playlist on page 113
Setting the playlist timecode on page 113

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 or effects 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**.

   NOTE: Make sure you do not violate asset naming limitations.

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

Related Topics

Limitations for creating and naming assets and bins on page 248

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.
- A “wild character” 99:99:99:99 can be used, in either the mark in or duration columns, to indicate that the clip should be inserted in its entirety.
- A section can be specified in the following 3 ways:
  - <section>

    Results in a section with a default name and no pause
  - <section> MyCommercialPod

    Results in a section named "MyCommercialPod" with no pause
  - <section> MyCommercialPod StopBlack

    Results in a section named "MyCommercialPod" with a pause at the end that displays black. Pause type can be any of the following: StopBlack, StopFreeze, StopNext, or StopEE.
- 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
```

Importing a text file as a playlist into AppCenter

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

This section contains the following topics:

Managing clip media

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

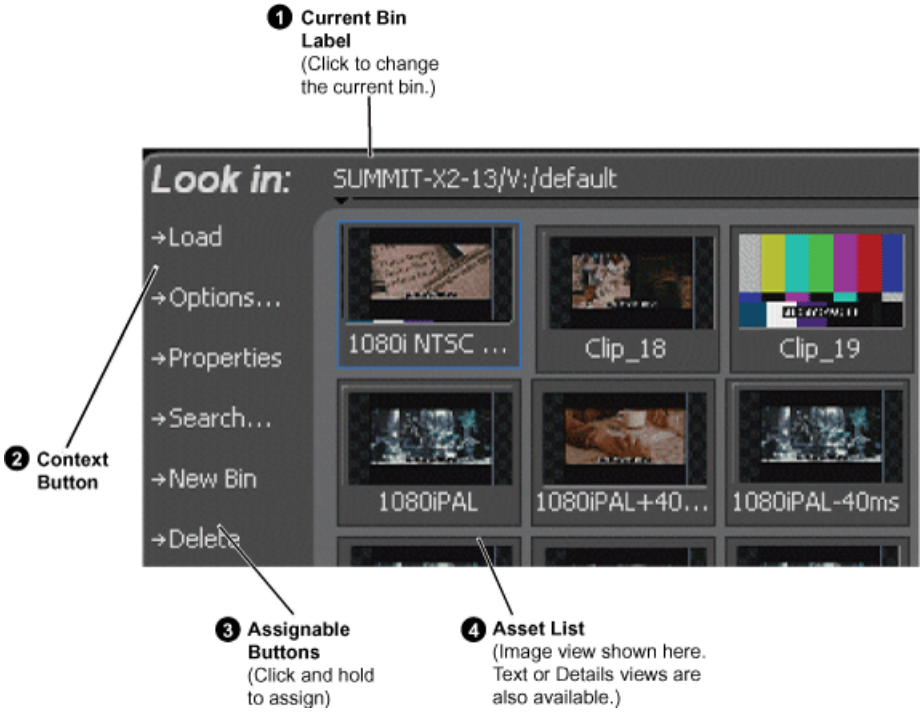
Guide to using the Clips pane

The Clips pane in the AppCenter 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 AppCenter remotely from a Control Point PC, you can have channel suites with channels from K2 Summit/Solo system 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.



	Control	Description and User Operation
❶	Current Bin Label	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.
❷	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.***
❸	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. • Search– Opens the search dialog box. • 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. • Options– Opens the options dialog box which allows you to modify how assets are displayed in the asset list. • Delete– Deletes the selected item(s). • Rename– Opens the Rename dialog box. • Send to– Opens the Send to dialog box used to send the asset to a file, or streaming transfer to another networked device.

	Control	Description and User Operation
❹	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. 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). Assets recorded using a different video standard or compression type than the current system setting cannot be loaded and played on the K2 Summit Production Client. For example, if you record a PAL clip, you cannot play it on a channel that is configured for NTSC. These assets appear "grayed" in the Clips pane asset list.

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 supports nested bins, that is, a bin contains 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 Summit/Solo system media storage 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.

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.

Related Topics

Finding linked assets on page 136

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..
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.

Related Topics

Working with bins on page 125

Working with the Recycled Bin on page 133

About the Clips menu

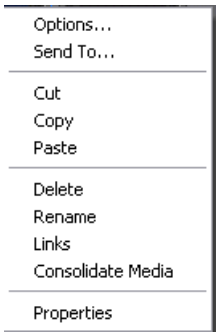
Click **Clips** in the AppCenter main menu to display the Clips pane context menu. The following table describes the context menu items.

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.
Organize Bins	Allows you to manage the bins.
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.
Delete	Deletes the selected asset.
Rename	Opens the Rename dialog box for the selected asset.
Select All	Selects all items in the asset list. Operations available for Select All include: delete, send to, and copy.

Menu Item	Description
Search	Opens the Search dialog box, which is used to perform basic or advanced searches.
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.
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 Summit/Solo system. 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 Summit Production Client. • Other media file formats from a local drive or over the network.
Properties	Opens the Properties dialog box for the selected asset.
Options	Opens the Options dialog box, which allows you to change the way assets are displayed in the asset list.

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.
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 Summit Production 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.
Delete	Deletes the selected asset.

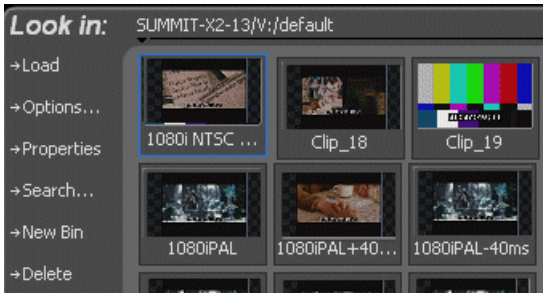
Menu Item	Description
Rename	Opens the Rename dialog box for the selected asset.
Links	Opens the Links dialog box allowing you to locate other assets that are linked to the selected asset.
Consolidate media	Erase unused media.
Properties	Opens the Properties dialog box for the selected asset.

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.

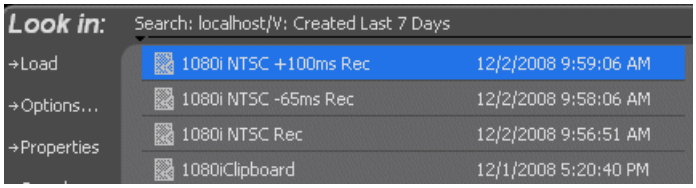
1. Select **Clips | Options**.

2. In the View tab, select one of the following view options:
   a) 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.

   b) 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.

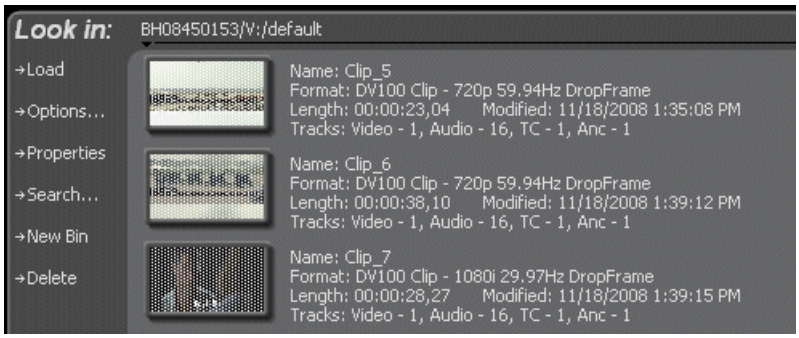
   Attribute display options:

   - 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

   c) 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

Topic in this section provide information about K2 system bins.

Using security with 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 System Guide*.

Changing current (working) bin.

- In the Clips pane, click the Current Bin label, 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, 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 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 where you want the bin to be created (e.g. at the top level or as a sub bin of an existing bin), then click **New Bin**.

   NOTE: Make sure you do not violate bin naming and nesting limitations.

2. Enter the new bin name, then click **OK**.

   The new bin appears in the Organize Bins dialog box.

   NOTE: There are additional buttons displayed, which permit you to rename or delete the bin.

3. Close the Organize Bins dialog box.

Related Topics

Limitations for creating and naming assets and bins on page 248

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.

   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.

Related Topics

Bypassing the Recycled Bin when deleting on page 133

Renaming a bin

NOTE: If you rename the working bin, it changes to the default bin. 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, 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**.

   NOTE: Make sure you do not violate bin naming limitations.
4. Close the Organize Bins dialog box.

Related Topics

Limitations for creating and naming assets and bins on page 248

Working with assets

Assets displayed in the Asset List include clips, subclips, playlists, and programs. Refer to the following sections to work with assets.

Renaming an asset

1. Select the asset in the Asset List.
2. Select **Rename** using one of the following:
   - Select **Clips | Rename**.
   - Select **Rename** in the asset context menu.
   - Click the **Rename** button in the Clips pane.

   The Rename dialog box appears.

   If the Rename button is not displayed in the Clips pane, refer to assignable buttons in the Guide to using the Clips pane section.
3. Edit the asset name, then click **OK**.

   NOTE: Make sure you do not violate asset naming limitations.

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

Related Topics

Limitations for creating and naming assets and bins on page 248
Guide to using the Clips pane on page 118

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.
   - Select **Edit** in the AppCenter main menu, then choose **Cut**.
   - Use keyboard shortcut **Ctrl + X**.
3. Change the current bin to the target bin.
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**.
   - Select **Send To** in the asset context menu.
   - 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 the Guide to using the Clips pane section.

   The Send dialog box appears.
3. Click the Bin tab.
4. Select **Move to** in the right-hand drop-down list.
5. Select the target bin name.

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

Related Topics

Guide to using the Clips pane on page 118

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.
   - 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.
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 do one of following:
   - Select **Clips | Send To**.
   - Select **Send To** in the asset context menu.
   - 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 the Guide to using the Clips pane section.

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

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

Related Topics

Guide to using the Clips pane on page 118

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.

If you want to delete an asset that has a sub-clip or that is part of a playlist or a program, you must first use the Consolidate Media feature.

Deleted assets are moved to the Recycle Bin unless the bypass Recycle Bin option is used. You must empty the Recycle Bin to free storage space.

To delete an asset:

1. If associated with playlist, program, or sub-clip, right-click on the asset and select **Consolidate Media**.
2. Select the asset or assets in the Asset List.
3. Select **Delete** using one of the following:
   - Select **Clips | Delete**.
   - Select **Delete** in the asset context menu.
   - Click the **Delete** button in the Clips pane.

   If the Delete button is not displayed in the Clips pane, refer to assignable buttons in the Guide to using the Clips pane section.

   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.

   NOTE: Assets that are locked or currently being recorded cannot be deleted.

Related Topics

Guide to using the Clips pane on page 118
Bypassing the Recycled Bin when deleting on page 133

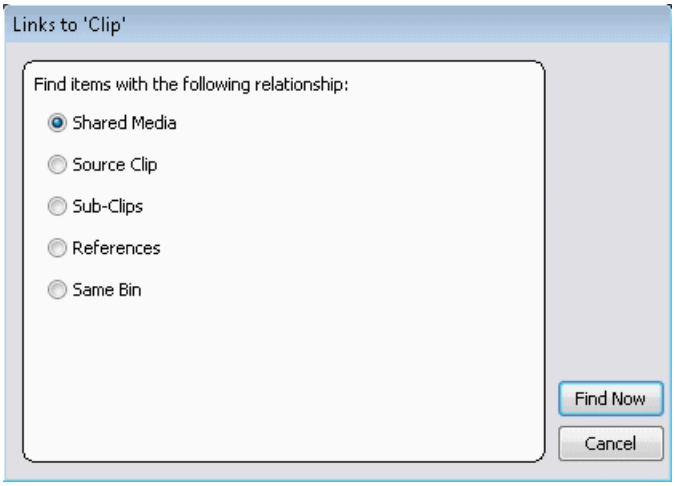
Erasing a clip's unused media

For K2 Summit/Solo systems, you can use the Consolidate Media feature to delete unwanted material from trimmed clips, subclips, programs or playlists. Although similar to the Erase Unused Media feature in K2 Media Client systems, there are some differences in how material is handled. The following table describes the similarities and differences.

When using...	K2 Media Client Erase Unused Media	Summit Consolidate Media
Trimmed clips (Media not referenced by any subclip, program, or playlist)	Any unused storage is released; the media outside the in/out marks is erased.	No effect; nothing is erased.
Subclips, programs, or playlists	With the Erase Unused Media feature, the source clip and the subclip both reference the same media. Unused media is not erased from a subclip unless the source clip has first been deleted manually.	With the Consolidate Media feature, the subclip media is copied from the source material. Once you have consolidated the media, you can manually delete the source media; the subclip is not affected. Consolidating the media also removes the links to the assets. ***NOTE: Before consolidating media, make sure you have enough storage for the newly copied material. Maintain free space equivalent to the longest clip consolidated.***

NOTE: One second of media is retained (for editing) before and after the trimmed clip, subclip, program or playlist.

When you consolidate media, the links between the assets are also removed.



Consolidating media

To consolidate media:

1. Select the clip in the asset list.
2. Right-click on the asset and select **Consolidate Media**.

   A Consolidating message box appears.

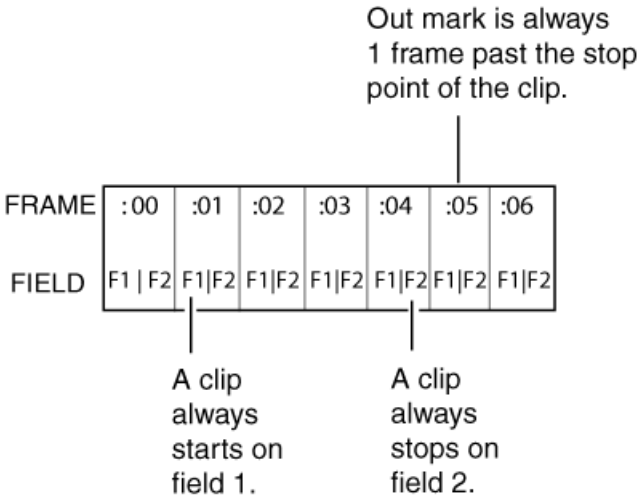
   NOTE: To verify that the media has been consolidated, you can check the file size in the V:\ drive.

After consolidating 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 a K2 Summit/Solo system, 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 Summit/Solo system system goes to field 1. When you navigate through a clip to the end, the K2 Summit/Solo system goes to 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**.
   - Select **Properties** in the asset context menu.
   - Click the **Properties** button in the Clips pane.

   If the Properties button is not displayed in the Clips pane, refer to assignable buttons in the Guide to using the Clips pane section.

   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.

Related Topics

Guide to using the Clips pane on page 118

Working with the Recycled Bin

To work with the recycled bin, refer to the following topics.

Viewing the Recycled Bin contents

- In the Clips pane, select the Current Bin label, then select **Recycled Bin**.

  The Recycled 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 Recycled Bin

1. In the Clips pane, select the Current Bin label, then select the **Organize Bins**.
2. In the Organize Bins dialog box, select **Recycled Bin** from the bin list.
3. Click **Empty**, then **Yes** to confirm.
4. Close the Organize Bins dialog box.

Bypassing the Recycled Bin when deleting

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

1. In the Clips pane, select the Current Bin label, then select the **Organize Bins**.
2. In the Organize Bins dialog box, choose **Recycled 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.

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**.
   - Right-click an asset, then select **Options** in the asset context menu.
   - Click the **Options** button in the Clips pane.

   If the Options button is not displayed in the Clips pane, refer to assignable buttons in the Guide to using the Clips pane section.
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.

Related Topics

Guide to using the Clips pane on page 118

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**.
   - Click the **Search** button in the Clips pane.

   If the **Search** button is not displayed in the Clips pane, refer to assignable buttons in the Guide to using the Clips pane section.

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.

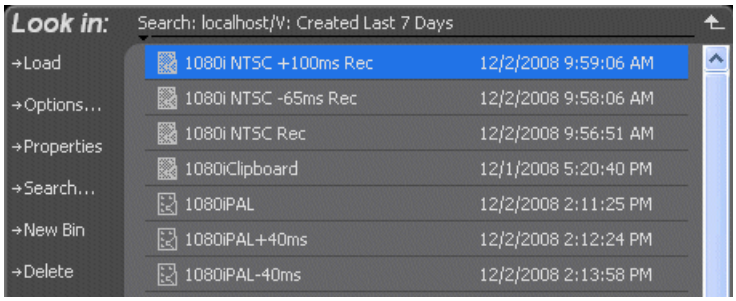
   - **Search by date** – If you are searching for assets created or modified within a specific date or time range, use the **Date** tab. By default, the **All Dates** box is selected. To specify date criteria, select the **Find items** option to enable the controls under it. Use the drop-down list to choose **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 7 Days* for assets created in the last week.



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.

Related Topics

Guide to using the Clips pane on page 118
Working with asset metadata on page 137

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**.
   - Click the **Search** button in the Clips pane.

   If the **Search** button is not displayed in the Clips pane, refer to assignable buttons in the Guide to using the Clips pane section.
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.

   You can select advanced search attributes along with their conditions and value choices. Advanced searches can include metadata attributes.
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.

Related Topics

Guide to using the Clips pane on page 118
Working with asset metadata on page 137

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**.
   - Right-click an asset, then select **Links**.
   - Click the **Links** button in the Clips pane.

   If the Links button is not displayed in the Clips pane, refer to assignable buttons in the Guide to using the Clips pane section.

3. Choose one of the link relationships to use.

Link Relationship	Description
Shared media	Find all assets that reference the same media files, that is, 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.

Related Topics

Guide to using the Clips pane on page 118

Working with asset metadata

The properties dialog box displays information about an asset. 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

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.

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**.
   - Select **Properties** in the asset context menu.
   - Click the **Properties** button in the Clips pane.

   If the Properties button is not displayed in the Clips pane, refer to assignable buttons in the Guide to using the Clips pane section.

   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.
   b) Select **Type**, then choose a data type from the drop-down list. Metadata types include: String, Integer, Float, Date, and Boolean.
   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.

Related Topics

Guide to using the Clips pane on page 118
Working with asset metadata on page 137

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**.
   - Select **Properties** in the asset context menu.
   - Click the **Properties** button in the Clips pane.

   If the Properties button is not displayed in the Clips pane, refer to assignable buttons in the Guide to using the Clips pane section.

   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.

Related Topics

Guide to using the Clips pane on page 118

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.

Deleting justly created metadata name

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.

Deleting a metadata name already in use

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.

Viewing asset properties

The properties dialog box varies depending on the asset.

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**.
   - Select **Properties** in the asset context menu.
   - Click the **Properties** button in the Clips pane.

   If the Properties button is not displayed in the Clips pane, refer to assignable buttons in the Guide to using the Clips pane section.

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.

Related Topics

Guide to using the Clips pane on page 118
Working with asset metadata on page 137

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 AppCenter to handle an aspect ratio conversion.

Viewing Data properties page

This page allows you to define your own metadata and specify values for that metadata.

Related Topics

Working with asset metadata on page 137

Viewing playlist properties

- The playlist properties dialog box includes features that control list playback in the Playlist mode.

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.**
   - Select **Properties** in the asset context menu.
   - Click the **Properties** button in the Clips pane.

   If the Properties button is not displayed in the Clips pane, refer to assignable buttons in the Guide to using the Clips pane section.

The Program Properties dialog box is displayed with 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.

Related Topics

Guide to using the Clips pane on page 118

Working with asset metadata on page 137

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 section contains the following topics:

Importing and exporting files

This section describes the process of importing and exporting files using AppCenter. You can also transfer media using an FTP application. For information on using FTP, refer to "K2 System Guide".

About importing and exporting files

You can import and export files using standard multimedia. Source files can be located on a local K2 Summit/Solo system disk drive 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 Summit/Solo system 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 a K2 Summit SAN-attached system while it appears as if your view of the “local” Windows file system is that of the K2 Summit SAN-attached system, 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 K2 Summit SAN-attached system to create a verified source or destination, even if the source or destination you intend is in fact a local drive on the K2 Summit SAN-attached system itself. To do this, on the source or destination machine create a shared folder, then on the K2 Summit SAN-attached system 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.

If importing from a 3rd party external drive, playing media while importing is not supported.

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, Interchange Standards, and Movie formats for GXF imports/exports

K2 Summit/Solo system supports GXF, MXF, and other multimedia file formats for import/export.

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.

Related Topics

Operational specifications on page 231

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.

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.
   a) Enter the name or the IP address of the K2 Summit/Solo system 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 System Guide*.)
   b) When adding a remote host that uses AMP remote control protocol, select a Controller ID.

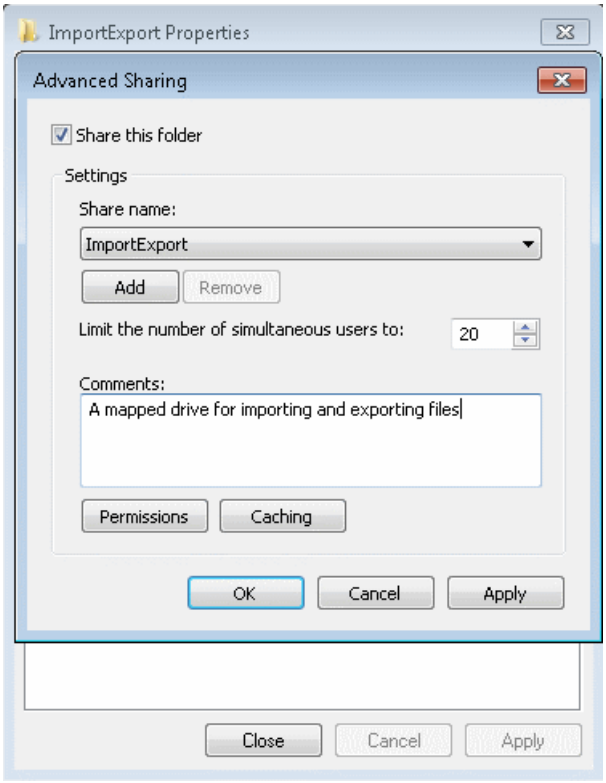
To map a source or destination drive

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:

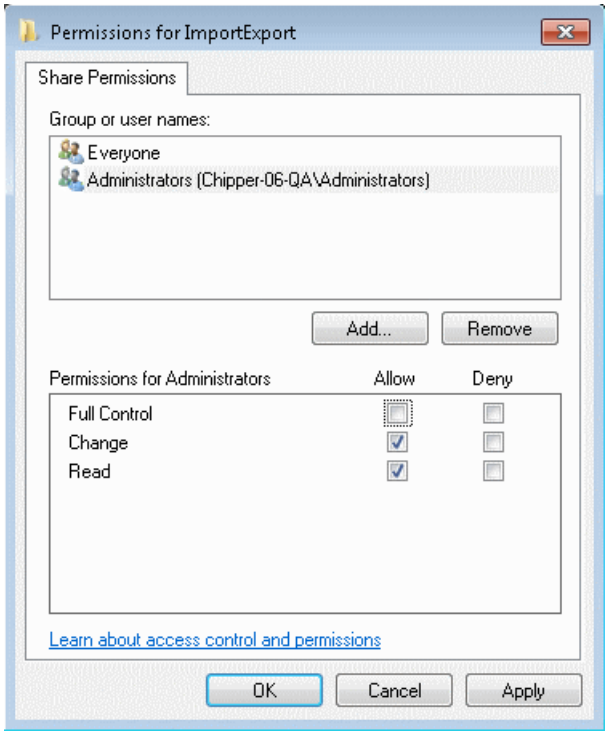
- When using AppCenter on a Control Point PC for any file import or export. You cannot use the local drive for file import or export on a Control Point PC.
- When using AppCenter on a K2 Summit SAN-attached system for any file import or export. You cannot use the local drive for file import or export on a K2 Summit SAN-attached system.
- When using AppCenter on an standalone K2 Summit/Solo system and the source or destination is not on the local K2 Summit/Solo system.

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.

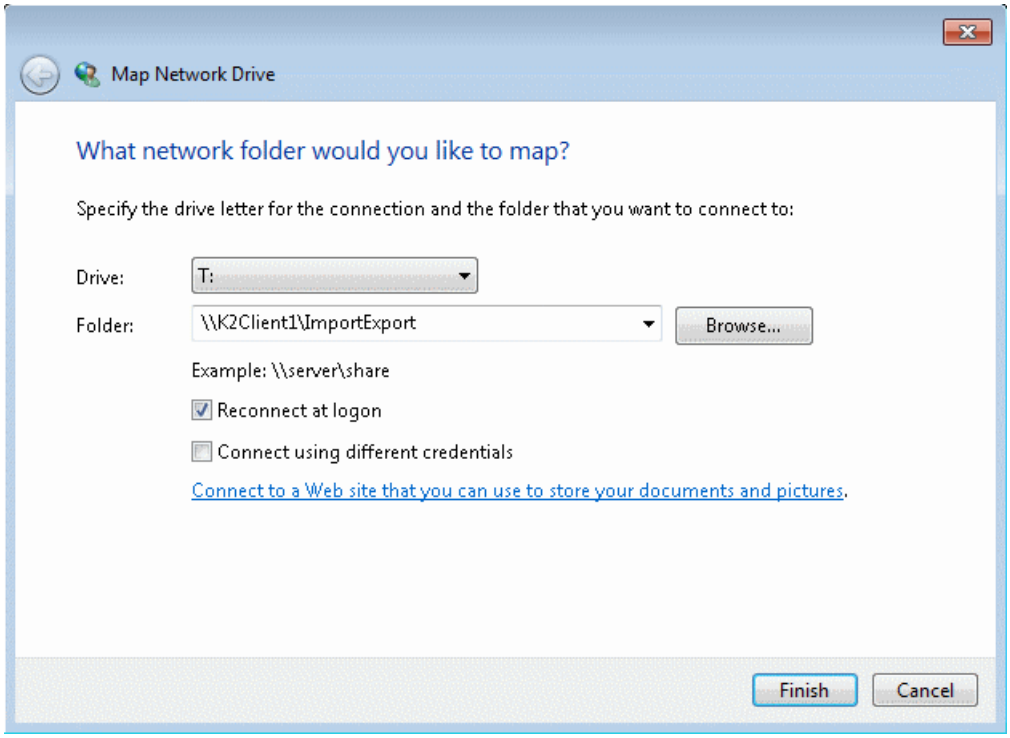


3. Make sure that permissions are set to allow read and write access to the appropriate user or group accounts, according to your site's security policies.



NOTE: A drive that you map for export must not require user credentials for access. If user credentials are required, the export transfer fails.

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*.



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 a standalone K2 Summit/Solo system and the source is a local drive, the local drive is a verified source. It is not necessary to share a folder or map a drive.
- When using AppCenter on a K2 Summit SAN-attached system and the source is a local drive on the K2 Summit SAN-attached system, create a verified source as follows:
  - On the K2 Summit SAN-attached system, share a folder.
  - On the K2 Summit SAN-attached system, 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 Summit/Solo system you are accessing with AppCenter, create a verified source as follows:
  - On the K2 Summit/Solo system, share a folder.
  - On the Control Point PC, map the shared folder as a network drive.

NOTE: The appearance of the asset list and file open dialog boxes is determined by the Options setting.

To import a video file, do the following:

1. Verify the current bin. The current bin is the destination directory for the import operation.
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.

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

   NOTE: Import is a background task and can be monitored using the Transfer Monitor.
9. Once you have specified how to import the file, click **OK.**

Related Topics

About importing and exporting files on page 144
To map a source or destination drive on page 145

About exporting files

You can export K2 system clips using standard media file formats.

Files can be exported over an Ethernet connection to network drives or to common forms of removable media.

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.

Related Topics

Operational specifications on page 231

About sending files to external drives

Transferring to and from a USB drive is supported on a local standalone K2 Summit/Solo system. (You can also transfer files in K2 Solo Media Server using a PCIE Express card.) USB drive transfers on K2 Summit SAN-attached system or Control Point PCs are not supported. 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.
- **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 Summit/Solo 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.

Related Topics

Passwords and security on Grass Valley systems on page 30

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 a standalone K2 Summit/Solo system and the destination is a local drive, the local drive is a verified destination. It is not necessary to share a folder or map a drive. On the K2 Summit SAN-attached system, share a folder.
- When using AppCenter on an K2 Summit SAN-attached system and the destination is a local drive on the K2 Summit SAN-attached system, create a verified destination as follows: On the K2 Summit SAN-attached system, 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 Summit/Solo system you are accessing with AppCenter, create a verified destination as follows: On the K2 Summit/Solo system, share a folder. On the Control Point PC, map the shared folder as a network drive.

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**
   - 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** 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.

Related Topics

About importing and exporting files on page 144
To map a source or destination drive on page 145

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. 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...
Standalone K2 Summit/Solo system	The local K2 Summit/Solo system
K2 Summit SAN-attached system	The K2 Media Server that takes the role of FTP server for that K2 Summit system.
Control Point PC remotely accessing a standalone K2 Summit/Solo system	The standalone K2 Summit/Solo system

If you are using AppCenter on a...	The C: drive is located on...
Control Point PC remotely accessing a K2 Summit SAN-attached system.	The K2 Media Server that takes the role of FTP server for the K2 Summit SAN-attached system.

Importing and exporting streaming media

This section describes the process of importing and exporting streaming media using AppCenter. You can also transfer media using an FTP application. For information on using FTP, refer to "K2 System Guide".

About importing and exporting streaming media

You can transfer media between a K2 Summit/Solo system and other Grass Valley media devices using the **Import** and the **Send to** features. The K2 system supports streaming media transfers over the 1Gb Ethernet port. Source or destination devices for a streaming transfer include K2 Summit/Solo system. 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, you must first add the remote host in Configuration Manager.

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 Summit/Solo systemcan 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.

Related Topics

Adding a remote host on page 145
Importing streaming media on page 153
Exporting streaming media on page 153
Movie formats for GXF imports/exports: on page 152
Transfer timings and Interchange Standards on page 153

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.

Transfer timings and Interchange Standards

The timing of the transfer with record/play operations depends on the clip's storage location. For information about transfer timings or interchange standards, refer to the operational specifications.

Related Topics

Operational specifications on page 231

Importing streaming media

K2 Summit/Solo system allows playout of movies that are still transferring in. Make sure the bandwidth of the import task is greater than the media bit rate.

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**
   - 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 system 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.

Related Topics

Types of Grass Valley (GV) users

Starting the Transfer Monitor

To start Transfer Monitor, perform one of the following:

- Select **System | Transfer Monitor**
- 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.
- **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**.

Related Topics

Viewing detailed transfer job properties on page 156

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 Summit SAN-attached system*, be aware that the transfer will display in Transfer Monitor referencing the name of the K2 Summit system. 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-SummitProductionClient-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.

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**.
   - Select the jobs to remove, then click **Remove All**.

Chapter 9

Using Channel Suites

This section contains the following topics:

Using channel suites

Use channel suites for remote AppCenter operation of one or more K2 Summit//Solo systems. Channel suites are part of the Control Point software installed on a remote PC. You cannot use channel suites on a local K2 Summit/Solo system.

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 Summit/Solo 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.

If there is an unplanned shut down on the K2 Summit/Solo system, the channels in remote AppCenter display a "disconnected" status in the channel title bar. Select **System | Reconnect** to connect to the K2 Summit/Solo system again. If the AppCenter application crashes on your network-connected Control Point PC, connections with the K2 Summit/Solo system are put into a suspended state while waiting for the PC to reconnect. The K2 Summit/Solo system 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.

Related Topics

Sharing channels with other users on page 160

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.
Configure the channel settings	In AppCenter, select **System	Configuration**.

Task	Action
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 Summit/Solo system 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 sources through one Control Point PC. You can move from a channel on one source to a channel on another without disrupting playout.

You can use a channel suite with channels that access media stored on different K2 Summit/Solo system or K2 SANs. 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 source. For example, if you have channels in your channel suite from standalone K2 Summit/Solo system “A” and from standalone K2 Summit/Solo system “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.

Related Topics

Importing and Exporting Media

Accessing a K2 Summit/Solo 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 Summit/Solo 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 source 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 Summit/Solo system for operation by using one or more channel suites, the channels on a K2 Summit/Solo system 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 sources, it is possible to open Configuration Manager on each of those sources from within the one channel suite. Therefore, make sure you select 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 Summit/Solo system, 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 System Guide*.

Take special care when modifying a channel configuration as follows:

- Changes that apply to all channels on a K2 Summit/Solo system. This can affect media operations in other channel suites that contain channels from that K2 Summit/Solo system.
- Changes that require rebooting the K2 Summit/Solo system, 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 Summit/Solo system.

NOTE: Configuration changes require K2 admin access privileges.

Chapter 10

Audio/Video Configuration

This section contains the following topics:

Using Configuration Manager

To modify settings in Configuration Manager, you must be currently logged in to AppCenter with administrator privileges.

NOTE: Using HD requires an XDP (HD) license. If you do not have an HD license, refer to the SD configuration specifications only.

Open Configuration Manager from the AppCenter menu bar at **System | Configuration**.

NOTE: If you are accessing a* K2 Summit/Solo system *from a Control Point PC with a channel suite that has channels from multiple sources, make sure that you select a channel from the* K2 Summit/Solo system *that you want to configure before opening Configuration Manager.

About video scaling settings

The AppCenter video scaling feature allows you to play clips with different aspect ratios and picture resolutions on the same play channel.

AppCenter 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.
- 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 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.
- For each play channel you must specify the active format description (AFD) settings to use when the picture image needs to be resized. Selections include crop, bars, halfbars and stretch.
- There are two settings: **Aspect Ratio** and **Aspect Ratio Conversion**. The K2 Summit/Solo system applies these settings as follows:
  - The K2 Summit/Solo system uses the Aspect Ratio setting only when AFD is known and when down-conversion takes place.
  - The K2 Summit/Solo system uses the Aspect Ratio Conversion setting only when AFD is not present or is undefined and either up-conversion or down-conversion takes.

  For example, if you change the Aspect Ratio Conversion setting and then play a clip with AFD present, the output does not change.
- For the highest video quality, select a video output format that eliminates the need for up or down conversion.
- AppCenter 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* "K2 System Guide".**

Related Topics

Active Format Description (AFD) specifications on page 237

About aspect ratio conversion modes

The aspect ratio conversion mode setting for the play channel determines how the picture image is resized for playout.

Related Topics

Aspect ratio conversions on HD K2 client on page 235

Applying AFD settings

Active Format Description (AFD) can be used to automatically determine the proper aspect ratio to use for up- and down-conversions.

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 make settings in Configuration Manager to specify under what conditions the K2 Summit/Solo system should process AFD (for output only, on a per-channel basis).

When recording, the following AFD settings are available:

SD	HD
Undefined	Undefined (Undefined means no AFD has been set; the clip remains as is.)
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

Channels with HD licenses need to set the AFD values when aspect ratio conversion has been performed while playing out video. Channels that are SD-only do not perform aspect ratio conversion; AFD values do not need to be adjusted on those channels.

Clips with AFD recorded on a K2 Media Client will play on a K2 Summit/Solo system, and vice versa. Clips will have either ARC or AFD properties, not both. AFD in ancillary data is preserved in the data track during recording.

NOTE: Other methods of expressing AFD, such as video index or bar data, are not supported.

Related Topics

Active Format Description (AFD) specifications on page 237

Setting AFD in the Clip Properties

Any modification to the AFD settings made here applies to the selected clip only.

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**.

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**.

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:

For this setting...	Configure as needed...

AFD Settings	Defines AFD in clips output from the K2 Summit/Solo system. You can select the following:
	• **Record AFD as clip property**:
	  • Yes – When an AFD setting is present it is set as the default in clip properties. This is the default K2 system behavior.
	  • No – When an AFD setting is present it is not set in clip properties.
	• **Generate AFD on Output**:
	  • Always – As automatically determined by the K2 system.
	  • When Known – As set in clip properties.
	  • Never – Pass-through any AFD already present.
	• **SD 16:9 Full screen up-conversion AFD**: Select AFD code1010 or 1001, as required by your site's downstream processing. This does not affect the visual display at the K2 system output.

4. Click **OK** to apply the setting

Configuring video reference standard settings

The video reference standard setting is global to the K2 Summit/Solo system 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.

1. In AppCenter, open the Configuration Manager.
2. Click **System**.

3. Configure settings as follows:

For this setting...	Configure as needed...
Reference Standard	Choose **NTSC** or **PAL**.
	Determine status of **Reference present**. • Green LED — source present • Black LED — source not present
	Determine status of **Reference locked**. • Green LED — system locked • Black LED — system not locked

Related Topics

Active Format Description (AFD) specifications on page 237
Configuring data track settings on page 175

Configuring reference file type on a standalone K2 Summit/Solo system

1. In AppCenter, click **File | System | Configuration**.
   Configuration Manager opens.
2. In Configuration Manager, click the **System** tab.
3. In Reference Files settings, for the **Reference file type** setting, select one of the following:
   - None — K2 software does not create reference files.
   - QuickTime — K2 software creates QuickTime reference files.
   - MXF — K2 software creates MXF reference files.
4. Click **OK** to apply the setting.
5. Restart the standalone K2 Summit/Solo system to put the change into effect.

About tri-level sync

The K2 Summit/Solo system supports tri-level sync as a genlock reference source. The reference must be in an HD format and frame rate that is supported by the K2 Summit/Solo system, as follows:

- Reference Standard: NTSC (59.97Hz)
  - 1080i 29.97
  - 720p 59.94

- Reference Standard: PAL (50Hz)
  - 1080i 25
  - 720p 50

The K2 Summit/Solo system automatically detects, switches, and syncs to the reference. When you configure the reference standard for either NTSC (59.97Hz) or PAL (50Hz) in K2 AppCenter Configuration Manager, a restart is required to put the change into effect and the system starts with a SD reference format by default. It then attempts to detect a reference in a format and frame rate that is compatible with the current reference standard setting. When the K2 Summit/Solo system detects a reference in a supported format, it automatically switches to that format. This allows the system to switch between SD and HD tri-level formats with frame rates that are compatible with the reference standard setting. When the K2 Summit/Solo system locks to a new reference format, it saves the format and frame rate information, and upon restart it returns to the saved format and frame rate.

Do not use a progressive reference with an interlace output. For example, do not use 720p tri-level sync for interlace output formats (such as SD and 1080i). Output timing can be off by a field with this type of incompatibility.

The K2 Summit/Solo system treats the following conditions as a loss of reference:

- No reference is present
- A reference in an unsupported format is present
- A reference in a supported format is present but it has a frame rate that is not compatible with the current reference standard setting.

In these cases the K2 Summit/Solo system internal genlock flywheel provides a stable reference for the last reference set. The system reports this status in K2 AppCenter Configuration Manager Reference Standard by a black "Reference present" indicator and sends a message to NetCentral.

Configuring record channel video settings

If you are using a channel suite with channels from multiple sources, make sure that you have selected a channel from the K2 Summit/Solo system that you want to configure before accessing Configuration Manager.

Video record compression settings are not global; they can be set on a channel by channel basis.

⚠ ***CAUTION: When using a* K2 Summit SAN-attached system *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 Summit SAN-attached system *and increase its bandwidth requirements, you risk losing media access. For a more detailed description of load balancing, see* "K2 SAN Installation and Service Manual".**

1. In AppCenter, click **System | Configuration**.

   Configuration Manager opens.

2. Click **Channel**, and select a channel.

3. Configure settings as follows:

For this setting...	Configure as needed...
Type	If licensed for AppCenter Elite you can configure the channel to be a ChannelFlex Suite Channel. When you do so, settings change accordingly.
Name	If desired, enter a name for the channel.
Input format	Changing video input format does not require a restart of the K2 Summit/Solo system. 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.
Compression format	Settings are available, based on codec option cards, HD licensing options, and input formats.
Input type	K2 Summit/Solo system are SDI only.
Video input	If 720p or 1080i selected: • Green LED — input present • Black LED — input not present
Ancillary data timecode inputs (LTC or VITC)	If 720p or 1080i selected: • Green LED — input present • Black LED — input not present
Automatic VITC detection	Turn on or off as desired. VITC settings vary based on selection.
Starting VITC line or VITC line 1	Available range varies, based on NTSC or PAL selection
Ending VITC line or VITC line 2	Available range varies, based on NTSC or PAL selection
AFD settings	Refer to AFD specifications.

Related Topics

Active Format Description (AFD) specifications on page 237
ChannelFlex Suite and licensing on page 198

Configuring record channel audio settings

On the K2 Summit/Solo system, available settings change depending on the audio input selected, as in the following sections.

AES/EBU audio settings

1. In AppCenter, click **System | Configuration**.
   Configuration Manager opens.
2. Click **Channel**, and select a player/recorder channel.
3. For **Audio input type**, select **AES / EBU**.
4. Configure as follows:

For this setting...	Configure as needed...
Number of audio inputs	Select the number of inputs. Settings below change, based on your selection.
A1/A2 input format	Select the input format.
A3/A4 input format	Select the 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.
Display audio meters	Select **System	Monitor Options**, select the **Display the Following Channel Status** radio button, and check the **Audio Monitors** box.

Related Topics

Adding audio tags on page 193

Embedded audio settings

1. In AppCenter, click **System | Configuration**.
   Configuration Manager opens.
2. Click **Channel**, and select a player/recorder channel.
3. For **Audio input type**, select **Embedded**.

4. Configure as follows:

For this setting...	Configure as needed...
Number of audio inputs	Select the number of inputs. Settings below change, based on your selection.
Embedded input group(s)	Selections available are dependent on "Number of audio inputs" setting above
A1/A2... input format	Select the 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.
Display audio meters	Select **System | Monitor Options**, select the **Display the Following Channel Status** radio button, and check the **Audio Monitors** box.

Related Topics

Adding audio tags on page 193

Configuring play channel video settings

If you are using a channel suite with channels from multiple sources, make sure that you have selected a channel from the K2 Summit/Solo system that you want to configure before accessing Configuration Manager.

1. In AppCenter, click **System | Configuration**.

   Configuration Manager opens.

2. Click **Channel**, and select a channel.

3. Scroll to locate and configure settings as follows:

For this setting...	Configure as needed...
Type	If licensed for AppCenter Elite you can configure the channel to be a ChannelFlex Suite Channel. When you do so, settings change accordingly.
Name	If desired, enter a name for the channel.
Video Output	NTSC or PAL available depending on video reference standard setting.
Aspect ratio	Select a HD or SD format.
Aspect ratio conversion	Select the conversion option. Refer to topics about aspect ratio conversions.
Still-play mode	Determines 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 the following: • **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)	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	Delays the video output.
Ancillary data timecode output	If 720p or 1080i selected, inserts the recorded timecode track as ancillary timecode on playout. Overrides any ancillary timecode packets stored on data track. Refer to specifications about data track support.
VITC output generator	If SD is selected, you can select VITC lines.

For this setting...	Configure as needed...

AFD Settings	Defines AFD in clips output from the K2 Summit/Solo system. You can select the following:
	• **Record AFD as clip property**:
	  • Yes – When an AFD setting is present it is set as the default in clip properties. This is the default K2 system behavior.
	  • No – When an AFD setting is present it is not set in clip properties.
	• **Generate AFD on Output**:
	  • Always – As automatically determined by the K2 system.
	  • When Known – As set in clip properties.
	  • Never – Pass-through any AFD already present.
	• **SD 16:9 Full screen up-conversion AFD**: Select AFD code1010 or 1001, as required by your site's downstream processing. This does not affect the visual display at the K2 system output.

Related Topics

About video scaling settings on page 164
ChannelFlex Suite and licensing on page 198
Data track support on K2 Summit/Solo HD channels on page 245
Changing the timecode source on page 67
Supported conversions from SD to HD using AFD on page 241
Supported conversions from HD to SD using AFD on page 242

Configuring play channel audio settings

1. In AppCenter, click **System | Configuration**.
   Configuration Manager opens.
2. Click **Channel**, and select a player/recorder channel.

3. Configure as follows:

For this setting...	Configure as needed...
Embedded output group(s)	Select **None** or **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.
Display audio meters	Select **System | Monitor Options**, select the **Display the Following Channel Status** radio button, and check the **Audio Monitors** box.

Related Topics

Adding audio tags on page 193

Adjusting play speed options

1. In AppCenter, click **System | Configuration**.
   Configuration Manager opens.
2. Click **Channel**.
3. Click **Panel**.
4. Configure as follows:

For this setting...	Configure as needed...
Jog speed	Playback advances or retards one frame at a time according to the direction of the setting.
Shuttle speed	Sets the speed for shuttle play or playback.
VAR setting	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	Initial play speed can be set to start at the preset speed.

Configuring data track settings

Do not configure these settings unless you are qualified and understand your system's data track requirements. Consult with Grass Valley for recommendations.

1. In AppCenter, click **System | Configuration**.
   Configuration Manager opens.
2. Click **Channel**, and select a player/recorder channel.
3. Select a video input format.
4. Scroll down and locate **Data Track** settings.

5. Configure as follows:

For this setting...	Configure as needed...
Record ancillary data	Select **Yes** to create a data track and store ancillary data packets.
CEA-608 to DTV CC transcoder	Select **Yes** to automatically convert CEA-608 closed caption data to 708 DTV CC packets.
Record uncompressed VBI and captioning to data track	Available if SD selected. Selecting No retains compatibility with Profile XP Media Platform.
Uncompressed VBI lines	Available if SD selected.
Teletext Output Lines	Click a link in this section to map one or more Teletext lines to play out on a different line.
Output OP-47 packet on line	Map the video line which OP-47 ancillary data packets are output for playout, or select **Source line** to leave the packets unmoved.

Related Topics

Configuring video reference standard settings on page 167
Data bridging of VBI information on K2 Summit/Solo HD channels on page 245
Line mapping of ancillary data packets on K2 Summit/Solo HD channels on page 246
About FCC requirements on page 245

Configuring timecode settings

1. In AppCenter, click **System | Configuration**.
   Configuration Manager opens.
2. Click **System**.
3. Configure as follows:

For this setting...	Configure as needed...
Time of Day	Select one of the following: • **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. Select which channel you want to use as the Time of Day source.

Configuring proxy and live streaming settings

On the K2 Summit/Solo system, configure proxy and live streaming settings as in the following sections. For complete information about proxy and live streaming, refer to related topics in "K2 System Guide".

Enable proxy files

1. In AppCenter, click **File | System | Configuration**.

   Configuration Manager opens.
2. In Configuration Manager, click the **Channel** tab.
3. Select a channel.
4. In Proxy Setup settings, set **Record proxy files** to **Yes**.
5. Select the audio included in the proxy file as follows:

   - Select the first audio input pair to include in the proxy file.
   - Select the number of audio inputs to include in the proxy file.

   The K2 Summit system includes audio pairs beginning with the first pair selected and then each subsequent audio pair up to the selected number of audio inputs.
6. If you want to the K2 Summit system to automatically detect scene changes and include them in the proxy file, do the following:

   - Set **Detect scenes** to **Yes**.
   - Select a minimum scene length. This is the length of time the K2 Summit/Solo system waits after detecting a scene change to begin attempting to detect the next scene change.
7. Select another channel and configure as desired.
8. Click **OK** to apply the settings.

Enable live streaming

1. In AppCenter, click **File | System | Configuration**.

   Configuration Manager opens.
2. In Configuration Manager, click the **Channel** tab.
3. Select a channel.
4. In Proxy Setup settings, set **Live network streaming** to **Yes**.
5. Select the audio input pair to include in the proxy stream.
6. Select another channel and configure as desired.
7. Click **OK** to apply the settings.

Configure live streaming multicast

This task describes using AppCenter to configure multicast settings. You can also use the K2Config application to configure multicast settings on SAN-attached K2 Summit systems. Refer to related topics in "K2 System Guide".

1. In AppCenter, click **File | System | Configuration**.

   Configuration Manager opens.

2. In Configuration Manager, click the **System** tab.

   These setting apply to all channels on the K2 Summit system.

3. In Proxy Setup settings, select the multicast IP base.

   The K2 Summit system applies channel-specific IP addresses from this base.

   Your choices are constrained to those specified by IANA for multicast.

4. Select the multicast port base.

   This is the first UDP port address for elementary streams.

5. Click **OK** to apply the settings.

Chapter 11

GPI and other configurations

This section contains the following topics:

Using GPI input and output triggers

The K2 Summit/Solo system 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 topics in "K2 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.

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, for example 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)	C1, C2, C3, C4	Select the channel to trigger the GPI input.

On the GPI tab, select GPI-Input…	Make settings as needed…		
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.
		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.
		Take Next Event	Used with Event Scheduler. Starts playback or record of the next event, regardless of start type.
		Take Next Scheduled Event	Used with Event Scheduler. Starts playback or record of the next event with a scheduled start time or approximate start time. (Note: follow events are skipped.)
		VAR Playback	Plays loaded clip in VAR mode with preset speed.

On the GPI tab, select GPI-Input…	Make settings as needed…		
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.

Related Topics

Adjusting play speed options on page 175

GPI Output

On the GPI tab, select GPI-Output…	Make settings as needed…		
GPI Output 1. . . GPI Output 12	Channel	C1, C2, C3, C4	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

On the GPI tab, select GPI-Output…	Make settings as needed…		
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 Summit/Solo system 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 topics in "K2 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 topics in "K2 System Guide" .

Chapter 12

Channel Ganging and Track Mapping

This section contains the following topics:

Channel Ganging

This feature is a 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.

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

Channels must assigned to a gang using the **Ganging** tab in the Configuration Manager.

1. In AppCenter, select the Player/Recorder application in the channel pane.
2. Select **System** then **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 page174.
4. To save changes, do one of the following:
   - To apply changes to the current configuration file, click **OK**.
   - To save the changes in a new configuration file, click **Save**, to save the configuration file, then click **OK**.

   If the **Record/play same clip on all channels of 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.

Related Topics

Components of the channel ganging configuration on page 186

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 Summit/Solo system.
Record/Play same clip on all channels of 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, 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 rtacks 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. This box is disabled if any of the channels in the gang are configured as ChannelFlex channels.

Feature	Description
Record audio from all channels to same clip	**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. **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. This box is disabled if any of the channels in the gang are configured as ChannelFlex channels
Record video from all channels to same clip	**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. **If this box is not checked:** Only video from the first channel in the gang is recorded. This box is disabled if any of the channels in the gang are configured as ChannelFlex channels.

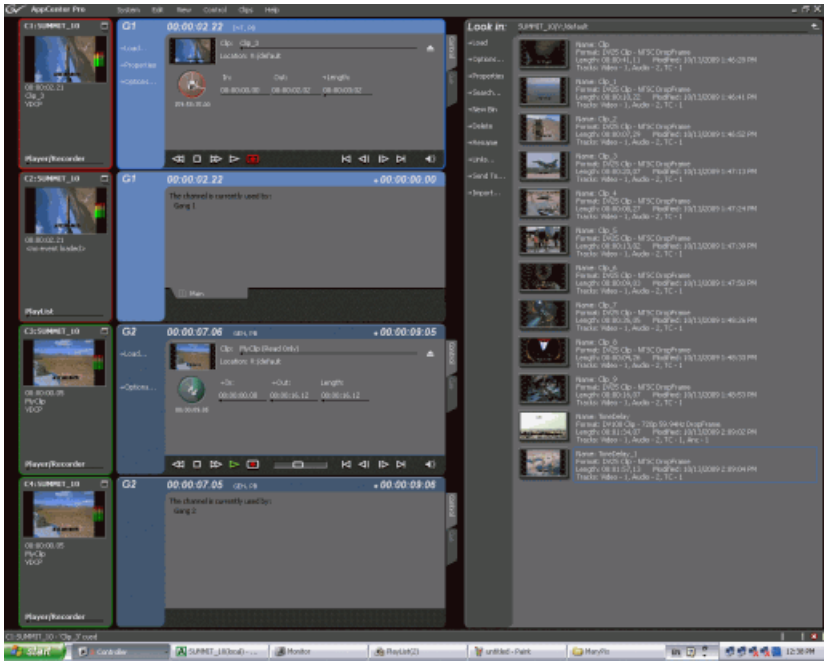
Related Topics

Configuring track mapping on page 193
Re-arranging the order of the tracks on page 196

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 monitor pane for each channel displays the channel number, machine name, and is outlined in red or green to indicate whether the gang is a play or a record.



NOTE: A* K2 Summit/Solo system *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 a part of the licensable AppCenter Pro option.

Track mapping lets you label video and audio tracks, and control audio input and routing.

About track mapping

This feature is part of the licensable AppCenter Pro option.

AppCenter 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. Track mapping is supported for individual clips. It is not supported for clips in a playlist.

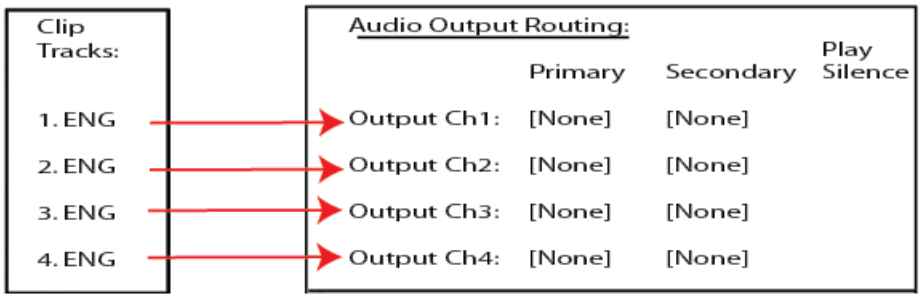
Labeling the audio tracks in a clip and the output channels in Configuration Manager allows you to map specific tracks to specific output channels. You can assign output labels to primary output channels alone or to both primary and secondary output channels. (If there is no label on the primary output channel, you cannot assign a label to the secondary output.)

AppCenter 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 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

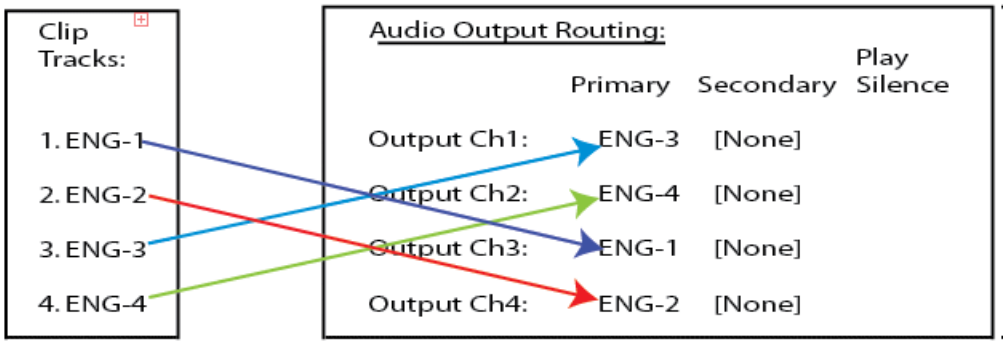
If no labels are assigned to any output channel

If no audio output routing is specified, AppCenter 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.



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, AppCenter routes each track exclusively to its matching output channel. The following illustration shows one example of how unique labels are evaluated.



If language groups are used

You can have multiple tracks and output channels with the same label. If multiple tracks have the same label, AppCenter 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 AppCenter 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 AppCenter finds no match, the output channel plays the correspondingly numbered audio track.

This evaluation process is further described in the following sections:

- If the primary output alone is labeled
- If both primary and secondary outputs are labeled
- If no output labels match the track labels
- If Play Silence if checked
- If Play Silence is not checked

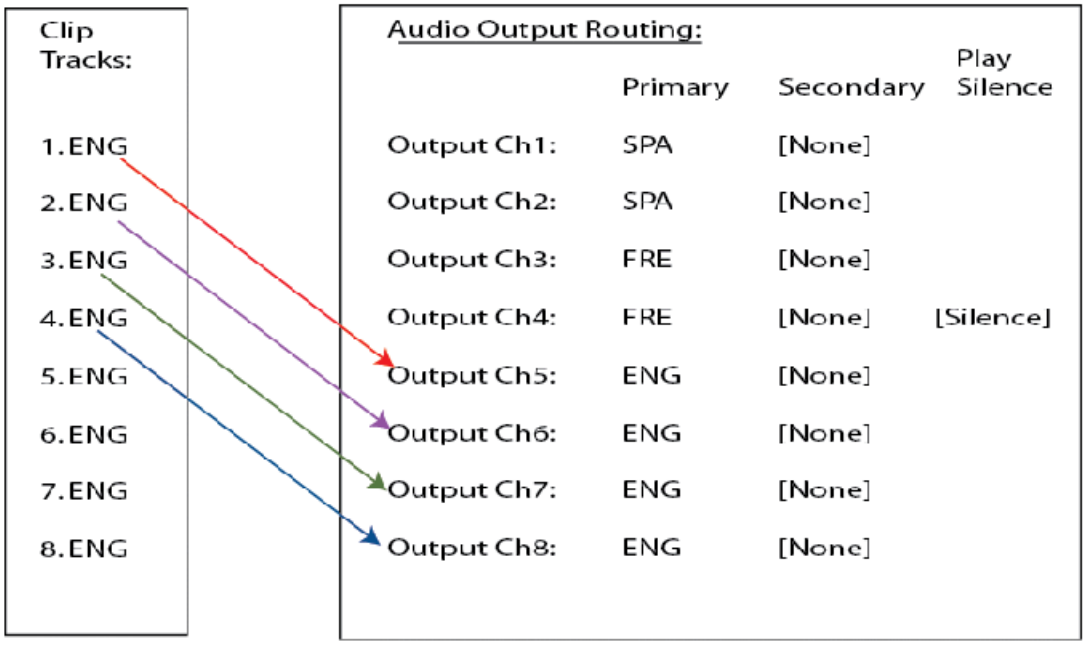
If the primary output alone is labeled

If the output routing channels are assigned primary labels, AppCenter 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 only the primary labels 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.

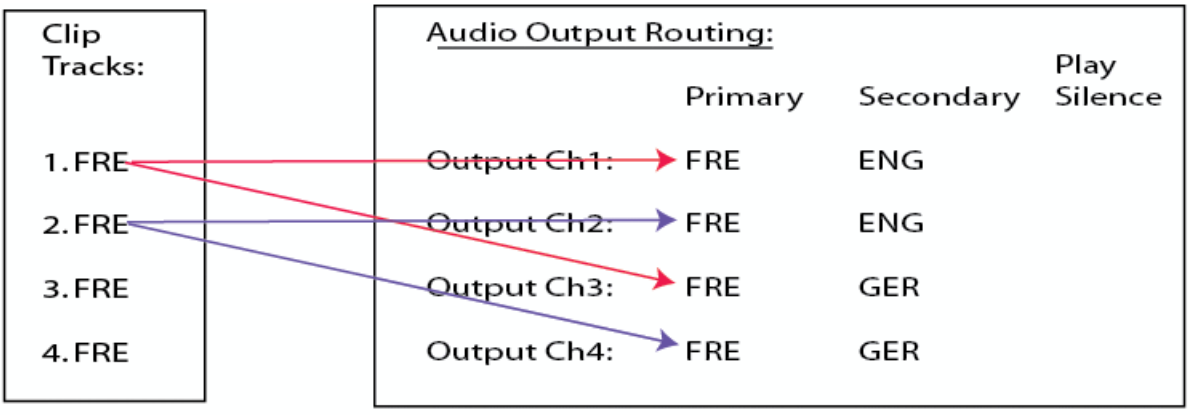
The following illustration shows an example of how AppCenter maps non-unique labeled audio tracks to non-unique labeled output channels. In this example, the first four output channels have primary output labels that do not match with any of the track labels, so they are bypassed.

Because AppCenter 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.



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:



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, AppCenter evaluates the output routing based on whether the Play Silence box is checked or not. (The Play Silence box is configured in Configuration Manager.

If Play Silence is checked

If AppCenter 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.

Related Topics

Adding audio tags on page 193
Renaming a video or audio track on page 194
Re-arranging the order of the tracks on page 196

Configuring track mapping

To set up track mapping in AppCenter, you need to add audio tags in Configuration Manager and name the tracks in the clip itself.

You can do the following during configuration:

- Add audio tags
- Rename a video or audio track

Related Topics

Adding audio tags on page 193
Renaming a video or audio track on page 194

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

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. 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.
   - 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**.
5. To save the changes in a new configuration file, click **Save** save the configuration file, and then click **OK**.

Related Topics

Renaming a video or audio track on page 194

Renaming a video or audio track

f 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.
   - Right-click with the mouse and select Rename.
   - 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 to 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.

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 the following:

   NOTE: If you're using a PC running Control Point software to access a* K2 Summit/Solo system*, 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 Summit/Solo system *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.

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.

Related Topics

To map a source or destination drive on page 145

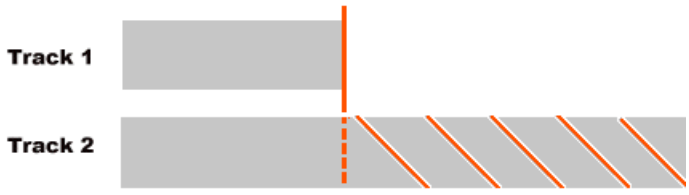
Adding a video or audio track

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, AppCenter adds only the first thirty seconds of audio from the added track.

NOTE: If an additional track is longer than the original track, any material beyond the length of the original track is not played as shown in the illustration below.



If an additional track is shorter than the original track, video plays black, ancillary data tracks are blank, and audio is silent as illustrated below.

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.
   - Right-click with the mouse and select Remove.
   - 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.

Related Topics

About track mapping on page 190

Chapter 13

ChannelFlex Suite

This section contains the following topics:

ChannelFlex Suite and licensing

The features in this chapter are part of the ChannelFlex Suite, which requires the AppCenter Elite license.

K2 Summit/Solo formats, models, licenses, and hardware support

Formats are supported as in the following tables.

Table 4: First-generation K2 Summit/Solo system

Formats	Compression	1x	Multi-Cam 3D/Video + Key	Super Slo-Mo
SD	DV	Encode/decode	Encode/decode	Not supported.
	MPEG-2	Decode is standard. Encode requires codec option card.	Not supported.	Not supported.
	AVCHD	Not supported.	Not supported.	Not supported.
1080i/720p	DV	Encode/decode. Requires HD license.	Encode/decode. Requires HD license.	Encode/decode. Requires HD license.
	MPEG-2	Decode is standard. Encode requires codec option card. Requires HD license.	Not supported.	Not supported.
	AVC-Intra	Encode/decode. Requires coded option card. Requires HD license.	Encode/decode. Requires coded option card. Requires HD license.	Not supported.
	AVCHD	Not supported	Not supported	Not supported

Table 5: K2 Summit 3G system

Formats	Compression	1x	Multi-Cam 3D/Video + Key	Super Slo-Mo
SD	DV	Encode/decode	Encode/decode	Not supported.
	MPEG-2	Encode/decode	Encode/decode. Requires codec option card.	Not supported.

Formats	Compression	1x	Multi-Cam 3D/Video + Key	Super Slo-Mo
	AVCHD/H.264	Decode only. Requires AVC license.	Not supported	Not supported
1080i/720p	DV	Encode/decode. HD license is standard.	Encode/decode. HD license is standard.	Encode/decode. HD license is standard.
	MPEG-2	Encode/decode. HD license is standard.	Encode/decode. Requires codec option card. HD license is standard.	Not supported.
	AVC-Intra	Encode/decode. Requires AVC license. HD license is standard.	Encode/decode. Requires AVC license. HD license is standard.	Encode/decode. Requires AVC license. HD license is standard.
	AVCHD/H.264	Decode only. Requires AVC license.	Not supported	Not supported

Table 6: K2 Solo 3G system

Formats	Compression	1x	Multi-Cam 3D/Video + Key	Super Slo-Mo
SD	DV	Encode/decode	Encode/decode	Not supported.
	MPEG-2	Encode/decode	Not supported	Not supported
	AVCHD/H.264	Decode only. Requires AVC license.	Not supported	Not supported
1080i/720p	DV	Encode/decode. HD license is standard.	Encode/decode. HD license is standard.	Encode/decode. HD license is standard.
	MPEG-2	Encode/decode. HD license is standard.	Not supported	Not supported
	AVC-Intra	Encode/decode. Requires AVC license. HD license is standard.	Encode/decode. Requires AVC license. HD license is standard.	Encode/decode. Requires AVC license. HD license is standard.
	AVCHD/H.264	Decode only. Requires AVC license.	Not supported	Not supported

Super Slo-Mo

This feature is part of the ChannelFlex Suite, which requires the AppCenter Elite license. This feature also requires the HD license.

About Super Slo-Mo

This feature is part of the ChannelFlex Suite, which requires the AppCenter Elite license. This feature also requires the HD license.

You can connect a Super Slo-Mo camera to two or three SDI inputs on a K2 Summit/Solo channel. You must configure the channel to record Super Slo-Mo. When so configured, the channel is record-only, not bi-directional record/play. The K2 Summit/Solo system records Super Slo-Mo at either 2x frame rate or 3x frame rate, as configured. This creates a Super Slo-Mo clip. A Super Slo-Mo clip contains no audio or ancillary data.

The K2 Summit/Solo system accommodates ancLTC or ancVITC timecode for a Super Slo-Mo clip as follows:

- A Super Slo-Mo clip contains embedded timecode extracted from Super Slo-Mo phase 1.
- For 2x frame rate, timecode repeats every two frames.
- For 3x frame rate, timecode repeats every three frames.

The result is that a Super Slo-Mo clip can function as if it has 1x clip length and timecode, even though it is actually 2x or 3x times longer.

A Super Slo-Mo channel is in E-to-E (LoopThru) mode.

You can play the Super Slo-Mo clip on a standard bi-directional record/play channel. SDI OUT2 provides the Super Out feature on phase 1.

Import/Export and GXF transfer of a Super Slo-Mo clip are supported with other K2 Summit/Solo systems at version 7.1.x software or higher.

An indicator icon  that a clip is a Super Slo-Mo clip appears in the Clips pane and in clip properties.

Super Slo-Mo requirements and restrictions

This feature is part of the ChannelFlex Suite, which requires the AppCenter Elite license. This feature also requires the HD license.

- Phase 1, Phase 2, and Phase 3 inputs must be locked and phase aligned with each other.
- Phase 1, Phase 2, and Phase 3 must be connected to a channel's SDI IN1, SDI IN2, and SDI IN3 respectively.
- You cannot change the 2x/3x configuration while recording is underway.
- Loss of any phase input results in black for that phase of video in the clip.
- Super Slo-Mo clips are HD and therefore the Super Slo-Mo feature requires the HD license.
- When recording a Super Slo-Mo clip, no ancillary data track is created.

- Super Slo-Mo cameras in the following list are supported:
  - Grass Valley LDK8300 Camera; 3x and 2x
  - Grass Valley LDK8000 SportElite HD; 2x
  - Sony 3300 - 3x only; 2x is not supported
- When exporting a 2x or 3x Super Slo-Mo clip, AVI, MXF, and MOV (QuickTime) file types do not retain the original Super Slo-Mo timecode information. Therefore upon import, the timecode numbers will no longer match the video material.
- Stream/Import/Export of a Super Slo-Mo clip is not supported with K2 systems at a 3.x version of software.
- The maximum continuous record length for a Super Slo-Mo clip is 24 hours.
- This feature is not compatible with TimeDelay.
- One or more Super Slo-Mo channels can be a part of an AppCenter channel gang, but the "Record/play same clip on all channels of Gang" feature is not available for that gang.

Super Slo-Mo camera formats

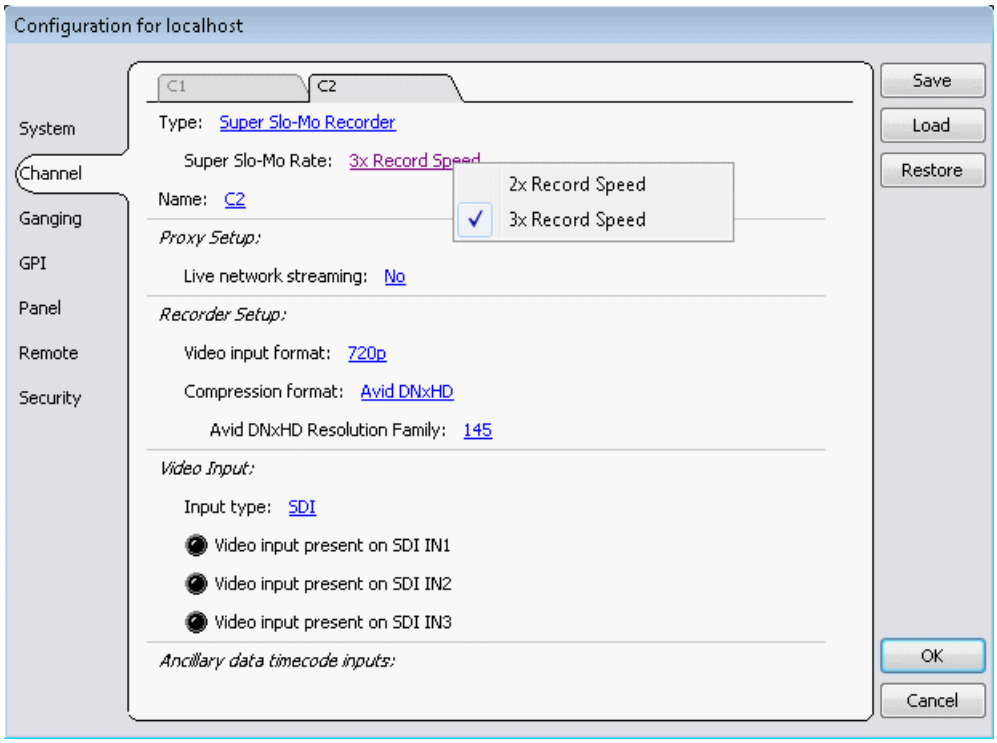
Formats specified for output by Super Slo-Mo cameras are supported as follows:

Compressed Format	Input Format	2X	3X	Other
AVC-Intra Class 50 and Class 100 (requires license on Summit 3G) and DVCPRO HD	1080i	119.88 and 100 Hz	179.82 and 150 Hz	Conforms to SMPTE 292M
	720p	119.88 and 100 Hz	179.82 and 150 Hz	

Configuring Super Slo-Mo

This feature is part of the ChannelFlex Suite, which requires the AppCenter Elite license. This feature also requires the HD license.

1. Open Configuration Manager, click **Channel**, and select a channel tab.



2. For Type, select **Super Slo-Mo Recorder**.

   Only those settings supported by a Super Slo-Mo channel are displayed.

   NOTE: If you have the AppCenter Elite license yet the Super Slo-Mo option does not appear, it means you do not have the HD license, which is also required for Super Slo-Mo.

3. For Super Slo-Mo Rate, select one of the following:

   - **2x Record Speed**
   - **3x Record Speed**

4. If desired, assign a name to the channel.
5. Select Video input format.

Multi-Cam

This feature is part of the ChannelFlex Suite, which requires the AppCenter Elite license.

About Multi-Cam

This feature is part of the ChannelFlex Suite, which requires the AppCenter Elite license.

You can connect one video source to SDI IN1 and another video source to SDI IN2. You must configure the channel as a Multi-Cam record channel. The K2 Summit/Solo system records two clips, one from each video input, and automatically gives them default names

If ancillary data and/or timecode is present on SDI IN1, each Multi-Cam clip contains that ancillary data and/or timecode. LTC timecode is also shared for both clips.

The K2 Summit/Solo system can record the same audio for both clips, or it can record separate audio for each clip. You can configure these audio options as desired.

In E-to-E (LoopThru) mode, SDI OUT1 and SDI OUT2 show the signal coming in at SDI IN1 and SDI IN2 respectively. When in this mode, the VGA Video Monitor displays the two inputs, but at a smaller size, in the area for the single channel.

Each Multi-Cam clip plays as a standard clip on a standard bi-directional record/play channel

Multi-Cam requirements and restrictions

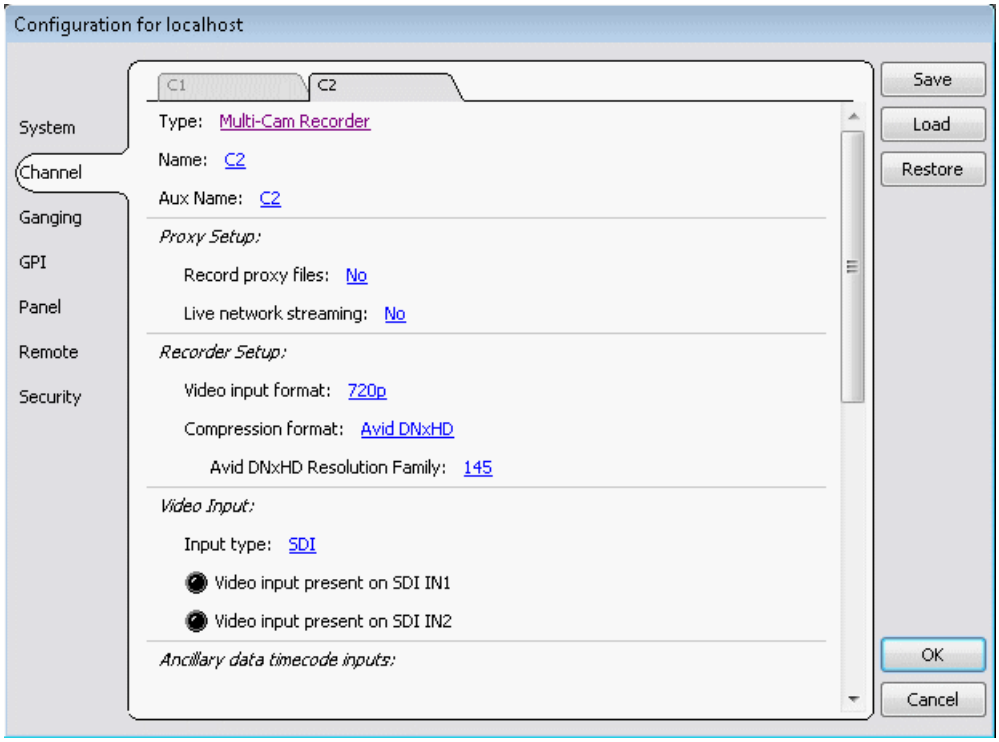
This feature is part of the ChannelFlex Suite, which requires the AppCenter Elite license.

- SDI IN1 and SDI IN2 must be frequency locked with each other.
- Input 1 and Input 2 must be connected to a channel's SDI IN1 and SDI IN2 respectively.
- When recording the same audio for both clips, embedded audio is extracted only from the Input 1 and the number of recorded audio tracks is limited to eight.
- When recording audio separately for each clip, you can have up to eight tracks per Multi-Cam input.
- This feature is not compatible with TimeDelay.
- One or more Multi-Cam channels can be a part of an AppCenter channel gang, but the "Record/play same clip on all channels of Gang" feature is not available for that gang.

Configuring Multi-Cam

This feature is part of the ChannelFlex Suite, which requires the AppCenter Elite license.

1. Open Configuration Manager, click **Channel**, and select a channel tab.



2. For Type, select **Multicam Recorder**.
3. For Name, enter a name to identify input **SDI IN1**.
4. For Aux Name, enter a name to identify input **SDI IN2**.
5. Scroll down to the Audio Input section and do one of the following:
   - If you want both clips to have audio from Input 1, set **Split audio** to **No**.
   - If you want each clip to have audio from its own input, set **Split Audio** to **Yes**.
6. If you set Split audio to Yes, choose one of the following settings for **Number of split audio inputs**:

Setting	Embedded audio	AES audio
2+2	The first audio tracks on Input 1 go to clip 1. The first two audio tracks on Input 2 go to clip 2.	AES audio tracks 1 and 2 go to clip 1. AES audio tracks 3 and 4 go to clip 2.
4+4	The first four audio tracks on Input 1 go to Clip 1. The first four audio tracks on Input 2 go to clip 2.	AES audio tracks 1- 4 go to clip 1. AES audio tracks 5-8 got to clip 2.

7. Configure remaining channel settings as appropriate.

Related Topics

Accessing Configuration Manager on page 40

3D/Video + Key

The features in this section are part of the ChannelFlex Suite, which requires the AppCenter Elite license.

About 3D/Video + Key

This feature is part of the ChannelFlex Suite, which requires the AppCenter Elite license.

You can connect SDI IN1 and SDI IN2 on a K2 Summit/Solo system channel to use the 3D/Video + Key feature. SDI IN1 is Video or Left Eye. SDI IN2 is Key or Right Eye. To record, you must configure the channel as a 3D/Video + Key record channel. The K2 Summit/Solo system records a single 3D/Video + Key clip with two video tracks.

In a 3D/Video + Key clip, video track 1 is Video (or right eye) and video track 2 is Key (or left eye). If ancillary data and/or timecode is present on SDI IN1, the 3D/Video + Key clip contains that ancillary data and/or timecode. The clip's audio is recorded from SDI IN1. You can also create a 3D/Video + Key clip using the Add Track feature.

In E-to-E (LoopThru) mode, SDI OUT1 and SDI OUT2 show the signals coming in at SDI IN1 and SDI IN2 respectively. When in this mode or when playing a 3D/Video + Key clip, the VGA Video Monitor displays the two video signals, but at a smaller size, in the area for the single channel.

When you play a 3D/Video + Key clip on a channel that is configured as a 3D/Video + Key play channel, SDI OUT1 plays the Video (or right eye) and SDI OUT2 plays the Key (or left eye). When you play a standard clip on a channel that is configured as a 3D/Video + Key play channel, SDI OUT2 plays a full Key (white). AppCenter Playlist and Loop Play support 3D/Video + Key clips. A 3D/Video + Key play channel supports playlist mode.

You can stream a 3D/Video + Key clip as GXF to/from other K2 Summit/Solo systems.

Related Topics

Adding a video or audio track on page 195

3D/Video + Key requirements and restrictions

This feature is part of the ChannelFlex Suite, which requires the AppCenter Elite license.

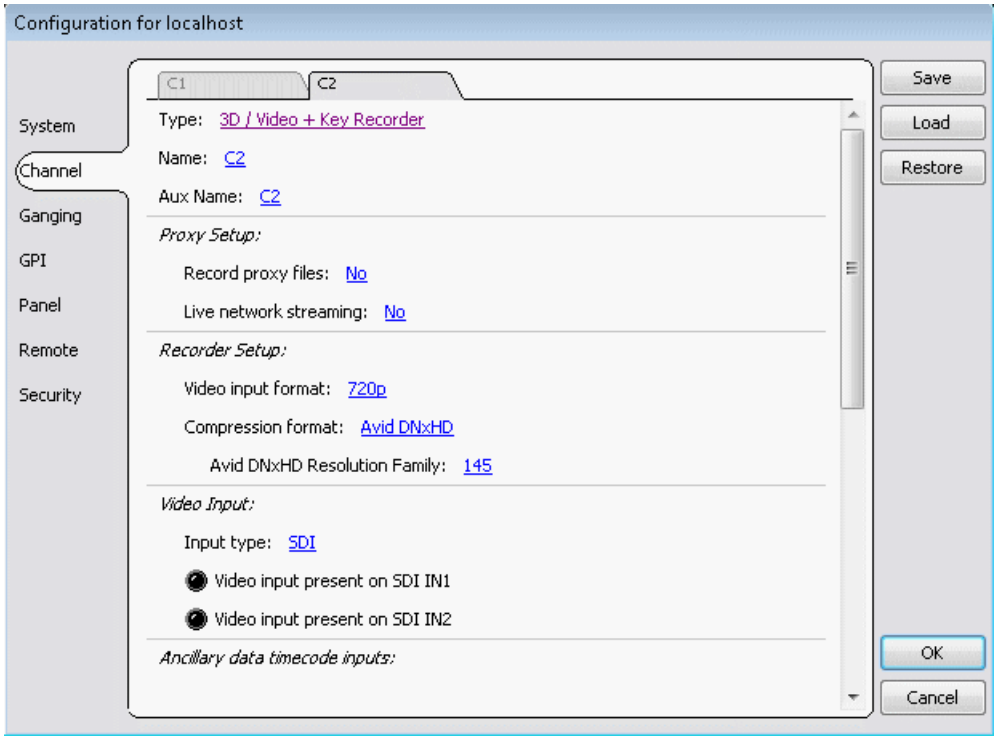
- Video and Key tracks must be the same compression format.
- Video or Left Eye must be connected to the channel's SDI IN1 and Key or Right Eye must be connected to the channel's SDI IN2.
- SDI IN1 and SDI IN2 must be frequency locked with each other.
- Audio is limited to eight embedded tracks or eight AES tracks recorded per channel, recorded from SDI IN1.
- A 3D/Video+Key player channel does not support agile playback or transition (mix) effects.
- A 3D/Video+Key player channel does not support a two-head player model.

- A 3D/Video+Key player channel does not support offspeed play greater than 1 or less than -1. During these offspeed play operations the video is not synchronized between the two video tracks. However, both video outputs will resync when recued.
- Super Out is not supported on a channel configured for 3D/Video + Key.
- 3D/Video + Key is not compatible with TimeDelay.
- One or more 3D/Video + Key channels can be a part of an AppCenter channel gang, but the "Record/play same clip on all channels of Gang" feature is not available for that gang.

Configuring 3D/Video + Key

This feature is part of the ChannelFlex Suite, which requires the AppCenter Elite license.

1. Open Configuration Manager, click **Channel**, and select a channel tab.



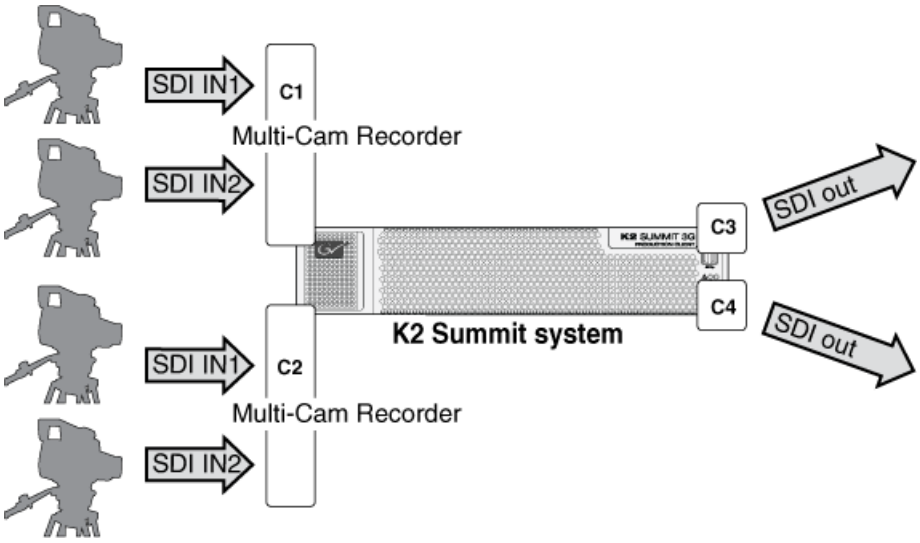
2. For Type, select **3D / Video + Key Recorder** or **3D / Video + Key Player**.
3. If you selected **3D / Video + Key Recorder**, enter names as follows:
   a) For Name, enter a name to identify SDI IN1.
   b) For Aux Name, enter a name to identify SDI IN2.
4. If you selected **3D / Video + Key Player**, enter names as follows:
   a) For Name, enter a name to identify SDI OUT1.
   b) For Aux Name, enter a name to identify SDI OUT2.
5. Configure remaining channel settings as appropriate.

ChannelFlex Suite supported combinations

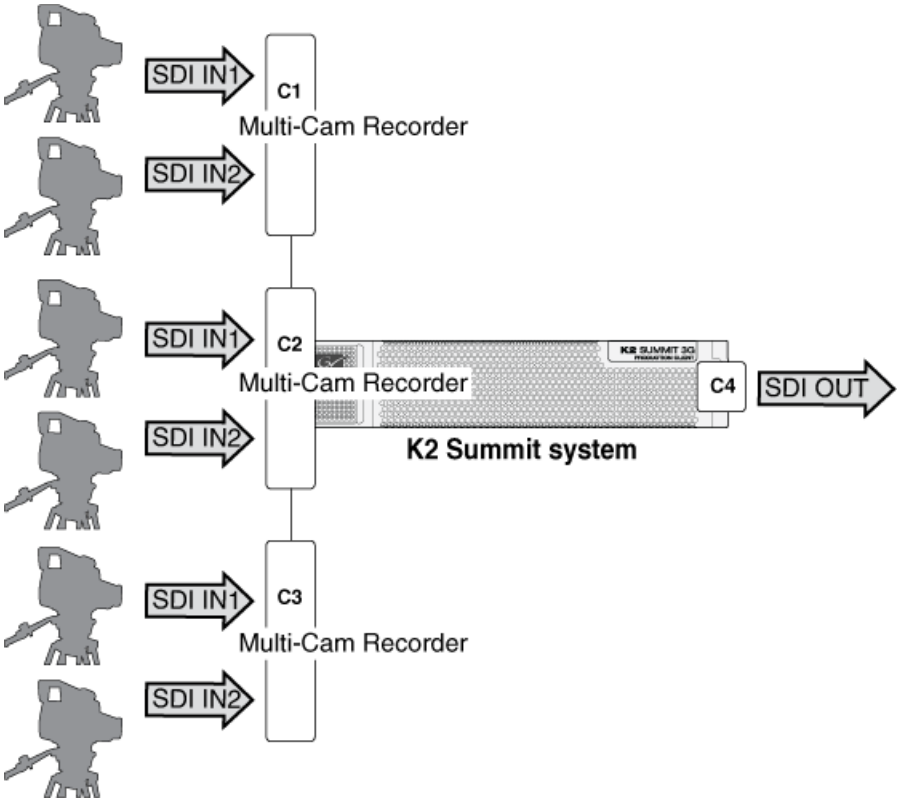
The overall load on system resources must be considered when using multiple inputs and outputs per channel on multiple channels, as each input/output stream consumes system resources. FTP transfers, off-speed play, and media drive rebuilds also consume system resources, so they must be considered as well. The channel combinations illustrated below are typical applications that maximize ChannelFlex channels. These combinations have been qualified by Grass Valley, with the following considerations:

- These combinations assume an HD format with 100 Mbps data rate, which produces a high load on system resources.
- If you use off-speed play above 1x at the same time an FTP transfer is underway, the available FTP bandwidth can be reduced by as much as 50%.
- If a media drive rebuild is in progress it can result in a slight reduction in available FTP bandwidth.

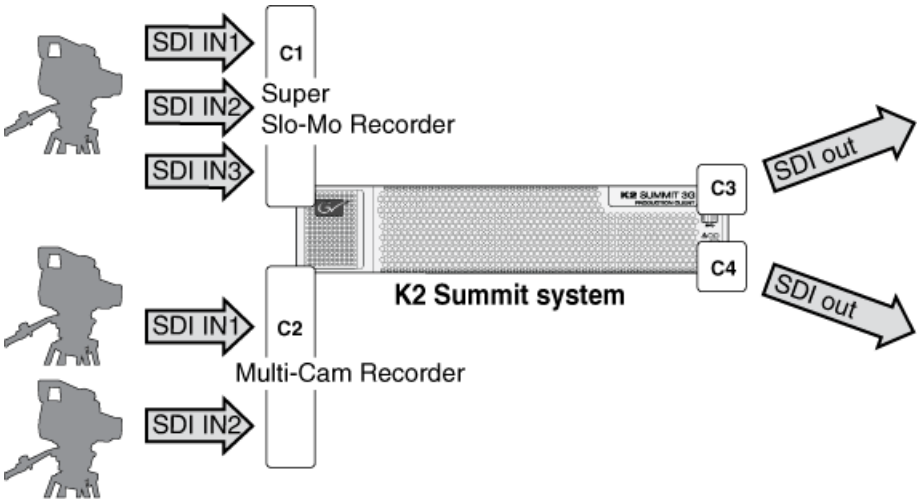
K2 Dyno Replay system, 4 IN, 2 OUT



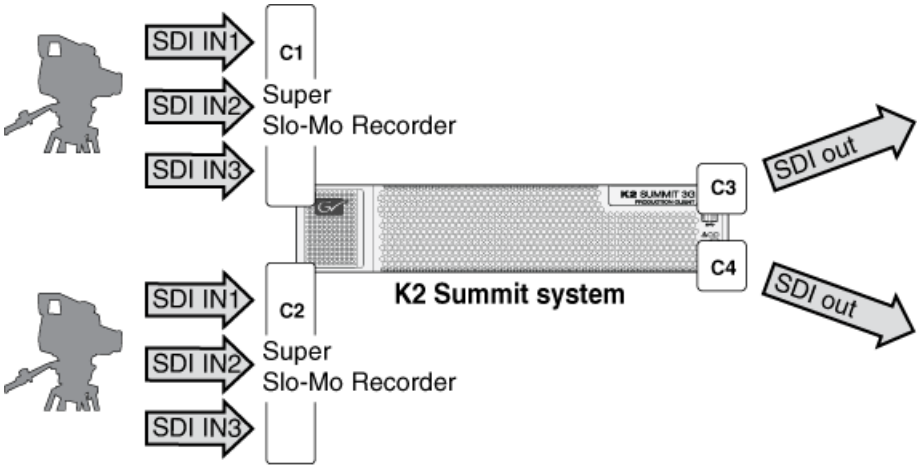
K2 Dyno Replay system, 6 IN, 1 OUT



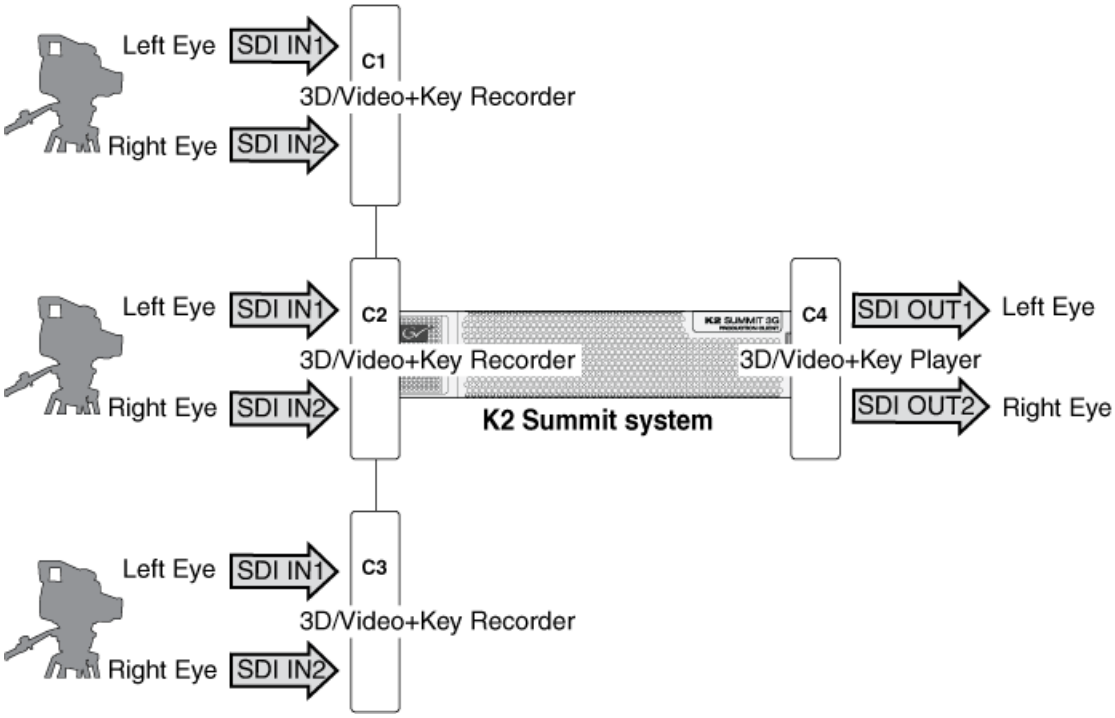
K2 Dyno Replay system, 1 (3x) SSM IN, 2 Multi-Cam IN, 2 OUT



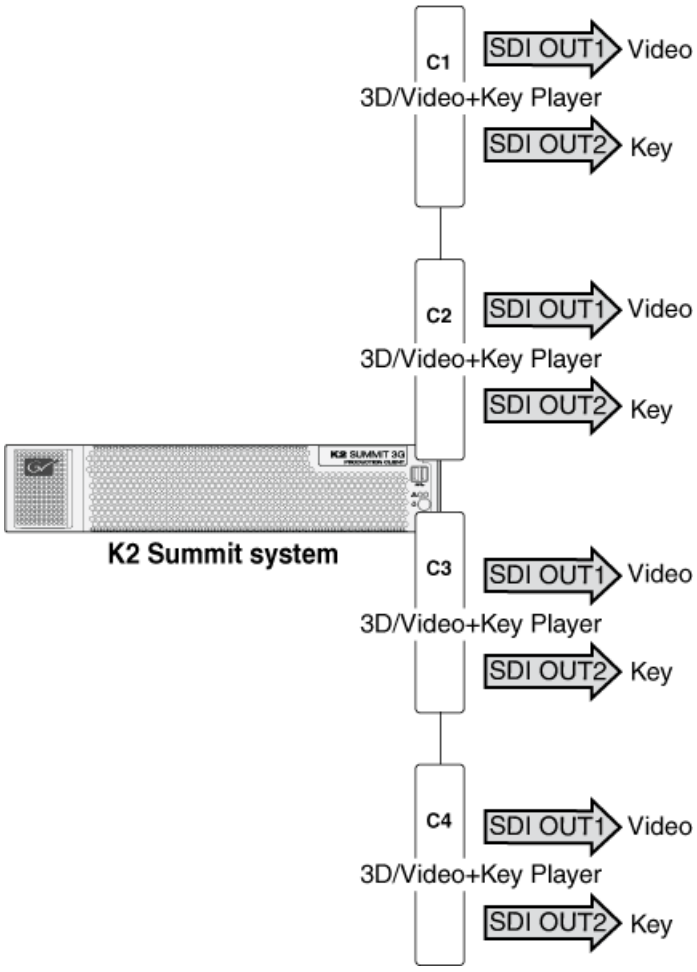
K2 Dyno Replay system, 2 (3x) SSM IN, 2 OUT



3D – 3 L/R Eye IN, 1 L/R Eye OUT



Key/Fill Playout



About introducing ChannelFlex Suite on existing K2 systems

When you upgrade to a K2 system software version that supports ChannelFlex Suite and then begin to use ChannelFlex Suite features, you increase the number of inputs and outputs on the K2 Summit/Solo system. To support this increased load on system resources, you must adjust your system, as follows:

- Standalone K2 Summit/Solo system – This includes standalone K2 Summit systems, direct-connect storage K2 Summit systems, and K2 Solo Media Servers. These system require an updated RTIO setting. You must update this setting when you upgrade.
- K2 SANs – These system might require additional disks for bandwidth and additional K2 Media Servers to act as iSCSI bridges (TOEs), depending on the number and type of inputs and outputs you are adding by your use of ChannelFlex Suite features. Contact your Grass Valley representative to evaluate your system and its suitability for supporting your use of ChannelFlex Suite.

Appendix **A**

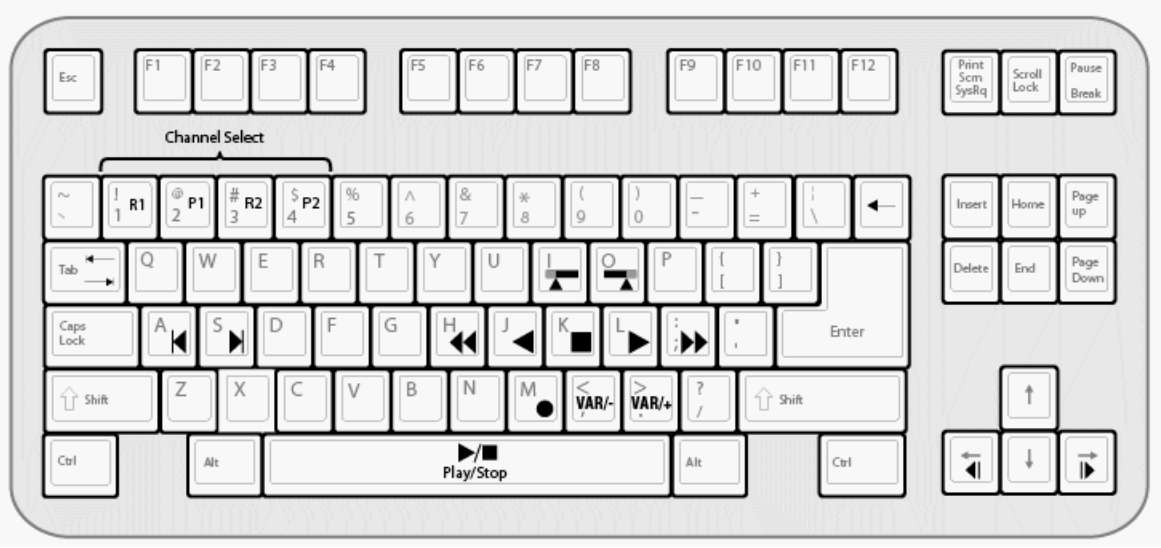
Keyboard Shortcuts

This section contains the following topics:

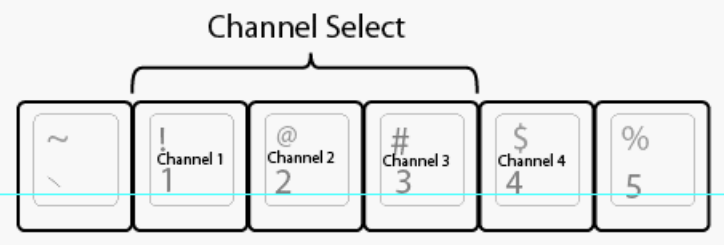
About keyboard operation

A keyboard can be used to control the K2 Summit/Solo system. A full keyboard is shown below.

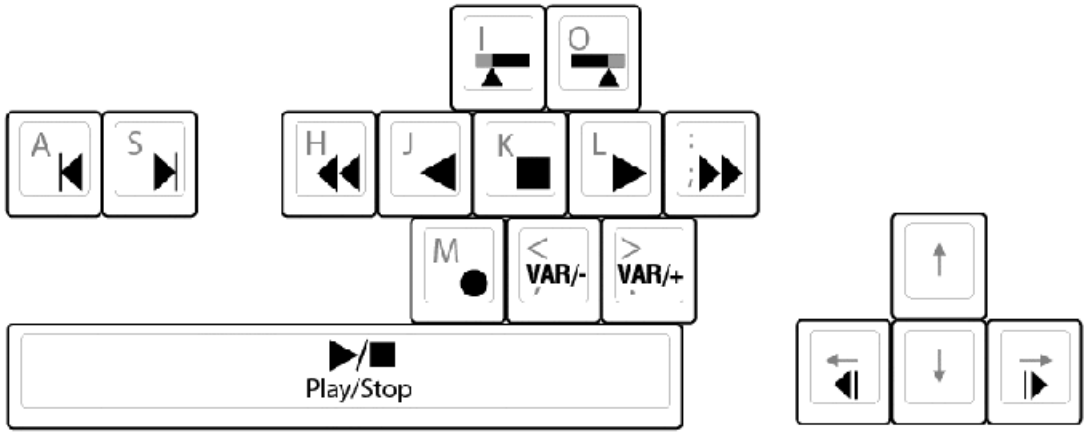
NOTE: Keyboard shortcuts are disabled when text entry dialog boxes are open.



Channel select controls



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
+ 0.33 speed	Shift + 2	- 0.33 speed	Ctrl + 2
+ 0.5X speed	Shift + 3	- 0.5X speed	Ctrl + 3
+ 1X speed	Shift + 4	- 1X speed	Ctrl + 4

For this action...	Press	For this action...	Press
+ 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 (see Note A below)	- 16X speed	Ctrl + 9 (see Note A below)
+ 32X speed	Shift + 0 (see Note B below)	- 32X speed	Ctrl + 0 (see Note B below)

NOTE: A) If shuttle speed, as configured in Configuration Manager, Panel, is set to "+16X to -16X"

NOTE: B) If shuttle speed, as configured in Configuration Manager, Panel, is set to "+ 32X to - 32X"

Speed controls are not cumulative. Each keyboard shortcut sets speed relative to baseline normal (zero) speed, rather than adding/subtracting from current speed.

Stop-Mode transport controls

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

Mark-Point 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
Live Play (Chase Play)	Ctrl + L (To toggle back to the regular setting, press the Space bar
Copy	Ctrl + C
Cut	Ctrl + X
Paste	Ctrl + V
Open online help	

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
Scroll 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

Action	Press
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 **B**

Remote control protocols

This section contains the following topics:

About remote control protocols

This section provides information for using remote control protocols to operate K2 Summit/Solo systems. It is intended for use by installers, system integrators, and other persons responsible for setting up automation systems at a customer site.

For information about configuring AppCenter to enable protocol control of a K2 channel, refer to topics in this document.

Using AMP protocol to control K2 systems

Advanced Media Protocol (AMP) is an extension of the Odetics protocol.

AMP commands are available via Ethernet or RS-422 serial ports.

The automation setting for preroll should be at least 10 frames.

Preroll is 1 second for mixed compression format playout. Preroll is 10 frames for same compression format playout.

The AMP's socket interface uses IANA assigned port number 3811 for TCP.

In AppCenter, you must set a channel's options to enable protocol control of the channel. Subsequently, when the K2 Summit/Solo system starts up, the channel is immediately available for protocol control. Manual log on is not required.

For channels in gang mode, the protocol must connect to the lowest numbered channel in the gang. This is required to support jog/shuttle of ganged channels.

AMP Two-Head Player Model

The AMP protocol supports the use of a *two-head player model* in that two clips can be loaded for playout, as follows:

- Current clip — The AMP "preset id" is the active clip.
- Preview clip — The AMP "preview preset id" is the preview clip. The preview clip becomes the current clip and begins playing when the current clip completes. When controlling AMP in Auto mode, the "in preset" (and "out preset") command should be sent before the Preview in commands.

Related specifications are as follows:

- A 3D/Video+Key player channel does not support a two-head player model.

Controlling transfers with AMP

Remote control automation applications can initiate transfers via AMP. The AMP command must be sent to the K2 Summit/Solo system, not the K2 Media Server. This applies to both stand-alone and shared storage K2 systems.

If using AMP to initiate transfers between K2 systems and Profile XP systems, you must send the AMP command to the K2 system, not the Profile XP system. Transfers (both push and pull) are

successful if the K2 system hosts the command. Transfers fail if the Profile XP system hosts the command.

Transfers initiated by AMP between K2 systems and M-Series iVDRs are not supported.

AMP channel designations

When using AMP protocol with Ethernet and the K2 Summit/Solo system, the first port maps to the first channel, the second port maps to the second channel, and so on.

AMP internationalization

AMP supports UTF-8 2 and 3 byte characters. Unicode movie names pass through as opaque bits.

Using VDCP protocol to control K2 systems

Video Disk Control Protocol (VDCP) commands are available via RS-422 serial ports.

Preroll is 1 second for mixed compression format playout. Preroll is 10 frames for same compression format playout.

The K2 AppCenter Recorder application in protocol mode allows a default bin to be assigned to each record channel.

In AppCenter, you must set a channel's options to enable protocol control of the channel. Subsequently, when the K2 Summit/Solo system starts up, the channel is immediately available for protocol control. Manual log on is not required.

For channels in gang mode, the protocol must connect to the lowest numbered channel in the gang. This is required to support jog/shuttle of ganged channels.

Loop-play mode on the K2 Summit/Solo system is not supported under VDCP control.

The following categories of VDCP commands are not supported:

- Deferred (Timeline) Commands --these are the basic timeline commands but use the time specified by the PRESET STANDARD TIME
- Macro commands
- Archive Commands
- To control a given K2 channel, use only that channel's specific RS-422 rear panel connector. Send the VDCP "Open Port" and "Select Port" commands only to the RS-422 connector that is associated with the channel being controlled.

VDCP two-head player model

The VDCP protocol supports the use of a *two-head player model* in that two clips may be loaded for playout, as follows:

- Current clip — The VDCP "preset id" is the current clip.

- Preview clip — The VDCP "preview preset id" is considered the preview clip. When a play command is received, the preview clip becomes the active clip and begins playing after the preroll time has passed. If a play command has not been issued by the end of the clip, playout stops according to the VDCP end mode settings for that channel (last frame, black, first frame of preview clip).

Related specifications are as follows:

- A 3D/Video+Key player channel does not support a two-head player model.

Controlling transfers with VDCP

Remote control automation applications can initiate transfers via VDCP. The VDCP command must be sent to the K2 Summit/Solo system, not the K2 Media Server. This applies to both stand-alone and shared storage K2 Summit/Solo system.

If you are using VDCP to perform video network transfers, you must configure the K2 Summit/Solo system so that there is a unique Controller ID for each host.

If using VDCP to initiate transfers between K2 systems and Profile XP systems, you must send the VDCP command to the K2 system, not the Profile XP system. Transfers (both push and pull) are successful if the K2 system hosts the command. Transfers fail if the Profile XP system hosts the command.

Transfers initiated by VDCP between K2 systems and M-Series iVDRs are not supported.

VDCP internationalization

VDCP does not support UTF-8 or Unicode, so use ASCII only for clip names and bin names.

PitchBlue workflow considerations

The K2 Summit system supports the H.264 format used in the PitchBlue workflow. However, you must consider the intended PitchBlue workflow when using this H.264 media, as it is not supported for general purpose use outside of the PitchBlue workflow.

The K2 Summit system ingests the PitchBlue material without any error correction. The material often has anomalies, such as a broken last frame, that the K2 Summit system accepts as-is. When PitchBlue plays out this material under VDCP automation control, it plays the known-good material only. PitchBlue determines where the anomalies exist and makes sure that they are not played out. In this way PitchBlue avoids the errors that would otherwise occur if the material were used for general purpose playout without PitchBlue control.

Therefore, you must adhere to the complete PitchBlue workflow from ingest through playout for all PitchBlue material. Do not attempt to play out PitchBlue material except as part of the prescribed PitchBlue workflow. Playing out PitchBlue material in any other way can cause errors.

Using BVW protocol to control K2 systems

BVW commands are available via RS-422 serial ports.

A subset of BVW commands is supported through AppCenter in protocol mode.

Insert/Edit is not supported.

In AppCenter, you must set a channel's options to enable protocol control of the channel. Subsequently, when the K2 Summit/Solo system starts up, the channel is immediately available for protocol control. Manual log on is not required.

For channels in gang mode, the protocol must connect to the lowest numbered channel in the gang. This is required to support jog/shuttle of ganged channels.

To set in and out points with BVW protocol, load clips only from the working bin.

Special considerations for automation vendors

The following information is provided for your convenience as you set up your chosen automation product to control K2 systems. Consult your automation vendor for complete information.

Harris settings

The Harris automation product uses VDCP protocol.

The following settings are required for the Harris automation product:

Setting	Mixed compression format playout	Same compression format playout	Comments
Disk Prerolls	1 second	10 frames	—
Frames to send Play early (Preroll Play)	1 second	10 frames	These two settings should be the same as the Disk Prerolls setting. However, if there is extra fixed latency in your RS-422 communication path, you might need to adjust the settings differently.
Frames to send Record early (Preroll Record)	1 second	10 frames	
Disk Port Comm Timeout	60 frames	60 frames	This is the minimum required by K2. Do not use the Harris default value, which is 10.
Back To Back Rec	Unchecked	Unchecked	K2 does not support this feature.

RS-422 protocol control connections

You can control the K2 Summit/Solo system with remote control devices and software developed for the K2 system that use industry-standard serial protocols: AMP, BVW, and VDCP. (AMP

protocols can also use Ethernet connections.) You can connect one RS-422 cable to each channel. Each RS-422 connection controls the channel to which it is connected only. Connect the RS-422 cabling as required, then refer to topics in this document to configure the K2 system for remote control.

Specifications for the RS-422 connection are as follows:

- Data Terminal Equipment (DTE)
- 38.4K Baud
- 1 Start bit
- 8 Data bits
- 1 Parity bit
- 1 Stop bit

Related Topics

Configuring a channel for remote control on page 54

Security and protocol control

The K2 security features can be configured to restrict protocol control of channels.

Appendix **C**

Specifications

This section contains the following topics:

K2 Summit transmission models specifications

Refer to the section about K2 Summit Transmission models for specifications unique to that system. If a specification is not unique to a K2 Summit Transmission model, then the general K2 Summit/Solo system specification found in this section applies.

AC power specification

Table 7: K2 Summit 3G AC power specification

Characteristic	Specification
Power supply	Dual, redundant
Mains Input Voltage	90 to 260V auto-range, 47-63Hz
Power consumption	450W typical (standalone) 390W typical (SAN client) Maximum AC current 8A @ 115VAC, 4A @ 230VAC

The specification is shown in the following table.

Table 8: First-generation K2 Summit AC power specification

Characteristic	Specification
Power supply	Dual, redundant
Mains Input Voltage	90 to 260V auto-range, 47-63Hz
Power consumption	350W typical (standalone) 300W typical (SAN-attached) Maximum AC current 7A @ 115VAC, 3.5A @ 230VAC

The specification is shown in the following table.

Table 9: First-generation K2 Solo and K2 Solo 3G Media Server AC power specification

Characteristic	Specification
Power supply	Single
Mains Input Voltage	100-240V, 50/60 Hz
Power consumption	180W typical Maximum AC current 4A @ 115VAC, 2A @ 230VAC

⚠ ***WARNING: Always use a grounded outlet to supply power to the system. Always use a power cable with a grounded plug, such as the one supplied with the system.***

Environmental specifications

The K2 Summit 3G system specification is shown in the following table:

Characteristic	Specification
Ambient Temperature Non-Operating	-40° to +60° C
Ambient Temperature Operating	10° to +40° C
Relative Humidity	Operating 20% to 80% from 10° to +40° C Non-Operating 10% to 85% from -30° to +55° C Do not operate with visible moisture on the circuit boards
Operating Altitude	To 10,000 feet IEC 950 compliant to 2000 meters
Storage Altitude	To 40,000 feet
Non-Operating Mechanical Shock	30G 11 ms trapezoid
Random Vibration Operational	0.27 GRMS (5-500Hz)
Random Vibration Non-Operational	2.38 GRMS overall .019 g2/Hz (5-100Hz) .009 g2/Hz (200-350Hz) .0065 g2/Hz (500 Hz)
Equipment Type	Information Technology
Equipment Class	Class 1
Installation Category	Category II Local level mains, appliances, portable equipment, etc.
Pollution Degree	Level 2 operating environment, indoor use only.

The first generation K2 Summit/Solo system specification is shown in the following table:

Characteristic	Specification
Ambient Temperature Non-Operating	-40° to +60° C
Ambient Temperature Operating	10° to +40° C
Relative Humidity	Operating 20% to 80% from 10° to +40° C Non-Operating 10% to 80% from -30° to +60° C Do not operate with visible moisture on the circuit boards

Characteristic	Specification
Operating Altitude	To 10,000 feet IEC 950 compliant to 2000 meters
Storage Altitude	To 40,000 feet
Non-Operating Mechanical Shock	30G 11 ms trapezoid
Random Vibration Operational	0.27 GRMS (5-500Hz)
Random Vibration Non-Operational	2.38 GRMS overall .0175 g2/Hz (5-100Hz) .009375 g2/Hz (200-350Hz) .00657 g2/Hz (500 Hz)
Equipment Type	Information Technology
Equipment Class	Class 1
Installation Category	Category II Local level mains, appliances, portable equipment, etc.
Pollution Degree	Level 2 operating environment, indoor use only.

Specifications vary for transmission products.

Mechanical specifications

The K2 Summit 3G Production Client specification is shown in the following table

Dimension	Measurement
Height	3.5 in (89mm)
Width	17.6 in (447 mm)
Depth [1]	24.3 in (617 mm) total 23.0 in (585 mm) rack depth
Weight:	55.0 lbs (25.0 kg) maximum

The first generation K2 Summit Production Client specification is shown in the following table

Dimension	Measurement
Height	3.5 in (89mm)
Width	17.6 in (447 mm)
Depth [2]	24.3 in (617 mm) total 23.0 in (585 mm) rack depth

[1] Adjustable rack-mounting ears accommodate different rack depth limitations.
[2] Adjustable rack-mounting ears accommodate different rack depth limitations.

Dimension	Measurement
Weight:	53.0 lbs (24.0 kg) maximum

The K2 Solo Media Server specification is shown in the following table

Dimension	Measurement
Height	3.5 in (89mm)
Width	8.25 in (210 mm)
Depth	17.7 in (446 mm)
Weight:	16.5 lbs (7.5 kg)

Electrical specifications

The following sections describe the electrical specifications:

Serial Digital Video (SDI)

The K2 Summit/Solo system specification is shown in the following table

Parameter	Specification
Video Standard	SD: 525 Line or 625 Line component HD: 720p or 1080i
Number of Inputs	1 per channel standard. 2 or 3 per channel when licensed for ChannelFlex Suite.
Number of Outputs	2 per channel
Data format	Conforms to SMPTE 259M (SD) and 292M (HD)
Number of bits	10bits
Embedded Audio Input	SD data format conforms to SMPTE 259M (48kHz, 20bits) HD data format conforms to SMPTE 299 48 kHz (locked to video) and 16- or 24- bit PCM Compatible with AC-3 and Dolby-E
Embedded Audio Output	Output data format is 48 kHz 24-bit User can disable embedded audio on SDI output
Connector	BNC, 75 ohm, No loop-through
nominal Amplitude	800mV peak-to-peak terminated
DC Offset	0 +0.5V

Parameter	Specification
Rise and Fall Times	SD: 400 - 1500ps; measured at the 20% and 80% amplitude points HD: less than 270ps
Jitter	less than 0.2UI peak-to-peak
Max Cable Length	SD 300 meters HD 125 meters
Return Loss	greater than or equal to 15db, 5Mhz to 1.485Ghz

Genlock Reference

The K2 Summit/Solo system specification is shown in the following table:

Characteristic	Description
Signal Type	NTSC/PAL Color Black Composite Analog
Connectors	2 BNC, 75 ohm passive loop through
Signal Amplitude Lock Range	Stays locked to +6 dB and -3 dB
Input Return Loss	Greater than or equal to 36 dB to 6MHz
Tri-level sync	Supported

System Timing

The K2 Summit/Solo system specification is shown in the following table. All delay values shown are relative to Black Reference.

Characteristic	Description
Encoder timing	Derived from the video input
Nominal Playback Output Delay	Adjustable (Default: Zero timed to reference genlock)
SD Output Delay Range (Independent for each play channel)	525 lines • Frames: 0 to +1 • Lines: 0 to +524 • Samples: 0 to +1715 clock samples
	625 lines • Frames: 0 to +3 • Lines: 0 to +624 • Samples: 0 to +1727 clock samples

Characteristic	Description
HD Output Delay Range (Independent for each play channel)	1080i at 29.97 FPS (SMPTE 274M-5) • Frames: 0 to +1 • Lines: 0 to +1124 • Pixels: 0 to +2199
	720p at 59.94 FPS (SMPTE 296M-2) • Frames: 0 to +1 • Lines: 0 to +749 • Pixels: 0 to +1649
	1080i at 25 FPS (SMPTE 274M-6) • Frames: 0 to +1 • Lines: 0 to +1124 • Pixels: 0 to +2639
	720p at 50 FPS (SMPTE 296M-3) • Frames: 0 to +1 • Lines: 0 to +749 • Pixels: 0 to +1979
Loop through/EE	The video, AES, and LTC inputs pass to the output connectors as loop through.

AES/EBU Digital Audio

The K2 Summit/Solo system specification is shown in the following table

Parameter	Specification
Standard	AES3
Audio Inputs	4 Channels per video input/output on DB-25. Supports 32 KHz to 96 KHz inputs, which are sample rate converted to 48 KHz, 16 bit, 20 bit, or 24 bit digital audio sources.
Audio Outputs	4 Channels per video output. Audio mapping is direct and fixed. AES outputs are active at all times. Audio is output using a 48kHz clock derived from the video reference. Supports 16- or 24-bit media. On playout, audio is synchronized with video as it was recorded. Compatible with AC-3 and Dolby-E

Parameter	Specification
Input Impedance	110 ohms, balanced
Audio time shift	Configurable relative to video for both record and playout.

LTC Input/Output

The K2 Summit/Solo system specification is shown in the following table

Parameter	Specification
Standard	SMPTE 12M Longitudinal Time Code, AC coupled, differential input
Number of Inputs	1 per video input - Shared 6 pin conn. with output
Number of Outputs	1 per video output
Input Impedance	1K ohm
Output Impedance	110 ohm
Minimum Input Voltage	0.1 V peak-to-peak, differential
Maximum Input Voltage	2.5 V peak-to-peak, differential
Nominal Output Voltage	2.0 V peak-to-peak differential.
LTC Reader	LTC reader will accept LTC at rates between 1/30 and 80 times the nominal rate in either forward or reverse directions.
LTC Transmitter	LTC transmitter outputs LTC at the nominal frame rate for the selected standard at 1x speed, forward direction only.

VITC Input/Output

The K2 Summit/Solo system specification is shown in the following table.

Parameter	Specification
VITC waveform	lines 10-20 NTSC (525 Line); lines 10-22 PAL (625 Line) VITC is decoded on each SDI input and inserted on each SDI output. VITC Reader configurable for a search window (specified by two lines) or set to manual mode (based on two specified lines). VITC Writer inserts VITC data on two selectable lines per field in the vertical interval. The two lines have the same data. VITC is not decoded off of the video reference input.

RS-422 specification K2 Summit 3G system

The RS-422 interface conforms to ANSI/SMPTE 207M-1997 standard (SMPTE 422).

The K2 Summit/Solo system specification is shown in the following table.

Characteristic	Description
Number of Inputs/Outputs	1 per channel
Connector type	Female RJ45

RS-422 specification first generation K2 Summit/Solo system

The RS-422 interface conforms to ANSI/SMPTE 207M-1997 standard (SMPTE 422).

The K2 Summit/Solo system specification is shown in the following table.

Characteristic	Description
Number of Inputs/Outputs	1 per channel
Connector type	Female DB9 pin

GPI I/O specifications

The K2 Summit/Solo system specification is shown in the following table.

Characteristic	Description
Number of Inputs/Outputs	12 inputs and 12 outputs.
Connector type	Female DB 25pin
GPI Input	TTL 0-0.8 V Low; 2.4-5 V High; 1 mA external current sink
GPI Output	Max Sink Current: 100 mA; Max Voltage: 30 V Outputs are open drain drivers. Max. voltage when outputs are open = 45V Max. current when outputs are closed = 250mA Typical rise times approximately 625ns Typical fall times approximately 400ns

Operational specifications

This section contains specifications related to media operations.

Video codec description K2 Summit/Solo

First generation K2 Summit Production Client, K2 Summit 3G Production Client, and K2 Solo Media Server specifications are shown in the following tables. Licenses and/or hardware options are required to enable the full range of specifications.

DV formats

Format	Sampling	Frame Rate	Data Rate	Other
DVCAM 720x480i 720x576i	4:1:1/4:2:0	29.97, 25	28.8 Mbps	Conforms to IEC 61834
DVCPRO25 720x480i 720x576i	4:1:1	29.97, 25	28.8 Mbps	Conforms to SMPTE 314M
DVCPRO50 720x487.5i 720x585i	4:2:2	29.97, 25	57.6 Mbps	Conforms to SMPTE 314M
DVCPRO HD 1280x1080i 1440x1080i	4:2:2	29.97, 25	100 Mbps	Conforms to SMPTE 370M
DVCPRO HD 960x720p	4:2:2	59.94, 50	100 Mbps	Conforms to SMPTE 370M

MPEG-2 formats

Format	Sampling	Frame Rate	Data Rate (Mbps)	Other
720x480i	4:2:0	29.97	2-15	I-frame and long GoP
720x480i	4:2:2	29.97	4-50	I-frame and long GoP
720x512i	4:2:2	29.97	4-50	I-frame and long GoP
720x576i	4:2:0	25	2-15	I-frame and long GoP
720x576i	4:2:2	25	4-50	I-frame and long GoP
720x608i	4:2:2	25	4-50	I-frame and long GoP
D10/IMX 720x512i	4:2:2	29.97	30, 40, 50 CBR	I-frame only
D10/IMX 720x608i	4:2:2	25	30, 40, 50 CBR	I-frame only
1920x1080i	4:2:0	29.97, 25	20-80	I-frame and long GoP[3]

[3] Decode of lower bit rate is possible

Format	Sampling	Frame Rate	Data Rate (Mbps)	Other
1920x1080i	4:2:2	29.97, 25	20-100	I-frame and long GoP
XDCAM-HD 1440x1080i	4:2:0	29.97, 25	18 VBR, 25 CBR, 35 VBR	Long GoP
XDCAM-HD422 1920x1080i	4:2:2	29.97, 25	50 CBR	Long GoP
XDCAM-HD422 1280x720p	4:2:2	59.94, 50	50 CBR	Long GoP
XDCAM-EX 1920x1080i	4:2:0	29.97, 25	35 VBR	Long GoP
XDCAM-EX 1280x720p	4:2:0	59.94, 50	25 CBR, 35 VBR	Long GoP

K2 systems record closed GoP structure. If an open 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.

AVC-Intra formats

Format	Sampling	Frame Rate	Data Rate	Other
AVC-Intra 50 1440x1080i	4:2:0	29.97, 25	50 Mbps	Requires licenses or hardware for support on different K2 Summit/Solo system models.
AVC-Intra 50 960x720p	4:2:0	59.94, 50	50 Mbps	
AVC-Intra 100 1920 x 1080i	4:2:2	29.97, 25	100 Mbps	
AVC-Intra 100 1280 x 720p	4:2:2	59.94, 50	100 Mbps	

AVCHD/H.264 formats

The following formats are for AVCHD and PitchBlue content. These are only supported for play output (decode) on AVCHD. A license is required. Record input (encode) is not supported.

Format	Sampling	Frame Rate	Data Rate	Other
720x480i	4:2:0	29.97	4-50	H.264-style open GoP. GoP length up to 30 frames. Up to 4 B-frames between anchor frames.
	4:2:2	29.97	4-50	
720x512i	4:2:2	29.97	4-50	
720x576i	4:2:0	25	4-50	
	4:2:2	25	4-50	
720x608i	4:2:2	25	4-50	
1920x1080i	4:2:0	29.97, 25	24 Mbps max.	
	4:2:2	29.97, 25	24 Mbps max.	
1440x1080i	4:2:0	29.97, 25	24 Mbps max.	
	4:2:2	29.97, 25	24 Mbps max.	
1280x720p	4:2:0	59.94, 50	24 Mbps max.	
	4:2:2	59.94, 50	24 Mbps max.	

Proxy/live streaming formats

The proxy files and streams created by a K2 Summit/Solo system conform to industry standards, as follows.

Video: MPEG-4 Part 2

Format	Frame Rate	Data Rate (Mbps)	Other
320x240p	29.97, 25	1.5 Mbps	GOP 1 second
384x288p	29.97, 25	1.5 Mbps	GOP 1 second
512x288p	29.97, 25	1.5 Mbps	GOP 1 second

Audio: MPEG-4 Part 3 AAC-LC, 64 kbps, 48 kHz

Proxy file: MPEG-4 Part 12 Fragmented MP4 Movie

Live streaming: SDP files and RTP/RTCP streams are compliant with the following RFCs:

- RFC 3350, RFC 4566, RFC 3016, RFC 3640, RFC 5484, MPEG-4 Part 8

Playout of multiple formats

The K2 Summit/Solo system automatically handles material of various types and formats as specified in the following sections:

Playout on K2 Summit/Solo

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/Solo system 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.

The K2 Summit/Solo system supports mixed clips with uncompressed and compressed (PCM, AC3, and Dolby) audio on the same timeline.

25/50 fps conversions on HD K2 Summit/Solo system models

The following specifications apply to K2 Summit/Solo system channels with the XDP (HD) license.

		Converted SD format	**Converted HD format**	**Converted HD format**
		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 format	**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

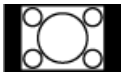
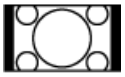
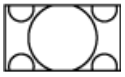
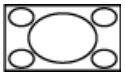
29.97/59.95 fps conversions on HD K2 Summit/Solo system models

The following specifications apply to K2 Summit/Solo system channels with the XDP (HD) license.

		Converted SD format	**Converted HD format**	**Converted HD format**
		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 format	**1080i at 29.97 fps**	Down-convert HD to SD	No conversion	Cross-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 K2 Summit/Solo system 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 applies to K2 Summit/Solo systems.

Active Format Description (AFD) settings automatically determine the proper aspect ratio to use for up- and down-conversions, based on the AFD information embedded in the clip metadata. If no AFD was set on the incoming SDI input, you can assign the AFD setting in K2 AppCenter. A related setting, aspect ratio conversion (ARC), makes settings in K2 AppCenter on a clip-by-clip basis or per channel basis but does not embed settings in clip metadata.

Related Topics

About video scaling settings on page 164

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.

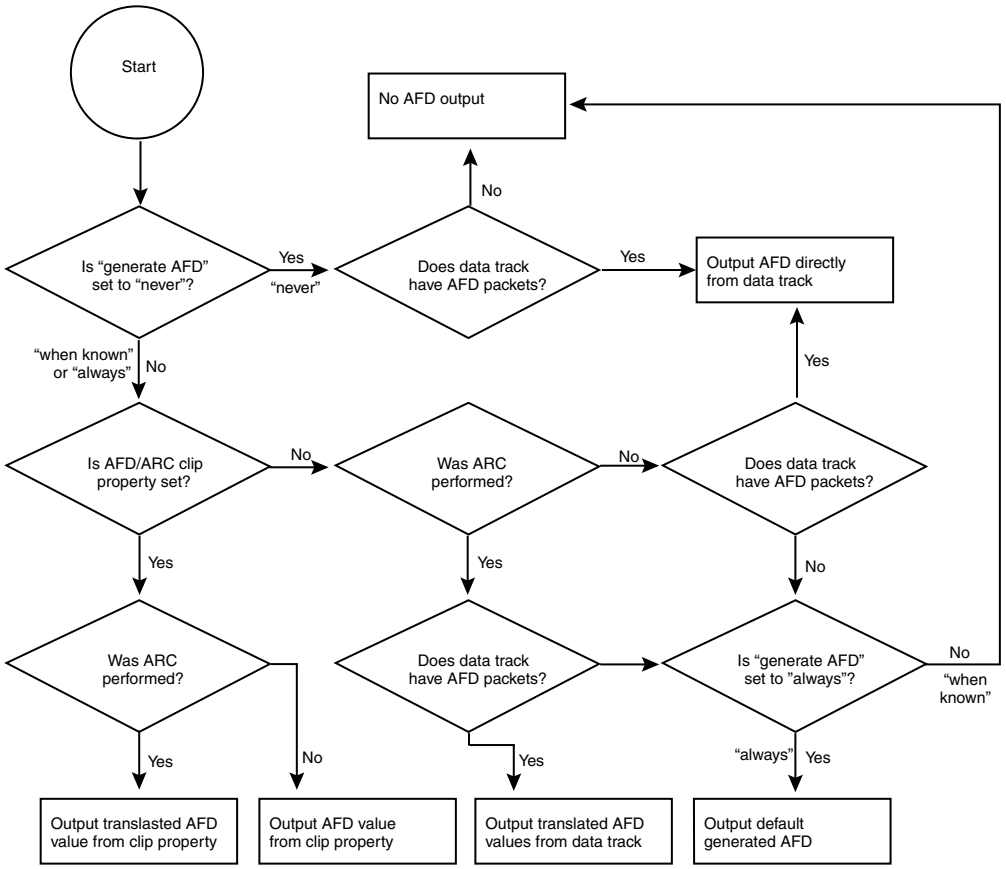
The playback Aspect Ratio Conversion (ARC) is prioritized according to the following table:

Playback aspect ratio conversion priority	
1	Clip property (ARC or AFD-based conversion rules)
2	Output channel (ARC configuration property)

NOTE: Bar data is not supported on the K2 system.

AFD output flowchart

The K2 Summit/Solo system determines AFD code values in output as illustrated by the following flowchart.



Storing AFD on K2 Summit/Solo systems

The K2 Summit/Solo system stores clip metadata in clip properties and uses this data throughout the workflow. You can modify the AFD setting in AppCenter.

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. The K2 Summit/Solo system processes the signal as follows:

- If present, the AFD setting from two seconds into the file is copied into the clip properties. This is the default K2 system behavior and occurs unless you set it to **No** in Configuration Manager.
- If selected, the ANC data is copied into the K2 data track.

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 the MXF stream contains an ancillary data track with AFD ancillary data packets and Active Format Descriptor attribute of the Generic Picture Essence descriptor in the MXF header metadata is absent, then the AFD value for the K2 clip is derived from the AFD ancillary data packet located around 2 seconds into the material. That AFD value is then copied to the K2 clip properties.
3	If there is no AFD in the MXF, the GXF, or the data track, then no AFD is set.

GXF Export: (both AFD and ARC values inserted into XML of stream)	
Condition	**Description**
Exported to K2 system that does not support AFD	AFD setting is ignored, but setting is retained with clip ARC settings apply
Exported to K2 system that supports AFD	AFD overrides ARC settings

GXF Import	
Condition	**Description**
Imported from K2 system that does not support AFD	ARC converted to AFD
Imported from K2 system that supports AFD	AFD overrides ARC settings

MXF Export	
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

ARC is K2 specific and therefore not included in MXF transfers.

MXF Import	
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

ARC is K2 specific and therefore not included in MXF transfers.

Default generated AFD values

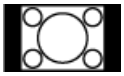
Default AFD values are generated when the three following conditions are met:

- 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 image is presumed based on the conversion that has been selected.

Source aspect ratio	Presumed 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 AR = 16:9 HD “bars”	

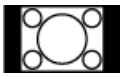
Default generated AFD values when down-converting to SD

Source image is presumed based on the conversion that has been selected.

Source aspect ratio	Presumed source image	Conversion option	Converted AFD and aspect ratio	Converted image
4:3 SD not widescreen		No conversion	AFD = 1001 AR = 4:3 SD	

Source aspect ratio	Presumed source image	Conversion option	Converted AFD and aspect ratio	Converted image
16:9 SD widescreen		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”	

Supported conversions from SD to HD using AFD

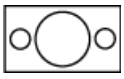
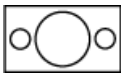
Source AFD and aspect ratio	Source image	Conversion performed	Converted AFD and aspect ratio	Converted image
AFD = 1010 AR 4:3 SD		Scale up crop vertical	AFD = 1010 AR 16:9 HD	
AFD = 1000 or 1001 AR 4:3 SD		Scale up pillarbox	AFD = 1001 AR 16:9 HD	
AFD = 1010 AR 16:9 SD		Scale up	AFD = 1010[4] AR 16:9 HD	
AFD = 1011 AR = 4:3 SD		Scale up Crop vertical pillarbox	AFD = 1011 AR 16:9 HD	

Related Topics

Configuring play channel video settings on page 172

[4] You can change the default converted value of AFD = 1010 to be AFD = 1001. This setting is in K2 AppCenter Configuration Manager play channel video settings.

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 = 1000 or 1010 AR = 16:9		Scale down letterbox	AFD = 1010 AR = 4:3[5]	
AFD = 1001 AR = 16:9		Scale down crop horizontal	AFD = 1001 AR = 4:3	
AFD = 1010 AR = 16:9		Scale down	AFD = 1010 AR = 16:9[6]	
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	

Related Topics

Configuring play channel video settings on page 172

VBI/Ancillary/data track specifications

This section contains topics about data carried in the media file.

VBI/Ancillary/data track 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.

[5] When play channel video settings Aspect Ratio is set to "Standard (4:3)"
[6] When play channel video settings Aspect Ratio is set to "Widescreen (16:9)"

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 K2 Summit/Solo

Record and playout of VBI is supported for both Luma and Chroma. However, a given line of VBI data can be stored as either Luma or Chroma, but not both.

VBI data support on K2 Summit/Solo

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
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 for playout	Not supported by DVCPRO50 format	CC supported, as native to DVCPRO50 (compressed VBI). VCHIP data supported.	—
DVCPRO50 625 line (PAL)	Supported for playout	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.	—

Video format	Compressed VBI	Uncompressed VBI	Captioning	Comments
DVCAM 625 line (PAL)	Not supported	Not supported by DVCAM format	TT not supported as VBI data.	—
MPEG-2 525 line (NTSC)	Supported as 16 lines per field. Range: 7–22	Supported for record. Not supported for playout.	CC supported and always on. Not selectable.	—
MPEG-2 625 line (PAL)	Supported as 16 lines per field. Range: 7–22	Supported for record. Not supported for 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.	—

Data track support on K2 Summit/Solo SD channels

The following table applies to SD channels 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

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 Summit/Solo HD channels

On 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.

Data	Supported as follows:
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.
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. CC and TT supported as native to format.

Captioning system support

An API is provided for access to captioning data, allowing Closed Captioning and Teletext systems to produce timecode correlated captions for an existing K2 clip.

About FCC requirements

Federal Communications Commission (FCC) rules incorporate sections of industry standards EIA-708 and EIA-608. The K2 Summit/Solo system complies with the rules for EIA-608 to DTV Closed Captioning (CC) transcoding. If SD material has EIA-608 CC present, the K2 Summit/Solo system can be configured so that when it up-converts the material the EIA-708 packet contains the EIA-608 data plus the DTV CC transcoded from EIA-608.

This applies to up-conversion only. HD material should already have compliant EIA-708 packets.

Related Topics

Configuring data track settings on page 175

About privately defined data packets

In ancillary data, the K2 Summit/Solo system supports data defined by a private organization. This is data that is not defined and registered with SMPTE.

For example, if a facility puts privately defined data as special "triggers" in their stream for downstream devices, these triggers are preserved on record and transfer and played with field accuracy when needed. SMPTE standard data is supported as well as the privately defined data, for fully compliant, field accurate data track support.

Data bridging of VBI information on K2 Summit/Solo HD channels

On channels with the XDP (HD) license, 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[7] CC packets 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 or as specified by "Teletext Output Lines" data track settings in AppCenter Configuration Manager.
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.

Related Topics

Configuring data track settings on page 175

Line mapping of ancillary data packets on K2 Summit/Solo HD channels

On channels with the XDP (HD) license, you can use "Output OP-47 packet on line" data track settings in AppCenter Configuration Manager to specify that all OP-47 packets are output on the selected video line during playout.

Source format	Source data	Line mapping ——>	Playout format	Converted data
HD 1080i	OP-47 packets, as specified by DID and SID, on a line valid for 1080i	Maps to	HD 1080i (same as source)	OP-47 packets on a different line valid for 1080i.

[7] UserData CC packets always on. If CC exists, it is recorded and played back. MPEG UserData can be played out but not recorded.

Source format	Source data	Line mapping ——>	Playout format	Converted data
HD 720p	OP-47 packets, as specified by DID and SDID, on a line valid for 720p	Maps to	HD 720p (same as source)	OP-47 packets on a different line valid for 720p.

Related Topics

Configuring data track settings on page 175

PitchBlue/H.264 ancillary data and timecode

The K2 Summit/Solo system extracts captioning and timecode information embedded in the video of H.264 material during ingest. The system plays this information during H.264 playout.

This functionality supports the PitchBlue workflow. However, the functionality applies to all H.264 material, not only PitchBlue material.

Internationalization

When you enable internationalization on a K2 Summit/Solo system, you can name your media assets in a local language. The K2 Summit/Solo system supports the local language name as specified in the following table.

System	Internationalization support
Keyboard input and display	• English • Chinese • Japanese • French • German • Spanish • Cyrillic (Russian) • Portuguese • Korean
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 Summit/Solo applications	• Movie assets are described in Unicode. • Application user interfaces are Unicode compliant.
Protocols	Refer to Appendix A, Remote control protocols.
FTP transfers	Refer to "FTP internationalization" in "K2 System Guide".

Names of media assets and bins must conform to the naming specifications for assets and bins.

Related Topics

About remote control protocols on page 218

Limitations for creating and naming assets and bins

Media assets and bins must conform to the following specifications.

Characters not allowed in asset and bin names

Position	Character	Description
Anywhere in name	\	backward slash
	/	forward slash
	:	colon

Position	Character	Description
	*	asterisk
	?	question mark
	<	less than
	>	greater than
	%	percent sign
	|	pipe
	"	double quote
At beginning of name	~	tilde

Asset and bin name limitations

The maximum number of characters in an asset path name, including the bin name, is 259 characters. This includes separators such as "\" and parts of the path name that are not visible in AppCenter. The file system limits the number of bytes in a name as well as the number of characters. The values in this table apply to names in English and other languages referred to in ISO 8859-1. The full count of 259 characters might not be available with some other character sets.

	Asset name, bin name, and path			
Sections of an asset/path name	**The rest of the path name** (i.e. everything apart from the bin and asset names)	Bin name	Asset media directory and extension	Asset name and extension
Naming limitation	This part of the path name is not visible in AppCenter.	The bin name can be up to 227 characters (which would leave room for only a 1-character asset name)	This part of the path name is not visible in AppCenter. The directory name is the same as the asset name. 4 characters are reserved for the extension.	The extension is not visible in AppCenter. At least 25 characters are reserved for the asset name and extension, even if they are not all used.
Example	`\media`	`\mybin1\mybin2`	`\MyVideo.cmf`	`\MyVideo.xml`

The following examples show how a path name would appear in AppCenter and in the file system.

In AppCenter:

`V:\mybin1\mybin2\MyVideo`

In the file system:

`V:\media\mybin1\mybin2\MyVideo.cmf\MyVideo.xml`

Bin nesting limitations

The K2 media database supports nine levels of nested bins. This includes the top level (first) bin. Exceeding this specification results in a database error. When creating a bin do not create a bin at level ten or deeper.

For example:

- The following is supported:
  ```
  default\en\fr\es\de\it\be\dk\cn
  ```
- The following is not supported:
  ```
  default\en\fr\es\de\it\be\dk\cn\jp
  ```

Video network performance

K2 systems support streaming transfers to and from K2 Summit/Solo system, K2 Media Clients, K2 SANs, 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 Summit/Solo system	Up to 50 MBytes per second	—
Transfer bandwidth per K2-SVR-100	Up to 90Mbytes per second	Depending on system design
Transfer bandwidth per K2-SVR-NH10GE	Up to 600Mbytes per Second	Depending on system design
Maximum concurrent transfers per transfer engine	4 to 10, configurable on SAN	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	—

About file interchange mechanisms on K2 systems

K2 Summit, Solo, and SAN systems can send and receive files as follows:

- File based import/export — This is based on a file that is visible from the operating system. For example, AppCenter import/export features are file based.
- HotBin import/export — This is file based import/export, with automated features that are triggered when a clip is placed in a bin. Some HotBin functionality requires licensing.
- FTP stream — This is file interchange via File Transfer Protocol (FTP).

GXF interchange specification

This specification applies to GXF file transfer, import, and export on K2 Summit, Solo, and SAN systems.

Streaming between online K2 systems supports complex movies and agile playlists of mixed format.

Formats are supported are as follows:

Supported formats		Notes
Video	DVCPRO25	—
	DVCPRO50	—
	DVCPRO HD	Super Slo-Mo requires software version 7.1. x or higher
	DVCAM	—
	MPEG-2	Includes all MPEG-2 formats (IMX, XDCAM, etc.) that can be stored on a K2 system
	AVC-Intra	—
	H.264	Playable on K2 Summit 3G system only. Can transfer to systems with K2 software version 8.x and higher.
	Audio	48 kHz —
16 bit, 24 bit		—
PCM, Dolby-E, AC-3		—
Data	VBI	—
	Ancillary	—

Interchange mechanisms are supported as follows:

Mechanism		Support
File based	Import	Yes
	Export	Yes
FTP stream	Import	Yes
	Export	Yes

MXF interchange specification

This specification applies to MXF file transfer, import, and export on K2 Summit, Solo, and SAN systems.

MXF supports simple clips with a single video track only. MXF does not support multiple video tracks, such as 3D/Video + Key or complex movies.

Formats are supported are as follows:

Supported formats		Notes
Video	DVCPRO25	—
	DVCPRO50	—
	DVCPRO HD	Super Slo-Mo requires software version 7.1. x or higher
	DVCAM	—
	D10	See MXF export behavior for eVTR style D10AES3.
	MPEG-2	Includes all MPEG-2 formats (IMX, XDCAM, etc.) that can be stored on a K2 system
	AVC-Intra	—
	Audio	48 kHz —
16 bit, 24 bit		—
PCM, Dolby-E, AC-3		—
Data	VBI	MXF supports either ancillary data packets or VBI lines in the data track but not both, so if ancillary data packets and VBI lines have been recorded into the K2 clip's data track, then the VBI lines will be dropped from the MXF data track on an MXF export.
	Ancillary	—

Interchange mechanisms are supported as follows:

Mechanism		Support
File based	Import	Yes
	Export	Yes
FTP stream	Import	Yes
	Export	Yes

With a special export option, you can export a completed continuous (loop) record clip as MXF or QuickTime, with the result being a flattened stream file. Recording must be complete before you export the clip, however you can make sub-clips while record is underway and export the sub-clips. For this feature, MPEG-2 long GoP is not supported.

MXF export behavior on K2 systems

Upon MXF export the K2 system checks clip structure for specifications as they apply to industry standard formats such as XDCAM and eVTR style D10AES3. If specifications match, the media is exported as the appropriate format.

The K2 system allows you to configure channels so that they no longer match the specifications for the industry-standard format. For example, you can add audio tracks to exceed the "# of Audio Tracks" specification for a D10AES3 channel. If you alter a clip in this way, on MXF export the K2 system exports the clip as MXF OP 1A but it is not the same eVTR style of MXF.

About MXF with DIDs and SDIDs

You can import and export MXF containing ANC packets and VBI lines as specified in SMPTE ST 436. The K2 system extracts the ANC packets or VBI lines to the K2 clip's data track.

AVI interchange specification

This specification applies to AVI file import on K2 Summit, Solo, and SAN systems.

AVI supports simple clips with a single video track only.

Formats are supported are as follows:

Supported formats		Notes
Video	DVCPRO25	Type-2 (non-interleaved) DV video only
	DVCPRO50	
	DVCPRO HD	
	DVCAM	
Audio	48 kHz	Audio tracks handled as stereo pairs
	16 bit, 24 bit PCM	
Data	None	—

Interchange mechanisms are supported as follows:

Mechanism		Support
File based	Import	Yes
	Export	No
FTP stream	Import	No
	Export	No

QuickTime interchange specification

This specification applies to QuickTime file transfer, import, and export on K2 Summit, Solo, and SAN systems.

QuickTime supports simple clips with a single video track only.

Formats are supported are as follows:

Supported formats		Notes	
Video	DVCPRO25	—	
	DVCPRO50	—	
	DVCPRO HD	Super Slo-Mo requires software version 7.1. x or higher	
	DVCAM	—	
	AVC-Intra	—	
	D10/IMX	—	
	XDCAM-HD	—	
	XDCAM-EX	—	
	XDCAM-HD422	—	
	H.264	Playable on K2 Summit 3G system only. Can transfer to systems with K2 software version 8.x and higher.	
	Audio	48 kHz	Audio tracks handled as stereo pairs on export
16 bit, 24 bit PCM			
Data	None	—	

Interchange mechanisms are supported as follows:

Mechanism		Support
File based	Import	Yes
	Export	Yes
FTP stream	Import	No
	Export	No

With a special export option, you can export a completed continuous (loop) record clip as MXF or QuickTime, with the result being a flattened stream file. Recording must be complete before you export the clip, however you can make sub-clips while record is underway and export the sub-clips. For this feature, MPEG-2 long GoP is not supported.

QuickTime video and key import specification

This specification applies to importing a QuickTime file with two video tracks for video and key playout. This is a licensed feature.

The imported file must be QuickTime 32 with alpha RLE 32-bit raster encoding, as produced by the Apple Animation Codec.

Supported video formats for import are as follows:

Format		Scan	Frame Rate
SD video	720 x 480	Interlaced	29.97
	720 x 512	Interlaced	29.97
	720 x 576	Interlaced	25
	720 x 608	Progressive	25
HD video	1920 x 1080	Interlaced	29.97, 25
	1280 x 720	Progressive	59.94, 50

Supported audio formats for import are as follows:

Format		
Audio tracks (if present)	48 kHz	Mono or stereo
	16 bit, 24 bit	
	PCM	

Interchange mechanisms are supported as follows:

Mechanism		Support
File based	Import	Yes
	Export	No
FTP stream	Import	No
	Export	No

When K2 software imports a file that meets the above requirements, it creates a K2 clip with two video tracks, in formats as follows:

Format			Frame Rate	Data Rate
SD video	D10/IMX	720 x 512	29.97	50 CBR
	D10/IMX	720 x 608	25	50 CBR
HD video	AVC-Intra 100	1920 x 1080	29.97, 25	100 Mbps
	AVC-Intra 100	1280 x 720	29.97, 25	100 Mbps

Audio tracks, if present are imported.

Timecode data is imported as K2 striped timecode. The first timecode value is the starting value and subsequent timecode is continuous.

The import process consumes system resource. Be aware of this if running other resource intensive processes during import.

QuickTime reference files

The following formats are supported as QuickTime reference files:

- DV
- AVC-Intra
- XDCAM-EX
- XDCAM-HD
- XDCAM-HD 422
- IMX

MPEG interchange specification

This specification applies to MPEG import on K2 Summit, Solo, and SAN systems.

Formats are supported are as follows:

Supported formats		Notes
Video	MPEG-2	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.
	H.264	AVCHD /H.264 is K2 Summit 3G system only. Import only supported.
Audio	48kHz	—
	MPEG-1 (layer 1 & 2)	—
	SMPTE 302M AES3 LPCM	—
	AC-3	—
	AVCHD DVD VOB LPCM	AVCHD /H.264 is K2 Summit 3G system only. Import only supported.
	DVD/VOB AC-3	—
Data	ATSC a53 captions	—
	SMPTE RDD-11 ancillary data	—

Interchange mechanisms are supported as follows:

Mechanism		Support
File based	Import	Yes

Mechanism		Support
	Export	No
FTP stream	Import	Yes
	Export	No

P2 interchange specification

This specification applies to P2 file transfer, import, and export on K2 Summit, Solo, and SAN systems.

Formats are supported are as follows:

Supported formats		Notes
Video	AVC-Intra	Directory structure as specified by P2
	DVCPRO25	
	DVCPRO50	
	DVCPRO HD	
	DVCAM	
Audio	48 kHz	
	16 bit, 24 bit PCM	

Interchange mechanisms are supported as follows:

Mechanism		Support
File based	Import	Yes
	Export	Yes
FTP stream	Import	No
	Export	No

WAV audio interchange specification

This specification applies to WAV import on K2 Summit, Solo, and SAN systems.

Formats are supported are as follows:

Supported formats		Notes
Video	NA	—
Audio	48 kHz	Audio tracks handled as stereo pairs
	16 bit stereo PCM	
Data	NA	—

Interchange mechanisms are supported as follows:

Mechanism		Support
File based	Import	Yes
	Export	No
FTP stream	Import	No
	Export	No

Media file system performance on K2 systems

This section specifies media operations on K2 systems. On a K2 SAN, these specification are qualified at channel counts up to 48 channels. Performance on larger systems is not tested.

Record-to-play specifications

The following tables specify the minimum length of time supported between recording on one channel and cueing the same clip for playout on another channel. Live play mode is available only on a K2 Summit/Solo system with the AppCenter Pro license. On a K2 SAN, Live play mode is not supported with record-to-play on different K2 clients or on a K2 SAN with Live Production mode not enabled.

Standalone K2 Summit/Solo system

Formats	Live play	Normal play
DV	0.5 seconds	6.0 seconds
MPEG-2 I-frame, AVC-Intra	0.75 seconds	6.25 seconds
MPEG-2 long GoP, XDCAM	1.0 seconds	6.50 seconds

Live Play on K2 SAN with Live Production mode enabled

Formats	Record-to play on same K2 Summit System
DV	0.5 seconds
MPEG-2 I-frame, AVC-Intra	0.75 seconds
MPEG-2 long GoP, XDCAM	1.0 seconds

Normal play on K2 SAN with Live Production mode enabled

Formats	Record-to play on same K2 Summit System	Record-to play on different K2 Summit Systems
DV	6.0 seconds	8.0 seconds
MPEG-2 I-frame, AVC-Intra	6.25 seconds	8.25 seconds

Formats	Record-to play on same K2 Summit System	Record-to play on different K2 Summit Systems
MPEG-2 long GoP, XDCAM	6.50 seconds	8.50 seconds

Normal play on K2 SAN with Live Production mode not enabled

Formats	Record-to play on same K2 Summit System	Record-to play on different K2 Summit Systems
All formats	10 seconds	20 seconds

Other media file system specifications

Parameter	Stand-alone K2 Summit/Solo system	K2 SAN
Maximum number of clips[8]	20,000	50,000
Maximum length continuous record	24 hours	24 hours
Off-speed play range for audio scrub	-2x to +2x	-1.5x to +1.5x
Off-speed play range for insertion of MPEG user data and/or ancillary data on playout	0 to +1.2	0 to +1.2
Minimum duration between recordings	10 seconds	10 seconds

Transition effects formats and limitations

Transition (mix) effects are supported on K2 Summit/Solo system as follows.

Transition effects on first generation K2 Summit/Solo system

	DV	AVC-Intra	MPEG-2 I-frame	MPEG-2 long GoP
DV	Yes	No	No	No
AVC-Intra	No	Yes	No	No
MPEG-2 I-frame	No	No	Yes	No
MPEG-2 long GoP	No	No	No	No

When adding transitions to all events in a playlist for an on-the-fly (the **Go To** feature) pause or transition, limitations on the time for the length of the transition are as follows:

- 0.5 second or less on first generation K2 Summit/Solo system

[8] 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.

Transition effects on K2 Summit 3G system

	DV	AVC-Intra	AVCHD/H.264	MPEG-2 I-frame	MPEG-2 long GoP
DV	Yes	No	No	No	No
AVC-Intra	No	Yes	Yes	No	No
AVCHD/H.264	No	Yes	Yes	No	No
MPEG-2 I-frame	No	No	No	Yes	No
MPEG-2 long GoP	No	No	No	No	Yes

When adding transitions to all events in a playlist for an on-the-fly (the **Go To** feature) pause or transition, limitations on the time for the length of the transition are as follows:

- 0.5 second or less on K2 Summit 3G systems

Protocols supported

AMP, VCDP, and BVW protocols are supported.

Transfer compatibility with K2 Summit/Solo

When transferring material between a K2 Summit/Solo and other Grass Valley products, you must consider the specifications of the different products. The following tables illustrate some of these considerations. In these tables, source material is assumed to have been recorded on the source device.

Transfer compatibility with K2 Media Client

Transfer	Material transferred	Compatibility
From K2 Summit/Solo to K2 Media Client	DVCPRO25, DVCPRO50	Playout supported.
	DVCPRO HD	Not supported
	MPEG	Supported
	AVC-intra	Not supported
	H.264	Not supported
	From K2 Media Client to K2 Summit/Solo	All types of material supported, according to the SD and/or HD capability.

Transfer compatibility with Profile XP Media Platform

Transfer	Material transferred	Compatibility
From K2 Summit/Solo to Profile XP Media Platform	DVCPRO25, DVCPRO50	Playout supported.
	DVCPRO HD	Not supported
	MPEG-2 HD 4:2:0 80 Mb or less MPEG-2 SD 4:2:2, XDCAM-HD422, XDCAM-EX	Supported. Can be played out.
	MPEG-2 720p MPEG-2 HD 4:2:2 XDCAM-HD HDV 1440x1080	Supported for storage only. Transfer is successful but playout not supported.
	AVC-intra	Not supported
	H.264	Not supported
	From Profile XP Media Platform to K2 Summit/Solo	All types of material supported, according to the SD and/or HD capability of the model.

Data compatibility between K2 Summit/Solo and PVS models

When material is transferred between a PVS Profile XP Media Platform and a K2 Summit/Solo system, data is supported as follows:

Transferring from PVS (source) to K2 Summit/Solo with HD license (destination)

Source format	Source data	SD playout data support on destination	HD playout data support on destination
DVCPRO25	Closed captioning	Yes	Yes
	Ancillary data	No	No
DVCPRO50	Closed captioning in compressed VBI	Yes	No
	Ancillary data	Yes	Yes
DVCPRO50	Compressed VBI	Yes	No
SD MPEG-2	Uncompressed VBI	Yes	Yes, with data bridging for CC only. Other VBI lines are discarded.
	Closed captioning	Yes	Yes. Ancillary data packets

Source format	Source data	SD playout data support on destination	HD playout data support on destination
	Compressed VBI	Yes	Yes, if enabled
	Ancillary data	Yes	Yes
HD MPEG-2	Ancillary data	Yes	Yes

Transferring from K2 Summit/Solo (source) to PVS (destination)

Source format	Source data	SD playout data support on destination	HD playout data support on destination
DVCPRO25, DVCPRO50	Any supported on K2 Summit/Solo	Yes	NA
DVCPRO HD	Any supported on K2 Summit/Solo	NA	NA
AVC-Intra	Any	NA — AVC-Intra not supported on PVS	
H.264	Any	NA — H.264 not supported on PVS	
SD MPEG-2	Any data recorded with Profile compatible setting[9].	All supported	Yes
	Uncompressed VBI and captioning on data track	Not supported. Do not attempt to transfer to PVS.	
	Compressed VBI	Yes	Yes, with data bridging for CC only. Other VBI lines are discarded.
	Uncompressed VBI	Yes	No, except for bridging of CC data, which requires Profile software v5.4.9.
HD MPEG-2	Ancillary data	Yes. CC bridging requires data-bridging SDI board.	Yes.

Control Point PC system requirements

If you are building your own Control Point PC, the machine you choose must meet the following requirements. These requirements assume that the PC is dedicated to its function as the host for Grass Valley product control and configuration applications. You should not run other applications on the PC that could interfere with system performance.

Control Point PC system requirements are as follows:

[9] When Record ancillary data = No or when Record Uncompressed VBI and captioning data to track = No

Requirements	Comments
Operating System	Microsoft Windows (Must be a U.S. version): • XP Professional Service Pack 3 • Server 2003 • Vista Enterprise Service Pack 1 • Windows 7 • Server 2008 R2
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 4.0
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/

MIB specifications

This section specifies Management Information Base (MIB) information for monitoring K2 devices with the Simple Network Management Protocol (SNMP). The Grass Valley NetCentral product uses this protocol. 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.

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)	

MIB	Description
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.

MIB	Description
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 **D**

Connector pinouts

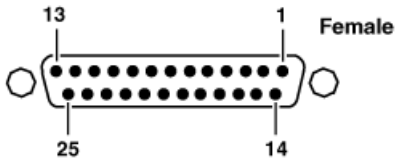
This section contains the following topics:

K2 Summit/Solo system connector pinouts

The following sections describe K2 Summit/Solo system rear panel connector pinouts.

AES Audio

Pinouts for each channel's AES Audio DB25 connector are as follows:



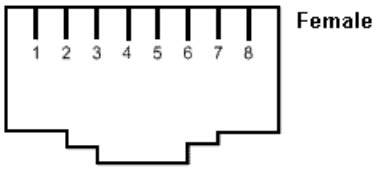
Pin #	Signal	Description
1	IN_P<0>	Channel Input 1&2 positive
2	IN_P<1>	Channel Input 3&4 positive
3	IN_P<2>	Channel Input 5&6 positive
4	IN_P<3>	Channel Input 7&8 positive
5	OUT_P<0>	Channel Output 1&2 positive
6	OUT_P<1>	Channel Output 3&4 positive
7	OUT_P<2>	Channel Output 5&6 positive
8	OUT_P<3>	Channel Output 7&8 positive
9	NO_C	NO_C
10	GND	GND
11	NO_C	NO_C
12	GND	GND
13	GND	GND
14	IN_N<0>	Channel Input 1&2 negative
15	IN_N<1>	Channel Input 3&4 negative
16	IN_N<2>	Channel Input 5&6 negative
17	IN_N<3>	Channel Input 7&8 negative
18	OUT_N<0>	Channel Output 1&2 negative
19	OUT_N<1>	Channel Output 3&4 negative
20	OUT_N<2>	Channel Output 5&6 negative
21	OUT_N<3>	Channel Output 7&8 negative
22-25	GND	GND

The optional audio cable has connections as follows:

RS-422 connector pinouts K2 Summit 3G

The K2 Summit 3G Production Client RS-422 interface conforms to ANSI/SMPTE 207M-1997 standard (SMPTE 422).

Pinouts for the individual RJ45 connectors are as follows:



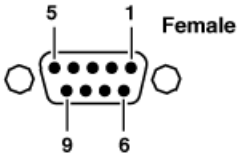
Pin #	Signal	Description
1	+TXD	Differential Transmit Data (high) (out TXB)
2	-TXD	Differential Transmit Data (low) (out TXA)
3	+RXD	Differential Receive Data (high) (in RXB)
4	GND	Signal Ground
5	GND	Signal Ground
6	-RXD	Differential Receive Data (low) (in RXA)
7	GND	Signal Ground
8	GND	Signal Ground

Balanced signals are placed on twisted wire pairs within a standard CAT5 or CAT3 cable.

RS-422 connector pinouts first generation K2 Summit/Solo system

The first generation K2 Summit/Solo system RS-422 interface conforms to ANSI/SMPTE 207M-1997 standard (SMPTE 422).

Pinouts for the individual DB9 connectors are as follows:

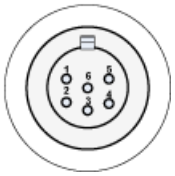


Pin #	Signal	Description
1	GND	Frame Ground
2	-TXD	Differential Transmit Data (low)
3	+RXD	Differential Receive Data (high)
4	GND	Transmit Signal Common
5	NC	Spare
6	GND	Receive Signal Common
7	+TXD	Differential Transmit Data (high)
8	-RXD	Differential Receive Data (low)
9	GND	Signal Ground

LTC connectors pinouts

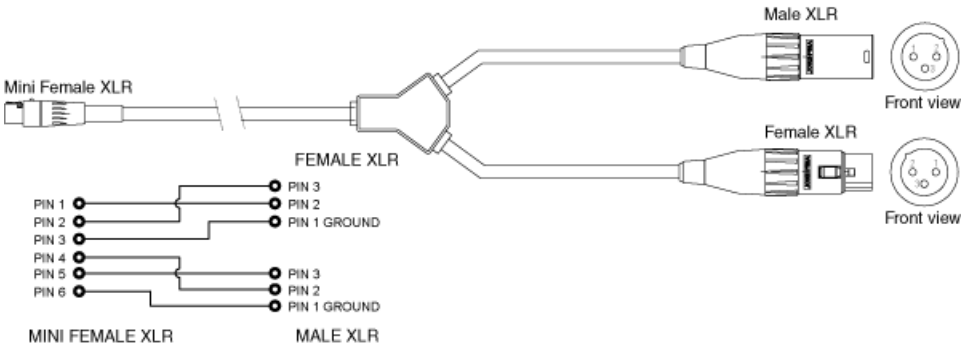
The K2 Summit/Solo system LTC panel connector provides balanced linear timecode input and output connections. The interface conforms to SMTPE 12M Linear Timecode.

On the K2 Summit/Solo system there is one 6 pin Switchcraft TRA6M Mini-XLR male connector for each channel. Pinouts are as follows:

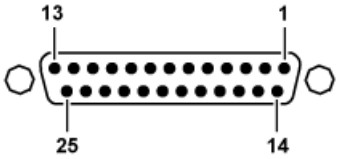


Pin #	Signal	Description
1	IN_P<0>	
2	IN_N<0>	
3	GND	Frame Ground
4	OUT_P<0>	
5	OUT_N<0>	
6	GND	Frame Ground

The mini-XLR to XLR LTC cable has connections as follows:



GPI I/O connector pinouts



Pin	Signal
1	Output 1
2	Output 2
3	Output 3
4	Output 4
5	Output 5
6	Output 6
7	Output 7
8	Output 8
9	Output 9
10	Output 10
11	Output 11
12	Output 12
13	Ground
14	Input 1
15	Input 2
16	Input 3

Pin	Signal
17	Input 4
18	Input 5
19	Input 6
20	Input 7
21	Input 8
22	Input 9
23	Input 10
24	Input 11
25	Input 12

K2 Media Server connector pinouts

The following sections describe K2 Media Server rear panel connector pinouts.

Redundant server heartbeat serial cable

Take care to use the proper serial cable to interconnect redundant K2 Media Servers that take the role of file system/database servers. This cable supports the heartbeat mechanism whereby the servers monitor each other's health. It is a 9 pin serial cable, but it is not a standard RS-232 null modem cable. The heartbeat cable is supplied with your system (Grass Valley part number 174-8137-00) and has a pin configuration as follows:

1 – 4

2 – 3

3 – 2

4 – 1&6

5 – 5

6 – 4

7 – 8

8 – 7

9 – No Connect

Appendix **E**

Trademarks and Agreements

This section contains the following topics:

Trademarks

Grass Valley, GV STRATUS, K2, Aurora, Summit, ChannelFlex, Dyno, Solo, ClipStore, Infinity, Turbo, Profile, Profile XP, NetCentral, NewsBrowse, NewsEdit, NewsQ, NewsShare, NewsQ Pro, and Media Manager are either registered trademarks or trademarks of Grass Valley USA, LLC. in the United States and/or other countries. Grass Valley USA, LLC. products are covered by U.S. and foreign patents, issued and pending. Additional information regarding Grass Valley USA, LLC. trademarks and other proprietary rights may be found at www.grassvalley.com. Other trademarks and logos used in this document are either registered trademarks or trademarks of the manufacturers or vendors of the associated products, such as Microsoft® Windows® operating system, Windows Media® player, Internet Explorer® internet browser, and SQL Server™. QuickTime and the QuickTime logo are trademarks or registered trademarks of Apple Computer, Inc., used under license therefrom. AVCHD and the AVCHD logo are trademarks of Panasonic Corporation and Sony Corporation.

JPEG acknowledgment

This software is based in part on the work of the Independent JPEG Group.

Glossary

Application window

An application's main surrounding window, in which the application's panels are docked.

Asset

A physical or logical entity defined and managed by the Grass Valley system.

Asset type icon

An icon that indicates the type of asset.

Bin

On a K2 system, a folder that contains media.

Clip

A single media asset with video and/or audio, timecode, and associated metadata.

Control Point PC

A network connected PC that is an optional component of the Grass Valley system. It serves as the central configuration location for the Grass Valley system. It runs applications such as the GV STRATUS Control Panel application, the SiteConfig application, the K2Config application, and the NetCentral application.

Copy

A complete copy of an asset.

Crash Record

Start a recording without specifying a clip name.

Event (Playlist)

A clip, trigger, or other entity that is one of the items in a playlist.

Folder

A physical or logical container. It can be a physical directory on a computer's file system or a database record managed by a Grass Valley system database.

Gang

Two or more channels that can be controlled as a single unit. A channel in a gang is referred to as a ganged channel. A channel that is not in a gang is referred to as a single channel.

Grass Valley system

The applications with their database(s) and supporting infrastructure that manage assets for one or more Grass Valley products.

Focus

The state of a user interface component in which the component is currently receiving the input from the keyboard or mouse.

K2 10G SAN

The K2 SAN with 8 Gig Fibre Channel and 10 Gig iSCSI connections. Initially released in early 2011.

K2 10Gv2 SAN

The K2 SAN with 8 Gig Fibre Channel and 10 Gig iSCSI connections. Includes support for 2.5 inch drives and large capacity drives. Initially released in late 2012.

K2Config

Grass Valley's application for configuring the K2 Storage Area Network (SAN).

K2 Media Client SAN-attached system

The K2 Media Client product with media storage on a K2 SAN.

K2 Media Client standalone system

The K2 Media Client product with internal or direct-connect media storage.

K2 Media Server

The K2 Media Server product, which is a K2 SAN device. It can have the role of file system manager and other roles.

K2 Nearline SAN

A large pool of offline K2 storage to which files can be saved. Suitable for media file transfer. Does not support record or play.

K2 SAN

The K2 Storage Area Network, including K2 Media Server, K2 RAID, and K2 SAN-attached systems. This term applies to an online or production SAN except if it is specified as a nearline SAN.

K2 SAN-attached system

A K2 system with shared storage on a K2 SAN. Applies to K2 Media Client and K2 Summit products.

K2 Solo system

The K2 Solo Media Server product.

K2 standalone system

A K2 system with internal or direct-connect media storage. Applies to K2 Media Client, K2 Summit, and K2 Solo products.

K2 Summit SAN-attached system

A K2 Summit system with media storage on a K2 SAN. Applies to K2 Summit (3G) Production Client and K2 Summit Transmission Client products.

K2 Summit standalone system

A K2 Summit system with internal or direct-connect media storage. Applies to K2 Summit (3G) Production Client and K2 Summit Transmission Server products.

K2 system

K2 product family servers, clients, and SANs, either individually or combined as a system. This includes K2 Media Clients, K2 Summit (3G) Production Clients, K2 Summit Transmission Servers/Clients and K2 Solo Media Servers with standalone, direct-connect, or SAN storage, as appropriate for the product.

Keyword

A section of a clip that has duration, as defined by an in point and an out point, with its associated metadata.

NetCentral

Grass Valley's suite of applications for monitoring devices and systems using the SNMP protocol and other protocols.

Permissions

Access to files or directories that can be assigned to user groups.

Playback

Playing an asset, such as a clip or playlist.

Playlist

An asset type consisting of a series of events. A playlist contains only events, transitions, and other features supported on the K2 system channel.

Proxy server

The GV STRATUS server on an online or production K2 SAN that provides access to the low resolution proxy media stored on the SAN. The server has the role of Proxy K2 SAN Server and SNFS file system client.

Proxy Storage

A K2 Nearline SAN that stores low-resolution proxy media for a GV STRATUS system. A GV STRATUS Core Services server takes the role of file system server for the Proxy Storage.

Proxy Storage file system server

The GV STRATUS server on a dedicated Proxy Storage system that provides access to the low resolution proxy media stored on the system. The server has the roles of Proxy Storage Server and SNFS file system server for the Proxy Storage system.

Quota

A configurable amount of disk space that the GV STRATUS system can reserve for specific user groups.

Role

Functionality that can be assigned. In the GV STRATUS application, it is licensed functionality assigned to a user or group. In the SiteConfig application, it is software functionality assigned to a device.

Scrub bar

The control that allows you to navigate through a clip using your mouse. The scrub bar slider provides click and drag mouse operations.

Section

A panel's subdivision, such as the Explore section of the Navigator panel.

Sequence

An asset consisting of a series of events for EDL exchange with an editor or creating finished stories for playout.

SiteConfig

Grass Valley's application for network configuration and software deployment.

Take control

To take control of a K2 system channel that is currently being controlled by another. This can occur when two people are using the application on different PCs and one person opens or adds a channel that is in use by the other person.

GV STRATUS

Grass Valley's media workflow application framework. Applications include the GV STRATUS application and the GV STRATUS Control Panel.

GV STRATUS Common server

A GV STRATUS server with common roles, excluding the role of Core Server and Proxy Server. This server provides licensing and user preference functionality on typical GV STRATUS systems where there are multiple GV STRATUS servers.

GV STRATUS Control Panel

The GV STRATUS application that provides central configuration of the software components of the GV STRATUS system.

GV STRATUS Core Services

The software components that provide the underlying functionality to GV STRATUS applications. The components run as services on one or more GV STRATUS Core Services servers.

GV STRATUS Database

The database that provides the core asset management functionality to the GV STRATUS system.

GV STRATUS Express server

A GV STRATUS server with all the roles necessary for a basic GV STRATUS system, including the role of Proxy Express Server. The server has larger drives than other GV STRATUS servers to accommodate the low resolution proxy media that is stored on the local server. This server is designed for use on smaller GV STRATUS systems where no other GV STRATUS servers or proxy systems are present.

Tag

A metadata entry that has no timecode information. In the GV STRATUS application this applies to an entire asset rather than to a particular point or section in an asset.

Thumbnails view

The list view format that displays each asset as a small rectangular image.

Tiles view

The list view format that displays each asset as a small rectangular image with asset property information to the right.

Transition

The place between two events in a playlist or sequence. A cut and an effect are examples of a transition.

Working Bin

The bin on a K2 system into which one or more channels record.

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