Imagine COMMUNICATIONS™

Frame and Firmware Installation, Configuration, and Operation

Edge Protocol Gateway

Edition F

EDGE MAN

Publication Information

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Preface

Purpose

This manual details the features, installation, operation, maintenance, and specifications for the Edge protocol gateway.

Audience

This manual is written for engineers, technicians, and operators responsible for installation, setup, maintenance, and/or operation of the product, and is useful to operations personnel for purposes of daily operation and reference.

Revision History

Table 4-1 Revision History of Manual

Edition	Date	Comments
A	April 2005	Initial production release
B	December 2005	■ Split original manual into two volumes ■ Added Utah Scientific RCP-1 and Utah-12 protocol support
C	September 2006	■ Added information concerning Ethernet clients support ■ Added NVISION protocol support
D	October 2006	■ Transferred references to individual protocols supported
E	March 2007	■ Updated DIP switch settings chart
F	May 2011	■ Combined contents of EDGE Manual and Protocol Translation Functions Manual ■ Updated minor DIP Switch info in the Frame Configuration chapter

Applications

Edge protocol gateway are ideal for operations where professional end users require a small, flexible protocol translator to provide interoperability between routers and control systems made by more than one manufacturer.

Edge protocol gateway are perfect for

- Television production facilities
- Cable operators
- Production and post-production facilities

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- Outside broadcast vans/trucks
- DBS satellite operations
- Webcasters

Writing Conventions

To enhance your understanding, the authors of this manual have adhered to the following text conventions:

Table 4-2 Writing Conventions

Term or Convention	Description
Bold	Indicates dialog boxes, property sheets, fields, buttons, check boxes, list boxes, combo boxes, menus, submenus, windows, lists, and selection names
Italics	Indicates E-mail addresses, the names of books or publications, and the first instances of new terms and specialized words that need emphasis
CAPS	Indicates a specific key on the keyboard, such as ENTER, TAB, CTRL, ALT, or DELETE
Code	Indicates variables or command-line entries, such as a DOS entry or something you type into a field
>	Indicates the direction of navigation through a hierarchy of menus and windows
hyperlink	Indicates a jump to another location within the electronic document or elsewhere
Internet address	Indicates a jump to a Web site or URL
	Indicates important information that helps to avoid and troubleshoot problems

Obtaining Documents

Documents can be viewed or downloaded from the Harris Broadcast support web portal. Alternatively, contact your Customer Service representative to request a document.

Unpacking/Shipping Information

Unpacking a Product

This product was carefully inspected, tested, and calibrated before shipment to ensure years of stable and trouble-free service.

1. Check equipment for any visible damage that may have occurred during transit.
2. Confirm that you have received all items listed on the packing list.
3. Contact your dealer if any item on the packing list is missing.
4. Contact the carrier if any item is damaged.
5. Remove all packaging material from the product and its associated components before you install the unit.

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Keep at least one set of original packaging, in the event that you need to return a product for servicing.

Product Servicing

This product is not designed for field service. All hardware upgrades, modifications, or repairs require you to return your product to the Customer Service center.

Returning a Product

In the unlikely event that your product fails to operate properly, please contact Customer Service to obtain a Return Authorization (RA) number, then send the unit back for servicing.

Keep at least one set of original packaging in the event that a product needs to be returned for service. If the original package is not available, you can supply your own packaging as long as it meets the following criteria:

- The packaging must be able to withstand the product's weight.
- The product must be held rigid within the packaging.
- There must be at least 2 in. (5 cm) of space between the product and the container.
- The corners of the product must be protected.

Ship products back to us for servicing prepaid and, if possible, in the original packaging material. If the product is still within the warranty period, we will return the product prepaid after servicing.

Standards

Appendix A, *Safety Precautions, Certifications and Compliances* contains product compliance and safety standards.

Safety

Carefully review all safety precautions to avoid injury and prevent damage to this product or any products connected to it. If this product is rack-mountable, it should be mounted in an appropriate rack using the rack-mounting positions and rear support guides provided. It is recommended that each frame be connected to a separate electrical circuit for protection against circuit overloading. If this product relies on forced air cooling, it is recommended that all obstructions to the air flow be removed prior to mounting the frame in the rack.

If this product has a provision for external earth grounding, it is recommended that the frame be grounded to earth via the protective earth ground on the rear panel.

You will find a complete list of safety precautions in **Appendix A**.

IMPORTANT! Only qualified personnel should perform service procedures.

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Safety Terms and Symbols in this Manual

WARNING

Statements identifying conditions or practices that may result in personal injury or loss of life. High voltage is present.

CAUTION

Statements identifying conditions or practices that can result in damage to the equipment or other property.

Restriction on Hazardous Substance (RoHS) Compliance

Directive 2002/95/EC—commonly known as the European Union (EU) Restriction on Hazardous Substances (RoHS)—sets limits on the use of certain substances found in electrical and electronic equipment. The intent of this legislation is to reduce the amount of hazardous chemicals that may leach out of landfill sites or otherwise contaminate the environment during end-of-life recycling. The Directive, which took effect on July 1, 2006, and refers to the following hazardous substances:

- Lead (Pb)
- Mercury (Hg)
- Cadmium (Cd)
- Hexavalent Chromium (Cr-V1)
- Polybrominated Biphenyls (PBB)
- Polybrominated Diphenyl Ethers (PBDE)

According to this EU Directive, all products sold in the European Union will be fully RoHS-compliant and "lead-free." (See our website for more information on dates and deadlines for compliance.) Spare parts supplied for the repair and upgrade of equipment sold before July 1, 2006 are exempt from the legislation. Equipment that complies with the EU directive will be marked with a RoHS-compliant emblem, as shown in **Figure 4-1**



Figure 4-1 RoHS Compliance Emblem

Waste from Electrical and Electronic Equipment (WEEE) Compliance

The European Union (EU) Directive 2002/96/EC on Waste from Electrical and Electronic Equipment (WEEE) deals with the collection, treatment, recovery, and recycling of electrical and electronic waste products. The objective of the WEEE Directive is to assign the responsibility for the disposal of associated hazardous waste to either the producers or users of these products. Effective August 13, 2005, producers or users are required to recycle electrical and electronic equipment at end of its useful life, and may not dispose of the equipment in landfills or by using other unapproved methods. (Some EU member states may have different deadlines.)

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In accordance with this EU Directive, companies selling electric or electronic devices in the EU will affix labels indicating that such products must be properly recycled. (See our website for more information on dates and deadlines for compliance.) Contact your local sales representative for information on returning these products for recycling. Equipment that complies with the EU directive will be marked with a WEEE-compliant emblem, as shown in **Figure 4-2**.

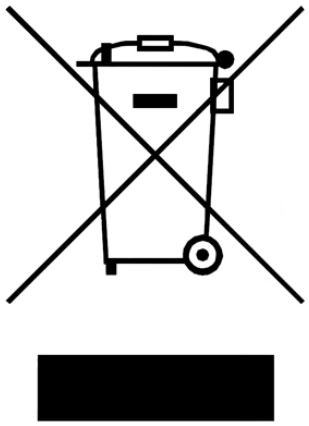


Figure 4-2 WEEE Compliance Emblem

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1 Introduction



Figure 1-3 Edge Protocol Gateway

The Edge protocol gateway is a multiuse platform housed in a 1RU frame that provides external connectivity to any Harris routing system. It translates between Harris and other manufacturers' routing control systems.

Edge protocol gateways provide Ethernet, X-Y serial, and RS-232/RS-422 serial connectivity to any Harris routing system, regardless of the type(s) of routing switcher involved. These hardware products also provide connections to other vendors' products. This manual provides installation, configuration, and operation information necessary to successfully operate other vendor's products within a Harris routing system; or, alternatively, to operate a Harris product with other third party equipment.

Main Features

The Edge has the following main features:

- Automatic recovery of broken and restored connections whether due to power supply failures, Ethernet communications failures, or physical medium errors
- Support for the following communications media:
  - Harris X-Y bus loop-through (75Ω coax) port
  - RJ-45 Ethernet port
  - 9-pin D-selectable RS-232 or TIA/EIA-422-B
  - Auto-sensing 110 VAC to 240 VAC power

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- Supports up to 20 Ethernet clients using any combination of different protocols (such as 10 virtual X-Y and 10 Telnet)
- Alarm convection
- Universal power supply
- Protocol translation support

The Edge provides bidirectional translation of certain third-party routing devices as well as unidirectional (control of Harris or third party routing devices) support for Harris serial terminal protocol.

The Edge also supports these protocols for device configuration:

- Harris serial terminal protocol
- Harris pass-through protocol

Control Features

The Edge is compatible with all existing Harris routers and remote control panels. Frames include the following control options:

- Two standard serial ports for communication to/from computers and automation systems (configurable for RS-232 or RS-422) with support for up to 115K baud serial communications
- One looping coaxial (X-Y) port for connecting to remote control panels and other routers
- An Ethernet port
- A firmware- or software-based control system

Operating Mode

A DIP switch (pole 6 on SW3) controls how the two Edge serial control ports are configured. When set to OFF, the Edge behaves like a typical Harris router (that is, Harris Terminal mode for both serial ports). When set to ON, the Edge uses the programmed port configuration (set through the terminal or via RouterMapper). This setting allows use of non-Harris product protocols.

Software Control Applications

You can configure the Edge directly using Harris terminal protocol, or via the CCS Navigator or RouterMapper™ software configuration utility.

Harris Terminal Protocol

Harris terminal protocol is useful as an interface to a router to check the status of the router and to change the crosspoints. A serial port or Telnet connection and terminal emulation software are all that are needed to establish communications between a terminal and a router. You can find information on the following topics in the *Edge Frame and Firmware Installation, Configuration, and Operation Manual*:

- Using the terminal protocol specifically with the Edge

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- Instructions on serial port configuration
- Instructions on Ethernet port configuration

RouterMapper

RouterMapper is an easy-to-use Windows®-based application for programming RouterWorks®, other router frames, control panels, and the Opus™ master controller. You can find instructions for adding and editing Edge configurations in the *RouterMapper Configuration Utility Reference Guide*.

There are several software options available to control your Harris products through the Edge. For information about these software products, contact the Sales Department or see our website.

CCS Navigator™ (v. 2.0 or later)

The CCS Navigator software provides the graphical tools that will enable you to create easy-to-use graphical pages that visually represent your network's many devices, systems, and environments. These graphical pages allow you to consolidate and ease network-wide status monitoring, leading to more efficient deployment of human resources for monitoring and troubleshooting tasks. You can find instructions for adding and editing Edge configurations in Volume 6 of the *Navigator Advanced Graphical Navigation Application User Manual.*

RouterWorks

RouterWorks router control software provides a graphical user interface for the entire line of Harris signal routers. RouterWorks software may be used as the only controlling device in a system, or it may be used in conjunction with traditional hardware control panels. Multiple RouterWorks control stations may control the same routing system. RouterWorks continually monitors the routing system and reports all changes in the status of the system, regardless of the type of controlling device that initiated the change.

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2 Frame Installation

WARNING

Potentially lethal voltages are present within the frame during normal operation. Disconnect all power cords from the frame before you remove the top panel. Do not apply power to the frame while the top is open unless the unit is being serviced by properly trained personnel.

Before You Begin

Before you can begin the protocol translation configuration procedures, you must

- Install and configure your protocol-specific equipment as described in ***Installing and Configuring Hardware*** on page 5
- Install your Edge frame as described in ***Edge Frame Installation Information*** on page 6
- Configure your Edge frame as described in ***Frame Configuration Details*** on page 17
- If necessary, install the appropriate protocol firmware[1]
- Activate your firmware license[1]

Installing and Activating Firmware

See **Chapter 4, *Protocol Translation Setup*** for information about activating the firmware for your protocol.[1]

Installing and Configuring Hardware

- See page 6 for information on how to install and configure an Edge frame.
- See the *Grass Valley Group Series 7000 Configuration Manual* for specific information on how to install and configure a GVG-SMS 7000 Series signal management system.[2]

[1] If you ordered the protocol firmware at the same time as your original Edge product purchase, it will be factory-installed and -activated.

[2] GVG SMS-7000 Jupiter routing control systems are products of Thomson Grass Valley, headquartered in Paris, France.

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- See the *Jupiter FM 3000 Installation and Operating Manual* for specific information on how to install and configure a Jupiter router switcher.[2]
- See the *NVISION NV6000 and NV8000 Series Universal Routers Users Guide* for specific information on how to install and configure an NVISION routing switcher.[1]
- See the pertinent PESA installation and operation manual for specific information on how to install and configure a particular PESA routing switcher.[2]
- See the pertinent Pro-Bel installation and operation manual for specific information on how to install and configure a particular Pro-Bel routing switcher.[3]

Edge Frame Installation Information

Unpacking Equipment

The Edge package includes the items listed below. Confirm that you have received all items listed on the packing list. Contact your dealer if any item on the packing list is missing.

- One Edge product
- One *Edge Installation and Configuration Manual*
- One desktop power supply
- Optional redundant power supply (if ordered)

Pre-Installation Checklist

This product was carefully inspected, tested, and calibrated before shipment to ensure years of stable and trouble-free service.

1. Check equipment for any visible damage that may have occurred during transit.
2. Confirm that you have received all items listed on the packing list.
3. Contact your dealer if any item on the packing list is missing.
4. Contact the carrier if any item is damaged.
5. Remove all packaging material from the product and its associated components before you install the unit.

   If your equipment was damaged during transit, see ***Returning a Product*** on page vii to determine what you must do to return the equipment to us.

Examining Equipment

The following sections describe the physical components of the Edge. The descriptions will provide you with the information you need to make sure these components operate correctly after installation is complete.

[1] NV routing control systems are products of NVISION Inc., headquartered in Grass Valley, California.
[2] PESA routing switchers are products of QuStream Corporation, headquartered in Toronto, Canada.
[3] Pro-Bel routing switchers are products of Pro-Bel Ltd., headquartered in Reading, Berkshire, UK.

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Modular Components

The components installed in the Edge frame are as follows:

- Power/Alarm and Link LEDs
- Module Interconnect (MI)
- Flash Memory Module
- Resource Module

Power/Alarm and Link LEDs

A **power/alarm** LED and a **link** LED are present on all control modules (see **Figure 2-4**).



Figure 2-4 Power/Alarm and Link LEDs

- The power/alarm LED is illuminated green when power is present. If the power LED is not lit, one or more of the supply rails on the module is invalid.
- The link LED is illuminated yellow when an Ethernet connection is made and maintained.

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Module Interconnect (MI)



Figure 2-5 Module Interconnect

The module interconnect (MI) provides communications, power conversion, and reference conditioning for the resource module. It also provides control connectivity between the resource module and the back panel. The MI monitors and controls the single relay alarm for power loss, fan failure, or other alarms.

Flash Memory Module



Figure 2-6 Flash Memory Module

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The flash memory module houses the operating system software for the Edge. It includes the software necessary for updating protocols.

Resource Module

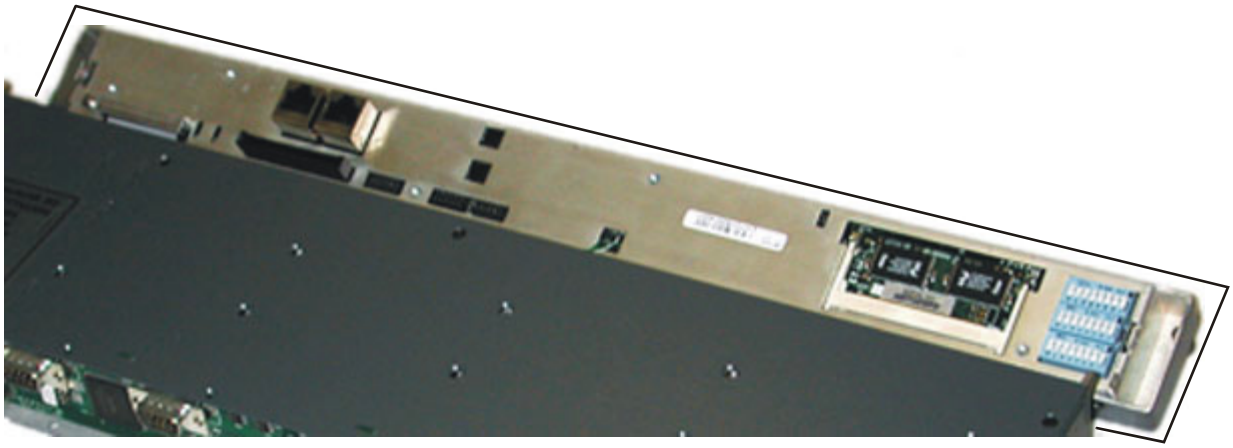


Figure 2-7 Resource Module

The resource module provides control and monitoring of communications, access to the communication connectors (X-Y, serial, and Ethernet), and configurable items accessible through the serial port or Telnet interface.

Back Panel Connections

The control and power section of the Edge rear panel includes these items:

- Two DC input power connectors (PS1 and PS2)
- One 3-pin alarm/comm port (ALM/COM)
- Two 9-pin RS-232 serial ports (SERIAL 1 and SERIAL 2)
- One pair of BNC X-Y ports (single looping X-Y)
- One pair of BNC sync ports (reserved for future use)
- One RJ-45 Ethernet connection (ENET)



Figure 2-8 Power and Control Connections

The control and power section of the Edge II rear panel includes these items:

- Two DC input power connectors (PS1 and PS2)
- One 3-pin alarm/comm port (ALM/COM)
- Two 9-pin RS-232 serial ports (SERIAL 1 and SERIAL 2)
- One pair of BNC X-Y ports (single looping X-Y)

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- One pair of BNC X-Y/SBUS ports
- Two RJ-45 Ethernet connections (ENET)

Alarm/Comm Port

The 3-pin alarm/comm port reports alarms as they occur in the frame.

- Pin 1 (labeled "+") – Normally open/normally closed (jumper selectable)
  - "Normally closed" is shorted with the common (closed) when an alarm condition does not exist and the frame is powered.

    The default operation of the alarm relay is "normally open."
  - "Normally open" is shorted with the common (closed) when an alarm condition exists.
- Pin 2 (GND) – Relay common
- Pin 3 (labeled "–") – Reserved for future use

The alarm port provides indication of these alarm conditions:

Table 2-3 Alarm Conditions

Alarm Condition	Description
PS Fail	Alarm asserted in the event of a power supply failure (in systems with multiple power supplies, the alarm will be asserted if any power supply fails)

The alarm relay circuitry has been designed so the relays are energized when the alarm condition does not exist. If a relay fails or if the circuit controlling a relay fails, the relay will de-energize, which will cause the corresponding alarm to be asserted. If the frame loses power, the alarm relay will become de-energized, and the alarm condition will be asserted. The relay is energized when power is applied to detect when power is lost and to allow the alarm to be asserted.

Serial Connections



Note: *Table 2-4 on page 14 shows the connector pin assignments for a RS-232 cable connection. Table 2-5 on page 14 shows the connector pin assignments for an RS-422 cable connection.*

One of the many powerful features of a Harris router control system is its ability to use a serial port to access an entire system. The serial port, in effect, is the control gateway to the entire routing system.The serial port allows external control of the Edge by a computer, user, or automation system via a serial connection using RS-232 or RS-422. The port is configured by DIP switches on the resource module (see **Figure 3-14** on page 20), or by settings selectable from a terminal screen (see "Terminal Operations" in the *Protocol Translation Functions Configuration and Operation Manual*).

X-Y Port

The X-Y control bus is a high speed serial interface by which Harris routers and control panels are interconnected via standard 75Ω video coax cable. The ends of the X-Y bus must be terminated using standard 75Ω video terminators.

The Edge features one looped-through port (two BNC connectors). **If either of the BNCs is used, the other associated X-Y port connection must be terminated with a 75Ω BNC terminator or connected to another device's X-Y port.** For example, it is not necessary to terminate either of the BNCs if neither is used.

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Ethernet Connection

The Ethernet connection provides high-speed links for configuration, control, and monitoring of the complete routing system. The Ethernet connection uses 10Base-T wiring. **Figure 2-11** on page 15 shows the RJ-45 jack pinout information for 10Base-T Ethernet communication

Power Supply Modules



Figure 2-9 Desktop Power Supply Module

Each Edge comes with a desktop power supply module as a standard feature. The power supply module is equipped with a universal input. The universal AC input version operates from 100 VAC through 240 VAC, which it converts to 15V DC, and provides 70 W of output power. The desktop power supply module has a thermostatically-controlled cooling fan built into it. The cooling fan will turn on and off automatically to control the operating temperature of the power supply module.

Because all frames have at least two power supply connectors and because all necessary current sharing components are located internally to the frame, you only need to plug in a second desktop power supply for redundancy.

Optional Power Supply Mounting Tray



Figure 2-10 Power Supply Mounting Tray

The power supply mounting tray allows you to mount up to seven 1RU desktop power supplies. This mounting tray can be forward- or rear-mounted into a regular frame rack. Contact your Sales representative for more information about this option.

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Installing Hardware

CAUTION

Test your system before its final installation. Make sure you verify its configuration, cabling, and proper system operation.

Siting Requirements

Ensuring Adequate Rack Space

The Edge frame is designed for mounting into a standard width 19-in. (48.3-cm) rack. Frames are secured to the rack with standard front-mounting ears built into the chassis. Make sure to provide adequate space behind the mounting ears, and appropriate clearance for the connecting cables at the rear of the frame.

Ensuring Proper Temperature and Ventilation

An ambient temperature should be maintained between 32°F (0°C) and 122°F (50°C) at a relative humidity of 10%-90% (non-condensing). No special cooling arrangements are necessary, but make sure to prevent excessive ambient heat rise in closed, unventilated equipment racks. To ensure proper ventilation, keep the front panel of the frame closed during operation; otherwise, the frame could overheat.

Meeting Electrical Requirements

The Edge frame accepts one desktop power supply unit (PSU). The frame is prewired to accept a second, optional power supply for power backup. Their power consumption is nominally 65VA. A fully loaded frame will operate with a single power supply.

Maximum Power Dissipation

These ratings refer to the total module power consumption (excluding that of the power supply) allowable within the Edge frame. The limits are based on the ability of the unit to dissipate heat over a temperature range of 32°F to 122°F (0°C to 50°C).

Voltage Selection

The Edge frame does not have a voltage selector switch. The desktop power supply has a continuous input range of 100 VAC to 240 VAC.

Protective Ground

Since the desktop power supply does not present a shock hazard, the Edge frame does not have a protective safety earth ground.

Mounting and Installing

The following tools and equipment are recommended for frame installation:

- One standard 19-in. (0.4-m) rack

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- One medium Phillips screwdriver
- Four 10/32 Phillips-head rack mount screws
- One of the following
  - Standard 10 Mbps 10Base-T Ethernet cable segment no longer than 382.08 ft (100 m)
  - RS-232 or RS-422 cable segment; no longer than 50 ft (15 m) for RS-232, and 2,000 ft (610 m) for RS-422

Mounting Requirements

The Edge frame can be mounted in a standard width 19-in. (48.3 cm) rack using four $^{10}/_{32}$ Phillips-head mounting screws. The back of the frame does not need to be supported. The frame can be mounted in either the front or the rear of the rack, thereby providing more efficient use of your equipment housing space. The rack ears can be attached to the frame in either direction, thereby allowing you flexible mounting options. The 1RU mounting frame requires one unit of rack space, that is, 1.75 in. (44 mm) of standard rack space. The depth from the mounting surface is 5.25 in. (13.3 cm).

Edges are installed in the control line.

- The maximum allowable distance for each segment of the X-Y coaxial cable run is 2,000 ft (609 m).
- The maximum for each RS-422 segment is 2,000 ft (609 m).
- There is no limit to the number of control devices added to the X-Y control bus.

Installation Procedures

The Edge can be installed anywhere within a routing system. General installation procedures are outlined below.

1. Mount the frame in an rack that provides power and cooling facilities. The frame is designed for mounting in a standard equipment rack.
2. Align the frame so that all 4 screw holes in the mounting ears match up with those in the rack. (Adjustable ears on each side of the frame allow adjustable depth placement of the frame within the rack.
3. Secure the frame to the rack with the rack screws and washers.
4. Connect the control device(s) to the appropriate port (X-Y, serial, Ethernet, and so forth) on the frame's rear panel.
5. If the Edge will be used in a multiple frame system, connect the additional frames using port the appropriate scheme (X-Y, Ethernet, and so forth.).
6. If the Edge is at the end of the X-Y bus, terminate the other X-Y connector with a coaxial 75Ω termination.
7. Connect the 3-pin alarm port to the appropriate alarm device(s), as necessary.
8. Plug the desktop power supply into its corresponding Edge power supply port.
9. Connect the power supply to a power source. When power is applied to the Edge, it starts up automatically.

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Cable Connector Pin Assignments

Serial Port Pin Assignments

Table 2-4 RS-232 Signal Format Pin Assignments

Pin	Function
1	Frame Ground
2	RxD (Data received by router)
3	TxD (Data sent by router)
4	Data Terminal Ready*
5	Ground
6	Data Set Ready (DSR)*
7	Request to Send (RTS)**
8	Clear to Send (RTS)**
9	Frame Ground

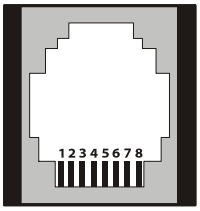
* Pins 4 and 6 connected internally.
** Pins 7 and 8 connected internally

Table 2-5 RS-422 Signal Format Pin Assignments

Pin	Signal (Tributary)	Description	Connection to Remote Computer (Controller)
1	FG	Frame Ground	Frame Ground
2	Ta (Tx-)	Transmitted Data (Twisted Pair)	Ra (Rx-)
7	Tb (Tx+)		Rb (Rx+)
6	Tc	Received Data Shield	Received Data Shield
8	Ra (Rx-)	Received Data (Twisted Pair)	Ta (Tx-)
3	Rb (Rx+)		Tb (Tx+)
4	Rc	Transmitted Data Shield	Transmitted Data Shield
9	FG	Frame Ground	Frame Ground
5	SP	(Not Connected)	(Not Connected)

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RJ-45 Jack Pinout Information for 10Base-T Ethernet Communication



Pin	MDI Function	MDI-X Function
1	TX+ (Transmit data +)	RX+ (Receive data +)
2	TX- (Transmit data -)	RX- (Receive data -)
3	RX+ (Receive data +)	TX+ (Transmit data +)
4	Not connected	Not connected
5	Not connected	Not connected
6	RX- (Receive data -)	TX- (Transmit data -)
7	Not connected	Not connected
8	Not connected	Not connected

Figure 2-11 RJ-45 Jack Pinout Information

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3 Frame Configuration



Note: *See* **Chapter 5, *Protocol Translation Configuration*** *for protocol configuration information. See* **Chapter 2, *Frame Installation*** *for Edge frame installation information.*

Frame Configuration Details

Preparing for Configuration

Before you configure the Edge frame , you must have the following items:

- A PC connected to a local area network running one of the following:
  - HyperTerminal[1] or other terminal emulation program
  - Telnet program
  - Configuration utility software such as Navigator or RouterMapper



Note: *To configure Name support, an Ethernet connection is required.*

- An Edge product installed and connected to the local area network
- A standard 10 Mbps 10Base-T RJ-45 Ethernet cable segment or a null modem cable for serial port operations

Configuring the Alarm Jumper and DIP Switches

There are two items that may need to be configured before operating the resource module (if settings other than the defaults are desired):

- The Alarm jumper on the (MI) board (**Figure 3-12** on page 18 shows the location of the alarm port jumper on the MI module.)
- Three DIP switches on the front of the resource module. (**Figure 3-13** on page 19 shows the location of the DIP switches on the Edge resource module. **Figure 3-14** on page 20 provides a summary of the functions of each DIP switch.)

[1] HyperTerminal, a product of Hilgraeve Inc., is a communications applet that ships with Windows 95/98 and Windows NT 4.0.

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Alarm Jumper on the MI Module

The Alarm jumper sets the normally open/normally closed operation of the alarm port. Unless otherwise noted, the frame is shipped from the manufacturing facility with the alarm port configured for normally open (NO) operation.

Note: *To switch the alarm port from normally closed operation to normally open operation, follow these steps:*

1. Unplug the frame so that it does not receive electrical power.
2. Unscrew the screws on the front panel. (The screws in the front panel are captive. Do not separate them from the front panel.)
3. Gently pull the front panel away from the frame.
4. Tilt the front panel down to expose the MI module. The location of the NO/NC jumper is shown in **Figure 3-12** on page 18.

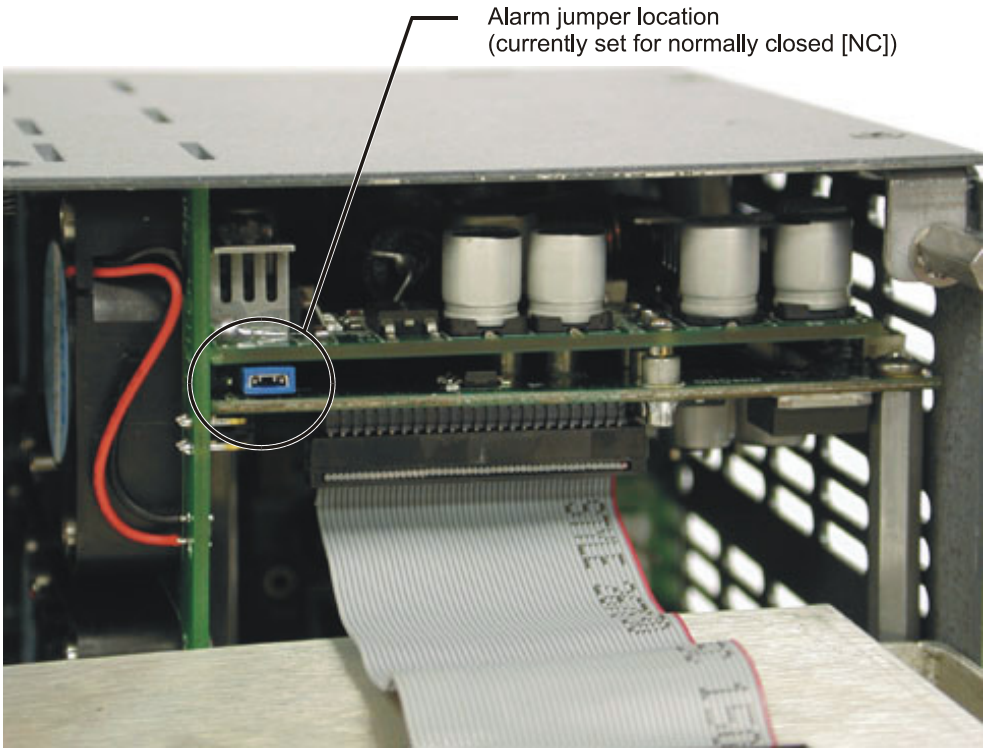


Figure 3-12 Location of NO/NC Jumpers for the Alarm Port

5. Using a pair of tweezers or needle-nosed pliers, pull the jumper pack loose from its location.
6. Push the jumper pack onto the pins of the desired location.
7. Tilt the front panel back up to cover the exposed front of the router.
8. Reattach the front panel to the Edge frame.

DIP Switches on the Resource Module

The resource module has three banks of 8-pole DIP switches that are accessible from the front of the frame. To configure the DIP switches, follow these steps:

1. Unscrew the screws on the front panel. (The screws in the front panel are captive. Do not separate them from the front panel.)

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2 Gently pull the front panel away from the frame.

3 Tilt the front panel down to expose the DIP switches.

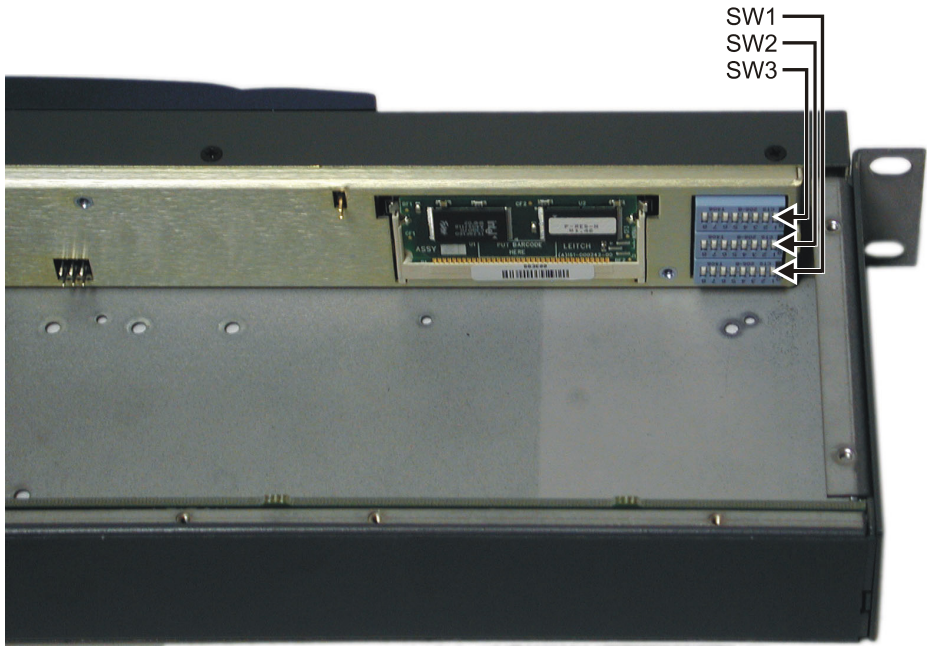


Figure 3-13 DIP Switch Location and Identification

Note: *If you want your Edge settings to match the factory defaults, you do not need to make any further changes.*

4 Set the DIP switches as shown in **Figure 3-14** (page 20).

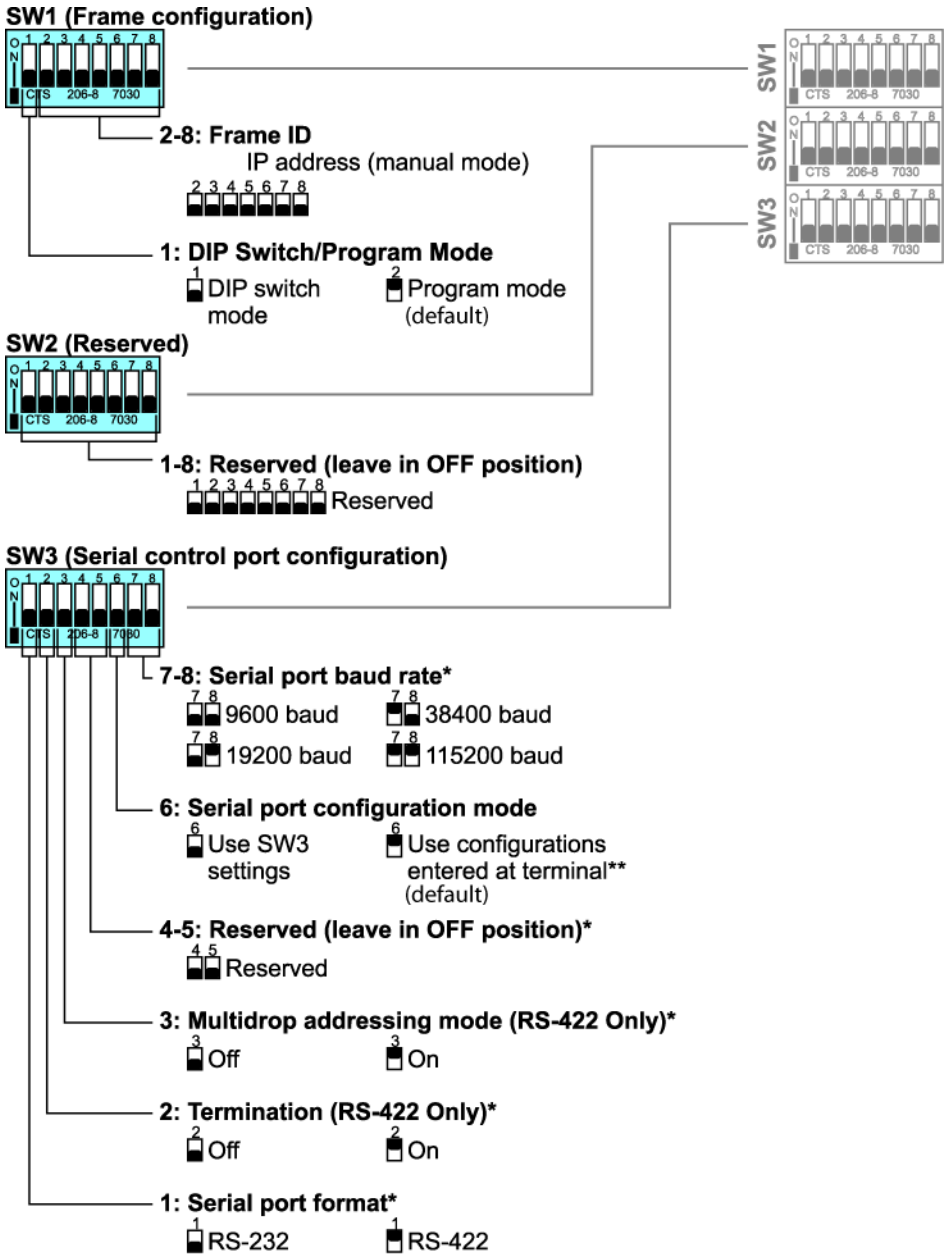
- SW1 provides DIP switches for functions related to frame ID and operating mode.
- SW2 DIP switch functions are reserved for future use.
- SW3 provides DIP switches for these functions related to serial port configuration:
  - Serial port protocol configuration mode

    This setting determines whether serial ports 1 and 2 are configured using SW3 DIP switch or software settings configured from the terminal. The setting should normally be set to the software mode (SW3-6 On) unless the Edge is not being used for protocol translation. If you select the SW3 DIP switch setting mode, settings for serial ports 1 and 2 are determined by the settings made on SW3 and both serial ports are forced to Harris protocol only. If the ports need to be configured individually, or protocol translation is required, the software setting mode should be selected.
  - RS-422 termination
  - RS-422 multidrop mode
  - Multi-drop addressing mode
  - Serial port protocol
  - Serial port baud rate

5 Tilt the front panel back up to cover the exposed front of the router.

6 Reattach the front panel to the Edge frame.

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* *SW3 poles 1–5 and 7–8 are only used when SW3 pole 6 is set to OFF*
** *Specific protocols are set via the Protocol Configuration subcommands menu (Menu P) or via configuration utility software*

Figure 3-14 DIP Switch Configuration

Setting Up the Power Supply Module

Note: *You may see an arc within the connector internally as the power supply connection is made. This is normal.*

Push the power supply module plug into the PS1 connector (see **Figure 3-15**) until the fastener clips. To make sure the power supply module is plugged in, gently pull on the plug cable to make sure that the fastener is secure. It should not pull out easily.

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If you are using a second power supply module, plug it into the PS2 connector (see **Figure 3-15**). Follow the same procedure as for the first power supply.



Figure 3-15 PS1 and PS2 Power Supply Connector Locations

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4 Protocol Translation Setup

Setting up protocol translation for your hardware product is a multi-part process. This guide provides step-by-step instructions for completing each part of the process.

- Part 1: **Determining What To Do First**
- Part 2: ***Reviewing* Pre-Installation Information**
- Part 3: **Installing the Protocol Firmware**
- Part 4: **Entering the License Key**

Pre-Installation Information

The Edge hardware products provide Ethernet, X-Y serial, and RS-232/RS-422 serial connectivity to any Harris routing system, regardless of the type(s) of Harris routing switcher involved. It also provide connections to other vendors' products. This chapter provides information necessary to successfully install the appropriate firmware and a license key for your selected protocol.

Edge hardware products provide bidirectional translation of the following router control protocols:

- Harris pass-through protocol
- GVG SMS-7000 protocol
- Jupiter ASCII and ESswitch protocol
- NVISION serial and Ethernet protocols
- PESA CPU Link Protocol No 1 (P1) protocols
- Pro-Bel SW-P-02 and SW-P-08 protocols
- Utah Scientific RCP-1 protocol

Determining What To Do First

If you ordered the GVG, Jupiter, NVISION, Pro-Bel, or Utah protocol firmware separately from your original hardware purchase, you must install updated firmware. Review the **Equipment You Will Need** and **Pre-Installation Checklist** sections that follow, and then go to ***Installing the Protocol Firmware*** on page 24.

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If you ordered the GVG, Jupiter, NVISION, Pro-Bel, or Utah protocol firmware at the same time as your original hardware purchase, it will be factory-installed. You will not need to reinstall the firmware; however, you will need to configure it. See **Chapter 5, *Protocol Translation Configuration*** for more detailed information.

Equipment You Will Need

Before you begin this process, make sure you have the following equipment:

- Edge frame
- Personal computer
- File transfer protocol (FTP) software installed on PC

  A network-enabled system setup will usually have some version of FTP client software installed. Refer to your operating system documentation for instructions on how to perform the file transfer function for your particular setup. Alternatively, you can download or purchase third-party FTP software.

Pre-Installation Checklist

Before you install and/or configure the firmware module:

1. Check the equipment for any visible damage that may have occurred during transit.
2. Confirm that all items listed on the packing list have been received.
3. Remove the anti-static shipping pouch and all other packaging material.
4. Keep the original packaging in case a product needs to be returned for service or shipped to another location.
5. Check the PC to make sure that FTP client software is installed, and that you know how to use the software correctly.
6. Make sure your hardware product has already been set up on your intranet or local area network with a valid IP address.

Installing the Protocol Firmware

Determining the Size of Installed Flash RAM

1. Open a serial or Telnet terminal operation session.
2. At the > prompt, type **show fs**, and then press <**Enter**>. The following information will be displayed (the information displayed on your screen may vary from this example):

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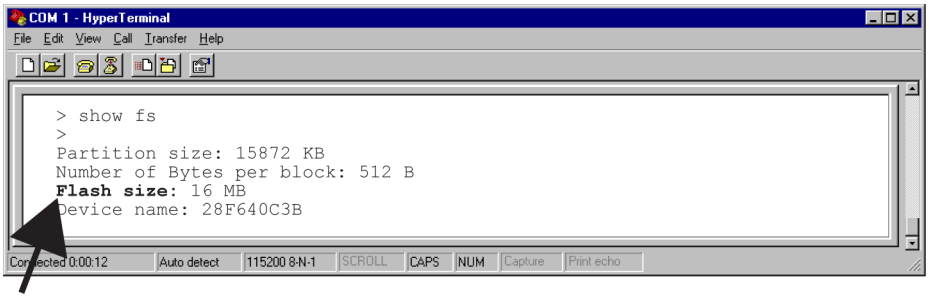


Figure 4-16 Checking Flash Size

3 Check that the flash size is 16 MB. Edge hardware frames require a 16 MB flash RAM.

- If the flash size is 4 MB, a new flash RAM module will be required. You will need to determine the control board serial ID (see step 4).
- If the flash size is 16 MB, check the software code version (see **Table 4-6**).

Table 4-6 Software Revision Versions for Edge Protocols

Protocol Option	Software Revision Version
GVG	2.51 or higher
Jupiter	2.72 or higher
NVISION	2.61 or higher
Pro-Bel	2.77 or higher
Utah	2.52 or higher

4 At the > prompt, type **show rparm**. The following information will appear. (the information displayed on your screen may vary from this example):

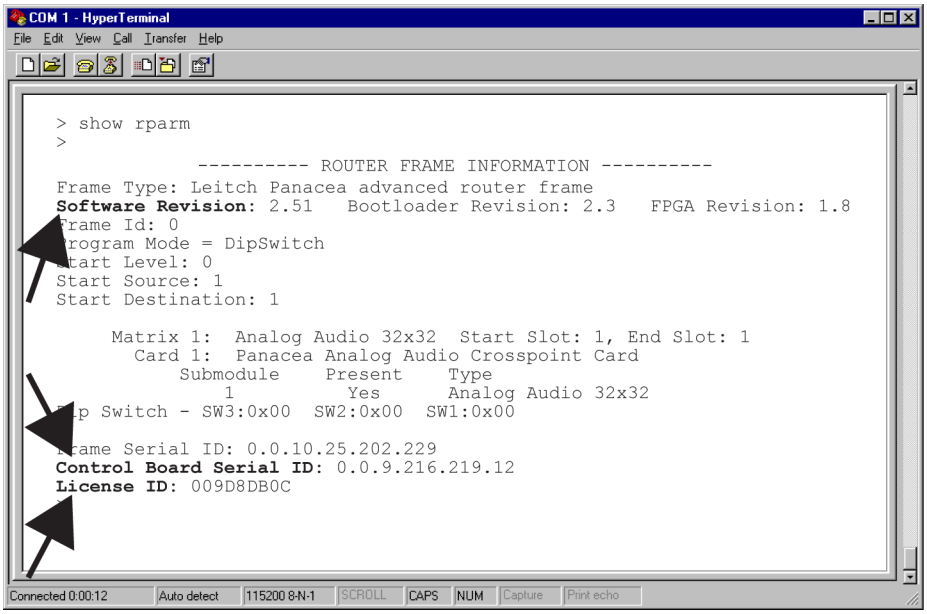


Figure 4-17 Locations of Software Revision, Control Board Serial ID, and License ID Fields

- If the existing flash size is 4 MB, a new flash RAM module is required.
  - Write down code number shown in the **Control Board Serial ID** field. (The License ID field will not appear on Edge frames with a 4 MB flash.)

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- Go to step 5.

- If the existing flash size is 16 MB but the version of code is less than v2.51, a new flash RAM module is required.
  - Write down code number shown in the **Control Board Serial ID** field. (The License ID field will not appear on Edge frames with firmware versions less than v2.51.)
  - Go to step 5.



Note: *The License ID is unique to each Edge frame. License keys generated using one frame's ID will not work for another frame. If a feature will be installed on several frames, each frame's License ID will be required so that a separate key may be created for and installed on each frame.*

- If the existing flash size is 16 MB and the software revision is v2.51 or higher:
  - Write down the code shown in the **License ID** field. Your Sales representative will need this code to create a license key that enables the appropriate protocol option.
  - Go to step 5.

5 Contact your Sales representative so that your protocol license key can be created. (Se our website for a list of technical support locations and telephone numbers).

The License ID code and/or the Control Board Serial ID code will be necessary to generate the license key number. Give this code and the frame serial number (located at the rear of the frame on a sticker beginning with the characters LHTI) to your Sales representative, and ask that a License Key be generated. **If using the Control Board Serial ID code, make sure you tell the Sales representative that you need a new 16 MB flash RAM with software version v2.51 or higher.**

- If you received a new 16 MB flash RAM module, go to ***Installing the Flash Module*** on page 26.
- If you did not need a new flash RAM module, go to ***Entering the License Key*** on page 28.

Installing the Flash Module

When you receive the new 16 MB flash module, it will include the license key. Install the new flash module into the frame as follows:

1 Unplug the frame so that it does not receive electrical power.

2 Unscrew the screws on the front panel. (The screws in the front panel are captive. Do not separate them from the front panel.)



CAUTION

Some Edge front panel units do not have supporting hinges. Consequently, if the front panel face plate is removed and not handled properly, it can fall with sufficient force to dislocate and/or damage the ribbon cable attached to the resource module connector. When removing the front panel, hold the face plate firmly to ensure that it does not become damaged.

3 Tilt the panel cover down so that the flash module is visible.

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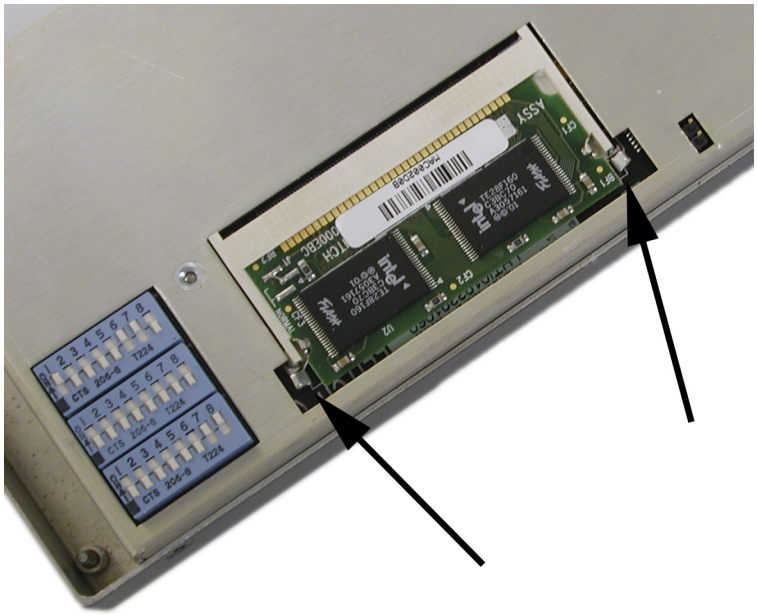


Figure 4-18 Flash Module Tabs Locations

4 Press the two tabs on the sides of the firmware module out, until it pops up.



Figure 4-19 Removing the Firmware Module

5 Pull out the existing firmware module and set it aside.

6 Insert the new firmware module into the card insert on the frame front cover.

7 Align the reassembled front module with the frame body.

8 Tighten the screws on the front of the panel. As you tighten the screws, the front module will be pulled tight to the frame body.

9 Reapply power to the frame, and verify that the frame operates correctly.

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Entering the License Key

1. Obtain your "soft" activation code from your Sales representative. This activation code, consisting of fourteen characters, will be provided to you when you purchase the protocol translation option.

   If you received a license file (license.txt) from us, go directly to step 4.
2. Use any ASCII text editing program to create a file named **license.txt**.
3. As the first line in the license.txt file, enter the 14-digit license keycode. Do not include any spaces or carriage returns.
4. Use an FTP program to copy the license.txt file from its original location to the Edge flash module directory *devfs:*.

   The frame is now set up for protocol translation configuration.

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5 Protocol Translation Configuration

Configuring for Use with Harris Protocols

Two separate serial control ports are used to control Edge from an external computer or automation system. Either serial port may be used to monitor the system configuration, determine the current status of crosspoint connections, change crosspoint connections in any matrix, and setup pre-programmed crosspoint takes sequences (salvos). In a system involving multiple frames the commands entered into the serial port on one frame are sent to the other frames in the system via the X-Y control bus. Any serial control port in the routing system can be used for control or status of the entire system.



Note: *DIP switches are set to "0" as the default setting*

Both serial control ports are preset at the manufacturing facility with identical default DIP switch settings. If you want your Edge settings to match these defaults, you do not need to make any further changes. If you do want to switch from the default settings (for example, to use a different protocol), you only need to make the changes once. The Edge uses the changed settings until you switch them again. DIP switch SW3 (see **Figure 3-14** on page 20) provides DIP switches for the functions related to serial port configuration.

Configuring for Translating Protocols

The Edge may be used to translate from Harris protocols to other third-party protocols. The commands used to configure protocol translation and to view the Edge's current protocol configuration can be displayed by typing SHOW MENU P at the Command prompt. See page 83 for a list of the Protocol command line options.

You can use the SHOW PORTS command at any time to view the configuration for all ports that are loaded when you start the Edge.

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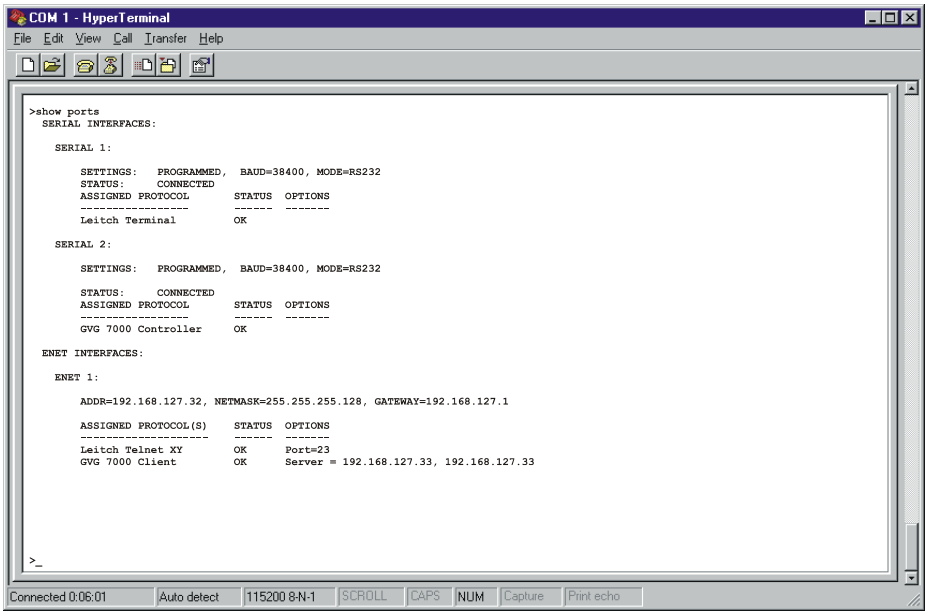


Figure 5-20 Example of SHOW PORTS Window

The full configuration table may be too long for standard terminal emulators to show in one screen. To display a particular port's configuration, use the GET ENET and GET SERIAL commands.

Configuring for Use with Serial Protocol

Note: *If both serial ports are configured for protocol translation, the Harris Telnet interface may be used. Alternatively, the SW3 pole 6 switch may be set to OFF temporarily to allow configurations.*

Serial ports support one active protocol at a time. To configure a serial port's protocol:

1. Ensure DIP switch 3, pole 6, is ON to enable terminal-based configuration.
2. Determine which serial port (1 or 2) use the selected protocol.
3. Determine the protocol to use. (Use the SHOW PROTOCOLS command [(page 83] to view the available protocols.) Available protocols are shown under the Serial Interfaces list displayed by the Available Protocol Summary Table (see **Figure 5-21** on page 31). The example shown in **Figure 5-21** shows 7 available serial interfaces and 7 available Ethernet interfaces.

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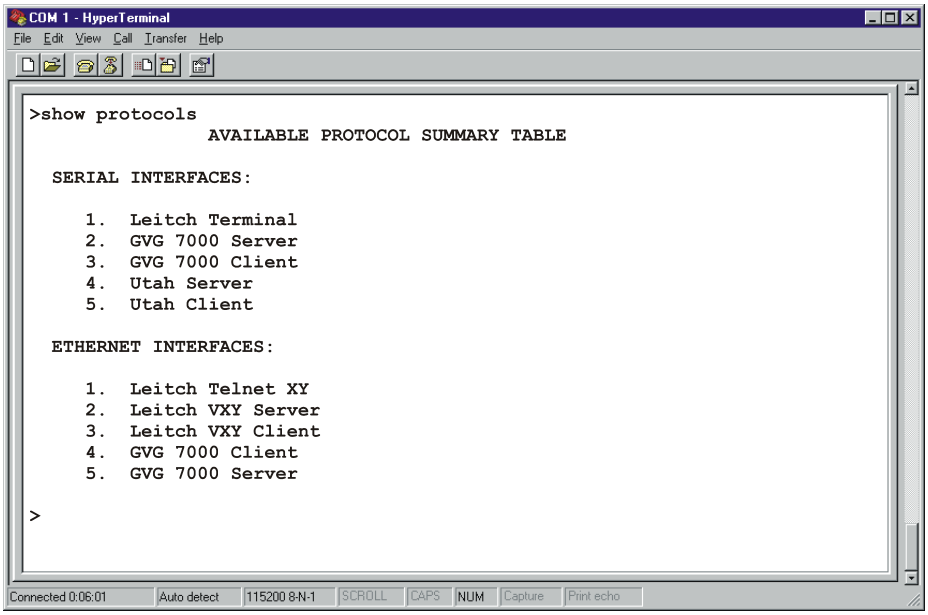


Figure 5-21 Example of SHOW PROTOCOLS Window

4 Use the SET SERIAL command (page 83) to assign the protocol to enable the configuration. The required command syntax is as follows:

SET SERIALx opt=x[opt=x,opt=x]

For example, assume that you want to set the following parameters for your Edge:

- Serial port = 2
- Protocol = GVG SMS-7000 Native "server" (GVG control of Harris router system); shown as item 2 on the Available Protocol Summary Table – Serial Interfaces list
- Baud rate = 38400
- Communications mode = RS-232

The required command syntax is as follows:

SET SERIAL2 PROTOCOL=2,BAUD=38400,MODE=RS232

5 Verify the new settings using the **S**HOW PORTS (page 83), the GET ENET (page 83), or the GET SERIAL (page 83) command.

6 Save the new configuration using the SAVE SYSCONFIG command (page 83).

Changes take effect after the Edge is reset.

Configuring for Use with Ethernet Protocols

Ethernet connections may support more than one active protocol at any given time. To enable an Ethernet protocol:

1 Ensure DIP switch 3, pole 6 is ON to enable support for non-Harris protocols.

2 Determine which Ethernet port uses the selected protocol.

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3 Determine the protocol to use. (Use the SHOW PROTOCOLS command [page 83] to view the available protocols.)

   Available protocols are shown under the Ethernet Interfaces list displayed on the Available Protocol Summary Table (see **Figure 5-21** on page 31).

4 Use the SET ENET command (page 83) to assign the protocol to enable the configuration. The required command syntax is as follows:

   SET ENETx opt=x opt=###.###.###.###,###.###,###.###

   For example, assume that you want to set the following parameters for your Edge:

   - Ethernet port = 1
   - Protocol = GVG SMS-7000 Native "client" protocol (Harris controlling GVG routers with MCPU IP address at 192.168.7.11 and backup controller at 192.168.7.12); shown as item 4 on the Available Protocol Summary Table – Ethernet Interfaces list

   The required command syntax is as follows:

   SET ENET1 PROTOCOL4=ON SERVER=192.168.7.11,192.168.7.12

   Note that for GVG Client, if only a single MCPU IP address is available it must be entered twice; for example:

   SET ENET1 PROTOCOL4=ON SERVER=192.168.7.13,192.168.7.13

5 Verify the new settings using the SHOW PORTS command (page 83).

6 Save the new configuration using the SAVE SYSCONFIG command (page 83). Changes take effect after the Edge is reset.

Configuring for Use with GVG Protocols

The following information is specific to setting up your system so that you can operate it via Edge. Complete details on how to set up and configure your GVG SMS-7000 Series Signal Management System are located in the *Grass Valley Group Series 7000 Configuration Manual.*

Setting up Configurations

The following sections outline the steps involved in configuring for use with GVG protocols for setting Ethernet client and server configurations.

Setting Up the GVG Ethernet Client Configuration (Harris Controls GVG)

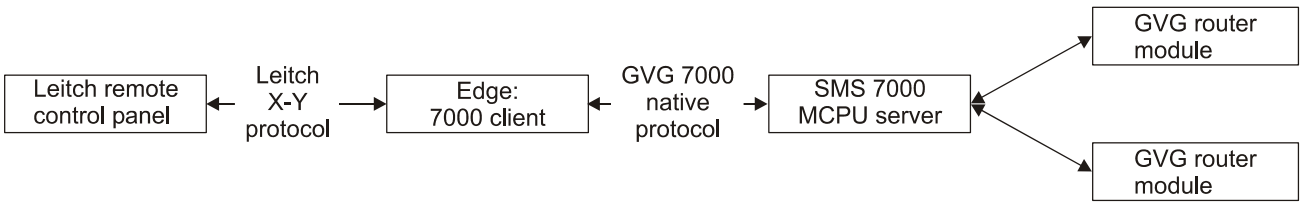


Figure 5-22 GVG Ethernet Client Configuration

Follow the steps for these operations in the *Grass Valley Group Series 7000 Configuration Manual*:

1 Enable IP control of the GVG system (see "Configuring for the Network Remote End").

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2 Enable levels that can be controlled through remote control interface (see "Configuring for the Network Local End").

3 Direct the Edge to connect to the GVG Master Control Processing Unit (MCPU) and backup MCPU IP addresses (see "Pre-Configure New Coprocessors").

Setting Up the GVG Ethernet Server Configuration (GVG Controls Harris)

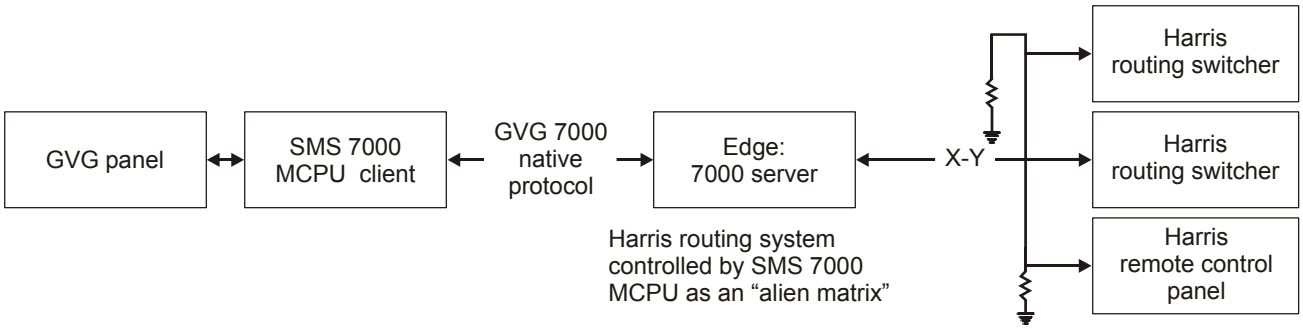


Figure 5-23 GVG Ethernet Server Configuration

Follow the steps for these operations as provided in the pertinent manuals:

1 Configure the Harris router (see the installation manual that applies to your specific Harris router).

2 Using your configuration utility software, configure the Edge to reflect how you want the router presented to the GVG MCPU (see ***Configuring for Name Support*** on page 51; see ***Chapter 7, Supporting Level, Source, or Destination Names With Edge*** on page 87 for more detailed background information).

3 Configure Edge server protocol to listen for connections.

4 Configure the GVG MCPU for control of an alien matrix using GVG SMS-7000 protocol (see "Configuration for Control of Alien Matrices" in the *Grass Valley Group Series 7000 Configuration Manual*).

Setting Up a Third-Party Ethernet Server Configuration (Third Party Controls Harris via GVG)

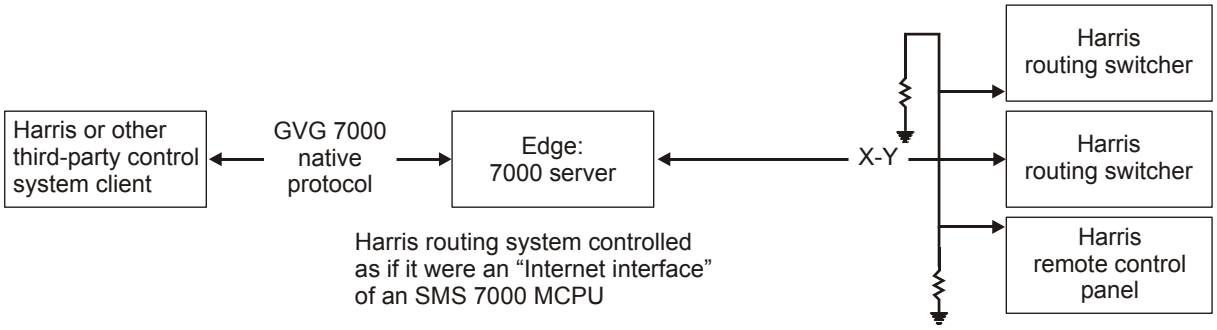


Figure 5-24 Third-Party Ethernet Server Configuration

Follow the steps for these operations as provided in the pertinent manuals:

1 Configure the Harris router (see the installation manual that applies to your specific Harris router).

2 Using configuration utility software, configure the Edge to reflect how you want the router presented to the GVG MCPU (see ***Configuring for Name Support*** on page 51; see

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Chapter 7, *Supporting Level, Source, or Destination Names With Edge* on page 87 for more detailed background information).

3 Configure the Edge server protocol to listen for connections.

4 Configure the third-party control system (see the appropriate product manual for the third-party hardware).

Configuring for Use with GVG SMS-7000 Client or Server Protocol



Note: *The Edge does not support simultaneously running both Client and Server versions of the GVG SMS-7000 protocol on its two serial ports (that is, a configuration with Serial 1 configured for SMS-7000 Server and Serial 2 configured as SMS-7000 Client is not supported)*

Many of the GVG SMS-7000 control panels and native protocol commands operate using level, source, and destination names rather than numeric indices. To translate these commands properly and provide names to controllers using the SMS-7000 protocol, the Edge must provide names support. The Edge provides default names for all levels, inputs (sources), and outputs (destinations); for example, "Level 0," "Level 1," etc. for levels; "In 1," "In 2," etc. for sources; and "Dest 1," "Dest 2," etc. for destinations. Note that the "protocol numbers" for similar protocols for the serial and Ethernet protocol options are not the same; for example, GVG Server protocol for a serial port is one number, while GVG Server protocol for Ethernet ports is a different number. Make sure that the desired protocol is selected.

If you want the GVG control system to use assigned rather than default names (for example, levels, sources, and destinations assigned using configuration utility software), the Edge must be configured to recognize the custom names. Fore more information, see ***Configuring for Name Support*** on page 51 and **Chapter 7, *Supporting Level, Source, or Destination Names With Edge*** on page 87.

DIP Switch Mode (Configuring via DIP Switches)



Note: *Settings for Edge DIP switches are shown in **Figure 3-14** on page 20.*

The following DIP switches must be set to configure Edge for use with GVG client or server protocol.

- Make sure that pole 1 of SW1 is set to OFF.
- Set up the protocol you want to run (pole 6 of SW3).
- Set up the appropriate baud rate (poles 7-8 of SW3).
- Set up the appropriate mode; usually RS-422 for GVG (pole 1 of SW3).
- If the GVG router is an end point, the Termination DIP switch (pole 2 of SW3) must be ON.

Program Mode (Configuration via Navigator or RouterMapper)

Configuring in Program mode is performed through configuration utility software. To perform this operation:

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- Your Edge must be configured with a valid IP address and configured to allow FTP client connections. See ***Network Configuration from Terminal Control Mode*** on page 74 for additional information on how to configure IP settings.
- You must have a PC (with configuration utility application software installed) attached to the Harris router. Make sure that the router is configured as described in the installation manual that applies to your specific router.
- You must create, or have an existing, Navigator or RouterMapper database. For more detailed information, see the appropriate configuration utility reference guide.

To configure Edge for use with GVG client or server protocol in Program mode[1], follow these steps.

1. Make sure that pole 1 of SW1 is set to ON.
2. Make sure that pole 6 of SW3 is set to ON.
3. Start up your configuration utility software; make sure that the appropriate communications settings are selected.
4. Poll the system.
   - If no errors are encountered, the Device List is updated.
   - If errors are encountered, error messages are returned. Refer to the appropriate configuration utility reference guide for information on how to correct returned errors.
5. Double-click on the desired Edge configuration listed in the Device List.
6. At the Edit Edge dialog box, select the Serial Protocols tab.
7. Double-click on the target serial port to which the GVG router is attached.

   The Options window appears. Assigned values for the default protocol's baud rate, parity, data bits, stop bits, and serial interface are displayed.

   a Select the desired GVG protocol from the Protocol drop-down list.

   The assigned values for the selected protocol appear. While all relevant protocol option values are displayed, some values may not be configurable. These values are displayed for informational purposes only; you cannot change them through configuration utility software.

   b Select the desired baud rate by highlighting the baud rate value only.

   A drop-down menu appears, which allows you to change the selection.

   c Select the desired mode by highlighting the serial interface value only.

   A drop-down menu appears, which allows you to change the selection (usually RS-422 for GVG).

   d Select the desired termination by highlighting the termination status value only.

   A drop-down menu appears, which allows you to change the selection. If the GVG router is at an end point, the termination status value must be set to Terminated.

   e Click **OK** to return to the Edge serial ports window, and then click **OK** to accept the changes.

Configuring for Use with Jupiter Protocols

The following information is specific to setting up your system so that you can operate it via Edge. Complete details on how to set up and configure your Jupiter routing systems are located in their respective operation manuals.

[1] Navigator v. 4.5 and RouterMapper v. 5.13 or higher support GVG SMS-7000 configuration.

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Setting Up Configurations

The following sections outline the steps involved in configuring for use with Jupiter protocols.

Setting Up the Jupiter Client Configuration (Harris Controls Jupiter)

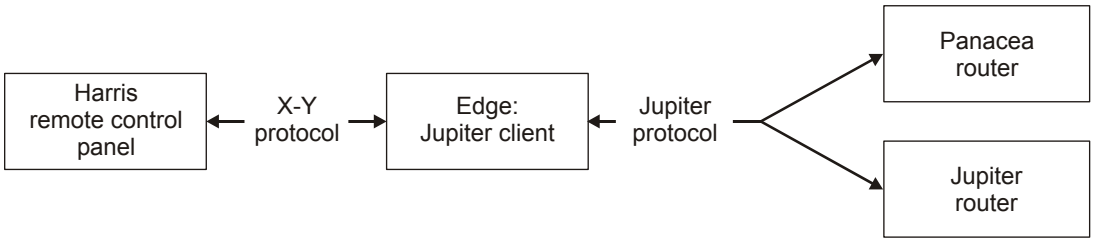


Figure 5-25 Jupiter Client Configuration

Follow the steps for these operations as provided in the pertinent manuals:

- Configure Edge to enable Jupiter protocol.

Setting Up the Jupiter Server Configuration (Jupiter Controls Harris)

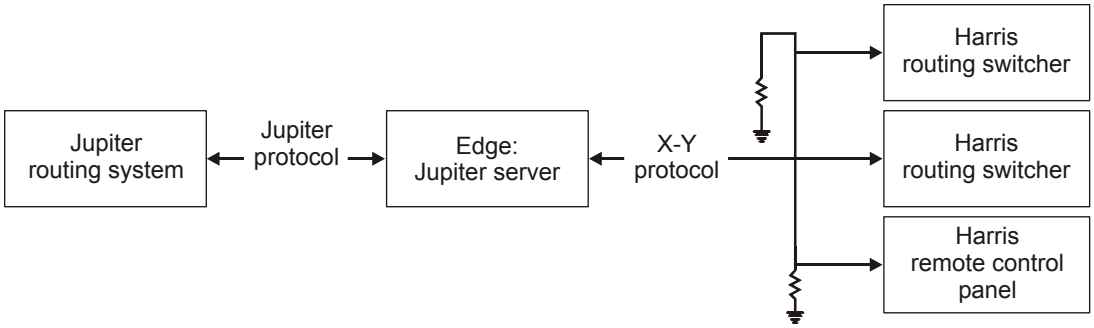


Figure 5-26 Jupiter Server Configuration

Follow the steps for these operations as provided in the pertinent manuals:

- Configure the Harris router (see the installation manual that applies to your specific Harris router).

Configuring for Use with Jupiter Client or Server Protocol



Note: *Settings for Edge DIP switches are shown in* ***Figure 3-14*** *on page 20*

DIP Switch Mode (Configuring via DIP Switches)

The following DIP switches must be set to configure Edge for use with Jupiter client or server protocol.

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- Make sure that pole 1 of SW1 is set to OFF.
- Set up the protocol you want to run (pole 6 of SW3).
- Set up the appropriate baud rate (poles 7-8 of SW3).
- Set up the appropriate mode; usually RS-422 for Jupiter (pole 1 of SW3).
- If the Jupiter router is an end point, the Termination DIP switch (pole 2 of SW3) must be ON.

Program Mode (Configuration via RouterMapper)

Configuring in Program mode is performed through the Navigator or RouterMapper configuration utility software. To perform this operation:

- Your Edge must be configured with a valid IP address and configured to allow FTP client connections. See ***Network Configuration from Terminal Control Mode*** on page 74 for additional information on how to configure IP settings.
- You must have a PC (with configuration utility application software installed) attached to the Harris router. Make sure that the router is configured as described in the installation manual that applies to your specific router.
- You must create, or have an existing, Navigator or RouterMapper database. For more detailed information, see the appropriate configuration utility reference guide.

To configure Edge for use with Jupiter server protocol in Program mode[1], follow these steps.

1. Make sure that pole 1 of SW1 is set to ON.
2. Make sure that pole 6 of SW3 is set to ON.
3. Start up your configuration utility software; make sure that the appropriate communications settings are selected.
4. Poll the system.
   - If no errors are encountered, the Device List is updated.
   - If errors are encountered, error messages are returned. Refer to the appropriate configuration utility reference guide for information on how to correct returned errors.
5. Double-click on the desired Edge configuration listed in the Device List.
6. At the Edit Edge dialog box, select the Serial Protocols tab.
7. Double-click on the target serial port to which the Jupiter router is attached.

   The Options window appears. Assigned values for the default protocol's baud rate, parity, data bits, stop bits, and serial interface are displayed.

   a Select the desired Jupiter protocol from the Protocol drop-down list.

   The assigned values for the selected protocol appear. While all relevant protocol option values are displayed, some values may not be configurable. These values are displayed for informational purposes only; you cannot change them through your configuration utility software.

   b Select the desired baud rate by highlighting the baud rate value only.

   A drop-down menu appears, which allows you to change the selection.

   c Select the desired mode by highlighting the serial interface value only.

   A drop-down menu appears, which allows you to change the selection (usually RS-422 for Jupiter).

   d Select the desired termination by highlighting the termination status value only.

[1] Navigator v. 4.5 and RouterMapper v. 6.00 or higher support Jupiter configuration.

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A drop-down menu appears, which allows you to change the selection. If the Jupiter router is at an end point, the termination status value must be set to Terminated.

e Click **OK** to return to the Edge serial ports window, and then click **OK** to accept the changes.

Configuring for Use with NVISION Protocols

The following information is specific to setting up your system so that you can operate it via the Edge. Complete details on how to set up and configure your NVISION routing systems are located in their respective operation manuals.

Setting up Configurations

The following sections outline the steps involved in configuring for use with NVISION protocols.

Setting Up the Client Configuration (Harris Controls NVISION)

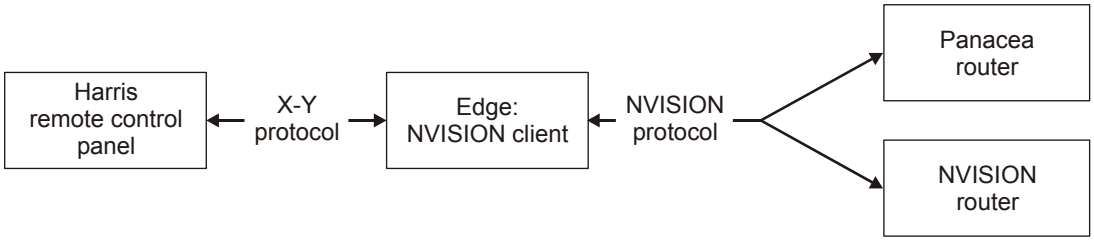


Figure 5-27 NVISION Client Configuration

Follow the steps for these operations as provided in the pertinent manuals:

- Configure Edge to enable NVISION protocol.

Setting Up the Client Configuration (Harris Controls NV9000)

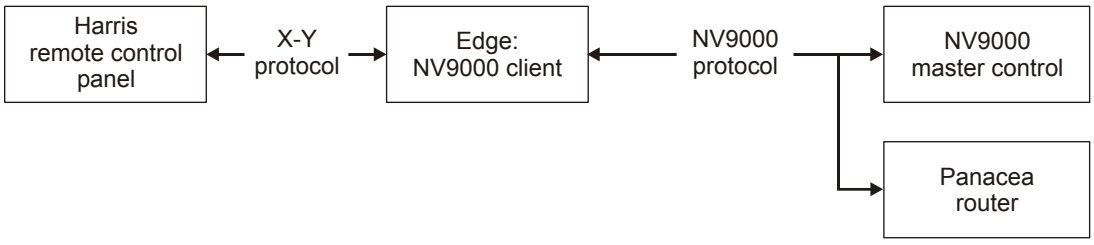


Figure 5-28 NV9000 Client Configuration

Follow the steps for these operations as provided in the pertinent manuals:

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- Configure Edge to enable NV9000 protocol.

Setting Up the Server Configuration (NVISION Controls Harris)

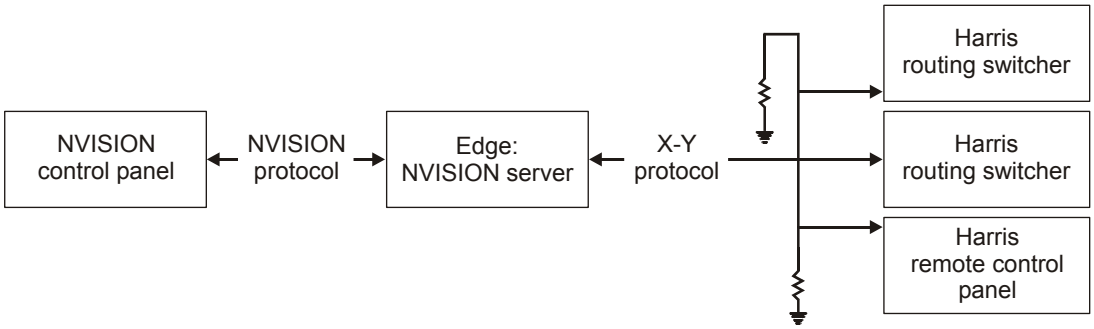


Figure 5-29 NVISION Server Configuration

Follow the steps for these operations as provided in the pertinent manuals:

- Configure the Harris router (see the installation manual that applies to your specific Harris router).

Setting Up the Server Configuration (NV9000 Controls Harris)

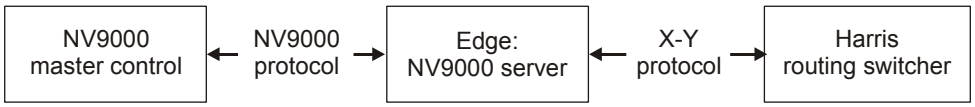


Figure 5-30 NVISION Server Configuration

Follow the steps for these operations as provided in the pertinent manuals:

- Configure the Harris router (see the installation manual that applies to your specific Harris router).

Setting Up a Third-Party Server Configuration (Third Party Controls Harris via NVISION)

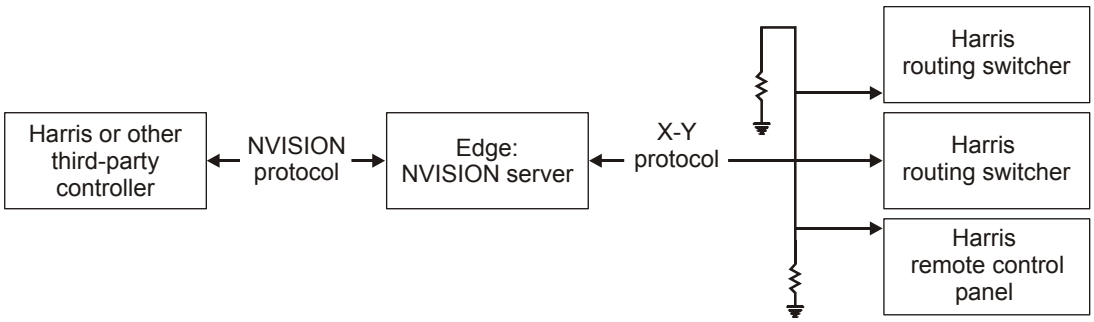


Figure 5-31 NVISION/Third-Party Server Configuration

Follow the steps for these operations as provided in the pertinent manuals:

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1. Configure the Harris router (see the installation manual that applies to your specific Harris router).
2. Configure the Edge server protocol to listen for connections.
3. Configure the third-party control system (see the appropriate product manual for the third-party hardware).

Setting Up a Third-Party Server Configuration (Third Party Controls Harris via NV9000)

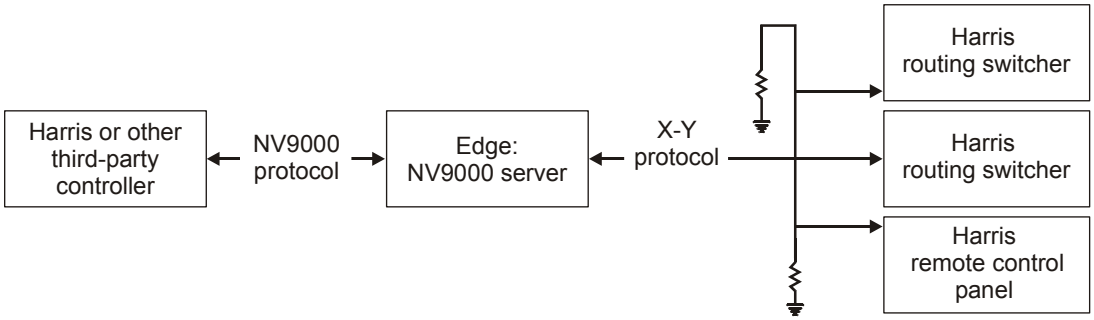


Figure 5-32 NV9000/Third-Party Server Configuration

Follow the steps for these operations as provided in the pertinent manuals:

1. Configure the Harris router (see the installation manual that applies to your specific Harris router).
2. Configure the Edge server protocol to listen for connections.
3. Configure the third-party control system (see the appropriate product manual for the third-party hardware).

Configuring for Use with NVISION or NV9000 Client or Server Protocol

Note: *Settings for Edge DIP switches are shown in* ***Figure 3-14*** *on page 20.*

DIP Switch Mode (Configuring via DIP Switches)

The following DIP switches must be set to configure Edge for use with NVISION or NV9000 server protocol.

- Make sure that pole 1 of SW1 is set to OFF.
- Set up the protocol you want to run (pole 6 of SW3).
- Set up the appropriate baud rate (poles 7-8 of SW3).
- Set up the appropriate mode; usually RS-422, for NVISION (pole 1 of SW3).
- If the NVISION router is an end point, the Termination DIP switch (pole 2 of SW3) must be ON.

Program Mode (Configuration via Navigator or RouterMapper)

Configuring in Program mode is performed through the Navigator or RouterMapper configuration utility software. To perform this operation:

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- Your Edge must be configured with a valid IP address and configured to allow FTP client connections. See ***Network Configuration from Terminal Control Mode*** on page 74 for additional information on how to configure IP settings.
- You must have a PC (with configuration utility software installed) attached to the Harris router. Make sure that the router is configured as described in the installation manual that applies to your specific router.
- You must create, or have an existing, Navigator or RouterMapper database. For more detailed information, see the appropriate configuration utility reference guide.

To configure Edge for use with NVISION or NV9000 client or server protocol in Program mode[1], follow these steps.

1. Make sure that pole 1 of SW1 and pole 6 of SW3 are set to ON.
2. Start up your configuration utility software; make sure that the appropriate communications settings are selected.
3. Poll the system.
   - If no errors are encountered, the Device List is updated.
   - If errors are encountered, error messages are returned. Refer to the appropriate configuration utility reference guide for information on how to correct returned errors.
4. Double-click on the desired Edge configuration listed in the Device List.
5. At the Edit Edge dialog box, select the Serial Protocols tab.
6. Double-click on the target serial port to which the NVISION router is attached.

   The Options window appears. Assigned values for the default protocol's baud rate, parity, data bits, stop bits, and serial interface are displayed.

   a Select the desired NVISION protocol from the Protocol drop-down list.

   The assigned values for the selected protocol appear. While all relevant protocol option values are displayed, some values may not be configurable. These values are displayed for informational purposes only; you cannot change them through your configuration utility software.

   b Select the desired baud rate by highlighting the baud rate value only.

   A drop-down menu appears, which allows you to change the selection.

   c Select the desired mode by highlighting the serial interface value only.

   A drop-down menu appears, which allows you to change the selection (usually RS-422 for NVISION).

   d Select the desired termination by highlighting the termination status value only.

   A drop-down menu appears, which allows you to change the selection. If the NVISION router is at an end point, the termination status value must be set to Terminated.

   e Click **OK** to return to the Edge serial ports window, and then click **OK** to accept the changes.

[1] Navigator v. 4.5 and RouterMapper v. 5.13 or higher support NVISION and NV9000 configuration.

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Configuring for Use with PESA Protocols

Configuration Notes

The PESA protocol interprets (parses) commands and replies by counting fields based on the number of "configured" levels. In a PESA system, both the controller and router must agree on the number of levels, or communications is impossible. On the Edge, this information is read from a names.txt file generated by Navigator or RouterMapper. For example, if configuring an Edge to control a PESA routing system, the Navigator or RouterMapper database must exactly describe the PESA router.

Another requirement is that the levels start with zero (our numbering system) and that they be contiguous (for example, you cannot define a system that has levels 0, 1, and 5). PESA also assumes that all routing matrices on all levels are the same size. If you must configure a system with different size matrices, you can sidestep this requirement by assigning the largest matrix to level zero. This protocol does not work with Source or Destination offsets. All sources and destinations must begin with zero (our numbers).

Internally, the PESA protocol is one-based. The Edge software adds or subtracts one when processing PESA commands. This means that our level zero corresponds to their level one, etc.

By default, the PESA protocol terminates a command with an ASCII carriage return (CR) followed by an ASCII line feed (LF), and expects these to be received in that order. Some PESA routers can be configured to not require the (CR). The Edge accepts commands with or without the (CR), but always sends (CR)(LF).

The Edge PESA Server supports all of the commands listed in the protocol document. However, many of those commands are not supported by all PESA routers. This meant that in order to work with all PESA routers, our Edge PESA client had to use only that subset of commands supported by all of their routers (H, J, L, W and Y).

The PESA protocol does not support asynchronous statusing. In order to show up-to-date status at the controller for changes made by other controllers to the router, the Client polls for destination and lock status every two seconds. This works for small and medium sized routers, but very large routers cannot answer the destination poll because of a 2K limit on packet size. On very large routers, the Client can take switches and see status for changes that it made, but changes made to the router by other controllers are not reported.

The following information is specific to setting up your system so that you can operate it via the Edge. Complete details on how to set up and configure your PESA routing systems are located in their respective operation manuals.

Setting up Configurations

If you haven't already done so, review the ***Configuration Notes*** on page 42.

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Setting Up the Client Configuration (Harris Controls PESA)

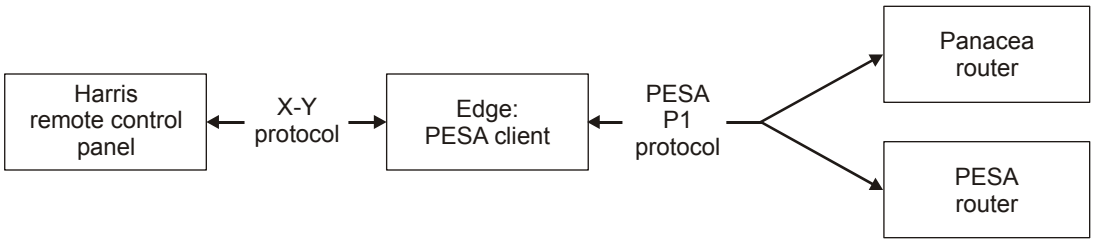


Figure 5-33 PESA Client Configuration

Follow the steps for these operations as provided in the pertinent manuals:

- Configure Edge to enable PESA CPU Link protocol.

Setting Up the Server Configuration (PESA Controls Harris)

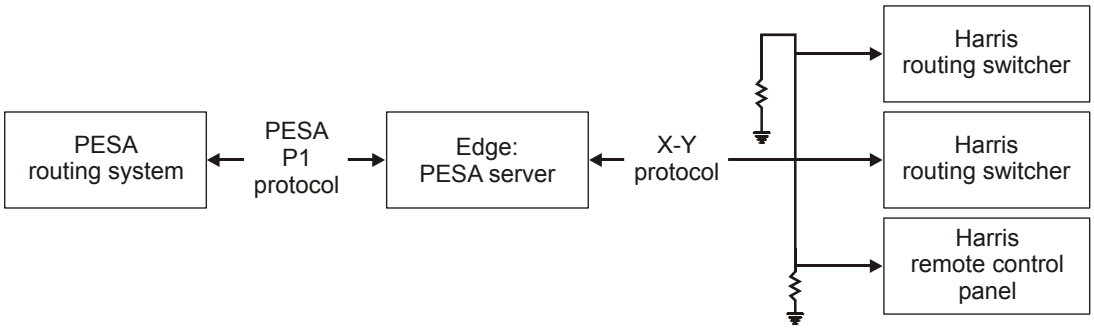


Figure 5-34 PESA Server Configuration

Follow the steps for these operations as provided in the pertinent manuals:

- Configure the Harris router (see the installation manual that applies to your specific Harris router).

Setting Up a Third-Party Server Configuration (Third Party Controls Harris via PESA)

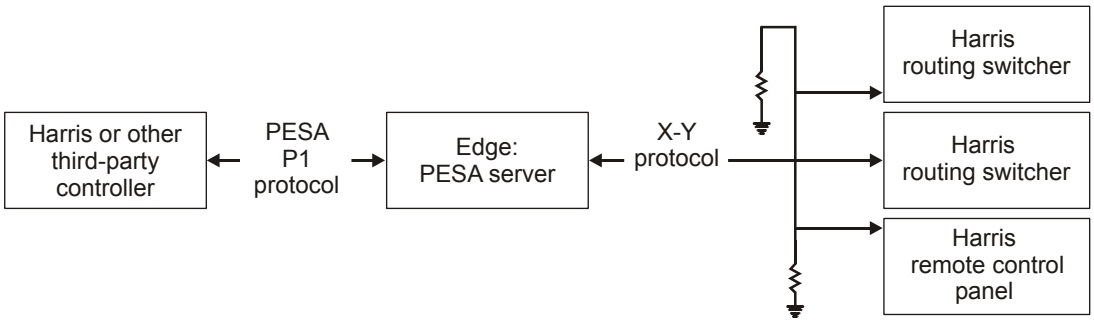


Figure 5-35 PESA/Third-Party Server Configuration

Follow the steps for these operations as provided in the pertinent manuals:

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1 Configure the Harris router (see the installation manual that applies to your specific Harris router).
2 Configure the Edge server protocol to listen for connections.
3 Configure the third-party control system (see the appropriate product manual for the third-party hardware).

Follow the steps for these operations as provided in the pertinent manuals:

1 Configure the Harris router (see the installation manual that applies to your specific Harris router).
2 Configure the Edge server protocol to listen for connections.
3 Configure the third-party control system (see the appropriate product manual for the third-party hardware).

Configuring for Use with PESA CPU Link Client or Server Protocol

If you haven't already done so, review the ***Configuration Notes*** on page 42.

DIP Switch Mode (Configuring via DIP Switches)



Note: *Settings for Edge DIP switches are shown in* ***Figure 3-14*** *on page 20.*

The following DIP switches must be set to configure Edge for use with PESA CPU Link server protocol.

- Make sure that pole 1 of SW1 is set to OFF.
- Set up the protocol you want to run (pole 6 of SW3).
- Set up the appropriate baud rate (poles 7-8 of SW3).
- Set up the appropriate mode; usually RS-422, for PESA (pole 1 of SW3).
- If the PESA router is an end point, the Termination DIP switch (pole 2 of SW3) must be ON.

Program Mode (Configuration via Navigator or RouterMapper)

Configuring in Program mode is performed through the Navigator or RouterMapper configuration utility. To perform this operation:

- Your Edge must be configured with a valid IP address and configured to allow FTP client connections. See ***Network Configuration from Terminal Control Mode*** on page 74 for additional information on how to configure IP settings.
- You must have a PC (with configuration utility software installed) attached to the Harris router. Make sure that the router is configured as described in the installation manual that applies to your specific router.
- You must create, or have an existing, Navigator or RouterMapper database. For more detailed information, see the appropriate configuration utility reference guide.

If you haven't already done so, review the ***Configuration Notes*** on page 42.

To configure Edge for use with PESA CPU Link client or server protocol in Program mode[1], follow these steps.

[1] Navigator v. 4.5 and RouterMapper v. 6.02 or higher support PESA CPU Link configuration.

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1. Make sure that pole 1 of SW1 is set to ON.
2. Make sure that pole 6 of SW3 is set to ON.
3. Start up your configuration utility software; make sure that the appropriate communications settings are selected.
4. Poll the system.
   - If no errors are encountered, the Device List is updated.
   - If errors are encountered, error messages are returned. Refer to the appropriate configuration utility reference guide for information on how to correct returned errors.
5. Double-click on the desired Edge configuration listed in the Device List.
6. At the Edit Edge dialog box, select the Serial Protocols tab.
7. Double-click on the target serial port to which the PESA router is attached.

   The Options window appears. Assigned values for the default protocol's baud rate, parity, data bits, stop bits, and serial interface are displayed.

   a Select the desired PESA protocol from the Protocol drop-down list.

   The assigned values for the selected protocol appear. While all relevant protocol option values are displayed, some values may not be configurable. These values are displayed for informational purposes only; you cannot change them through your configuration utility software.

   b Select the desired baud rate by highlighting the baud rate value only. A drop-down menu appears, which allows you to change the selection.

   c Select the desired mode by highlighting the serial interface value only.

   A drop-down menu appears, which allows you to change the selection (usually RS-232 for PESA).

   d If using RS-422, select the desired termination by highlighting the termination status value only.

   A drop-down menu appears, which allows you to change the selection. If the PESA router is at an end point, the termination status value must be set to Terminated.

   e Click **OK** to return to the Edge serial ports window, and then click **OK** to accept the changes.

Configuring for Use with Pro-Bel Protocols

The following information is specific to setting up your system so that you can operate it via Edge. Complete details on how to set up and configure your Pro-Bel routing systems are located in their respective operation manuals.

Setting Up Configurations

The following sections outline the steps involved in configuring for use with Pro-Bel protocols.

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Setting Up the Pro-Bel Client Configuration (Harris Controls Pro-Bel)

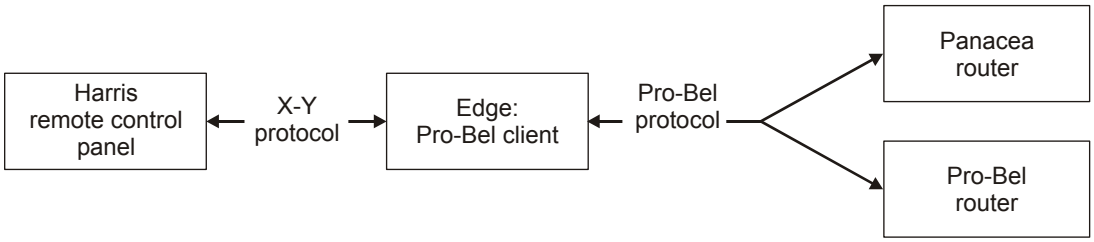


Figure 5-36 Pro-Bel Client Configuration

Follow the steps for these operations as provided in the pertinent manuals:

- Configure Edge to enable Pro-Bel protocol.

Setting Up the Pro-Bel Server Configuration (Pro-Bel Controls Harris)

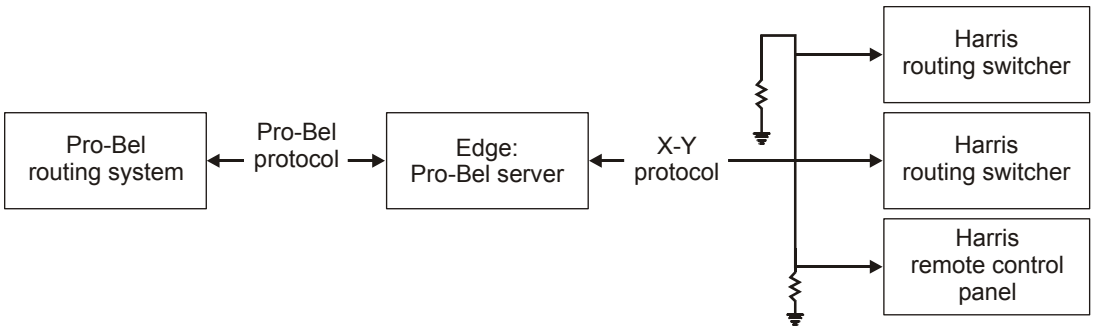


Figure 5-37 Pro-Bel Server Configuration

Follow the steps for these operations as provided in the pertinent manuals:

- Configure the Harris router (see the installation manual that applies to your specific Harris router).

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Setting Up a Third-Party Server Configuration (Third Party Controls Harris via Pro-Bel)

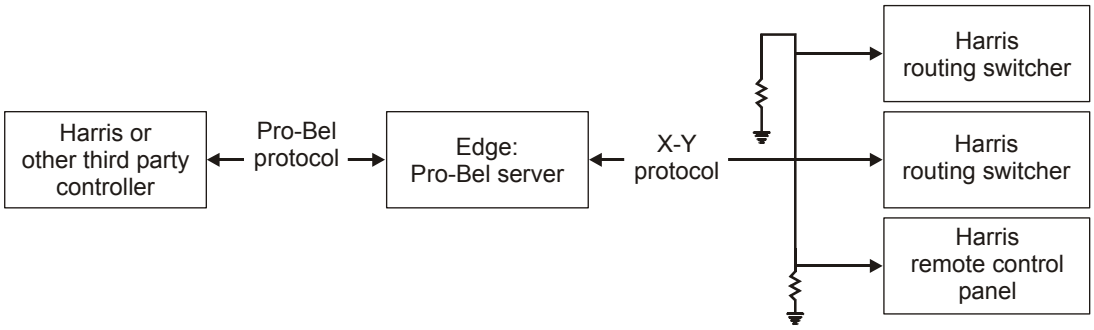


Figure 5-38 Third-Party Server Configuration

Follow the steps for these operations as provided in the pertinent manuals:

1. Configure the Harris router (see the installation manual that applies to your specific Harris router).
2. Configure the Edge server protocol to listen for connections.
3. Configure the third-party control system (see the appropriate product manual for the third-party hardware).

Configuring for Use with Pro-Bel Client or Server Protocol

Note: *Settings for Edge DIP switches are shown in* ***Figure 3-14*** *on page 20.*

DIP Switch Mode (Configuring via DIP Switches)

The following DIP switches must be set to configure Edge for use with Pro-Bel client or server protocol.

- Make sure that pole 1 of SW1 is set to OFF.
- Set up the protocol you want to run (pole 6 of SW3).
- Set up the appropriate baud rate (poles 7-8 of SW3).
- Set up the appropriate mode; usually RS-422 for Pro-Bel (pole 1 of SW3).
- If the Pro-Bel router is an end point, the Termination DIP switch (pole 2 of SW3) must be ON.

Program Mode (Configuration via Navigator or RouterMapper)

Configuring in Program mode is performed through the Navigator or RouterMapper configuration utility. To perform this operation:

- Your Edge must be configured with a valid IP address and configured to allow FTP client connections. See ***Network Configuration from Terminal Control Mode*** on page 74 for additional information on how to configure IP settings.
- You must have a PC (with configuration utility application software installed) attached to the Harris router. Make sure that the router is configured as described in the installation manual that applies to your specific router.

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- You must create, or have an existing, Navigator or RouterMapper database. For more detailed information, see the appropriate configuration utility reference guide.

To configure Edge for use with Pro-Bel client or server protocol in Program mode[1], follow these steps.

1. Make sure that pole 1 of SW1 is set to ON.
2. Make sure that pole 6 of SW3 is set to ON.
3. Start up your configuration utility software; make sure that the appropriate communications settings are selected.
4. Poll the system.
   - If no errors are encountered, the Device List is updated.
   - If errors are encountered, error messages are returned. Refer to the appropriate configuration utility reference guide for information on how to correct returned errors.
5. Double-click on the desired Edge configuration listed in the Device List.
6. At the Edit Edge dialog box, select the Serial Protocols tab.
7. Double-click on the target serial port to which the Pro-Bel router is attached.

   The Options window appears. Assigned values for the default protocol's baud rate, parity, data bits, stop bits, and serial interface are displayed.

   a Select the desired Pro-Bel protocol from the Protocol drop-down list.

   The assigned values for the selected protocol appear. While all relevant protocol option values are displayed, some values may not be configurable. These values are displayed for informational purposes only; you cannot change them through your configuration utility software.

   b Select the desired baud rate by highlighting the baud rate value only.

   A drop-down menu appears, which allows you to change the selection.

   c Select the desired mode by highlighting the serial interface value only.

   A drop-down menu appears, which allows you to change the selection (usually RS-422 for Pro-Bel).

   d Select the desired termination by highlighting the termination status value only.

   A drop-down menu appears, which allows you to change the selection. If the Pro-Bel router is at an end point, the termination status value must be set to Terminated.

   e Click **Mappings...** to set up levels, inputs, outputs, and matrices for the Pro-Bel routing system.

   f Click **OK** to return to the Edge serial ports window, and then click **OK** to accept the changes.

Configuring for Use with Utah Protocols

The following information is specific to setting up your system so that you can operate it via Edge. Complete details on how to set up and configure your Utah Scientific routing systems are located in their respective operation manuals.

[1] Navigator v. 4.5 and RouterMapper v. 6.01 or higher support Pro-Bel configuration.

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Setting up Configurations

The following sections outline the steps involved in configuring for use with Utah protocols.

Setting Up the Utah Client Configuration (Harris Controls Utah)

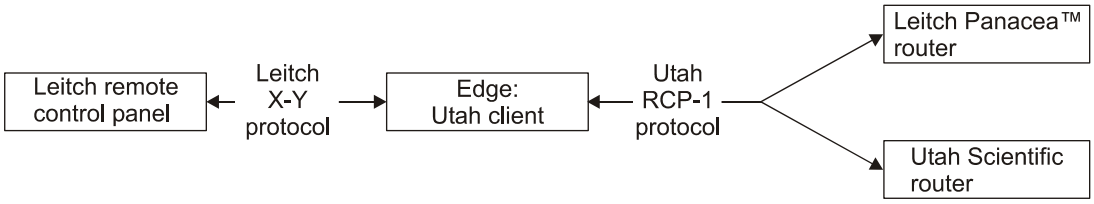


Figure 5-39 Utah Client Configuration

Follow the steps for these operations as provided in the pertinent manuals:

- Configure Edge to enable Utah protocol.

Setting Up the Utah Server Configuration (Utah Controls Harris)

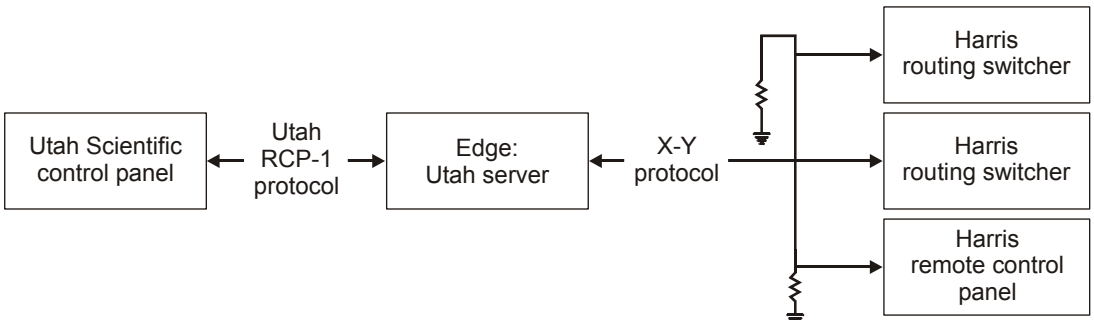


Figure 5-40 Utah Server Configuration

Follow the steps for these operations as provided in the pertinent manuals:

- Configure the Harris router (see the installation manual that applies to your specific Harris router).

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Setting Up a Third-Party Server Configuration (Third Party Controls Harris via Utah)

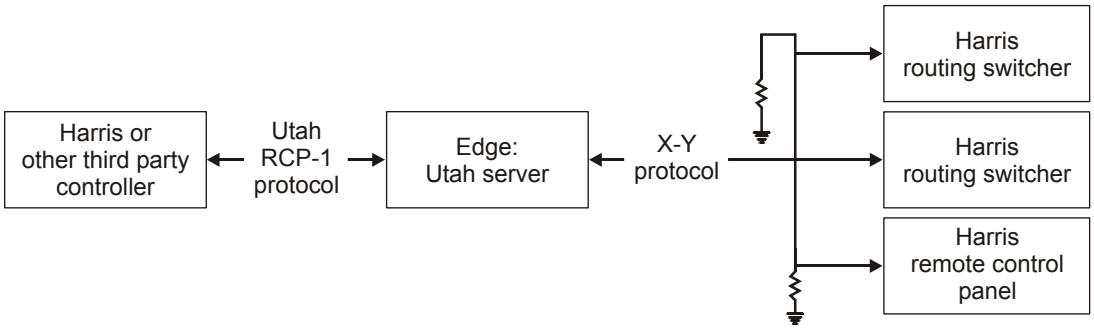


Figure 5-41 Third-Party Server Configuration

Follow the steps for these operations as provided in the pertinent manuals:

1. Configure the Harris router (see the installation manual that applies to your specific Harris router).
2. Configure the Edge server protocol to listen for connections.
3. Configure the third-party control system (see the appropriate product manual for the third-party hardware).

Configuring for Use with Utah Client or Server Protocol

Note: *Settings for Edge DIP switches are shown in* ***Figure 3-14*** *on page 20.*

DIP Switch Mode (Configuring via DIP Switches)

The following DIP switches must be set to configure Edge for use with Utah client or server protocol.

- Make sure that pole 1 of SW1 is set to OFF.
- Set up the protocol you want to run (pole 6 of SW3).
- Set up the appropriate baud rate (poles 7-8 of SW3).
- Set up the appropriate mode; usually RS-422 for Utah (pole 1 of SW3).
- If the Utah router is an end point, the Termination DIP switch (pole 2 of SW3) must be ON.

Program Mode (Configuration via Navigator or RouterMapper)

Configuring in Program mode is performed through the Navigator or RouterMapper configuration utility software. To perform this operation:

- Your Edge must be configured with a valid IP address and configured to allow FTP client connections. See ***Network Configuration from Terminal Control Mode*** on page 74 for additional information on how to configure IP settings.
- You must have a PC (with configuration utility software installed) attached to the Harris router. Make sure that the router is configured as described in the installation manual that applies to your specific router.

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- You must create, or have an existing, Navigator or RouterMapper database. For more detailed information, see the appropriate configuration utility reference guide.

To configure Edge for use with Utah client or server protocol in Program mode[1], follow these steps.

1. Make sure that pole 1 of SW1 is set to ON.
2. Make sure that pole 6 of SW3 is set to ON.
3. Start up your configuration utility software; make sure that the appropriate communications settings are selected.
4. Poll the system.
   - If no errors are encountered, the Device List is updated.
   - If errors are encountered, error messages are returned. Refer to the appropriate configuration utility reference guide for information on how to correct returned errors.
5. Double-click on the desired Edge configuration listed in the Device List.
6. At the Edit Edge dialog box, select the Serial Protocols tab.
7. Double-click on the target serial port to which the Utah router is attached.

   The Options window appears. Assigned values for the default protocol's baud rate, parity, data bits, stop bits, and serial interface are displayed.

   a Select the desired Utah protocol from the Protocol drop-down list.

   The assigned values for the selected protocol appear. While all relevant protocol option values are displayed, some values may not be configurable. These values are displayed for informational purposes only; you cannot change them through your configuration utility software.

   b Select the desired baud rate by highlighting the baud rate value only.

   A drop-down menu appears, which allows you to change the selection.

   c Select the desired mode by highlighting the serial interface value only.

   A drop-down menu appears, which allows you to change the selection (usually RS-422 for Utah).

   d Select the desired termination by highlighting the termination status value only.

   A drop-down menu appears, which allows you to change the selection. If the Utah router is at an end point, the termination status value must be set to Terminated.

   e Click **OK** to return to the Edge serial ports window, and then click **OK** to accept the changes.

Configuring for Name Support

The name support capability is important for use with protocols that use names (rather than numeric indices) in commands to identify router levels, sources, and destinations. See **Chapter 7, *Supporting Level, Source, or Destination Names With Edge*** for more detailed information about names and name support for Edge products.

Configuring for name support is performed through the Navigator or RouterMapper configuration utility. To perform this operation:

- Your Edge must be configured with a valid IP address and configured to allow FTP client connections. See ***Network Configuration from Terminal Control Mode*** on page 74 for additional information on how to configure IP settings.

[1] Navigator v. 4.5 and RouterMapper v. 5.13 or higher support Utah configuration.

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- You must have a PC (with configuration utility software configuration utility application software installed) attached to the Harris router.

Note: *Instructions for specific protocols indicate if these steps are required.*

1. Configure the Harris router and router system. For more detailed information, see the installation manual that applies to your specific router.
2. Create a Navigator or RouterMapper database. For more detailed information, see the appropriate configuration utility reference guide.
3. Add the appropriate Edge configuration to the database.
4. If necessary, assign the desired names using Navigator or RouterMapper. Save the database.

Configuration Examples

Harris router control software applications and remote control panels (hardware) use the Edge to command and monitor routing switcher systems. **Figure 5-42** shows an example of Ethernet connectivity for Edge configuration applications. When using Navigator or a remote control panel, configure the routing system as shown in **Figure 5-42**.

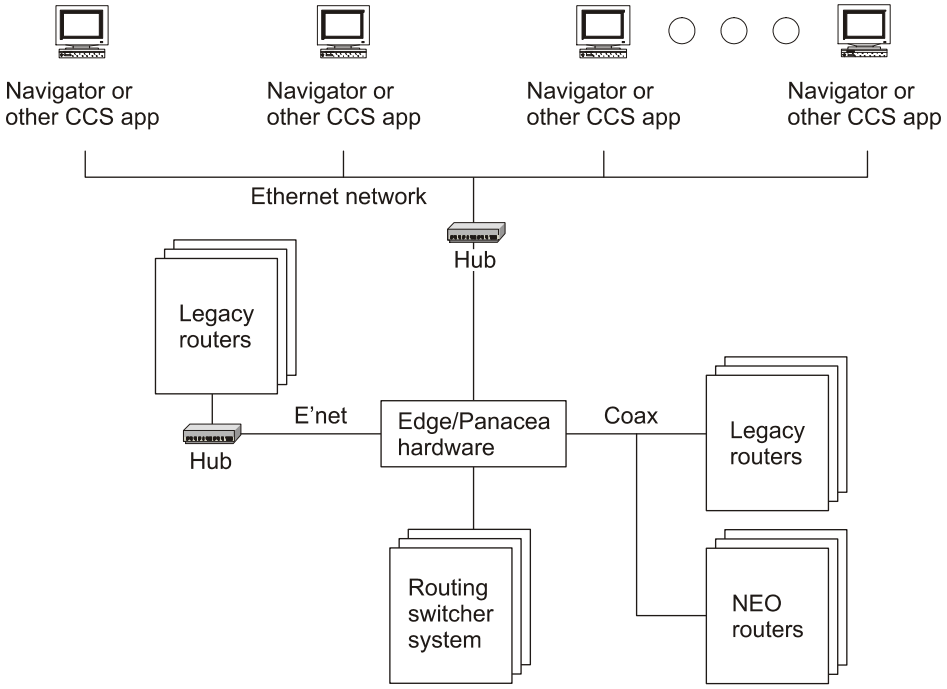


Figure 5-42 An Example of Ethernet Connectivity for PC-Based Configuration/Control Applications

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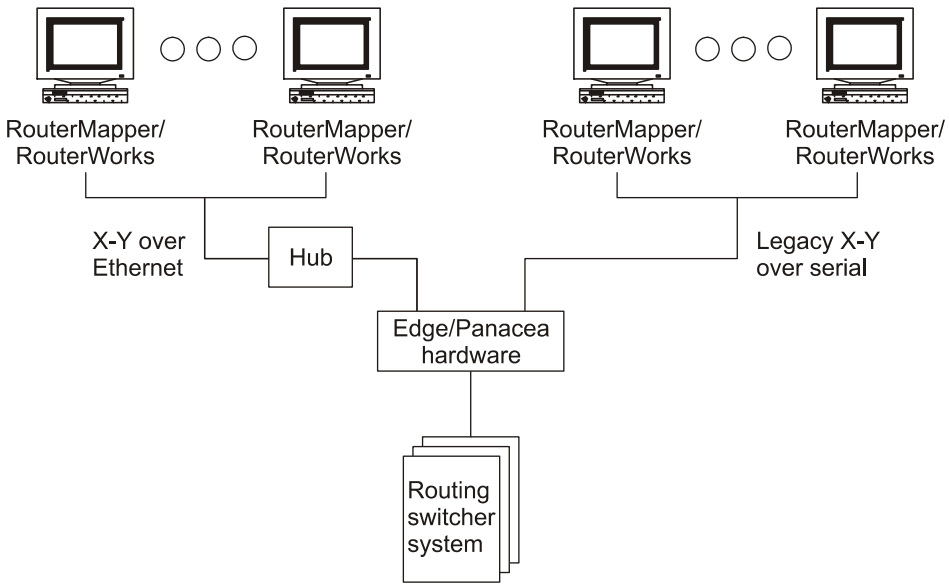


Figure 5-43 Remote Applications for RouterMapper/RouterWorks

X-Y protocol is a Harris legacy protocol used to command and monitor router switching systems. This protocol can be transported via Ethernet, serial, or LXY coax media (or a mixture of those three types) throughout the network. **Figure 5-44** shows an example of remote applications for newer Ethernet-based control panels. **Figure 5-45** on page 55 shows an example of remote applications for RCP panels.

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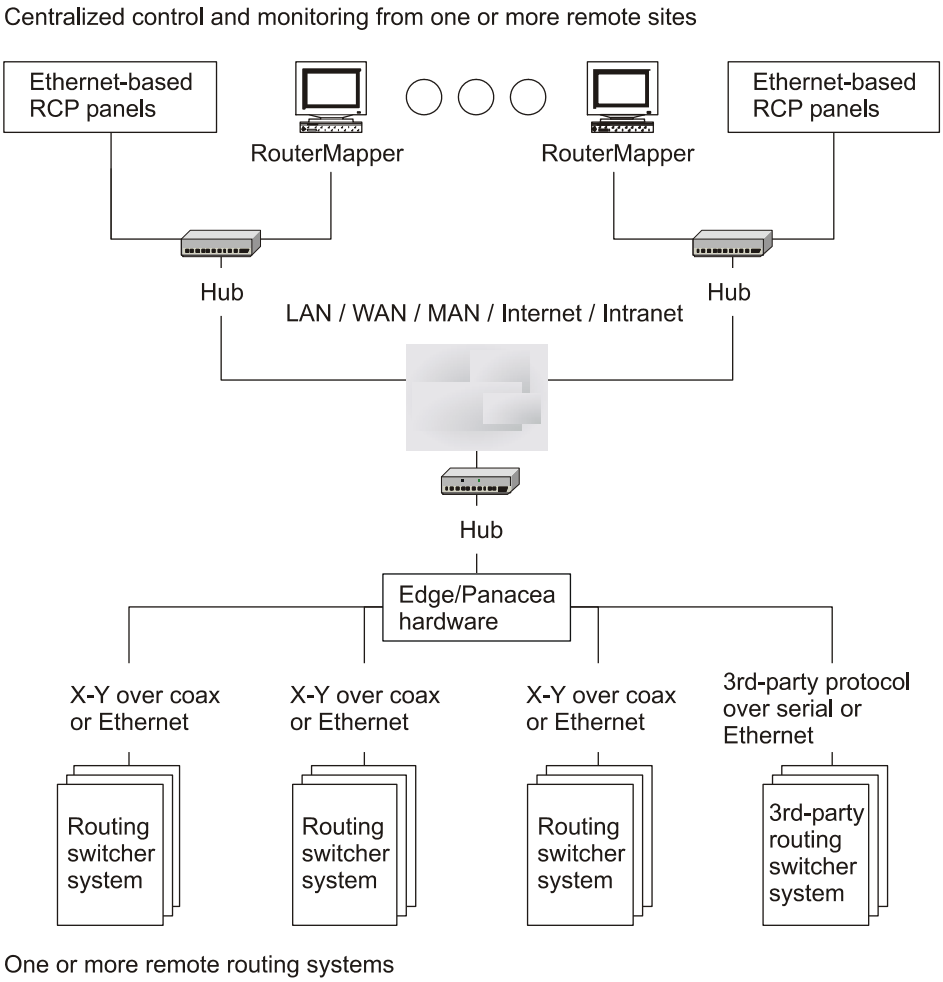


Figure 5-44 Remote Applications for Newer Ethernet-Based Control Panels

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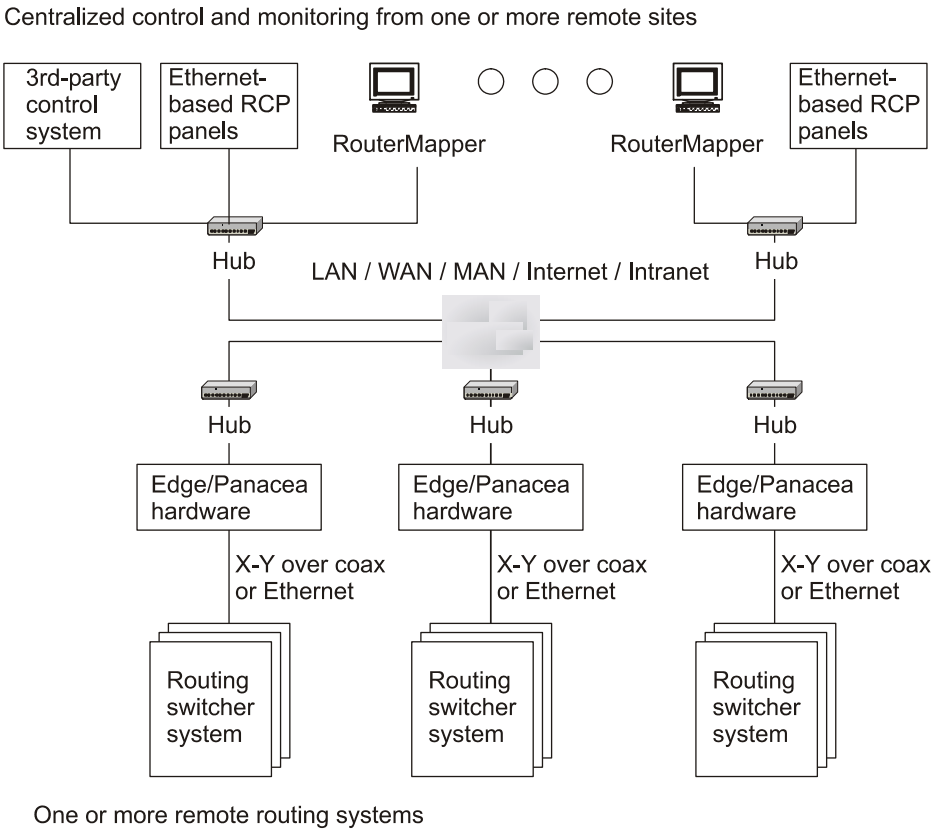


Figure 5-45 An Example of Remote Applications for RCP Panels

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6 Protocol Formats and Terminal Operations

This section contains information concerning various protocol formats and their operation as they apply to the Edge. It does not contain detailed background information concerning these protocols.

- The Harris *Serial Protocol Reference Manual* contains detailed information concerning terminal protocol and X-Y commands.
- The Grass Valley *Routing Products Protocols Manual* and Grass Valley Group *Series 7000 Signal Management System Configuration Manual* contain detailed information concerning the GVG SMS-7000 protocol.
- The following Jupiter documents contain detailed information concerning the Jupiter protocol:
  - *ESswitch Serial Routing Switcher Control Protocol Guide (04-045707-008)*
  - *Jupiter Getting Started Guide (04 045707 003)*
- The following NVISION documents contain detailed information concerning the NVISION protocol:
  - *NVISION Ethernet Protocol, Router Control Messages* (NP0016-00), Rev.B
  - *NVISION Serial Protocol, Router Control Messages* (NP0010-02), Rev.B
- The *PESA CPU Link Protocol No. 1 (P1)* manual contains detailed information concerning the PESA P1 protocol.
- The Pro-Bel *Router Control Protocols (SW-P-88, Issue No. 2)* manual contain detailed information concerning the SW-P-02 and SW-P-08 protocols.
- The Utah Scientific *Routing Switcher Controls Protocol* manual contains detailed information concerning the RCP-1 and Utah-12 protocols.

Protocol Formats

Using Harris Terminal Protocol

Terminal protocol is implemented via one of the Edge serial ports. Terminal protocol is useful as an interface to a router to check the status of the router, to change the crosspoints, and to write and execute simple automated programs.

DIP Switch Settings

There are no special DIP switch settings necessary to run terminal protocol.

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System Operations and Queries

Commands in the systems operations and queries group are used to set the Echo Mode, list the current crosspoint connection status, obtain command syntax information, and determine the system configuration. System operations and queries are performed by executing the **QUERY**, **INFORMATION**, **READ**, **POLL**, **ZERO**, and **TERMINAL** commands. In addition, the Edge supports **DESTINATION**, **LEVEL**, **SOURCE**, **SHOW MENU** [X], **XPOINT**, and **REBOOT** commands.

You can find a description each of these commands in **Table 6-23** on page 77. Please refer to the *Serial Protocol Reference Manual* for a detailed explanation of these commands.

Using Pass-Through Protocol (X-Y Commands)

Pass-through protocol is a simple protocol suited to automated/programmed control of a Harris router system. If you want a simple way to make a switch from a dumb ASCII terminal with no computer or automated control/status required, the terminal protocol is probably a better choice. For debugging and any computer or automated control and/or monitoring, the pass-through protocol is a much better solution.

Supported Commands

Table 6-7 X-Y Commands Supported

Command Name	Syntax	Response	Action
Buffer clear	B:C	None	Buffers are cleared only if any routing hardware is present
Buffer execute	B:E	S:	Buffers are taken only if any routing hardware is present
Level poll size query	F?	F: only if any routing hardware is present	None
Level poll size reply	F:	None	The size of the largest frame on each level is updated in the internal system status table; this is used to determine how many GVG destinations and sources to status
Device discovery query	I?	I!	None
Device discovery reply	I!	None	None; the server does not monitor replies from other devices
Buffer crosspoint preset	P:	None	Buffers are preset only if any routing hardware is present
Alarm status query	Q?	**Q!** (power supply alarms only on Edge)	None

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Table 6-7 X-Y Commands Supported *(Continued)*

Command Name	Syntax	Response	Action
Alarm status reply	Q:	None	None; the server does not monitor alarms from other devices
Extended alarm reporting	Q!	None	None; the server does not monitor alarms from other devices
Level status query	S?	S: only if any routing hardware is present	None
Crosspoint status reply	S:	None	Crosspoint status is updated in the internal system status table; this data is used to generate the status replies for the GVG destination query command series and for the R[ead] terminal command
Crosspoint restrict query	U?	U! only if any routing hardware is present	None
Crosspoint restrict set/ clear	U:	U! only if any routing hardware is present	Crosspoints are blocked if any routing hardware is present
Crosspoint restrict status	U!	None	None
Buffer preset status query	V?	V: only if any routing hardware is present	None
Buffer preset status reply	**V:**	None	None
Lock/Protect status query	W?	**W!** for local routing hardware	None
Lock/Protect status reply	W!	None	Lock information is updated in the internal system status table; this data is used to generate the <N|P> field for the GVG destination query command series
Lock/Protect status set	W:	W! for local routing hardware	Lock/protect/unlock local routing hardware
Crosspoint status query	X?	S: only if any routing hardware is present	None
Crosspoint Take request	X:	S: only if any routing hardware is present	Crosspoints are taken if any routing hardware is present

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Using GVG SMS-7000 Protocol

Table 6-8 provides a brief listing of the GVG SMS-7000 commands available through Edge. **Table 6-9** on page 62 lists unsupported commands. Please refer to the *Grass Valley Routing Products Protocols Manual* for a detailed explanation of the Series 7000 native protocol.

DIP Switch Settings

If you are using a protocol other than Harris terminal protocol, the SW3 pole 6 DIP switch on your Edge must be set to ON.

Supported Commands

Table 6-8 GVG SMS-7000 Native Commands Supported

Command	Syntax	Description	Client/Server
Background Activities		■ Used without parameters to synchronize communications ■ Used to periodically refresh Protects ■ Used as a diagnostic tool	Server
Return system name	BK,N		Server
Return protocol processor software revision	BK,R		Server
Return native protocol software title	BK,t		Server
Return status bit flags	BK,F		Server
Clear status bit flags	BK,f		Server
Force next QD command to return status of all destinations	BK,D		Server
Clear flags associated with QA,no_parameter command	BK,A		Server
Set/query refresh interval in seconds	BK,I		Server
Set/query level 4 echo status	BK,E		Server
Null command (implemented in Level 2)	BK,2		Server
Request protect	PR,dest_name,level_bitmap	Protects a specific destination from having its source changed	Server
Query combined destination status	QC[,dest_name]	Returns source status on combined levels of a destination	Server
Query destination status	QD[,dest_name] Qd[,dest_name]	Checks sources assigned to destinations by destination name	Server

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Table 6-8 GVG SMS-7000 Native Commands Supported *(Continued)*

Command	Syntax	Description	Client/Server
Query error definition	QE,error_code	Retrieves text describing a particular error code	Server
Query destination status by index (response type 1)	QI,destIndex,lvlIndex Qi,destIndex,lvlIndex	Checks sources assigned to destinations by specific Destination and Level Index	Server
Query destination status by index (response type 2)	QJ[,destIndex] Qj[,destIndex]	Checks sources assigned to destinations by Destination Index for all levels	Server
Query destination status with tieline info	QL[,dest_name] Ql[,dest_name]	Checks sources assigned to destinations by destination name; includes tie line information	Server
Query Names			Server
Query source names	QN,S	Checks names associated with sources	Server
Query destination names	QN,D	Checks names associated with destinations	Server
Query level names	QN,L	Checks names associated with levels	Server
Query salvo names	QN,V	Checks names associated with salvos	Server
Query sources with source index	QN,IS	Checks names associated with sources via the Source Index	Server
Query destinations with destination index	QN,ID	Checks names associated with destinations via the Destinations Index	Server
Query date and time	QT	Checks system date and time information	Server
Query salvo status	QV,salvo_name	Checks sources, destinations, and levels associated with a specified Salvo (timed salvo information is not available).	Server
Request set date and time	ST,yyymmddhhmmss		Server
Request Take	TA,dest_name,nbr_sources,src_name_entry1[,...src_name_entryn]	Takes Sources (on specified levels) to specified destination, by name rather than index	Server
Request Take destination	TD,dest_name,src_name_entry	Takes same source to all or specified levels	Server

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Table 6-8 GVG SMS-7000 Native Commands Supported *(Continued)*

Command	Syntax	Description	Client/Server
Request Take by index with level index (indexes are zero based)	TI,destIndex,srcIndex[,levelIndex]	Takes source (on specified level) to specified destination by index rather than name	Server
Request Take index with level bitmap	TJ,destIndex,nbr_sources,srcIndex,level_bitmap[,...,srcIndex,level_bitmap]	Takes sources (on specified levels) to specified destination by index rather than name; allows breakaways	Server
Request Take salvo	TS,salvo_name	Executes a specified salvo	Server
Request unprotect	UP,dest_name,level_bitmap	Removes Protect from specified destination	Server

Unsupported Commands

These commands are not supported, but do return a Level 4 Error code 5, "Not Implemented":

Table 6-9 GVG SMS-7000 Native Commands Not Supported

Command	Syntax
Machine Assign	AS,dest_name,src_name
Background Activities	
Return smsApp software title	BK,T
Return port configuration parameters fixed by GUI	BK,P
Request Chop	CH,dest_name,nbr_sources,src_name_entry1,[...,src_name_entryn]
Request Clear Destination Tielines	CT,dest_name
Machine De-Assign	DA,dest_name,src_name
Query Machine Assignment Status	QA[,dest_name]
Query Names	QN,R QN,T QN,M QN,Y
Request Take Monitor Destination	TM,dest_name

Using Jupiter Protocol

DIP Switch Settings

If you are using a protocol other than Harris terminal protocol, the SW3 pole 6 DIP switch on your Edge must be set to ON.

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Supported Commands

Jupiter ASCII Commands

Table 6-10 identifies the Jupiter ASCII commands available through Edge. Please refer to the appropriate Jupiter manual for a detailed explanation of these protocols.

Table 6-10 Jupiter ASCII Commands

Command	Description	Function
ZA	Acknowledge	Used to see if the ASCII interface exists and is running; a response of ZA is returned whenever a ZA is received
ZJOOO	Report Lock Status	Returns a code based on which kind of system control device or interface locked or protected the specified output; if the output is not locked or protected, no response will be sent
ZN	Command Rejected (NAK)	Issued when a condition occurs where the current command cannot be executed A ZN response can be issued for several reasons such as an invalid command, an invalid command format, or an invalid input, output or level. Invalid inputs, outputs and levels are logged to the system logger. Also if the system is busy a ZN will be issued followed by XOFF. When it is again ready for the next command a XON will be issued. Note that after the XON, response(s) from the prior command may be issued (for example, ZR response[s]).
ZPOOO	Lock Output	Locks the specified output from being changed by any system control device
ZROOO	Status Request	Requests current switcher status for a single output Response is in the format: ZROOOIIILLLLLLL; if the status for the output is "split," multiple responses will be returned
ZSOOOIIILLLLLLL	Switch Request	Causes the interface to issue a Take switch request to the routing switcher control system and affects a single routing switcher output; if no levels are specified, then all defined levels are assumed. ***Note:*** *Passwords are not honored by automation protocol handling. A remote computer can send a command with multiple Switch Requests (older releases do not have this capability). A single command can be up to 180 characters long which allows switching of from 12-22 outputs (depending on the specified levels).*
ZUOOO	Unlock Output	Removes the lock or protect from the specified system output; if another system control device or interface locked or protected this output, this command will fail
ZVOOO	Protect Output	Protects the specified output from being changed by any other system control device

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Table 6-10 Jupiter ASCII Commands *(Continued)*

Command	Description	Function
ZWOOO	Watch Output	Causes the interface to watch the specified output for any changes and report such changes A request to watch output "999" is a request to watch all defined outputs in that port's serial output set. All responses are in the "ZR" format described above. When issued, this command also may result in an immediate ZR response for the requested output(s). No ZR response(s) will be returned if the requested output(s) do not have any inputs assigned to them.
ZY	Command Accepted (ACK)	Returns after the serial port has successfully parsed the command and, in the case of a switch command, has successfully issued the TAKE to the system and received a switch response back from the system. ***Note:*** *This does not mean that the command was successfully executed. The remote computer should not issue a new command until receiving a ZY or ZN from the current command. The amount of time for the response will vary depending on system complexity and current system activity. Also the number of switches involved in the command will affect the amount of time it takes to receive the ZY response. Multiple switches sent in one command may result in ZR response(s) being returned before the ZY response.*
ZZ	Reset	Forces the ASCII controller to reset, which causes the interface to cancel all previous ZP, ZV, and ZW commands A ZX response is returned to the external computer upon command completion. This ZX is also returned whenever the interface is manually reset.

Jupiter ESswitch Commands

Table 6-11 and **Table 6-12** identify the Jupiter ESswitch commands available through Edge. Please refer to the *Jupiter Facility Control System ESswitch Serial Routing Switcher Control Protocol Guide* for a detailed explanation of these protocols.

Table 6-11 Jupiter ESswitch Message Keywords

Hex	Message Keyword	Function	Mnemonic
22	READ	Directs the virtual machine to transmit the instantaneous content of the specified information field	READ
23	I/F ITEM RESPONSE	Response to READ, UPDATE, or CYCLE commands	IFRE
4B	CLEAR CROSSPNT EXCLUSION	Causes connection of the crosspoint between a specified source (row or input) and specified destination (column or output) in the specified level of the specified matrix to be allowed; previously connected crosspoints are not affected	CCEX
42	CONNECT CROSSPOINT	Causes the crosspoint between a specified source (row or input) and a specified destination (column or output) in the specified level of a specified matrix to be connected	CONC

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Table 6-11 Jupiter ESswitch Message Keywords *(Continued)*

Hex	Message Keyword	Function	Mnemonic
7E	CONNECT W/AUDIO MODE	Causes the crosspoint between a specified source (row or input) and a specified destination (column or output) of the specified left and right audio levels of the specified left and right audio matrices to be connected with the specified audio mode	CWAM
44	LOCK CROSSPOINT	Causes a previously connected crosspoint between a specified destination (column or output) and its existing source (row or input) in the specified level of the specified matrix to be locked in its current state	LCKC
60	PRESET	Presets the named information field to a given value	PRST
4A	SET CROSSPOINT EXCLUSION	Causes connection of the crosspoint between a specified source (row or input) and specified destination (column or output) in the specified level of a specified matrix to be disallowed; previously connected crosspoints that become excluded are not affected	SCEX
46	SPECIFIC MUTE	Directs the controlled virtual machine to switch off all responses previously initiated by a CYCLE or UPDATE command for the specified information field	SPMT
40	START-UP RESPONSE	Indicates that the controlled device has been powered up	STUR
45	UNLOCK CROSSPOINT	Causes the crosspoint between the specified destination (column or output) and its existing source (row or input) in the specified level of the specified matrix to be unlocked and available for a change in state	UNLC

Table 6-12 Jupiter ESswitch Information Fields

Hex	Information Field Name	Function	Mnemonic
40	COMMAND ERROR STATUS	Tallies faults in the system and their reasons detected by internal diagnostics (as applicable); contains the returned status of failed switches	CEST
48	CROSSPOINT STATUS	Gives a list of the unconfirmed crosspoints corresponding to a specified destination (column) in a specified level of a specified matrix	CSTA
4F	DESTINATION NAME	Contains the name of the specified destination in the specified level of a specified matrix	DNAM
44	DESTINATION POINTER	Defines a pointer to a destination (column or output) in the level (specified in the LEVEL POINTER information field) of the matrix (specified in the MATRIX POINTER information field)	DPOI

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Table 6-12 Jupiter ESswitch Information Fields *(Continued)*

Hex	Information Field Name	Function	Mnemonic
53	EXCLUSION SOURCE-TO-DEST	Indicates all sources (rows or inputs) in a specified level of a specified matrix that cannot be connected to a specified destination (column or output)	EXSD
4A	LEVEL CONFIGURATION	Describes the start-up configuration in the specified level of the specified matrix by first defining the rectangular limits of the level and then detailing crosspoint blocks (typically card-related) that do not exist	LECO
42	LEVEL POINTER	Defines a pointer to a level of the matrix specified in the MATRIX POINTER information field	LPOI
50	LOCKED SOURCE-TO-DEST	Indicates all sources (rows or inputs) in a specific level of a specific matrix whose crosspoint to a destination (column or output) is locked	LSTD
41	MATRIX POINTER	Defines a pointer to a matrix	MPOI
4E	SOURCE NAME	Contains the name of the specified source in the specified level of a specified matrix	SNAM
43	SOURCE POINTER	Defines a pointer to a source (row or input) in the level (specified in the LEVEL POINTER information field) of the matrix (specified in the MATRIX POINTER information field)	SPOI
47	SOURCES-TO-DEST	Indicates all sources (rows or inputs) in a specified level of a specified matrix that are currently connected to a specified destination (column or output)	STOD

Using NVISION Protocol

DIP Switch Settings

If you are using a protocol other than Harris terminal protocol, the SW3 pole 6 DIP switch on your Edge must be set to ON.

Supported Commands



Note: *NP0020 commands are not supported.*

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Table 6-13 through Table 6-16 identify the NVISION commands available through Edge. Please refer to the appropriate NVISION manual for a detailed explanation of these protocols.

Table 6-13 NP0010 Command Codes

Hex Designator	Command Protocol/Comments
0x10	Manufacturer and product ID
0x11	Software version
0x50	Take (without time stamp)
0x51	Destination status
0x55	Lock destination
0x56	Protect destination
0x58	Release destination
0x59	Level configuration
0x5D	Tally request
0x5E	Salvo
0x68	Expanded tally
0x80	Error response

Table 6-14 NP0016 Command Codes

Hex Designator	Command Protocol/Comments
0x0000 0050	Take
0x0000 0051	Set output lock, protect, release
0x0000 0052	Get status of output
0x0000 0059	Router partition information
0x0000 005E	Salvo (tally)

Table 6-15 NP0017 Command Codes

Hex Designator	Command Protocol/Comments
0x0000 3001	Take input port to output port
0x0000 3003	Lock/protect/release port
0x0000 3005	Register for changes for port
0x0000 3007	Get physical crosspoint status
0x0000 3009	Get physical LPR (lock/protect/release) status
0x0000 300C	Physical output changed
0x0000 3012	Get mnemonics
0x0000 3013	Find mnemonics
0x0000 3014	Get physical level dimensions

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Table 6-16 NP0025 Command Codes

Hex Designator	Command Protocol/Comments
0x22	Get NV9000 mnemonic

Using PESA Protocol

DIP Switch Settings

If you are using a protocol other than Harris terminal protocol, the SW3 pole 6 DIP switch on your Edge must be set to ON.

Supported Commands

Table 6-17 and Table 6-18 identify the PESA commands available through Edge. Please refer to the appropriate PESA manual for a detailed explanation of these protocols.

Table 6-17 PESA P1 Commands

ASCII	Command Protocol	Description
B	**B SLV CS @**	Display Salvo
C	**C SLV S DST L1 L2 L3 L4 CS @**	Change Salvo
D	**D SLV S DST CS @**	Delete Salvo
F	**F SLV CS @**	De-allocate Salvo Group.
H	**H DST L1 L2 L3 L4 CS @**	Change Switcher (Take)
J	**J CS @**	Switcher Status (no error info)
L	**L S DST CS @**	Change (Toggle) Lock Status
P	**P S DST CS @**	Change Protect Status
R	**R CS @**	Restore All Call
T	**T L1 L2 L3 L4 CS @**	All Call
W	**W S CS @**	Display Lock/Protect Status
Y	**Y DST CS @**	Switcher Status (one destination with error info)
Z	**Z CS @**	Switcher Status (entire matrix with error info)

Table 6-18 PESA P1 <--> X-Y Pass-Through Correlation

X-Y Pass-Through Command	PESA P1 Command	Explanation/Comments
B:C **B:R** **V?** **V:**	Not supported	Preset status, preset status request and preset buffer clear and reset are not supported in RCP-1
E:	Not supported	Parameter Assignment/Matrix Take
E?	Not supported	Parameter Query/Matrix Status request

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Table 6-18 PESA P1 <--> X-Y Pass-Through Correlation *(Continued)*

X-Y Pass-Through Command	PESA P1 Command	Explanation/Comments
F?	Not supported	Frame size request
G?	Not supported	Name Query
I? **I!** **I?T**	Not supported	Device discovery and reporting
I? **V**	Not supported	Device version
K:	Not supported	Device name assignment
K?	Not supported	Device name request
P: **B:E**	H	Preset and Preset execute are not supported in P1; therefore a Take command will be issued to do both jobs at the same time
Q?	Not supported	Alarm Status request/ Matrix status request
U? **U:**	Not supported	Crosspoint restriction status/Query
W? **W:** **W!**	L, P, W	Lock/Protect a destination Unlock/Unprotect a destination
X:	H	Crosspoint take request/Matrix take
X? **S?**	J, Y, Z	Crosspoint or level status request/Matrix request

Using Pro-Bel Protocol

DIP Switch Settings

If you are using a protocol other than Harris terminal protocol, the SW3 pole 6 DIP switch on your Edge must be set to ON.

Supported Commands

Table 6-19 and **Table 6-20** identify the Pro-Bel commands available through Edge. Please refer to the appropriate Pro-Bel manual for a detailed explanation of these protocols.

Table 6-19 Pro-Bel General Switcher Communication Protocol (SW-P-02) Command Codes

Decimal	Command Protocol/Comments
01	Interrogate message
02	Connect message
03	Tally message
04	Connected message
05	Connect On Go message

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Table 6-19 Pro-Bel General Switcher Communication Protocol (SW-P-02) Command Codes

06	Go message
12	Connect On Go Acknowledge message
13	Go Done Acknowledge message

Table 6-20 Pro-Bel General Remote Control Protocol (SW-P-08) Command Codes

Decimal	Command Protocol/Comments
1	Crosspoint Interrogate message
2	Crosspoint Connect message
3	Crosspoint Tally message
4	Crosspoint Connected message
21	Crosspoint Tally Dump Request message
22	Crosspoint Tally Dump (BYTE) message
23	Crosspoint Tally Dump (WORD) message

Using Utah Scientific RCP-1/Utah-12 Protocol

DIP Switch Settings

If you are using a protocol other than Harris terminal protocol, the SW3 pole 6 DIP switch on your Edge must be set to ON.

Supported Commands

Table 6-21 provides a brief listing of the Utah Scientific RCP-1/Utah-12 commands available through Edge. **Table 6-22** on page 71 lists correlations between the Utah commands and X-Y commands. Please refer to the Utah Scientific *Routing Switcher Controls Protocol* manual for a detailed explanation of the RCP-1/Utah-12 native protocol.

Table 6-21 Utah Scientific RCP-1/Utah-12 Command Codes

ASCII	HEX	Command Protocol/Comments
SOH	01	Matrix Take command SOH <Lev 1-4> <Lev 5-8> <Matrix input> <Matrix output>|<Checksum> | or |CR|
SOH <@><@> (Utah-12)	01	Matrix Status Request (Same as Matrix Take command where both level bytes are "@"
ESC @	1B 40	Matrix refresh report enable Reported data = STX <Lev 1-4><Lev 5-8> <Matrix input> <Matrix output> <Checksum> CR
ESC A	1B 41	Matrix refresh report disable
ESC B	1B 42	Matrix change report enable Reported data = FS <Lev 1-4> <Lev 5-8> <Matrix input> <Matrix output> <Checksum> CR

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Table 6-21 Utah Scientific RCP-1/Utah-12 Command Codes *(Continued)*

ASCII	HEX	Command Protocol/Comments
ESC C	1B 43	Matrix change report disable
ESC D OR ESC Q (Utah-12)	1B 44	Matrix original take report enable Reported data = SOH<Lev 1-4> <Lev 5-8> <Matrix input> <Matrix output><Checksum> CR
ESC E OR ESC R (Utah-12)	1B 45	Matrix original take report disable
ESC L	1B 4C	Matrix Status request Reported data = STX <Lev 1-4> <Lev 5-8> <Matrix input><Matrix output> <Checksum> CR
ESC 0	1B 4F	Current Mode and station name request Reported data = HT <Mode 1> <Mode 2> <Space> <Station name> <P/L status> <Checksum> CR
ESC P	1B 50	Program checksum request Reported data = VT <Space><ROM checksum> <Space> <Checksum> CR
ESC S (Utah-12)	1B 53	Enable XON/XOFF
ESC T (Utah-12)	1B 54	Disable XON/XOFF
ESC V	1B 56	Program version request Reported data = BS <Version><Checksum> CR

Table 6-22 Utah Scientific RCP-1/Utah-12 <—> X-Y Pass-Through Correlation

XY- Pass-Through Command	Utah RCP-1/ Utah-12 Command	Explanation/Comments
I? /I! / I?T	No equivalent	Device discovery & reporting
I?V	ESC V	Device version
E?	ESC L	Parameter Query/Matrix Status request
E:	SOH	Parameter Assignment/Matrix Take
G?	ESC 0	Name Query
Q?	No equivalent	Alarm Status request/ Matrix status request
W? / W: / W!	No equivalent	Lock, Protect / Unlock, Unprotect a destination
F?	No equivalent	Frame size request
P: B:E	SOH	Preset and Preset execute are not supported in RCP-1. Therefore a take command will be issued to do both jobs at the same time.
B:C, B:R, V?, and V:	No equivalent	Preset status, preset status request and preset buffer clear and reset are not supported in RCP-1
X:	SOH	Crosspoint take request/Matrix take

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Table 6-22 Utah Scientific RCP-1/Utah-12 <—> X-Y Pass-Through Correlation *(Continued)*

XY- Pass-Through Command	Utah RCP-1/ Utah-12 Command	Explanation/Comments
X? / S?	ESC L (RCP-1) / SOH <@> <@> (Utah-12)	Crosspoint or level status request/Matrix request
U? / U:	No equivalent	Crosspoint restriction status/Query
K:	No equivalent	Device name assignment
K?	No equivalent	Device name request

Terminal Operations

Two separate serial control ports are used to control Edge from an external computer or automation system. Either serial port may be used to monitor the system configuration, determine the current status of crosspoint connections, change crosspoint connections in any matrix, and setup pre-programmed crosspoint takes sequences, or salvos. These (and other) operations are assigned to the serial ports via a series of commands called "terminal operation" commands. You can find a list of the startup commands available for the Edge on page 77.

Establishing a Terminal Operation Session

The particular settings for your operation are selected via a series of configuration startup commands. You can find a list of the startup commands available on page 77. In addition, the configuration scenarios listed in **Chapter 5, *Protocol Translation Configuration*** cite specific needed terminal commands.

Before you configure your Edge you will need to initiate a terminal operation session. You need to determine which type of setup you will use:

- For a standalone system with serial connections, see ***Establishing a Terminal Operation Session for Serial Control Interface Products*** on page 73.
- For a standalone system with Ethernet connections, see ***Establishing a Telnet Session for Ethernet Control Interface Products*** on page 73.
- For a network system with serial connections see ***Establishing a Terminal Operation Session for Serial Control Interface Products*** on page 73 and ***Network Configuration from Terminal Control Mode*** on page 74.
- For a network system with Ethernet connections see ***Establishing a Telnet Session for Ethernet Control Interface Products*** on page 73 and ***Network Configuration from Terminal Control Mode*** on page 74.

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Establishing a Terminal Operation Session for Serial Control Interface Products

1. Configure a host machine (such as a PC with HyperTerminal installed) for serial port communication at a baud rate of 9600 with these settings: Data on the serial control port is encoded as **8N1**:
   - 8
   - None
   - 1
   - No flow-control
2. Ensure that the Edge DIP switch SW3 is set as follows:
   1 = OFF (down position)
   2 = OFF (down position)
   3 = OFF (down position)
   4 = OFF (down position)
   5 = OFF (down position)
   6 = OFF (down position)
   7 = OFF (down position)
   8 = OFF (down position)
3. Connect a null modem serial cable from a PC serial port to the Edge port labeled SERIAL1.
4. Connect the Edge Ethernet port to the router network.
5. Connect the Edge X-Y to the router network.



CAUTION

Make sure the X-Y network is terminated appropriately.

6. Start up both PC and terminal emulation application.
7. Apply power to the Edge box. The Command Summary screen should appear on the PC screen.

Establishing a Telnet Session for Ethernet Control Interface Products

Follow these steps to establish a Telnet session to the Edge **if the Telnet application is resident on a PC:**

1. Connect an Ethernet crossover cable between the 10Base-T connector on a PC to the 10Base-T connector on the Edge.
2. Change the IP address of your PC to a static IP address compatible with the Edge IP address.



Note: *Invoking Telnet commands requires a valid username and password. The default username is* ***leitch*** *and the default password is* ***leitchadmin****. You should change these defaults to ones that are more meaningful for your organization.*

3. At a DOS prompt, enter the word "telnet" and the IP address of the Edge (for example, **telnet 100.200.50.10**).
4. Press <**Enter**>. The Telnet screen will appear.
5. Enter your login, then press <**Enter**>.
6. Enter your password, then press <**Enter**>.
7. The startup screen and the message "**Type Q for menu**..." will appear.

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8 Type in the letter "**Q**" (it will not appear on the screen), then press <**Enter**>. The Command Summary screen will appear. (See page 76 for an example of the Command Summary screen.)

Once a Telnet session is established, you will have access via the Telnet interface to the commands listed in this section. Also see ***Telnet Interface*** on page 75 for more information.

Network Configuration from Terminal Control Mode

The Edge is ready to process user commands whenever you see the prompt ">." All user-entered commands should be followed by a carriage return. The Edge comes preconfigured with a network MAC address. However, you must configure the IP, GATEWAY, and NETMASK parameters to have basic network control of the Edge.

The following are network configuration commands (commands are in bold). Please use your proper network settings accordingly. The network parameters in these examples are fictitious and should not be used. If you are not sure of the proper network addresses to use, consult your Network System Administrator. From the terminal program, issue these commands when a ">" (prompt) is seen below the Command Summary window:

```
>SET IP1=192.168.127.33
>
>SET GATEWAY1=192.168.127.1
>
>SET NETMASK1=255.255.255.128
>
>SAVE SYSCONFIG
Saving SysConfig.xml
Save complete.


>
```

You may review the network settings with the following terminal commands:

```
>show ipdisplay
```



Note: *"Active" settings are the ones that the Edge currently uses. "Stored" settings are the ones that will be used the next time the Edge is started up. The numbers will be different if the IP address is changed.*

```
Active:
    Ip Address: 192.168.127.33
    Gateway Address: 192.168.127.1
    Netmask Address: 255.255.255.128
    Mac address 00-90-F9-00-22-F3
Stored:
    Ip Address: 192.168.127.33
    Gateway Address: 192.168.127.1
    Netmask Address: 255.255.255.128
    Mac address 00-90-F9-00-22-F3
    >
```

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This completes network configuration of Edge. For IP changes to take effect, the Edge should be restarted. Type the REBOOT command at the terminal prompt:

```
>REBOOT
```

Telnet Interface

Telnet Configuration

The Telnet interface allows remote connection to the router from a standard Telnet client program (such as those provided with the Windows operating system) over IP port 23. To log into the Telnet interface, a user account and password is required (please refer to the **Table 6-28** on page 84 for appropriate user management commands).

The Telnet commands listed in **Table 6-24** on page 79 provide control of Edge Telnet interface (accessed by typing SHOW TELNET at the command prompt).The commands appropriate to this configuration are

- SET TMAXCONNECTIONS
- SET TDISCONNECTUSER
- SHOW TCONNECTIONS
- SAVE SYSCONFIG

User Management

User accounts are required to be created for access to the router via the Telnet or FTP interfaces exposed by the router.

Appropriate user management commands are listed in **Table 6-28** on page 84.

Virtual (Network) X-Y Configuration

The virtual X-Y interface allows remote connection to a router from Harris Ethernet-enabled router control hardware and software packages such as the RCP-ABA-E, RouterWorks, Pilot 3.0 or higher, and Navigator 2.0 or higher. To connect to the virtual X-Y interface, the router should be configured as a virtual X-Y server and the router control device as a client (to configure the product to connect to Edge as a client, see ***Setting Up the GVG Ethernet Client Configuration (Harris Controls GVG)*** on page 32).

To configure the Edge's virtual X-Y server, enable the Harris VXY Server protocol on the hardware's Ethernet port (see ***Configuring for Use with Ethernet Protocols*** on page 31). Once the protocol server has been installed on the Ethernet port, it may be configured.

To enable the virtual X-Y server on the Edge's Ethernet port, use the following commands:

```
>set ENET1 PROTOCOL2=ON
```

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(Changes must be saved and the frame reset to take effect.)

```
>save sysconfig
Saving SysConfig.xml
Save complete.
>reboot
```

To configure operational parameters of the server, use the virtual X-Y commands listed in **Table 6-24** on page 79 (accessed by typing SHOW VIRTUALXY at the command prompt). The commands appropriate to this configuration are

- SET VXYMAXCONNECTIONS
- SET VXYDISCONNECTUSER
- SHOW VXYCONNECTIONS

Terminal Commands

Some commands referenced in this section are explained in the *Serial Protocol Reference Operation and Reference Manual*. This manual provides a detailed discussion of each command and outlines how each product router uses these commands. (These commands are not case-sensitive; that is, when you enter the desired command you may use all lower-case, all upper-case, or a mix of lower and upper-case characters.) It also includes a list of error messages and their corresponding definitions.

Basic Terminal Protocol Menu Screen

The Command Summary screen (**Figure 6-46**) should be seen on the terminal emulation application. The Command Summary screen provides the basic command line entry syntax for the commands available for Edge.

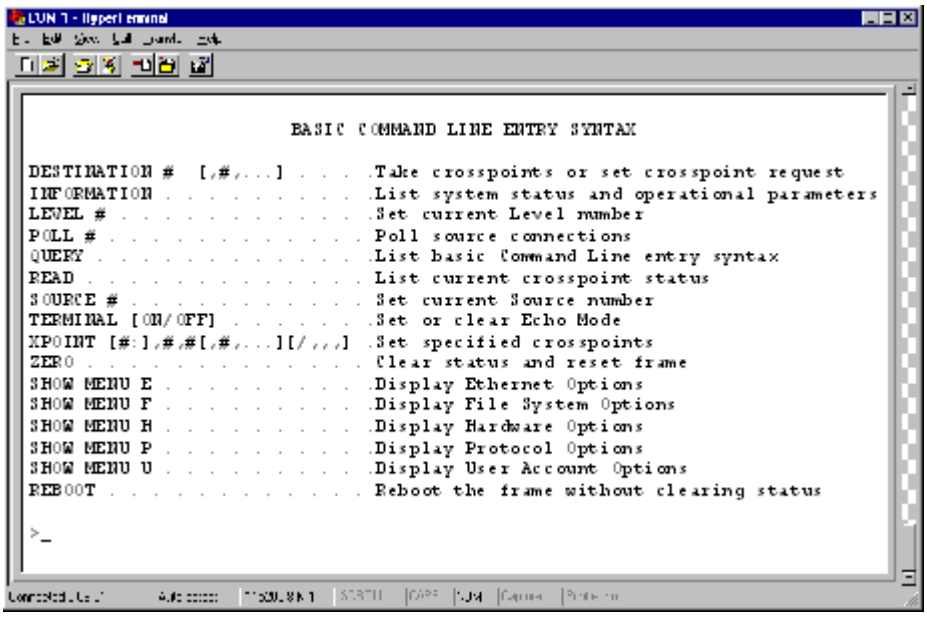


Figure 6-46 Command Summary Screen

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List of Terminal Commands

The commands listed in **Table 6-23** are in order corresponding to their appearance on the Command Summary screen (**Figure 6-46** on page 76). Each command is defined, its syntax is illustrated, its parameters are listed, and its response is provided. More detailed explanations of these commands can be found in the *Serial Protocol Reference Manual*. You can download a copy of this manual from our website.

Table 6-23 Terminal Commands from Terminal Protocol Menu Screen

Command	Syntax	Input Parameters	Result
DESTINATION	DESTINATION #[,#,...] or D #	#=Destination number	Completes crosspoint operations after the level number and the source number have been set
INFORMATION	INFORMATION or I	None	Provides information on the overall system as seen from the connection to the X-Y bus
LEVEL	LEVEL # or L #	#=Level number	Sets the level number for a router that is connected to an active system
POLL	POLL # or P #	#=Source number to be searched; may be any number 1 to 12	Determines which destinations are connected to a specific source number
QUERY	QUERY or Q	None	Provides a list that includes a basic command syntax and brief description of each command
READ	READ or R	None	Lists all crosspoints within a frame in order by level numbers, then by destination numbers that show which source is assigned to each of the destinations on that level Each crosspoint connection is represented by a numeric pair separated by a semicolon and a space: the first number is the destination number; the second number is the source number that is connected to that destination
SHOW MENU	SHOW MENU E	**E** = Ethernet command options	Displays subcommands for Ethernet command options (see page 79 for a list of subcommands)

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Table 6-23 Terminal Commands from Terminal Protocol Menu Screen *(Continued)*

Command	Syntax	Input Parameters	Result
	SHOW MENU F	**F** = File system command options	Displays subcommands for file system command options (see page 82 for a list of subcommands)
	SHOW MENU H	**H** = Hardware options command options	Displays subcommands for hardware options (see page 82 for a list of subcommands)
	SHOW MENU P	**P** = Protocol configuration command options	Displays subcommands for the protocol configuration command options (see page 83 for a list of subcommands)
	SHOW MENU U	**U =** User account command options	Displays subcommands for user account options command options (see page 84 for a list of subcommands)
SOURCE	SOURCE # or S #	**#** = Source number.; can range from 1 to the maximum number of sources on that level, or "**X**" for disconnect	Sets the desired source number
TERMINAL	TERMINAL [ON|OFF] or T[/F]	**ON** = Turns on Echo mode **OFF** = Turns off Echo mode	■ When ECHO mode is ON, all the characters sent are "echoed" to the terminal ■ When ECHO mode is OFF, messages sent are not "echoed" to the terminal
XPOINT (combines operations of the LEVEL, SOURCE, and DESTINATION commands into one command; and allows multiple crosspoint connection requests in one command)	XPOINT [#:]#,#[,#,...][/...] or X [#:]#,#[,#,...][/...]	**[#L:]=** Level number **[#S] =** Source number **[,#D,#D,...]** = Destination number	The crosspoint is executed (you can u**se a READ** command to confirm the crosspoint connection)
ZERO	ZERO or Z	None	The device is restarted and status is cleared
REBOOT	REBOOT	None	The device is restored, but the status is not cleared

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SHOW MENU [#] Subcommands

The SHOW MENU [#] command lists submenus of commands specific to that particular parameter you enter. The SHOW MENU subcommands are listed starting in **Table 6-24** through **Table 6-28** on page 84. Each command is defined, its syntax is illustrated, its parameters are listed, and its response is provided.

Table 6-24 Menu E (Ethernet) Subcommands

Command	Syntax	Input Parameters	Result
SET IP	SET IPx=#.#.#.#	**x** = Ethernet port number **#.#.#.# =** IP address (factory default setting is 192.168.100.250)	Sets the router IP address for a network connector; this value is stored permanently once set and does not have to be entered each time at power-up Reboot the router device for IP related changes to take effect
SET GATEWAY	SET GATEWAYx=#.#.#.#	**x** = Ethernet port number **#.#.#.#** = Gateway IP address (factory default setting is 192.168.100.1)	Sets the network gateway IP address; this value is stored permanently once set and does not have to be entered each time at power-up Reboot the router device for IP related changes to take effect
SET NETMASK	SET NETMASKx=#.#.#.#	**x** = Ethernet port number **#.#.#.#** = System IP address	Assigns IP address to a subnet mask
SHOW IPDISPLAY	SHOW IPDISPLAY	None	Device will display active and stored network IP address, subnet mask, and gateway address
SET BOOTDEFAULTS 	SET BOOTDEFAULTS	None	Resets the IP address, subnet mask, and network gateway address to the factory defaults; settings take effect after you reboot the device



The SET BOOTDEFAULTS command will completely overwrite all system parameters and will require you to reset all parameters in your system before it will operate. Improper use of this command may result in permanent damage to your router. Do not use this command without first contacting Customer Service. If you have inadvertently used this command, contact Customer Service immediately.

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Table 6-24 Menu E (Ethernet) Subcommands *(Continued)*

Command	Syntax	Input Parameters	Result
SET PING	SET PING #.#.#.#.	**#.#.#.#.** = IP address of another device or computer	If the device or computer is accessible, CLIENT #.#.#.#. IS ALIVE message will appear If the device or computer is not accessible, HOST UNREACHABLE message will appear
SHOW TELNET	SHOW TELNET	None	Displays these Telnet options available on your device: SET TMAXCONNECTIONS SET TDCONNECTUSER SHOW TCONNECTIONS
SET TMAXCONNECTIONS*	SET TMAXCONNECTIONS=#	**# =** Number of allowable concurrent Telnet sessions	Restricts the maximum number of concurrent Telnet sessions to a specific number (the maximum number of sessions cannot exceed 12)
SET TDISCONNECTUSER	SET TDISCONNECTUSER=#	**# =** Session number	Terminates the Telnet connection to your device (SHOW TCONNECTIONS command will display the number of sessions)
SHOW TCONNECTIONS	SHOW TCONNECTIONS	None	Displays Telnet system information (that is, who is connected and the number of total connections)
SHOW VIRTUALXY	SHOW VIRTUALXY	None	Displays these virtual (network) X-Y options available on your device: SET VXYMAXCONNECTIONS SET VXYDISCONNECTUSER SHOW VXYCONNECTIONS

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Table 6-24 Menu E (Ethernet) Subcommands *(Continued)*

Command	Syntax	Input Parameters	Result
SET VXYMAXCONNECTIONS*	SET VXYMAXCONNECTIONS=#	**# =** Number of allowable concurrent virtual X-Y sessions	Restricts the maximum number of concurrent virtual X-Y sessions to a specific number (the maximum number of sessions cannot exceed 12) When setting this value, note that one connection is always required by the system, so this value should be set to one number greater than your desired maximum number of client connections; for example, if you need two simultaneous client connections, =# should be set to 3 to allow for the required "system" connection.
SET VXYDISCONNECTUSER	SET VXYDISCONNECTUSER=#	**# =** Session number	Terminates a virtual X-Y connection to a device; SHOW VXYCONNECTIONS will display the number of sessions
SHOW VXYCONNECTIONS	SHOW VXYCONNECTIONS	None	Displays virtual X-Y system information (that is, who is connected and the number of total connections)
SAVE SYSCONFIG	SAVE SYSCONFIG	None	Saves device's operating system parameters
REBOOT	REBOOT	None	The device is restored, but the status is not cleared

* When you use this command the system will change the number of sessions allowed but it will not save change permanently
Use the SAVE SYSCONFIG command to commit the change to system memory.
Use the REBOOT command to continue with the previous configuration.

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Table 6-25 Menu F (File System) Subcommands

Command	Syntax	Input Parameters	Result
SET FILEDEL	SET FILEDEL=Name	Name = Name of file to be deleted	Specified file deleted; the message FILE (file name) DELETED will appear on the response screen
GET BOOTFILE	GET BOOTFILE=Name	Name = Name of the boot file	Displays name of the boot file that was loaded when the device booted up
SET BOOTFILE	SET BOOTFILE=Name	Name = Name of the boot file	System will change the name of the boot file, but will not display the new name unless you enter the GET BOOTFILE command
SHOW FS	SHOW FS	None	Displays all pertinent file system information
SHOW FILES	SHOW FILES	None	Displays a list of associated files

Table 6-26 Menu H (Hardware Options) Subcommands

Command	Syntax	Input Parameters	Result
SHOW ALARMS	SHOW ALARMS	None	Displays alarm status
SAVE HW	SAVE HW	None	Saves the current hardware configuration to file (hw.xml is the default file name; this can be changed via the SET HWFILE command)
SET HWFILE	SET HWFILE=Filename	Filename = Any name you designate as the hardware configuration file name	Sets the file name for the XML file used to store hardware parameters
GET HWFILE	GET HWFILE	None	Displays the file name of the current XML file used to store hardware parameters
SAVE SYSCONFIG*	SAVE SYSCONFIG	None	Saves device's operating system parameters*

* This command saves a device's operating system parameters, including configuration file names, to the sysconfig.xml file. Saved system parameters are used during the re-initialization of your device to allow you to reuse custom configurations.

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Table 6-27 Menu P (Protocol Configuration) Subcommands
If you use a protocol other than Harris terminal protocol, the Edge SW3 pole 6 DIP switch must be set to ON

Command	Syntax	Input Parameters	Result
SHOW PORTS	SHOW PORTS	None	Displays a port/protocol configuration summary table that shows which protocols are attached to particular serial or IP communications ports
SHOW PROTOCOLS	SHOW PROTOCOLS	None	Displays a list of available protocols (not all protocols are applicable to both serial and Ethernet ports)
SET SERIAL	SET SERIALx opts	x = Serial port for which you want to set protocol and options opts = Options (protocol, serial baud rate, serial communications mode, [RS-422 only] transmission line termination)	Sets designated serial port to use designated protocol with designated options
GET SERIAL	GET SERIALx	x = Serial port for which you want protocol information	Displays protocol information for designated serial port
SET ENET	SET ENETx opts	x = Ethernet port for which you want to set protocol and options opts = Options (protocol [ON|OFF]; other options vary by protocol) GVG client must know IP address of primary and secondary servers that it is to connect	Adds or removes a protocol on designated Ethernet port; sets designated Ethernet port to use designated protocol with designated options
GET ENET	GET ENETx	**x = Ethernet port for which you want protocol information**	Displays protocol information for designated Ethernet port
SET IP	SET IPx=#.#.#.#	**x =** Ethernet port number #.#.#.#=System IP address (for example, 192.168.1.1)	Sets the router IP address for a network connector
SET GATEWAY	SET GATEWAYx=#.#.#.#	**x =** Ethernet port number #.#.#.#=System IP address (for example, 192.168.1.10)	Sets the network gateway IP address
SET NETMASK	SET NETMASKx=#.#.#.#	**x =** Ethernet port number #.#.#.#=System IP address (for example, 255.255.255.128)	Assigns the IP address to a subnet mask

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Table 6-27 Menu P (Protocol Configuration) Subcommands *(Continued)*
If you use a protocol other than Harris terminal protocol, the Edge SW3 pole 6 DIP switch must be set to ON

Command	**Syntax**	**Input Parameters**	**Result**
SAVE SYSCONFIG*	SAVE SYSCONFIG	None	Saves system file names and configuration information*

* This command saves a device's operating system parameters, including configuration file names, to the sysconfig.xml file. Saved system parameters are used during the re-initialization of your device to allow you to reuse custom configurations

Table 6-28 Menu U (User Account) Subcommands
The user account information is specific to each Edge box. If you have more than one Edge box at your facility, you will need to set up the user account information for each box.

Command	Syntax	Input Parameters	**Result**
SHOW USERS	SHOW USERS	None	Shows a list of authorized users, associated groups, and login status via the User Account Summary Table
SAVE USER	SAVE USER=abc,#,abc	abc = Name of user who will be added to Edge compact flash module database # = Group to which the specified user will be added abc = Password for the specified user	■ System will ask for ADMIN password ■ System will ask for new password for specified user ■ System will ask for password confirmation ■ User is added to flash module database

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Table 6-28 Menu U (User Account) Subcommands *(Continued)*
The user account information is specific to each Edge box. If you have more than one Edge box at your facility, you will need to set up the user account information for each box.

Command	Syntax	Input Parameters	**Result**
SET DELETEUSER	SET DELETEUSER=abc	abc = Name of user who will be deleted from Edge compact flash module database	■ System will ask for ADMIN password ■ System will ask for verification that the user should be deleted ■ User is deleted from flash module database
SET PASSWORD	SET PASSWORD =abc,abc	abc = Name of user who needs password to access Edge functions changed to a new password abc = Password for specified user	■ System will ask for ADMIN password ■ System will ask for *existing* password for specified user ■ System will ask for *new* password for specified user ■ System will ask for *new* password confirmation ■ Specified password for user is changed on flash module database
SET USERGROUP	**SET USERGROUP USER=abc,#**	abc = Name of user who will be assigned to a specific group **# = Group number**	■ System will ask for ADMIN password ■ User is added to a specific group User group is required, but not used by Edge

GVG SMS-7000 Native Protocol Commands

Table 6-8 on page 60 and **Table 6-9** on page 62 provide brief listings of the GVG SMS-7000 native protocol commands available through the Edge. Please refer to the *Grass Valley Routing Products Protocols Manual* for a detailed explanation of the Series 7000 native protocol.

Jupiter ASCII and ES Switch Protocol Commands

Table 6-10 on page 63, **Table 6-11** on page 64, and **Table 6-12** on page 65 provide brief listings of the Jupiter ASCII and ESswitch protocol commands available through the Edge. Please refer to the pertinent Jupiter manual for detailed explanations of the ASCII and ESswitch protocols.

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NVISION Protocol Commands

Table 6-13 on page 67 and **Table 6-14** on page 67 provide brief listings of the NVISION protocol commands available through the Edge. Please refer to the pertinent NVISION manual for detailed explanations of the NVISION protocols.

PESA Protocol Commands

Table 6-17 on page 68 and **Table 6-18** on page 68 provide brief listings of the PESA protocol commands available through the Edge. Please refer to the pertinent PESA manual for detailed explanations of the PESA protocols.

Pro-Bel Protocol Commands

Table 6-19 on page 69 and **Table 6-20** on page 70 provide brief listings of the Pro-Bel protocol commands available through the Edge. Please refer to the pertinent Pro-Bel manual for detailed explanations of the Pro-Bel protocols.

Utah RCP-1/Utah-12 Protocol Commands

Table 6-21 on page 70 and **Table 6-22** on page 71 provide brief listings of the Utah RCP-1 protocol commands available through the Edge. Please refer to the *Utah Scientific Routing Switcher Protocols Manual* for a detailed explanation of the RCP-1/Utah-12 protocols.

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7 Supporting Level, Source, or Destination Names With Edge

Certain routers and router control systems that the Edge hardware supports (for example, GVG SMS-7000 native) use logical level, source, and destination names directly as part of the protocol to formulate router control and status messages. In some cases control panel status displays are derived directly from the names supplied in the control messages.

For example, an application may involve a Harris alphanumeric breakaway control panel interfacing through Edge hardware to a router system that supports names using the SMS-7000 control protocol.

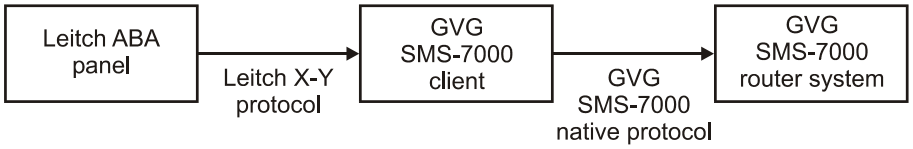


Figure 7-47 Example 1: Harris ABA Panel Interface to GVG SMS-7000 Router System

In this case, the Edge hardware's client side protocol support will obtain the names for levels, sources, and destinations that are stored in the SMS-7000 controller, and translate them to numerical indexes compatible with the Harris X-Y control system. The numerical indexes used on X-Y to control router crosspoints will be the same as assigned by the SMS-7000 controller to the levels, sources, and destinations, respectively. (These numbers do not necessarily correspond to the router's physical inputs and outputs.) As a result, when translating between GVG SMS 7000 native protocol and X-Y protocol, the Source and Destination indexes that appear in the messages will be the same.

Note: *The X-Y protocol is not a name-based protocol; however, it is necessary to configure the Harris ABA panel's names support using Navigator or RouterMapper configuration utility software application. To ensure that the names used by the GVG Series 7000 system and the Harris router control panel are consistent, make sure that the names assigned in the logical database Source and Destination pages are entered in the same order as shown by the Source and Destination (sorted by index) report generated by the GVG Print Config program.*

The most direct way to determine the SMS-7000 system's index order for Sources and Destinations is to use the GVG SMS-7000 based system's Print Config program to generate a report of all Sources and Destinations sorted by index. For details of using the Print Config program to generate this report, please consult the Series 7000 System Configuration manual.

If the Harris control system does not need to display the same names as those used by the devices that use SMS-7000 native protocol, any names may be assigned.

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In another example, an application may involve a third-party control system that supports names using the SMS-7000 control protocol interfacing through Edge hardware to a Harris router system.

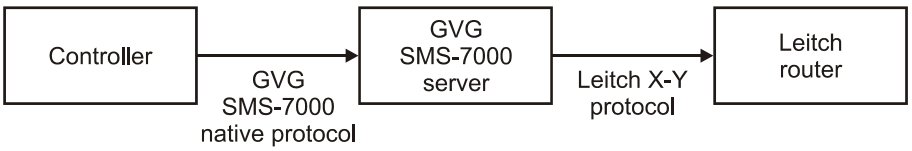


Figure 7-48 Example 2: Third-Party Interface to Harris Router via GVG SMS-7000 Server

In this case, the controller depends on Edge hardware to provide the names of the levels, sources, and destinations in response to queries it issues via the GVG SMS-7000 native protocol. The controller may subsequently use the supplied names in SMS-7000 commands that the Edge hardware supports.

Note: *Currently this situation applies only when using the Edge hardware in SMS-7000 Server mode; that is, when using a controller that employs GVG SMS-7000 native protocol to control a Harris routing system.*

To translate between these protocols and the Harris X-Y protocol (which uses numeric indexes, rather than names, as part of messages) the Edge hardware allows assignment of default or user-defined names.

The default names provided by the Edge hardware for levels, sources, and destinations are shown in **Table 7-29**.

Table 7-29 Level, Source, Destination Default Names

Item	Numeric Index	Default Name
Levels	0	Level 0
	1	Level 1
	• • •	• • •
	7	Level 7
Sources	0	In 1
	1	In 2
	• • •	• • •
	X	In x (x=highest Source number)
Destinations	0	Dest 1
	1	Dest 2
	• • •	• • •
	Y	Dest y (y=highest Destination number)

If no user-defined names are supplied, the default names will be used in the processing of messages for protocols requiring name support. For an explanation of how the names are used in a particular protocol's messages, please refer to the appropriate protocol manual (for example, the SMS-7000 Protocol manual)

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Assigning User-Defined Names

In some configurations (such as using a non-Harris controller that employs a name-based protocol to control a Harris router), or to match the names that the Edge hardware will use to an existing control system, you may want to program the Edge hardware with more descriptive, user-defined names. To ensure desired operation you must create a database that assigns the desired names to the correct levels, sources, and destinations.

Assigning Names That Do Not Need to Match an Existing Harris Control System



Note: *For additional information on creating a Navigator database, please consult* ***Volume 6: Routing Components*** *of the* ***CCS Navigator Advanced Graphical Application User Manual.****For additional information on creating a RouterMapper database, please consult the* ***RouterMapper Configuration Utility Reference Guide.***

In this case, where the names supplied by the Edge hardware do not need to match any existing names (for example., a new installation or system where no alphanumeric control panels are already installed), the procedure is the same as creating a database from scratch for the router system to be controlled. Each level, source, and destination is assigned a name as desired using the appropriate configuration utility software's Level and Logical Database Editing screens. The configured names will be reported in place of the default names, in the order in which they were specified in the database. Please note that some control systems or GUI displays may rearrange the display order of the levels, sources, or destinations to be alphabetical. If this is the case and the reordering results in conflicting sort orders between different control panels in the routing system, a "workaround" is to ensure that all of the database names are entered into the configuration utility software in alphabetical order.

Assigning Names that Correspond to an Existing Harris Control System

In this case, the configuration procedure is the same except that, to ensure consistent operation between the existing control system and the control supplied through the Edge hardware, names are assigned to GVG router Sources and Destinations that are consistent with those previously assigned to Sources and Destinations associated with the existing Harris router system. Typically, this scenario would arise when adding an Edge hardware to an existing Harris router system that already has names assigned to its levels, sources, and destinations (for example, to support existing alphanumeric panels or Navigator™/ RouterWorks® workstations). In this case, a new database is not necessary – the existing database may be used.

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8 Specifications



Note: *Specifications are subject to change without notice.*

Electrical Specifications

Table 8-30 Edge Electrical Specifications

Item	Specification
Input	1RU portable desktop power supply (rear mount AC power supply module available as an option)
Desktop power supply	Universal input 47-63 Hz, 70 W AC: 100-240 VAC DC: –36 to –72 VDC
Output	15 VDC
Total power	70 W
Performance temperature	41° – 104°F (5° – 40°C)
Operating temperature	32° – 122°F (0° – 50°C)

Mechanical Specifications

Table 8-31 Edge Mechanical Specifications

Item	Specification
Size	19 in.×5.25 in.×1.75 in. (48.3 cm×13.3 cm×44 cm)
Weight (fully loaded)	5.0 lb (2.3 kg)
Indicators	Power/alarm LED Data LED

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Input/Output Specifications

Table 8-32 Edge Input/Output Signal Specifications

Item	Specification
RS-232/RS-422 serial communication	DB-9 pin connector
Alarm/comm port	Harris 3-pin connector
X-Y (coaxial communication)	75Ω BNC
Sync	75Ω BNC
Ethernet	RJ-45
Maximum number of Ethernet clients supported	20

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A Safety Precautions, Certifications and Compliances

Carefully observe the safety alert symbols below for dangers, warnings, and cautions. They alert installers and operators of possible dangers or important information contained in this manual.

Keep in mind, though, that warnings alone do not eliminate hazards, nor are they a substitute for safe operating techniques and proper accident prevention measures.

Any user-serviceable components (such as fuses or batteries) are only replaceable by those components listed in the manual.

CAUTION*: IMPORTANT!* Only qualified personnel should perform service procedures.

Safety Terms and Symbols in this Manual



WARNING: Statements identifying conditions or practices that may result in personal injury or loss of life. High voltage is present.



CAUTION: Statements identifying conditions or practices that can result in damage to the equipment or other property.

Safety Terms and Symbols on the Product



DANGER: *High voltage and indicates a personal injury hazard immediately accessible as one reads the marking.*



WARNING: *Indicates a personal injury hazard not immediately accessible as one reads the marking.*



CAUTION: *Indicates a hazard to property, including the product, or to pay attention and refer to the manual.*

Protective ground (earth) terminal.

Fuse. *Replace with same type and rating of fuse.*
Zur Vermeidung von Feuer verwenden Sie nur Sicherungen mit der für dieses Produkt geforderten Typ und Stromstärke.

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Preventing Electrostatic Discharge

Observe precautions for handling electrostatic sensitive devices.

CAUTION: Electrostatic discharge (ESD) can damage components in the product. To prevent ESD, observe these precautions when directed to do so:

1. ***Use a Ground Strap.*** Wear a grounded antistatic wrist strap to discharge the static voltage from your body while installing or removing sensitive components.
2. ***Use a Safe Work Area.*** Do not use any devices capable of generating or holding a static charge in the work area where you install or remove sensitive components. Avoid handling sensitive components in areas that have a floor or benchtop surface capable of generating a static charge.
3. ***Handle Components Carefully.*** Do not slide sensitive components over any surface. Do not touch exposed connector pins. Handle sensitive components as little as possible.
4. ***Transport and Store Carefully.*** Transport and store sensitive components in a static-protected bag or container.

Injury Precautions

WARNING
Potentially lethal voltages are present within the frame during normal operation. The AC power cord must be disconnected from the frame before the top panel is removed. (In frames with multiple power supplies, remove ALL power cords.) Power should not be applied to the frame while the top is open unless properly trained personnel are servicing the unit.
Pull out the plug from the main socket before the removal of a cover.
Przod zdjeciem pokrywy wyciagnac wtyczke z gniazda sieciowego.



WARNING: *SHOCK HAZARD - DO NOT OPEN.*
AVIS: *RISQUE DE CHOC ÉLECTRIQUE - NE PAS OUVRIR.*
MOUNT IN RACK ONLY
I*NSTALLER SUR SUPPORT DE MONTAGE SEULEMENT.*



Use proper power cord



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

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Ground the product

This is a Safety Class 1 product and is grounded through the grounding conductor of the power cord. To avoid electrical shock, the grounding conductor must be connected to earth ground. Before making connections to the product's input or output terminals, ensure the product is properly grounded.
WARNING: *THIS APPLIANCE MUST BE GROUNDED.*
WARNING: *THIS APPLIANCE MUST BE EARTHED.*
VARNING: *APPARATEN SKALL ANSLUTAS TILL JORDAT UTTAG NÄR DEN ANSLUTS TILL ETT NÄTVERK.*

Do Not Operate Without Covers



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

Use Proper Fuse



To avoid fire hazard, use only the fuse type and rating specified for this product.

Do Not Operate in Wet/Damp Conditions



To avoid injury or fire hazard, do not operate this product in wet or damp conditions.

Do Not Operate in an Explosive Atmosphere



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

Avoid Exposed Circuitry



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

Product Damage Precautions



Disconnect power from the frame before removing or installing input/output modules. Removing or installing modules with power applied could cause serious damage to system components.

Use Proper Power Source



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

Use Proper Voltage Settings



Before applying power, ensure that the line selector is in the proper position for the power source being used.

Provide Proper Ventilation



To prevent product overheating, provide proper ventilation.

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Do Not Operate With Suspected Failures



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

CAUTION: **This un**it can have more than one power supply cord. To de-energize the internal circuitry, you have to disconnect all power cords.

ADVARSEL: Utstyret kan ha mere ennn en tilførselsledning. For å gjore interne deler spennigsløse må alle tilførselsledningene trekkes ut.

VARNING: Denna apparat har mer än en nätanslutning. Samtliga nätkablar måste bortkopplas för att göra de interna kretsarna spänningsfria.

FUSE: REPLACE WITH SAME TYPE AND RATING OF FUSE.
CAUTION: REPLACE WITH SAME TYPE FUSE.
ATTENTION: UTILISER UN FUSIBLE DE RECHANGE DE MÊME TYPE.
CAUTION: DISCONNECT SUPPLY CORD BEFORE CHANGING FUSE.
ATTENTION: DÉBRANCHER AVANT DE REMPLACER LE FUSIBLE.
ACHTUNG: VOR AUSWECHSELN DER SICHERUNG IST DAS GERÄT VOM NETZ ZU TRENNEN.

CAUTION



Disconnect power from the frame before removing or installing input/output modules. Removing or installing modules with power applied could cause serious damage to system components.

Use Proper Power Source



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

EMC and Safety Standards

This product has been tested and found to comply with the following IEC, FCC, UL, ICES, and CSA standards, per the provision of the Electromagnetic Compatibility Directive 89/336/EEC of 3 May 1989 as amended by 92/31EEC of 28 April 1992 and 93/68/EEC, Article 5 of 22 July 1993, and the Low Voltage Directive 73/23/EEC of 19 February 1973.

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EMC Standards

Table A-33 EMC Standards

EMC Standard	Description
EN55014	Limits and Methods of Measurement of Radio Disturbance Characteristics of Electric Motor-Operated and Thermal Appliances for Household and Similar Purposes, Electric Tools, and Similar Electric Apparatus
EN55022	Limits and Methods of Measurement of Radio Disturbance Characteristics of Information Technology Equipment-Class A
EN55103-1	Electromagnetic Compatibility — Product Family Standard for Audio, Video, Audio-Visual, and Entertainment Lighting Control Apparatus for Professional Use — Part 1: Emission, Environment E4
EN55103-2	Electromagnetic Compatibility — Product Family Standard for Audio, Video, Audio-Visual, and Entertainment Lighting Control Apparatus for Professional Use — Part 2: Immunity, Environment E4
EN61000-3-2	Limits for Harmonic Current Emissions (Equipment Input Current Less Than or Equal to 16 A Per Phase)
EN61000-3-3	Limitations of Voltage Fluctuations and Flicker in Low Voltage Supply Systems for Equipment with Rated Current Less Than 16 A
EN61000-4-2	Electrostatic Discharge Requirements "ESD" 2 kV CD, 4 kV AD
EN61000-4-3	Radiated Radio-Frequency Electromagnetic Field Immunity Test 1 V/m {1 kHz 80% AM, 80-1000 MHz}
EN61000-4-4	Electrical Fast Transient Requirements "Burst," 0.5 kV Sig. & Ctrl. Lines 0.5 kV a.c. & d.c. Power Line, 0.5 kV Functional Earth
EN61000-4-5	Surge Immunity Test 0.5 kV a.c. Power Line
EN61000-4-6	Immunity to Conducted Disturbances Induced by Radio Frequency Fields 1 V rms 0.15-80 MHz Sig. & Ctrl. Lines, 3 V rms 0.15-80 MHz d.c. Power Line, 1 V rms 0.15-80 MHz a.c. Power Line, 1 V rms 0.15-80 MHz Functional Earth
EN61000-4-11	Voltage Dips, Short Interruptions, and Voltage Variations- Immunity Tests

These devices are for professional use only and comply with Part 15 of FCC rules. Operation is subject to the following two conditions:

1 These devices may cause interference to radio and TV receivers in residential areas.

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2 These devices will accept any interference received, including interference that may cause undesired operations.

Changes or modifications not expressly approved by Leitch Technology,™ the party responsible for compliance to the FCC Part 15 Rule, could void the user's authority to operate this equipment legally in the United States.

These devices do not exceed the Class A limits for radio noise emissions from digital apparatus as set out in the interference standard entitled "Digital apparatus," ICES-003 of the Canadian Department of Communications.

Additional EMC Information

This device is for professional use in a controlled EMC environment, such as purpose-built broadcast studios.

EMC regulations require that the radiation emitted from this unit does not exceed certain limits. These limits are only met when the front panel is closed and the two thumb screws are secured.

Compliance to the EMC regulations is also dependent on the use of suitably shielded (screened) cables. Coax cables should be of the double-shielded (screened) variety. Unused BNCs should be fitted with 75Ω terminations.

All audio cables should be screened with the shield (screen) making good contact with the metallic parts of the cable connectors.

D-type connectors used with this unit should always have metallic shells with the shield (screen) of the cable mechanically bonded to the metal shell. It is further recommended that the D-type cable connectors be of the "dimple" variety. These connectors make a better contact and consequently improve EMC performance.

Safety Standards

Table A-34 Harmonized and Reference IEC Safety Standards

Harmonized Standard	Reference IEC Standard	Description
EN 60950:1992 with Am1, Am 2, Am 3, Am4, A11 amendments	IEC 60950:1991 (Modified)	Safety of Information Technology Equipment
EN 60950	IEC 60950:1999 (Modified)	Safety of Information Technology Equipment
	IEC 60950-1 (2001-10)	Information Technology Equipment Safety—Part 1: General Requirements

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Table A-34 Harmonized and Reference IEC Safety Standards *(Continued)*

Harmonized Standard	Reference IEC Standard	Description
EN 60065	IEC 60065: 1998 (Modified) 6th Edition	Audio, Video, and Similar Electronic Apparatus Safety Requirements
	IEC 60065 (2001) 7th Edition	Audio, Video, and Similar Electronic Apparatus Safety Requirements
	Amendment 1 to IEC 60065 7th Edition	Audio, Video, and Similar Electronic Apparatus Safety Requirements
EN 60825-1:1999	IEC 60825-1:1993	Safety of Laser Products—Part 1: Equipment Classification, Requirements, and User's Guide
EN 60825-2:2000	IEC 60825-2:2000	Safety of Laser Products—Part 2: Safety of Optical Fibre Communication Systems
	IEC 60825-1 (2001-08) Edition 1.2	Safety of Laser Products—Part 1: Equipment Classification, Requirements, and User's Guide
UL 1419 (March 28, 1997	2nd Edition	Standard for Professional Video and Audio Equipment
UL 6500 (September 30, 1999)	2nd Edition	Standard for Audio/Video and Musical Instrument Apparatus for Household, Commercial, and Similar General Use
UL 60950 (December 1, 2000)	3rd Edition	Safety of Information Technology Equipment
CAN/CSA-C22.2 No. 60950-00		Safety of Information Technology Equipment (Bi-National Standard, with UL 60950)

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Table A-34 Harmonized and Reference IEC Safety Standards *(Continued)*

Harmonized Standard	Reference IEC Standard	Description
CAN/CSA-E60065-00		Audio, Video and Similar Electronic Apparatus Safety Requirements (Adopted IEC 60065:1998, 6th Edition, with Canadian Deviations)
CAN/CSA-C22.2 No. 1-98		Audio, Video, and Similar Electronic Equipment
CSA C22.2 No. 1-98 including Am1 (June, 2003)		Audio, Video, and Similar Electronic Equipment

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