

K2 Storage

10Gv2 SAN and Direct-Connect



Cabling Guide

CERTIFICATE

Certificate Number: 510040.001

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Headquarters:

400 Providence Mine Road
Nevada City, CA 95945
United States

15655 SW Greystone Ct.
Beaverton, OR 97006
United States

Kapittelweg 10
4827 HG Breda
The Netherlands

2300 So. Decker Lake Blvd.
Salt Lake City, UT 84119
United States

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4377 County Line Road
Chalfont, PA 18914
Ph: (215)997-4519
Fax: (215)997-3809
CRT 001 042108

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K2 Storage

10Gv2 SAN and Direct-Connect

Cabling Guide

Contacting Grass Valley

International Support Centers	France 24 x 7	+800 8080 2020 or +33 1 48 25 20 20	United States/Canada 24 x 7	+1 800 547 8949 or +1 530 478 4148
Local Support Centers (available during normal business hours)	Asia	Hong Kong, Taiwan, Korea, Macau: +852 2531 3058 Indian Subcontinent: +91 22 24933476 Southeast Asia/Malaysia: +603 7492 3303 Southeast Asia/Singapore: +65 6379 1313 China: +861 0660 159 450 Japan: +81 3 5484 6868		
	Australia and New Zealand: +61 1300 721 495		Central/South America: +55 11 5509 3443	
	Middle East: +971 4 299 64 40 Near East and Africa: +800 8080 2020 or +33 1 48 25 20 20			
	Europe	Belarus, Russia, Tadzikistan, Ukraine, Uzbekistan: +7 095 2580924 225 Switzerland: +41 1 487 80 02 S. Europe/Italy-Roma: +39 06 87 20 35 28 -Milan: +39 02 48 41 46 58 S. Europe/Spain: +34 91 512 03 50 Benelux/Belgium: +32 (0) 2 334 90 30 Benelux/Netherlands: +31 (0) 35 62 38 42 1 N. Europe: +45 45 96 88 70 Germany, Austria, Eastern Europe: +49 6150 104 444 UK, Ireland, Israel: +44 118 923 0499		

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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.



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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Start with the K2 Storage system diagram

To follow cabling instructions

The K2 10Gv2 SAN, and its K2 10Gv2 RAID storage, is documented in this manual. The K2 10Gv2 SAN is defined as follows: The K2 SAN with 8 Gig Fibre Channel and 10 Gig iSCSI connections. Includes support for 2.5 inch drives and large capacity drives. Introduced in late 2012. The K2 10Gv2 SAN requires K2 software version 9.0 and higher. Some devices and/or systems used with older K2 SANs are not compatible with the K2 10Gv2 SAN. Consult "K2 Release Notes" for compatibility information.

To follow cabling instructions for your K2™ Storage Area Network (SAN) or direct-connect storage K2 Summit system, do the following:

1. Find the system cabling diagram that matches your K2 system.
2. Follow the references below the system diagram to locate cabling instructions for the individual devices of your K2 system.

Refer to the "K2 10Gv2 SAN Installation and Service Manual" for more information on K2 SANs and devices. Refer to the "K2 System Guide" for more information on direct-connect K2 client storage.

Related Topics

[*Basic K2 SAN - Online or Production*](#) on page 7

[*Redundant K2 SAN - Online or Production*](#) on page 9

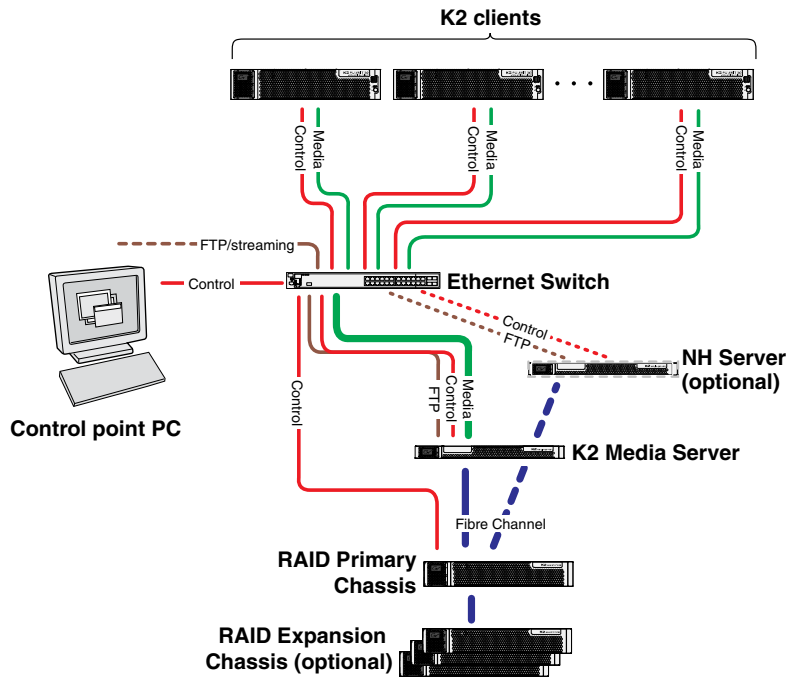
[*Basic Nearline K2 SAN*](#) on page 10

[*Redundant Nearline K2 SAN*](#) on page 11

[*K2 client with direct-connect storage*](#) on page 11

Basic K2 SAN - Online or Production

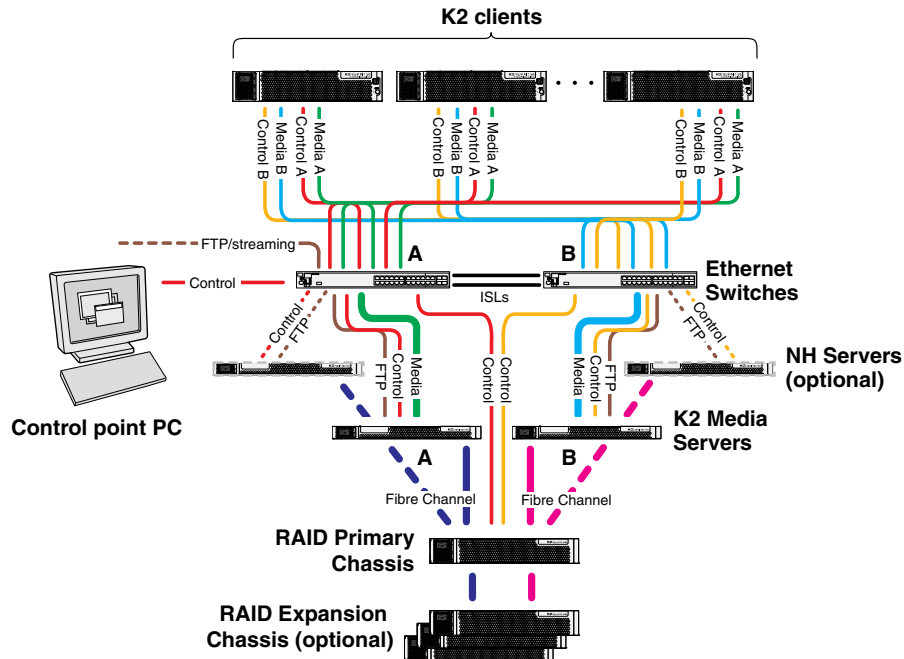
Start with the K2 Storage system diagram



To cable this K2 SAN device...	Of this model or platform...	Turn to these instructions:
K2 Summit system	K2 Summit 3G system or first generation K2 Summit system	K2-XDP basic on page 13
Gigabit Ethernet Switch	HP 2910	K2-SWE basic online/production on page 15
K2 Media Server	Dell R620	K2-SVR basic Dell R620 on page 20
NH10GE K2 Media Server (optional)	Dell R620	K2-SVR-NH10GE online/production Dell R620 on page 22
K2 RAID	K2 RAID	K2 RAID basic online/production on page 24

This manual documents the default GigE switch configuration. Other configurations are available, depending on your port count and FTP bandwidth requirements.

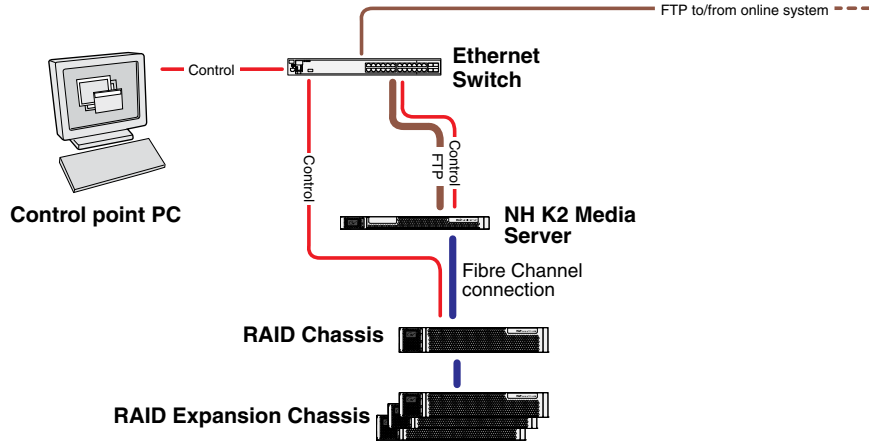
Redundant K2 SAN - Online or Production



To cable this K2 SAN device...	Of this model or platform...	Turn to these instructions:
K2 Summit system	K2 Summit 3G system or first generation K2 Summit system	K2-XDP redundant on page 13
Gigabit Ethernet Switch	HP 2910	K2-SWE redundant online/production on page 17
K2 Media Server	Dell R620	K2-SVR redundant Dell R620 on page 21
NH10GE K2 Media Server (optional)	Dell R630	K2-SVR-NH10GE online/production Dell R620 on page 22
K2 RAID	K2 RAID	K2 RAID redundant online/production on page 25

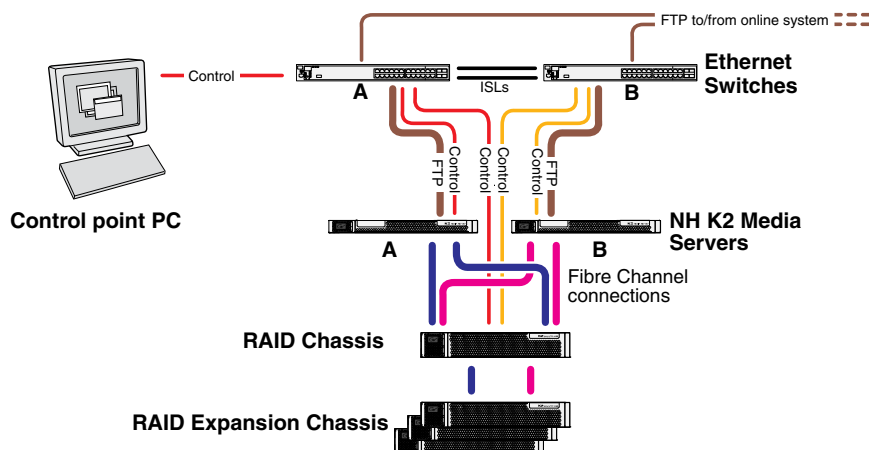
This manual documents the default GigE switch configuration. Other configurations are available, depending on your port count and FTP bandwidth requirements.

Basic Nearline K2 SAN



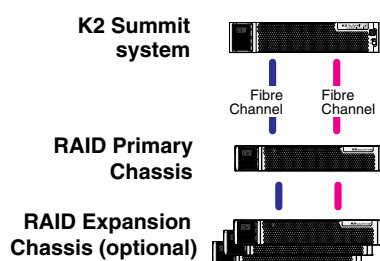
To cable this K2 SAN device...	Of this model or platform...	Turn to these instructions:
Gigabit Ethernet Switch	HP 2910	K2-SWE basic nearline on page 18
NH10GE K2 Media Server	Dell R620	K2-SVR-NH10GE basic nearline Dell R620 on page 22
K2 RAID	K2 RAID	K2 RAID basic nearline on page 26

Redundant Nearline K2 SAN



To cable this K2 SAN device...	Of this model or platform...	Turn to these instructions:
Gigabit Ethernet Switch	HP 2910	K2-SWE redundant nearline on page 19
NH10GE K2 Media Server	Dell R620	K2-SVR-NH10GE redundant nearline Dell R620 on page 22
K2 RAID	K2 RAID	K2 RAID redundant nearline on page 27

K2 client with direct-connect storage



To cable this K2 device...	Of this model or platform...	Turn to these instructions:
K2 Summit system	K2 Summit 3G system or first generation K2 Summit system	XDP/XDT direct-connect storage on page 14
K2 RAID	K2 RAID	K2 RAID direct-connect on page 27

Start with the K2 Storage system diagram

Cable K2 devices

Cable K2 Summit system

As directed by the system diagram for your K2 storage, cable the K2 Summit system using the instructions in this section.

Related Topics

[K2-XDP basic](#) on page 13

[K2-XDP redundant](#) on page 13

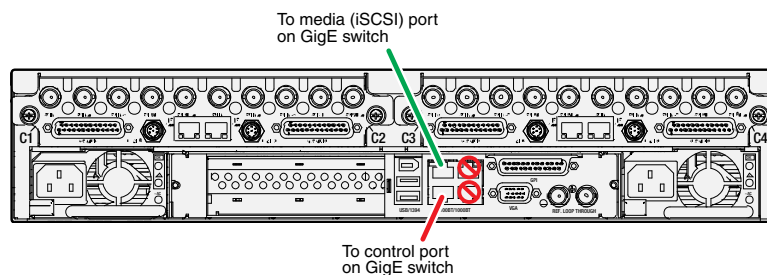
[XDP/XDT direct-connect storage](#) on page 14

K2-XDP basic

These cabling instructions apply to the following:

- K2 Summit 3G system or first generation K2 Summit system on a basic (non-redundant) online or production K2 SAN

Refer to "K2 Summit Production Client Quick Start Guide" for additional cabling details.

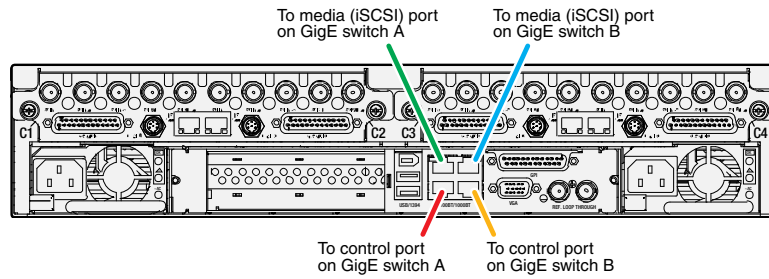


K2-XDP redundant

These cabling instructions apply to the following:

- K2 Summit 3G system or first generation K2 Summit system on a redundant online or production K2 SAN

Refer to "K2 Summit Production Client Quick Start Guide" for additional cabling details.



XDP/XDT direct-connect storage

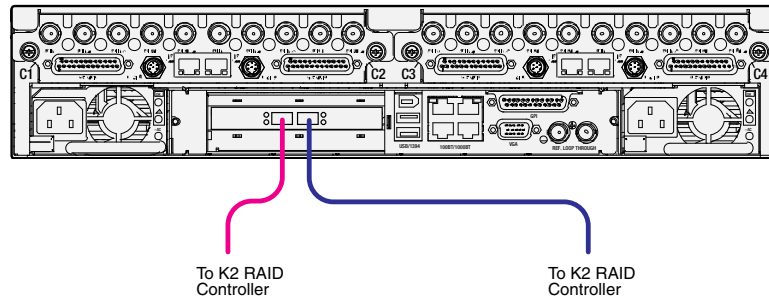
These cabling instructions apply to the following:

- K2 Summit 3G system, first generation K2 Summit system, or K2 Summit Transmission Client with direct-connect K2 RAID storage

Refer to related topics in "K2 System Guide" for additional information about direct-connect storage.

Refer to "K2 Summit Production Client Quick Start Guide" for additional cabling details.

K2 Summit system



Cable Ethernet switch

As directed by the system diagram for your storage system, cable the switch or switches for your system using the instructions in this section.

These instructions are for the HP ProCurve switch 2900 and 2910 series. You must use this switch for iSCSI traffic.

For control and FTP/streaming traffic, it is allowed to use a different brand of switch, such as a Cisco Catalyst switch, if required by your site. If you are using a non-HP switch, apply the information in the following procedures accordingly. Refer to the documentation you received with the switch as necessary.

Install the switch in its permanent location. When installing in a video equipment rack, use 10-32 screws. Do not use HP's 12-24 screws, as they can cause thread damage.

Provide power to the switch.

Related Topics

[K2-SWE basic online/production](#) on page 15

[K2-SWE redundant online/production](#) on page 17

[K2-SWE basic nearline](#) on page 18

[K2-SWE redundant nearline](#) on page 19

Ethernet cable requirements

For making Ethernet connections, cabling must meet the following requirements:

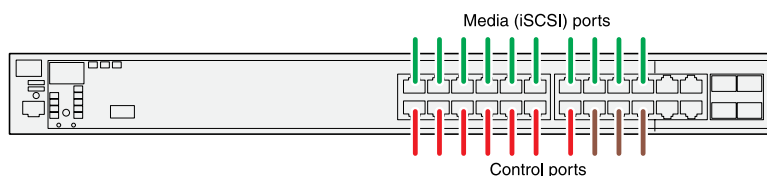
- Use CAT5e or CAT6 cables. The maximum cable length is 50 meters for CAT5e and 100 meters for CAT6.

K2-SWE basic online/production

These cabling instructions apply to the following:

- HP 29xx series Gigabit Ethernet switch on a basic (non-redundant) online or production K2 SAN.

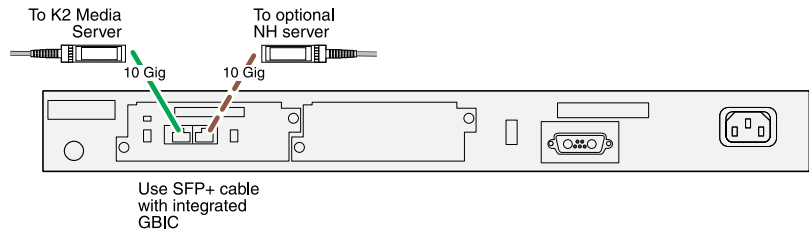
Front view



Control ports are for control connections from K2 clients, Aurora products, automation, etc., as well as FTP connections from Grass Valley and 3rd party systems.

Rear view

Cable K2 devices

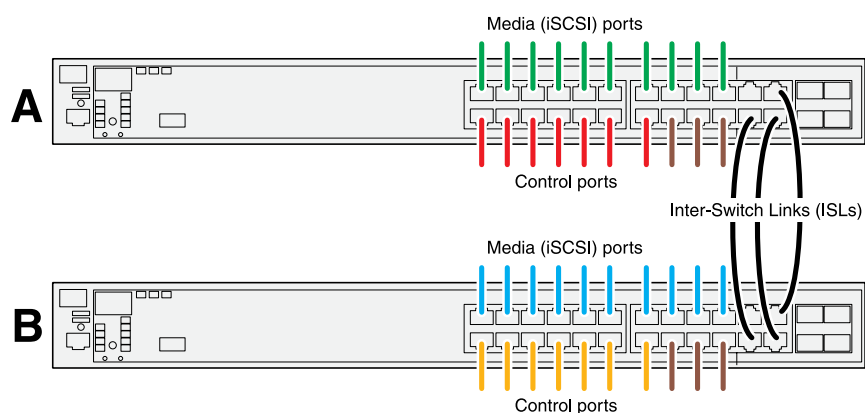


K2-SWE redundant online/production

These cabling instructions apply to the following:

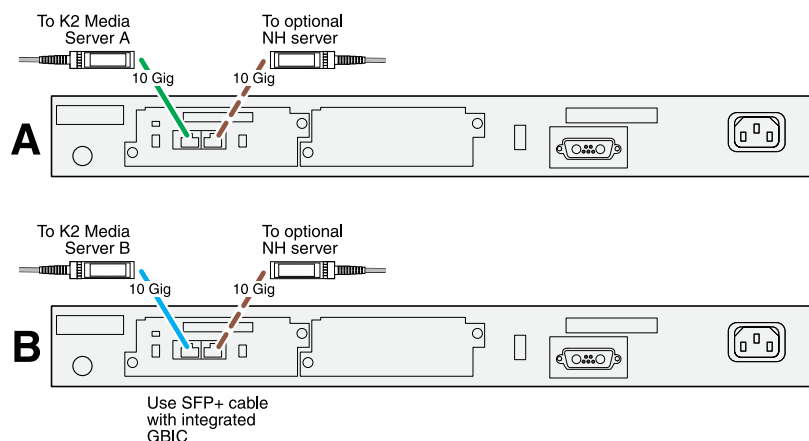
- HP 29xx series Gigabit Ethernet switch on a redundant online or production K2 SAN.

Front view



Control ports are for control connections from K2 clients, Aurora products, automation, etc., as well as FTP connections from Grass Valley and 3rd party systems.

Rear view



If you have other iSCSI clients, such as GV STRATUS high-resolution clients, that have just one iSCSI connection and one control connection, approximately half of the clients should be connected to switch A and half of the clients should be connected to switch B. In a failover event, only the clients connected to one of the switches will remain operational, so make connections accordingly. Connect the client's iSCSI connection to one of the media ports on a switch and the client's control connection to one of the control ports on the same switch.

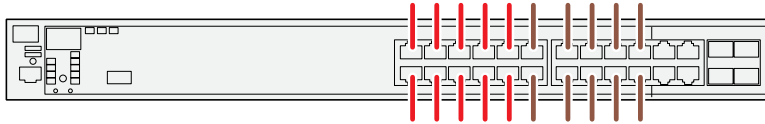
If you have more than one optional NH10GE K2 Media Servers, balance servers between switch A and switch B.

K2-SWE basic nearline

These cabling instructions apply to the following:

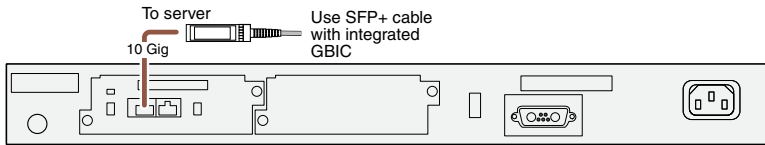
- HP 29xx series Gigabit Ethernet switch on a nearline K2 SAN with one NH K2 Media Server.

Front view



Ports are for control connections as well as FTP connections from Grass Valley and 3rd party systems.

Rear view

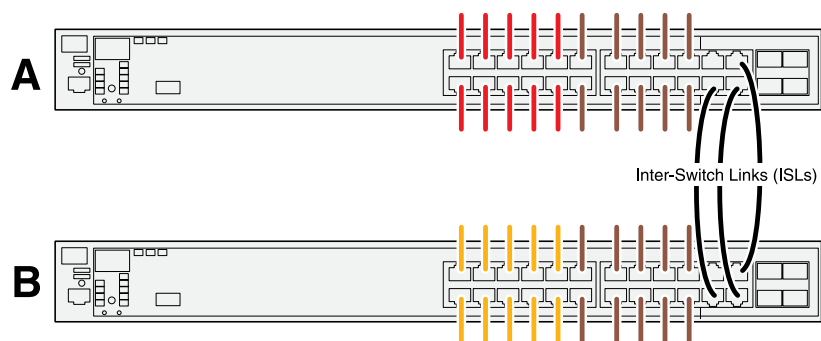


K2-SWE redundant nearline

These cabling instructions apply to the following:

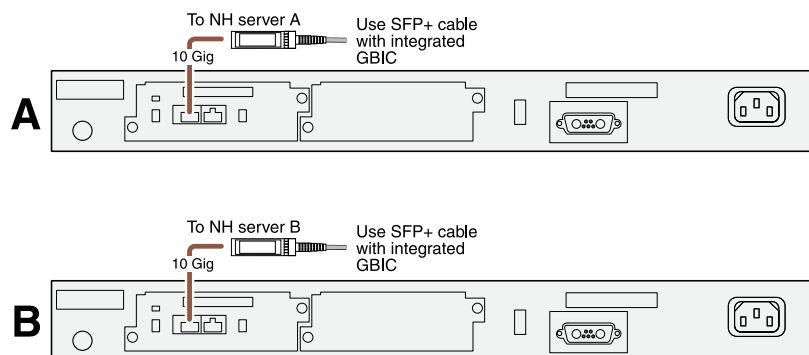
- HP 29xx series Gigabit Ethernet switch on a nearline K2 SAN.

Front view



Ports are for control connections as well as FTP connections from Grass Valley and 3rd party systems.

Rear view



Cable K2 Media Server

As directed by the system diagram for your K2 SAN, cable the K2 Media Server or Servers for your K2 SAN using the instructions in this section.

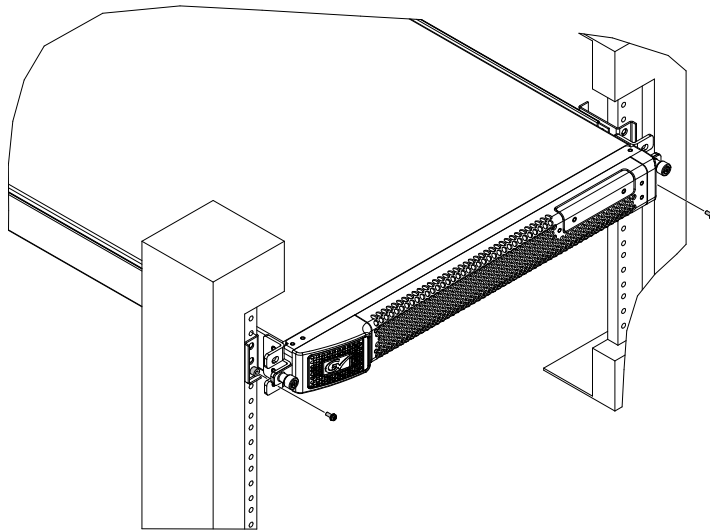
Related Topics

[K2-SVR basic Dell R620](#) on page 20

[K2-SVR redundant Dell R620](#) on page 21

Securing a server to a rack

If the server is a Dell server, follow the instructions provided in the shipping box to install the rack rails and position the server in the rack. For the Dell 1RU PowerEdge Server, follow the illustration below to secure the system to the rack.

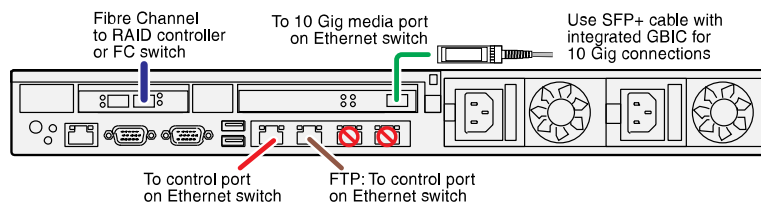


Install a screw in the bottom hole of the bracket on each side. Do not attempt to install a screw in the top hole of the bracket.

K2-SVR basic Dell R620

These cabling instructions apply to the following:

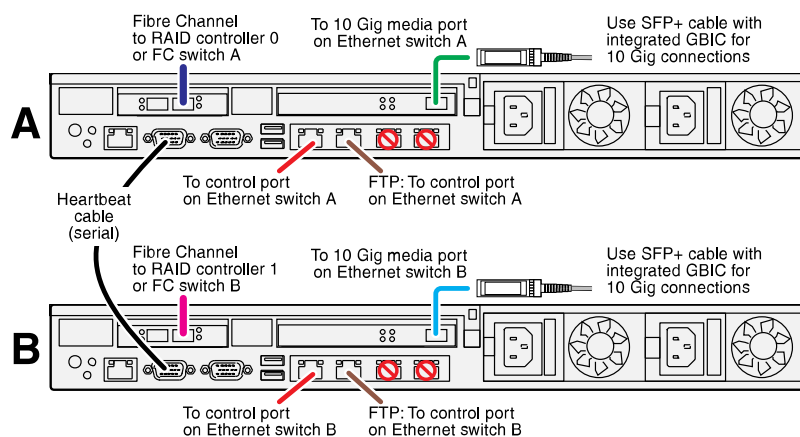
- Dell R620 PowerEdge Server on a basic (non-redundant) online or production K2 SAN.



K2-SVR redundant Dell R620

These cabling instructions apply to the following:

- Dell R620 PowerEdge Server on a redundant online or production K2 SAN.



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

Cable NH10GE K2 Media Server

As directed by the system diagram for your K2 SAN, cable the NH10GE K2 Media Server or Servers for your K2 SAN using the instructions in this section

Related Topics

[K2-SVR-NH10GE online/production Dell R620](#) on page 22

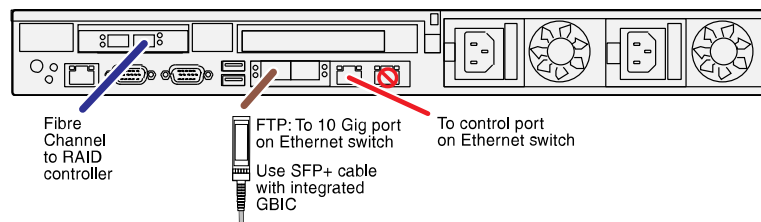
[K2-SVR-NH10GE basic nearline Dell R620](#) on page 22

[K2-SVR-NH10GE redundant nearline Dell R620](#) on page 22

K2-SVR-NH10GE online/production Dell R620

These cabling instructions apply to the following:

- Dell R620 PowerEdge Server NH10GE on an online or production K2 SAN.

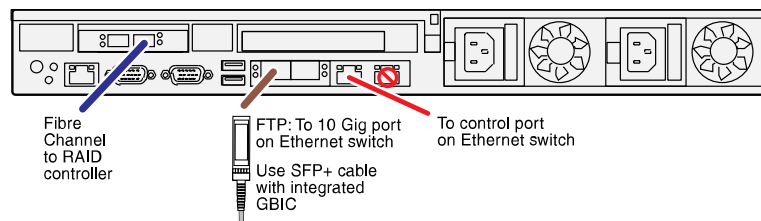


If you have more than one NH1 server, balance servers between controller 0 and controller 1.

K2-SVR-NH10GE basic nearline Dell R620

These cabling instructions apply to the following:

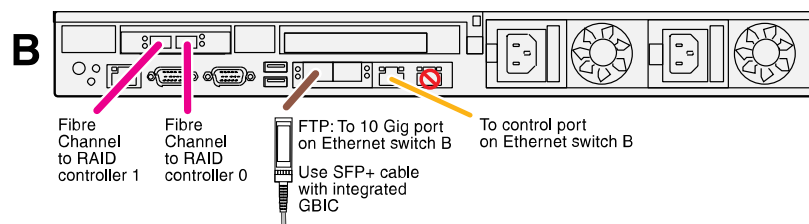
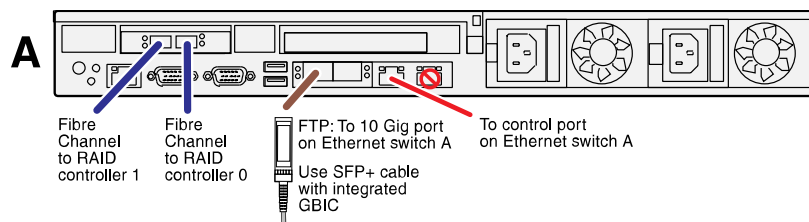
- Dell R620 PowerEdge Server NH10GE on a basic nearline K2 SAN.



K2-SVR-NH10GE redundant nearline Dell R620

These cabling instructions apply to the following:

- Dell R620 PowerEdge Server NH10GE on a nearline K2 SAN.



Cable K2 RAID

Before cabling, install the K2 RAID chassis in its permanent location. After mounting the chassis in the rack, you must secure brackets to the front rail to support the Grass Valley bezel. Refer to related topics in "K2 SAN Installation and Service Manual" for rack mount instructions.

You do not need to manually set a Fibre Channel address ID on controllers or a chassis address on Expansion chassis.

As directed by the system diagram for your storage system, cable the K2 RAID devices using the instructions in this section.

Once the RAID storage is connected and configured, do not swap Expansion chassis or otherwise reconfigure storage. If you connect an Expansion chassis in a different order or to the wrong controller, the controller will see a configuration mismatch and fault.

Related Topics

[K2 RAID basic online/production](#) on page 24

[K2 RAID redundant online/production](#) on page 25

[K2 RAID basic nearline](#) on page 26

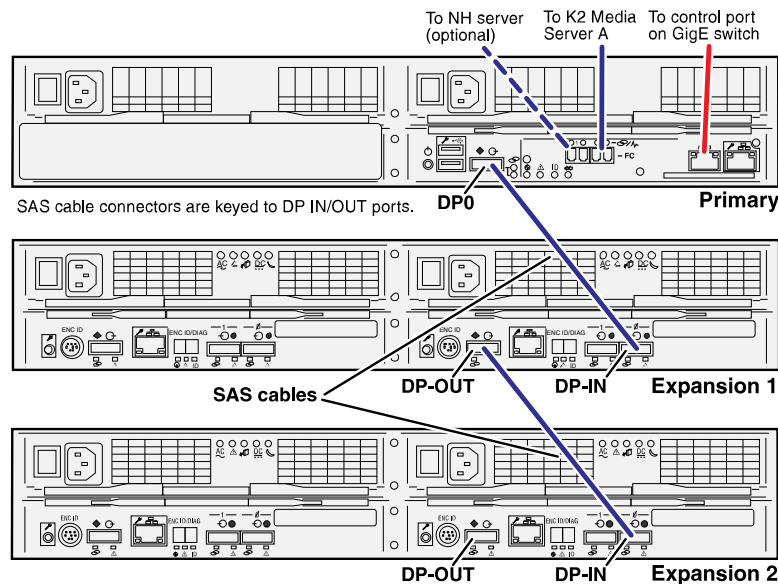
[K2 RAID redundant nearline](#) on page 27

[K2 RAID direct-connect](#) on page 27

K2 RAID basic online/production

These cabling instructions apply to the following:

- K2 10Gv2 RAID on a basic (non-redundant) online or production K2 SAN.



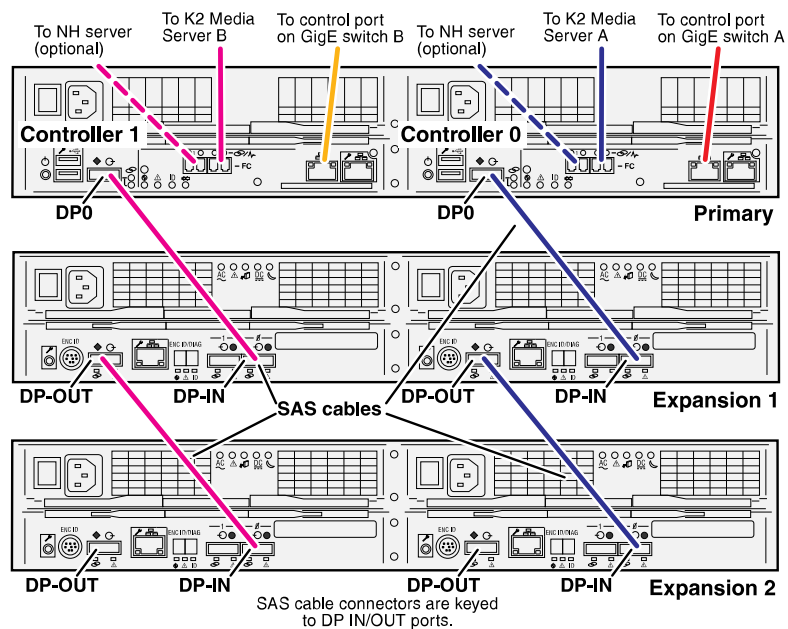
NOTE: Do not connect the controller Maintenance port. It should only be used with a PC in a peer-to-peer connection for diagnostics purposes.

Continue this cable pattern for additional Expansion Chassis.

K2 RAID redundant online/production

These cabling instructions apply to the following:

- K2 10Gv2 RAID on a redundant online or production K2 SAN.



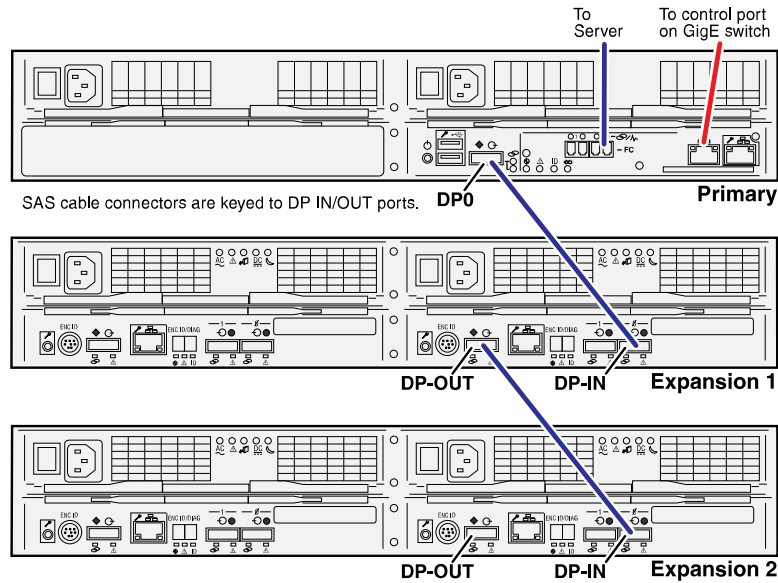
NOTE: Do not connect the controller MNT port. It should only be used with a PC in a peer-to-peer connection for diagnostics purposes.

Continue this cable pattern for additional Expansion Chassis.

K2 RAID basic nearline

These cabling instructions apply to the following:

- K2 10Gv2 RAID on a basic nearline K2 SAN.



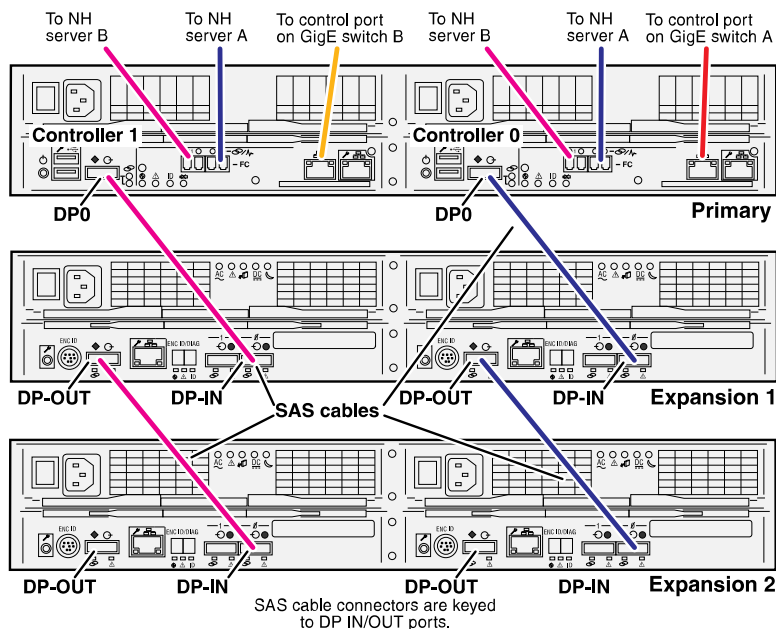
NOTE: Do not connect the controller MNT port. It should only be used with a PC in a peer-to-peer connection for diagnostics purposes.

Continue this cable pattern for additional Expansion Chassis.

K2 RAID redundant nearline

These cabling instructions apply to the following:

- K2 10Gv2 RAID on a Nearline K2 SAN.



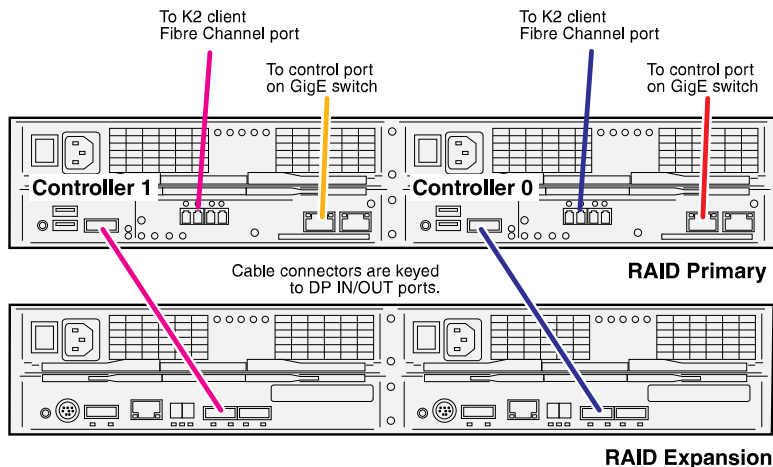
NOTE: Do not connect the controller MNT port. It should only be used with a PC in a peer-to-peer connection for diagnostics purposes.

Continue this cable pattern for additional Expansion Chassis.

K2 RAID direct-connect

These cabling instructions apply to the following:

- K2 10Gv2 RAID providing direct-connect storage for a K2 Summit system. Make Fibre Channel connections to K2 Summit system and between RAID chassis.



For more information

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
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:

For more information

	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.

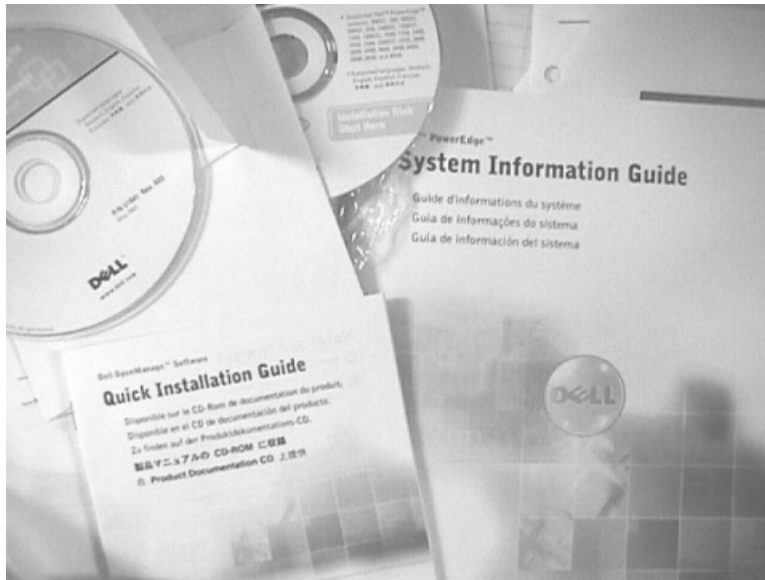
Grass Valley Website

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.

For more information

Trademarks and Agreements

Trademarks

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