AlterPath KVM/net Installation, Administration, and User’s Guide

Software Version 2.1.1

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Before You Begin

This installation, administration, and user’s guide provides background information and procedures for installing, configuring, and administering the Cyclades™ AlterPath family of KVM products including:

- AlterPath KVM/net
- AlterPath KVM Expander
- AlterPath KVM RP
- AlterPath KVM Terminators

In addition, this guide offers information and procedures for accessing connected servers and other connected devices.

Audience

This manual is intended for installers and system administrators of the AlterPath KVM/net and for users who may be authorized to connect to devices and to manage power through the AlterPath KVM/net.

This document describes configuration, administration, and use of the AlterPath KVM/net only. It does not describe how to set up and administer other external services or servers that the AlterPath KVM/net may access for authentication, system logging, SNMP notifications, data logging, file sharing, or other purposes. This document assumes that users who are authorized to connect to servers and other devices through the AlterPath KVM/net already know how to use the connected devices.

Document Organization

This document contains the following chapters:

Chapter 1: Introduction	Defines and explains the overall product features and uses of AlterPath KVM/net.
Chapter 2: Installation	Explains the procedures for installing the AlterPath KVM/net and setting up its basic configuration.
Chapter 3: Advanced Installation Procedures	Explains the procedures for installing the KVM Expander and the KVM RP in addition to explaining how to install an external modem, an AlterPath PM and how to cascade KVM units to the AlterPath KVM/net.
Chapter 4: Web Manager for Administrators	Explains how to use the Web Manager, highlighting such procedures as how to configure the AlterPath KVM/net, add or delete users, define user access, add or delete server connections, and other topics pertaining to AlterPath KVM/net administration.
Chapter 5: Web Manager for Regular Users	Presents the procedures for connecting to a port and other operations related to using the web user interface.
Chapter 6: Accessing Connected Devices	Explains how to connect to KVM ports and inband servers and how to use the AlterPath Viewer and control KVM connection sessions.
Chapter 7: On Screen Display	Describes how to use the On Screen display for local connections to the User 1 port.
Appendix A: Troubleshooting	Explains how to troubleshoot commonAlterPath KVM/net issues.
Appendix B: Technical Specifications	List the technical specifications for the KVM/net

Appendix C: Safety Guidelines	List the general safety guidelines for Cyclades products.
Glossary	Glossary of terms and acronyms used in the manual.

Related Documents

The following document for the AlterPath KVM/net is shipped with the product.

- *AlterPath KVM/net QuickStart Guide* (hard-copy)

The documentation for Cyclades AlterPath products mentioned in this guide such as *AlterPath PM*, and *AlterPath KVM* family of products are on the Documentation CD shipped with the product and they are also available at: http://www.cyclades.com/support/downloads.php.

Updated versions of this document will be posted on the downloads section of the Cyclades website in the "AlterPath KVM/net" section when Cyclades releases new versions of the software.

A printed version of this document can be ordered under part number PAC0368through your Cyclades sales representative.

Typographic and Other Conventions

The following table describes the typographic conventions used in Cyclades manuals.

Table P-1: Typographic Conventions

Typeface	Meaning	Example
Links	Hypertext links or URLs	Go to: http://www.cyclades.com

Table P-1: Typographic Conventions

Typeface	Meaning	Example
Emphasis	Titles or emphasized or new words or terms	See the *AlterPath KVM/net Quick Start*
`Filename` or `Command`	Names of commands, files, and directories; onscreen computer output.	Edit the `pslave.conf` file.
`User type`	What you type in an example, compared to what the computer displays	[kvm #] **`ifconfig eth0`**

The following table describes other terms and conventions.

Table P-2: Other Terms and Conventions

Term or Convention	Meaning	Examples
Hot keys	When hot keys are shown, a plus (+) appears between two keys that must be pressed at the same time, and a space appears between two keys that must be pressed sequentially.	`Ctrl+k p` entered while the user is connected to a KVM port brings up an IPDU power management screen. `Ctrl` and `k` must be pressed at the same time followed by `p`.
Navigation shortcuts	Shortcuts use the “greater than” symbol (>) to indicate how to navigate to Web Manager forms or OSD screens.	Go to Configuration>KVM> General in Expert mode.

Chapter 1
Introduction

This chapter gives an overview of the features of the Cyclades AlterPath KVM/net. This chapter describes how administrators and operators can use the KVM/net features to securely manage connected computer systems and a large variety of devices from anywhere on the local area network or on the Internet. This chapter also provides important prerequisite information for understanding the information and procedures in this manual.

The following table lists the topics in this chapter.

KVM Terminator Usage and Types Page 58

Description

The KVM/net is a 1U rack-mountble device that serves as a single access point for administering and using servers and other devices through inband and out-of-band access methods.

The following figure shows the front and back of the KVM/net.

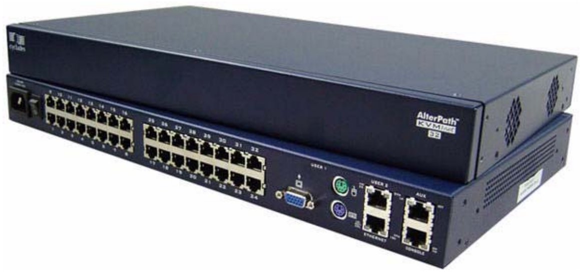


Figure 1-1: KVM/net Front and Back

You use the KVM ports on the left and middle back of the KVM/net to connect servers. You can use the AUX port on the right back to connect AlterPath PMs or an optional external modem. You use the management ports on the right back to connect to the KVM/net and to its connected devices.

Depending on the model, the KVM/net comes with either 16- or 32-KVM ports to connect from 16 to 32 servers with KVM connections.

The KVM/net can be used to manage power of up to 128 devices when the devices are plugged into up to 32 daisy-chained AlterPath PM intelligent power distribution units that are connected to the AUX port on the KVM/net.

KVM/net administrators and users who are authorized to access connected devices can connect locally or remotely from LANs, WANs, or other dial-in connections through the Ethernet port or through an optional external modem.

For extended local administration, administrators can connect the Cyclades AlterPath KVM Expander (purchased separately) to the KVM/net with a CAT5 cable of up to 500 feet in length.

Note: The 500-foot limit includes the distance of the User 2 from the KVM/net and the distance of the most remote system connected to a KVM port.

Secondary KVM units such as the Cyclades AlterPath KVM Expander or an AlterPath KVM can be cascaded for extended KVM server connections. A maximum of 32 secondary KVM devices can be cascaded from the primary KVM/net extending the number of KVM ports to a maximum of 512 for two-user configuration (i.e. two connections to each cascaded device), or 1024 for a one-user configuration.

If multiple KVM/net units are installed in multiple remote locations, a Cyclades AlterPath Manager (purchased separately) can manage all the KVM/net units together with other Cyclades products and their connected devices through a single IP address.

Access to the KVM/net for administration is separate from access to connected devices. Only the KVM/net administrator can configure access to the KVM/net and to the connected devices.

Both KVM/net administrators and users authorized to access connected devices can use the Web Manager from a browser. Authorized users can log in to devices, manage power, and change their own passwords, but they do not have access to the KVM/net screens for configuring users or ports.

All logins to the KVM/net are subject to authentication. The KVM/net administrator can restrict access to each of the connected devices by choosing among authentication methods for logins to the KVM/net and to its ports. Authentication can be local to the KVM/net or through an authentication server.

The KVM/net administrator can further control access by controlling which ports are assigned to each user name.

The KVM/net administrator can configure event logging, alarms, and notifications, set up encryption, and data buffering.

After initial network configuration is performed on the KVM/net, the Cyclades Web Manager provides a real-time view of all the connected equipment and makes it possible for administration to be done from a browser on any computer on site or on the Internet.

Guidelines for Using the KVM/net

Configuration of user accounts and access to the ports and all other management of the connected devices is done through the Web Manager.

Troubleshooting in the event of network failure can be done using one of the two direct-connect methods, or by using the Web Manager through a dial-up connection to an external modem connected to the AUX port.

See “Accessing Connected Devices” on page 307 for instructions on how users without KVM/net administration privileges can access computers and AlterPath PMs that are connected to the KVM/net.

Connectors on the KVM/net

The following sections describe the connectors on the back and front of the KVM/net, including ports, card slots, and plugs.

Types of Ports

The KVM/nets ports include KVM ports, which support server connections, an AUX ports, and management ports including the User 1, User 2, Console, and Ethernet ports, as described in the following table.

Table 1-1: Port Types

Port Type	Connection Information	Where Documented
KVM	Connect an RJ-45 CAT5 cable to a Terminator, which is connected to a server.	• “KVM Ports” on page 7 • “To Connect Computers to KVM Ports” on page 80
AUX	Connect an RJ-45 cable to an: • AlterPath PM intelligent power distribution unit (IPDU) or • external modem.	• “AUX Ports” on page 10 • “To Connect an AlterPath PM to the AUX Port” on page 117 • “To Connect an External Modem to the AUX Port” on page 116

Table 1-1: Port Types (Continued)

Port Type	Connection Information	Where Documented
Console	Connect a CAT5 to DB-9 cable to a COM port on a computer.	• “Management Ports (Console, Ethernet, User 1, User 2)” on page 8 • “To Connect to the Console Port” on page 82
Ethernet	Connect an Ethernet cable to the local area network (LAN).	• “Management Ports (Console, Ethernet, User 1, User 2)” on page 8 • “To Make an Ethernet Connection” on page 77
User 1 [PS/2 and VGA]	Connect a keyboard, video, mouse cable to a local station’s keyboard, monitor, and mouse.	• “Management Ports (Console, Ethernet, User 1, User 2)” on page 8 • “To Connect to the User 1 Management Port” on page 83
User 2	Connect an RJ-45 cable of up to 500 feet to an AlterPath KVM RP. The KVM RP can be ordered separately. **Note:** The 500-foot limit includes the distance of the User 2 from the KVM/net and the distance of the most remote system connected to a KVM port.	• “Management Ports (Console, Ethernet, User 1, User 2)” on page 8 • “AlterPath KVM RP” on page 68 • “To Connect the KVM RP to the KVM/net” on page 131

Connectors on the Back

The back of the KVM/net has KVM and management ports, a power cord connector, a power switch, and an AUX port as illustrated in the following figure.

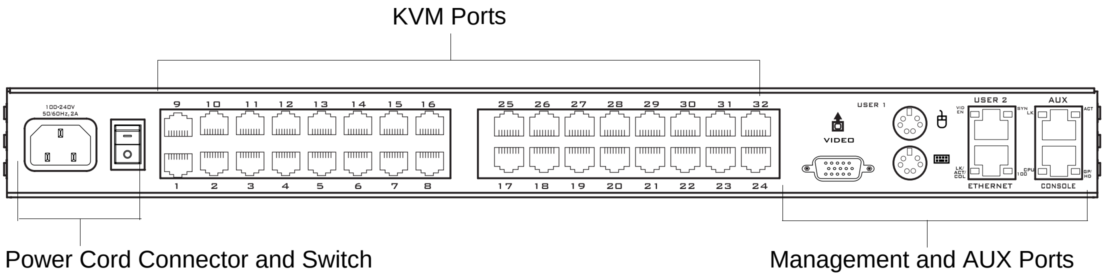


Figure 1-2: KVM/net Back Panel

- On the left are the power connector and power switch and either 16- or 32-KVM ports, which are used for connecting computing systems with KVM connections.

  See “Power Connector and Power Switch” on page 7 and “KVM Ports” on page 7.
- On the right is the AUX port, which is used to connect to PMs or an external modem, and the management ports, which are used for local management of the KVM/net.

  See “Management Ports (Console, Ethernet, User 1, User 2)” on page 8 and “AUX Ports” on page 10.

Power Connector and Power Switch

The following figure shows the power connector and power switch on the left rear of a KVM/net.

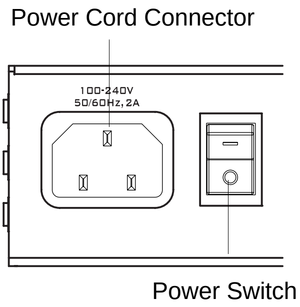


Figure 1-3: Power Connector on the Left Rear

The KVM/net is furnished with a power cord used to connect the power connector to a power supply.

See "To Power On the KVM/net" on page 84 for instructions on supplying power to the KVM/net.

KVM Ports

The following figure shows KVM (keyboard, video, mouse) ports on the center rear of the KVM/net.

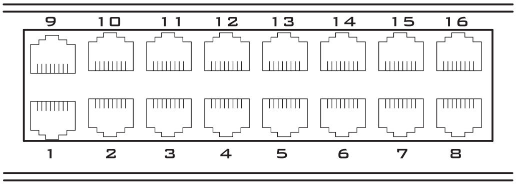


Figure 1-4: KVM Ports on the Center Rear

KVM ports provide remote access to the keyboard, monitor, and mouse of PCs with USB or PS/2 connectors or Sun servers with USB connectors. Connecting a computer to a KVM port allows use of a keyboard, video, and mouse of a remote station as if it were the keyboard video and mouse on the connected computer. KVM port connections, also called out-of-band connections give access to information that is otherwise inaccessible through in-band network interfaces.

For example, BIOS access, POST, and boot messages are inaccessible through in-band connections. In some cases, the in-band network interfaces are not available after the system boot is completed (for example, after a Windows Safe Mode boot) without the kind of access these KVM connections provide.

Each connected computing system is identified in the management software by the port number to which it is connected. The administrator can assign a descriptive alias to each port to identify the connected computer. For example, if a Sun E10K server is connected to port 3, the administrator might define the port’s alias to be “Sun E10K.”

Customers order one of three Terminator types for connecting each KVM port to a computer. See “KVM Terminator Usage and Types” on page 58 for more details.

See “To Connect Computers to KVM Ports” on page 80 for instructions on connecting servers to KVM ports.

Management Ports (Console, Ethernet, User 1, User 2)

The following figure shows the management ports on the right back of the KVM/net.

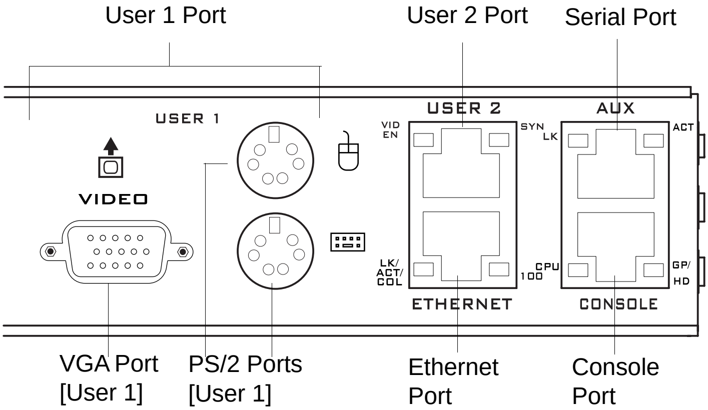


Figure 1-5: Management Ports

The following list describes the management ports on the right back of the KVM/net.

- **Console** – Its RJ-45 connection can be connected by a CAT5 to DB-9 cable to a COM port on a computer. Administrators can use a terminal emulation program to locally manage and troubleshoot the KVM/net. See “To Connect to the Console Port” on page 82 and “Configuring Basic Networking Using the wiz Command” on page 85 for more details.
- **Ethernet** – Use the Ethernet management port for connecting an Ethernet cable for Intranet and Internet access. See “Making an Ethernet Connection” on page 77 for instructions if needed.
- **User 1** – The User 1 port includes two PS/2 ports and a VGA port, which can be connected to a mouse, keyboard, and monitor. Once a local system is connected to the User 1 port, administrators can use the OSD (On Screen Display) interface to locally manage and use the KVM/net. See “To Connect to the User 1 Management Port” on page 83 and Chapter 7: On Screen Display for more details.
- **User 2** – This port is used for extending the local administration by connecting an RJ-45 cable of up to 500 feet to an AlterPath KVM RP. The KVM RP can be ordered separately. Administrators can use the OSD (On Screen Display) to locally manage and use the KVM/net without being in the same room as the KVM/net. See “Installing the AlterPath KVM RP” on page 129 and “Controlling the OSD Through the AlterPath KVM RP” on page 428 for more details.

AUX Ports

The following figure shows the AUX port on the right back of the KVM/net.

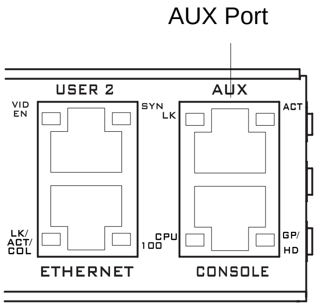


Figure 1-6: AUX Ports

AUX – Serial port (RS-232) with RJ45 connector that can be used for the following:

- Connecting to an optional AlterPath PM

  Up to 32 PMs can be daisy-chained for a total of 120 outlets. See “Power Management” on page 40 for background information of power management and see “Connecting AlterPath PMs to the KVM/net” on page 117 for installation instructions.
- Connecting to an optional external modem

  See “Connecting an External Modem” on page 116

Activity LEDs on the Back of the KVM/net

The KVM/net comes with paired LEDs positioned on each side of the following ports:

- User 2
- AUX
- Ethernet
- Console

The following figure shows the position of the LEDs as they appear on the back of the KVM/net. The LEDs are designed to monitor the interface connections as described in Table 1-2, “LED Descriptions,” on page 12.

The diagram below shows a close up view of the LEDs on the back of the KVM/net. The LEDS monitor the AUX ports, ETHERNET, and CONSOLE ports as described in Table 1-2.

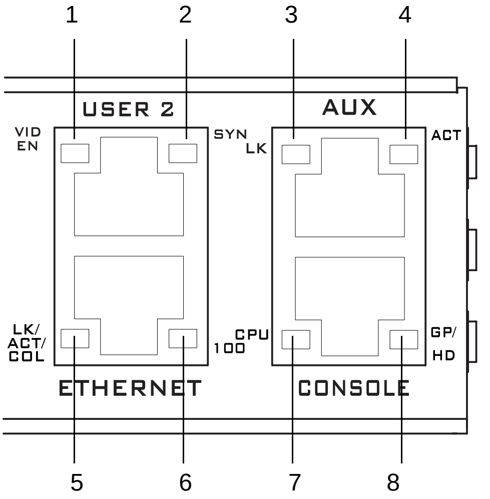


Figure 1-7: LEDs on the KVM/net Management Ports

The LED numbers in the tables below correspond to the numbers in the previous figure.

Table 1-2: LED Descriptions

Number	Label	Function	Color/Status
1	VID EN	Monitor KVM CAT5 video interface	Orange - Lights when an internally-generated signal is used. This occurs when the user is not connected to the port and in the OSD, or when the user is connected to a port, but a video signal is not present from the server. Green - Lights when the server's video signal is used; this happens when the server is presenting a valid signal.
2	SYN	Monitor KVM CAT5 video interface	Green - Lights when the user is connected to port and a video signal is detected and "synchronized". This means that the KVM is presenting the signal to the station. Orange - Lights when the video signal level is detected but not synchronized. Typically, this takes a very short amount of time (less than 1/3 second) for the KVM to synchronize to the server's video signal upon first connection.
5, 3	LK	Monitor RS-232 async port status	• OFF – Indicates the port is not open. • Orange – Lights when DTR (data terminal ready) signal is on (when the port is open).
4, 5	ACT	Monitor RS-232 async activity	• OFF – Indicates no data activity. • Green – Blinks when data is either being received (RX) or transmitted (TX).

Table 1-2: LED Descriptions (Continued)

Number	Label	Function	Color/Status
5	LK/ ACT/ COL	Monitor Ethernet line status	• OFF – Indicates either link is not up or cable is not connected. • Green – Lights solid when the link is up and blinks when data activity occurs, with frequency proportional to traffic. • Orange – Blinks when collisions occur
6	100	Monitor Ethernet speed	• Off – Indicates the link is 10baseT or no link is active. • Green – Steady when 100baseT link is active.
7	CPU	Monitor CPU (software operation)	• Green or Orange – Blinks when software is running properly. • Off or solid Green/Orange – During boot up, software crash, etc.
8	GP/ HD	Monitor compact flash (HD) or other (GP)	• Orange - Blinks when KVM/net is accessing the compact flash after bootup.

AlterPath KVM/net Ordering Options

Each AlterPath KVM/net comes with 16 or 32 KVM ports. The following table lists the model and part numbers and number of KVM ports of each KVM unit.

Table 1-3: AlterPath KVM/net Model Numbers and Port Options

Model Number	Part Numbers	KVM Ports
AlterPath KVM 16		16
AlterPath KVM 32		32

Types of Users

The KVM/net support three types of users:

- Predefined administrators who can administer the KVM/net and its connected devices
- Optionally added users who can act as administrators of the KVM/net and its connected devices
- Optionally added users who can act as administrators of connected devices or regular users.

As summarized in the following table, two accounts, root and admin, are configured by default and cannot be deleted. The default “admin” account can add regular user accounts to allow other users to act as administrators of connected devices. An administrator can also choose to add regular users to the “admin” group, which enables the regular users to perform KVM/net administrative functions. The following table lists the responsibilities of each type of user and provides the default password for each.

Table 1-4: User Types, Responsibilities, and Default Password

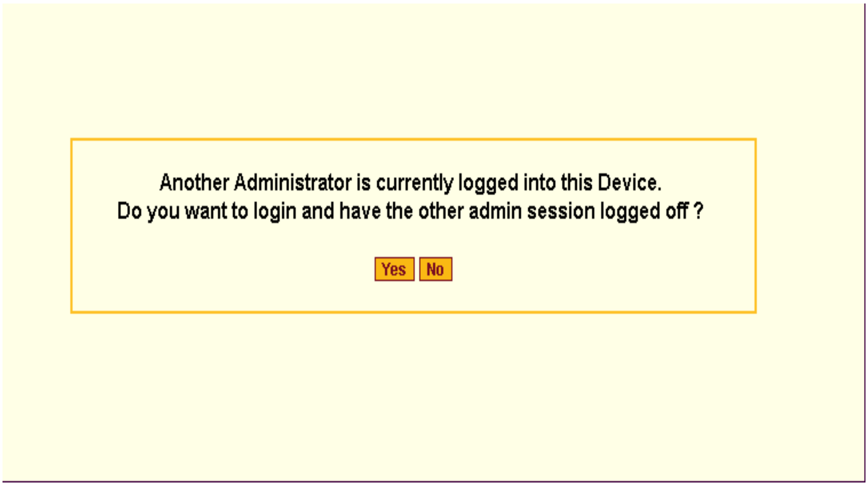
Username	Responsibilities	Default Password
root	Cannot be deleted. Only console logins allowed. Runs the `wiz` command to do initial network configuration, as described in “Configuring Basic Networking Using the wiz Command” on page 85. Access Privileges: Full Read/Write/Delete.	cyclades
admin	Cannot be deleted. Has all access: through the Web Manager in Wizard and Expert mode, and through the OSD. Has full access to every function of the Web Manager. Access Privileges: Full Read/Write/Delete.	cyclades

Table 1-4: User Types, Responsibilities, and Default Password (Continued)

Username	Responsibilities	Default Password
administratively assigned	User account configured by the administrator to be able to access devices connected to the ports of the KVM/net. Has access to the port through the Web Manager and through the OSD. Regular users can access and administer only devices that are connected to ports to which they are assigned. Default Access Privileges for generic users: Read/Write only for all ports. Administrators can restrict access for individual users to Read only to specific ports. If an administrator assigns a regular user to the "admin" group, that user can also perform the same administrative functions on the Web Manager as the "admin" user, as described above.	administratively assigned

Simultaneous KVM/net Logins

Only one KVM/net administrator can be logged in at a time. If a second administrative user attempts to log in to the Web Manager, the following prompt appears offering a choice of cancelling the attempt to log in or terminating the other administrator's login session.



Another Administrator is currently logged into this Device.
Do you want to login and have the other admin session logged off ?

Figure 1-8: Simultaneous Administrator Login Prompt

Note: This feature applies to both Web Manager and OSD.

Simultaneous Server Connections

The KVM/net supports a maximum of 6 concurrent server connections. Up to two connections are supported either locally or remotely over Ethernet. Up to 4 connections can be inband depending on whether a KVM-over-IP connection is being made. The types of user connections that can be made are explained below:

- Local users include:
  - One local user at the KVM/net (User 1).
  - One remote user at the AlterPath KVM RP location (User 2).
- IP users include:
  - KVM – The KVM/net supports two KVM-over-IP connections.
  - Inband – KVM/net supports up to four concurrent in-band connections depending on the number of KVM-over-IP connections being made. Since the maximum total IP connections is four, if one KVM-over-IP connection is being made, only three in-band connections can be made at that time.

The following table lists the number and types of server connections that can be made over IP based on the number of local users connected to KVM ports.

Table 1-5: Number of Simultaneous Server Connections

Local Users	0	1	2
KVM-over-IP	2	1	-
Inband	2	3	4
Total	4	5	6

Administration Options

The following sections summarize the KVM/net administration options:

- "Cyclades Web Manager" on page 17
- "On-Screen Display" on page 18
- "Guidelines for Using the KVM/net" on page 4

The administrator options require different types of log in credentials. For more information on which types of users can perform administrative tasks and access administrative options, see "Types of Users" on page 14.

Table 1-6: Administration Options

Cyclades Web Manager	The Web Manager is the primary means of configuring the KVM/net and administering its connected devices. • See "Prerequisites for Using the Web Manager" on page 19 for an introduction that includes prerequisites for using the Web Manager and explanations about how the different types of user accounts use the Web Manager. • See "Web Manager for Administrators" on page 133 for more details about how KVM/net administrators use the Web Manager.

Table 1-6: Administration Options (Continued)

On-Screen Display	The On Screen Display (OSD) can be used locally from a keyboard, monitor and mouse that is directly connected to the KVM/net. When the monitor and the KVM/net are on, the OSD login screen appears on the monitor. • See "To Connect to the User 1 Management Port" on page 83 for instructions on how to make the hardware connection. • See "On Screen Display" on page 351 for how KVM/net administrators and regular users can use the OSD.
Linux Commands and KVM/net-specific Commands	The KVM/net offers the following types of access allowing administrators to log in and enter Linux commands and KVM/net-specific commands in a shell running on the KVM/net. • A local administrator who has a direct connection to the console port on the KVM/net, who is running a terminal or terminal emulation program, and who knows the root password. The direct login requires authentication using the root password. The default shell defined for the root user is bash. • A remote administrator who uses telnet or ssh to connect to the KVM/net and log in as root. See "To Connect to the Console Port" on page 82 and "Configuring Basic Networking Using the wiz Command" on page 85.

Cyclades Web Manager

Administrators perform most tasks through the Cyclades Web Manager. The Web Manager runs in a browser and provides a real-time view of all the equipment that is connected to the KVM/net. The administrator or the regular user who has administrative access can use the Web Manager to configure users and ports, troubleshoot, maintain, cycle power, and reboot the connected devices, either while on site or from a remote location. KVM/net also allows regular users and administrators to use the Web Manager to access devices that are connected to KVM ports.

Web Manager uses forms and dialog boxes (which are pop-up windows) to receive data input. See also, “Prerequisites for Using the Web Manager” on page 19.

Administrators, see “Web Manager for Administrators” on page 133. Regular users, see “Web Manager for Regular Users” on page 299.

Prerequisites for Using the Web Manager

The prerequisites described in this section must be complete before anyone can access the Web Manager. If you have questions about any of the following prerequisites, contact your site’s system or network administrator.

- An administrator needs to define basic network parameters on the KVM/net so the Web Manager can be launched over the network.

  See “Configuring Basic Networking Using the wiz Command” on page 85 for instructions on how to define network parameters on the KVM/net.

The administrator also needs the following to be able to connect to the KVM/net through the Web Manager:

- A networked Windows computer that has access to the network where the KVM/net is installed.
- A supported browser. Internet Explorer 5 and above, Netscape 8, Mozilla, and Firefox browsers are supported for configuration and management of KVM/net. Internet Explorer, Netscape 8, and Mozilla are recommended browsers for accessing servers through a KVM-over-IP session.
- The IP address of the KVM/net.

  Entering the IP address of the KVM/net in the address field of one of the supported browsers listed in Table 1-14 is the first step required to access the Web Manager.

  When DHCP is enabled, a device’s IP address may change each time the KVM/net is booted up. Anyone wanting to access the KVM/net must find out the currently assigned IP address. If DHCP is enabled and you do not know how to find out the current IP address of the KVM/net, contact your system administrator for help. For more information, see “Considerations When Choosing Whether to Enable DHCP” on page 57.

- A user account defined on the Web Manager

  By default, the admin has an account on the Web Manager. An administrator can add regular user accounts to administer connected devices using the Web Manager.

TCP Ports

The TCP port numbers for KVM ports are used by the AlterPath Viewer when a user connects to a KVM port through the Web Manager. When a user connects to a KVM port through the Web Manager, the AlterPath Viewer uses port 5900. Depending on your KVM model up to four IP modules may be available. Subsequent port numbers 5901, 5902, and 5903 are used to launch additional AlterPath Viewer sessions . You can assign a different port number or numbers through the OSD or the Web Manager. Do not assign reserved TCP port numbers 1 through 1024.

Special circumstances may require KVM/net administrators to specify alternative TCP port numbers other than the defaults. For example, the firewall may block TCP port 5900 or 5901.

The following table provides links to procedures for changing default TCP port numbers.

Table 1-7: Tasks: Configuring TCP Port Numbers

Task	**Where Described**
Change the TCP port number(s) assigned to the AlterPath Viewer(s)	“To Configure IP User (KVM Over IP) Sessions [Expert]” on page 180
Change the TCP port number(s) assigned to inband connections	“To Add or Modify an inband (RDP) Server” on page 201

Cascaded Devices

The KVM/net supports cascading, which allows administrators to connect secondary KVM units to a primary KVM/net. Cascading allows administrators to increase the number of managed devices to up to 1024 servers with a centralized configuration and access interface.

A maximum of 32 secondary KVM devices can be cascaded from the primary KVM/net extending the number of KVM ports to a maximum of 512 for two-user configuration (i.e. two connections to each cascaded device), or 1024 for a one-user configuration.

The following diagram depicts a basic cascaded configuration of a primary KVM/net with 32 ports and one KVM and one KVM Expander cascaded from it.

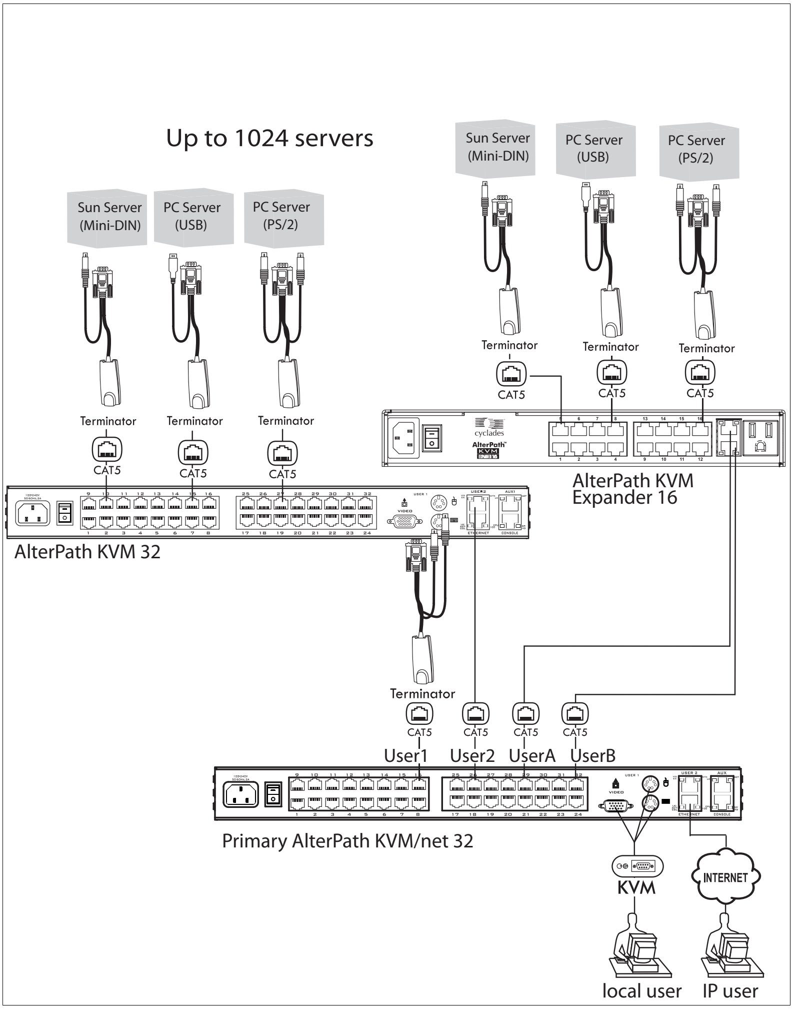


Figure 1-9: Cascaded KVM Devices from a KVM/net

As depicted in the previous figure, the KVM/net supports one level of cascading: The primary KVM/net controls the secondary level of KVM units connected to it. A secondary KVM unit can be a KVM, a KVM Expander, a KVM/net, or a KVM/netPlus.

Administrators can connect up to 32 KVM units to the master KVM/net. Each cascaded KVM device has two management ports that can be connected to the primary KVM/net.

Note: You must connect the master KVM/net' KVM port to User 2 on the slave. Optionally, you can add a second connection to User 1 on the slave by using a terminator. If a KVM Expander is used then User A or User B management ports on the KVM Expander can be used.

Note: In a cascaded configuration, the internal IP modules of the cascaded units are not available.

The following table indicates which ports on each cascaded device can be used for cascading and which cables need to be used in order to connect them.

Table 1-8: Connectors and Ports for Cascading KVM Units

KVM Unit	Management Ports	Connectors
KVM Expander	User B primary User A secondary	CAT5 cable with RJ45 connectors
AlterPath KVM	User 2 primary	CAT5 cable
	User 1 secondary	KVM Terminator (User1) and CAT5 cable with RJ45 connectors
AlterPath KVM/net	User 2 primary	CAT5 cable
	User 1 secondary	KVM Terminator (User1) and CAT5 cable with RJ45 connectors
AlterPath KVM/netPlus	User 2 primary	CAT5 cable
	User 1 secondary	KVM Terminator (User1) and CAT5 cable with RJ45 connectors

Note: In addition to a CAT5 cable, you need a KVM Terminator to connect to the User 1 port of a cascaded KVM, KVM/net, or KVM/netPlus.

KVM/net users can use the master KVM/net to access all devices connected to KVM ports on the master and slave KVM units.

Accessing Ports on Cascaded KVM Devices

KVM/net users can use the master KVM/net to access all devices connected to KVM ports on the master and slave KVM units. However, only two port connections can be made to each cascaded unit at any time. Each physical port connection (for example to User 1 or User B) to the cascaded KVM devices allows a user to connect to one KVM port on the secondary KVM unit. So any user can connect to up to two KVM ports on a cascaded device at any time.

KVM/net Port Permissions

In the default configuration, only the “admin” user can access any port. The KVM/net administrator configures access for regular users as desired.

The following table summarizes the default port access permissions and default authentication types (Auth Type) and provides links to where the port permissions are described in more detail.

Table 1-9: Default Port Access Permissions

Default Access	Default Auth Type	Access Types	Where Documented
None	Local	No access Read only Read/Write Full access (Read/ Write/Power management)	“Understanding KVM Port Permissions” on page 25 “To Assign KVM Port Access to a User or Group” on page 196

The KVM administrator must take the actions described under “Where Documented” to allow any other types of access than the defaults defined in the previous table. See “Authentication” on page 45 for the tasks related to setting up authentication.

Understanding KVM Port Permissions

KVM port permissions are defined in the Web Manager by assigning *Default Permissions* that apply to all KVM ports and by optionally assigning specific permissions to individual ports or groups of ports. The options for “Default Permissions” are shown in the following list.

- No access [Default]
- Read only
- Read/Write
- Full access (Read/Write/Power management)

For individual users and groups, if desired, the KVM/net administrator can construct lists of KVM ports with the following types of permissions:

- Ports with no permission
- Ports with read only permission
- Ports with read/write permission
- Ports with full permission

A *Generic User* account has a default set of permissions that apply to all regular users and groups. The Generic User’s Default Permission is “No access.”

To allow users to access KVM ports, the KVM/net administrator must do one or both of the following:

- Change the permissions assigned to the Generic User
- Change the permissions assigned to individual users or to groups of users

Editing the Generic User allows you to change the KVM port permissions for all regular users and groups at once.

The KVM/net administrator can specify different Default Permissions or KVM port permissions for any user or group. “KVM Port Permissions Hierarchy” on page 26 provides information that the KVM/net administrator needs to understand in order to perform advanced configuration of KVM permissions.

The following table shows the tools that the KVM/net administrator can use to set KVM port permissions and where in this manual to go for further details.

Table 1-10: Tools for Setting KVM Port Permissions

Tools	Where Documented
Web Manager	"To Assign KVM Port Access to a User or Group" on page 196
OSD	"KVM Ports Screens" on page 394

KVM Port Permissions Hierarchy

If you specify individual KVM port permissions or default permissions for users and groups, you need to understand the following information about how the system handles requests from a user who is trying to access a KVM port. The following series of decisions is made.

Decision 1: Check User's KVM Port Permissions

1. Does the user have specific KVM port permissions that allow or deny access to the port?
   - If yes, access is allowed or denied.
   - If no, go to Decision 2.

Example for Decision 1

- If user john is trying to access KVM port 4 and his account has port 4 in a list of ports with full permission, then john is given read/write and power management access.
- If user jane is trying to access port 4 and her account has port 4 in a list of ports with no permission, then jane is denied access.
- If users jim, joan, jerry, jill, joe, jennifer, jordan, jolanda, and jezebel are trying to access port 4 and do not have port 4 listed for any types of access, then their access requests are passed to decision 2.

Decision 2: Check Group's KVM Port Permissions

2. Is the user included in a group with KVM port permissions that allow or deny access to the port?

   - If yes, access is allowed or denied.
   - If no, skip to Decision 3.

Note: When a user is in more than one group, the most restrictive permission is used.

Example for Decision 2

- If user jim is trying to access port 4 and he is a member of a group called linux_ca2 that has port 4 in a list of ports with read/write permissions, then jim is given read/write access.
- If user joan is trying to access port 4 and she is in a group called linux_ca3 that has port 4 in a list of ports with no permission, then joan is denied access.
- If jerry and jill are trying to access port 4 and are in a group called linux_ca4 that has no specific port permissions defined, then their access requests are passed to decision 3.
- If joe, jennifer, jordan, jolanda, and jezebel are trying to access port 4 and are not in any group, then their access requests are passed to decision 3.

Decision 3: Check Generic User's KVM Port Permissions

3. Does the Generic User have specific KVM port permissions that allow or deny access the port?

   - If yes, access is allowed or denied.
   - If no, go to decision 4.

Example for Decision 3

- If user jerry is trying to access port 4 and the Generic User has port 4 in a list of ports with full access permissions, then jerry is given read writer and power management access.

- If user jill is trying to access port 4 and the Generic User has port 4 in a list of ports with no access permissions, then jill is denied access.
- If users joe, jennifer, jordan, jolanda, and jezebel are trying to access port 4 and the Generic User does not have port 4 listed for any type of access, then their access request are passed to decision 4.

Decision 4: Check User's Default Permissions

4. Does the user have a Default Permission that allows or denies access to the port?

   - If yes, access is allowed or denied.
   - If the user has no Default Permission, the user is under the Generic User's default permission, and the request for access goes to decision 5.

Example for Decision 4

- If user joe is trying to access port 4 and he has a Default Permission that allows read only access to ports, then joe is given read only access.
- If user jennifer is trying to access port 4 and she has a Default Permission that allows no access to ports, then jennifer is denied access.
- If users jordan, jolanda, and jezebel are trying to access port 4 and their Default Permissions are under the Generic User's Default Permission, then their access requests are passed to decision 5.

Decision 5: Check Group's Default Permissions

5. Does the user belong to a group that has a Default Permission that allows or denies access to the port?

   - If yes, permission is granted or denied.
   - If no, go to decision 6.

Example for Decision 4

- If user jordan trying to access port 4 is in a group called windows_ca1 that has a Default Permission of full, then jordan is given read/write and power management access.
- If user jolanda trying to access port 4 is in a group called windows_ca2 that has a Default Permission of no access, then jolanda is denied access.

- If user jennifer is not a member of any group with a Default Permission specified, then her access request is passed to decision 6.

Decision 6: Check Generic User's Default Permissions

Note: If an access request gets this far, the Default Permission of the Generic User is the only permission that could apply.

6. Does the Default Permission for the Generic User allow access to the port?
   - If yes, access is granted.
   - If no, access is denied.

Server Access: Inband and Out of Band

KVM/net users can access servers over the Ethernet using the following methods:

- In-band access – An IP address is used to connect to and control Windows (Win2000, 2003, XP, and NT) Terminal Servers.
- Out-of-band access – KVM ports are used to connect to PCs with USB or PS/2 connectors or Sun servers with USB connectors.

The differences between the in-band and out-of-band connection methods are briefly described in the following table. For a more detailed description of the requirements and functionality of each connection method, see the following section, "Determining the Connection Type and its Supported Functionality" on page 31.

Table 1-11: In-band and Out of Band Connections

	In-band	**Out-of-Band**
Connection Type	Remote Desktop Protocol (RDP) over the Ethernet or PPP	Keyboard, video, mouse (KVM) CAT5 connection to a KVM/net and Ethernet or PPP access to the KVM/net Web Manager

Table 1-11: In-band and Out of Band Connections

	In-band	**Out-of-Band**
Supported Source Computers	Client machine running a Windows operating system with a valid IP address	All Windows clients
Supported Target Servers	Windows (Win2000, 2003, XP, and NT) Terminal Servers	PCs with a USB or PS/2 connectors or Sun servers with USB connectors
Supported Browsers	Internet Explorer 5, 6	Internet Explorer 6, Netscape 7, Mozilla, Firefox
Direct Log In	Not available	Available if configured by the KVM/net administrator See “To Enable Direct Access to KVM Ports” on page 173.
Power Management While Connected	Not available	Available if configured by the KVM/net administrator and if the server is plugged into an AlterPath PM that is connected to the KVM/net. See “Power Management” on page 40.
Viewer	ActiveX viewer See “Viewing In-band Connections” on page 313	AlterPath Viewer See “Viewing KVM Connections” on page 311.

Determining the Connection Type and its Supported Functionality

When a user wants to connect to a server displayed on the Web Manager Connect to Server form, the drop-down list indicates whether the server can be accessed by a KVM connection, an in-band connection, or both. In the connect list, all servers connected to KVM ports appear first followed by all servers that are accessed through in-band connections and are not connected to KVM ports; those servers that can be connected by both methods appear at the bottom of the list.

The types of connections that can be made to each server is displayed in parenthesis at the end of each server entry in the list. The following table describes the functionality of each connection type.

Table 1-12: Available Functionality During KVM and In-band Connections

Server Connection Labels	Description
(KVM)	Indicates that the server can be accessed only through an out-of-band, KVM connection. This server is connected to a KVM port on the KVM/net or on a cascaded KVM unit. Users can control all applications on the server, have BIOS access, and can view POST, and boot messages. Users can access this server even when the network is down or after a system boot is completed. Users can also control the power flow on this server if the server is plugged into an AlterPath PM and the port is properly configured for power management.

Table 1-12: Available Functionality During KVM and In-band Connections

Server Connection Labels	Description
(In-band)	Indicates that the Microsoft Terminal Server running RDP can be accessed only through an in-band connection and is not connected to a KVM port. Users can access this server only to run applications once the server is already running. The performance on in-band connections is slightly better than that of KVM connections, and no synchronization of keyboard and mouse is necessary.
(KVM + In-band)	Indicates that the server can be accessed through In-band and out-of-band (KVM) connections. The first time users select this server from the Connect drop-down list, an in-band connection is attempted. The connection automatically switches to KVM only if the in-band connection fails or if an in-band connection to this server already exists. Users who want to access this server with a KVM connection, must do one of the following: • Make two connection attempts to the same server from the Web Manager Connect to Server form. The first connection is an in-band connection viewed through an RDP ActiveX viewer. The second connection is a KVM connection viewed through the KVM ActiveX Viewer. See “To Connect to Servers Through The Web Manager’s “Connect To Server” Form” on page 322. • Make a direct login to the KVM port. See “Login Screen: Direct Logins Enabled, Only IP Address Entered” on page 320 and “Login Screen: Direct Logins Enabled, IP Address and Port Entered” on page 320 for more information.

Administering Users of Connected Servers

This section reviews the tasks that KVM/net administrators must do to enable access to connected servers.

The “admin” account can add new regular user accounts to allow others to connect to ports and administer or use connected devices.

Types of Access to Ports

The KVM/net administrator can restrict regular user accounts to allow them only to manage specific servers and devices. Each account can have one of the following types of access after login:

- Read only
- Read write
- Read write power

Note: The KVM/net offers access privileges to KVM ports only. Inband connections are authenticated, and the access privileges are granted on the inband server itself.

Tasks Related to Access to Connected Devices

Planning should include the following steps:

- Create a list of servers to connect to the KVM/net.
- Decide whether the servers need to be connected to ports for KVM access, need to have RDP enabled for in-band access, or both.
- Create a list of user accounts with the type of access each user needs to which ports.
- Obtain usernames and passwords with the proper permissions for connected servers to give to the KVM/net users who will connect to these servers.
- Create meaningful aliases to assign to port numbers and to inband Windows Terminal Servers.
- List all the devices that need to be connected to PMs and the users who can access them.

During setup of the KVM/net, the installer connects the desired servers to the ports as planned.

During configuration, the KVM/net administrator does the following, if desired:

- Assigns aliases to ports to identify the connected servers.
- Assigns aliases to PMs to identify the location or types of devices being managed.
- Creates accounts for users of connected devices.
- Specifies which ports each user can access and which type of access each can have.
- Specifies an authentication method for access to the KVM/net and to all KVM ports.
- Redefines keyboard shortcuts (hot keys) if desired.
- Redefines TCP port numbers used for accessing KVM ports, if desired.

See the following table for a list of related tasks and where they are documented.

Task	**Where documented**
Specify an alias for a KVM port.	• “To Specify or Change the Alias for a KVM Port” on page 186
Specify an alias for a PM.	• “To Specify or Change the Alias of an IPDU” on page 168
Assign permissions to access ports.	• “To Assign KVM Port Access to a User or Group” on page 196
Assign permissions to PMs and outlets.	• “To Configure Users to Manage Specific Power Outlets” on page 166

Redefining Keyboard Shortcuts (Hot Keys)

Predefined keyboard shortcuts (also called hot keys) allow users to do the following:

- Perform common actions while connected through a KVM port
- Emulate Sun keyboard keys while connected through a KVM port to a Sun server.

If desired, the KVM/net administrator can redefine the default hot keys either through the Web Manager or the OSD.

Redefining KVM Connection Hot Keys

The hot key sequences used while connected to KVM ports have two parts, which are called the *common escape sequence* and the *command key*. The default common escape sequence is `Ctrl+k`, and the command key is different for each command. For example, the `q` command key is entered after `Ctrl+k` to quit the login session as shown here: `Ctrl+k q`. See “Hot Keys for KVM Connections” on page 329 for the defaults. Under Configure>KVM in the Web Manager, the common escape sequence is defined separately from the command keys. The KVM/net administrator can redefine two different sets of command keys for users accessing KVM ports through the OSD (User 1 or User 2) and another set for connections made through the Web Manager.

Redefining Sun Keyboard Equivalent Hot Keys

The KVM/net provides a default set of hot keys for use while connected to Sun servers through KVM ports to emulate keys that are present on Sun keyboards but are not present on Windows keyboards. The hot keys are made up of a modifier key followed by a function key. See “Redefining Sun Keyboard Modifier Keys” on page 175 for more details. The default modifier key is the Windows `[WIN]` key, which is labeled with the Windows logo. KVM/net administrators can redefine the default `[WIN]` modifier key to `[Ctrl], [Shift],`or `[Alt].`

Summary of Tasks for Redefining Hot Keys

See the following table for a summary of tasks for redefining keyboard shortcuts with references to where they are documented.

Table 1-13: Tasks for Redefining Hot Keys

Part	Web Manager Form	Where Documented	OSD Form	Where Documented
KVM Common escape sequence	Configuration> KVM>General > General	"To Redefine KVM Session Keyboard Shortcuts" on page 174	Configure> General	"General Configuration Screens [OSD]" on page 362
KVM Command keys for the local user session	Configuration> KVM>General >User 1 Configuration> KVM>General >User 2	"To Redefine KVM Session Keyboard Shortcuts" on page 174	Configure> User Station	"User Station Screens" on page 390
KVM Command keys for IP user sessions	Configuration> KVM>General >IP Users		N/A	
Sun keyboard emulation escape key	Configuration> KVM>General	"To Redefine KVM Session Keyboard Shortcuts" on page 174	Configure> General	"KVM Ports Screens" on page 394

Disabling Mouse Acceleration

In a KVM-over-IP session you should synchronize the mouse cursor on your local PC or laptop with the mouse cursor of the remote server attached to a

KVM port. The mouse acceleration should be disabled on the remote server's operating system.

Depending on your server's operating system refer to one of the following procedures.

- "To Disable Mouse Acceleration [Windows XP/Windows 2003]" on page 106
- "To Disable Mouse Acceleration [Windows 2000]" on page 106
- "To Disable Mouse Acceleration [Windows ME]" on page 107
- "To Disable Mouse Acceleration [Windows 95/98/NT]" on page 107
- "To Disable Mouse Acceleration [Linux]" on page 108

Screen Resolution and Refresh Rate

The following table summarizes the supported screen resolutions and refresh rates for IP access and local KVM connections.

Table 1-14: Supported Screen Resolutions and Refresh Rates

Resolution	Refresh Rates (Hz)
640 x 480	60, 72, 75, 85, 90, 100, 120
720 x 400 (standard text mode)	75
800 x 600	60, 70, 72, 75, 85, 90, 100, 120
1024 x 768	60, 70, 72, 75, 85, 90, 100, 120
1152 x 864	60, 70, 75, 85
1150 x 900	66
1280 x 1024	60
1600 x 1200 (local KVM connection)	60, 75

Packet Filtering on the KVM/net

IP filtering refers to the selective blocking of the IP packets based on certain characteristics. The KVM/net can be configured to filter packets as does a firewall.

The IP Filtering form is structured in two levels:

- Chain – The IP Filtering form which contains a list of chains
- Rule – The chains which contain the rules that control filtering

IP filtering refers to the selective blocking of the passage of IP packets. The filtering is based on rules that describe the characteristics of the packet (that is, the contents of the IP header, the input/output interface, or the protocol).

This feature is used mainly in firewall applications to filter the packets that could potentially crack the network system or generate unnecessary traffic in the network.

The following table describes the different levels of IP filtering

Table 1-15: Levels of IP Filtering

Chain	The filter table contains a number of built-in chains and may include user-defined chains. The built-in chains are called according to the type of packet. User-defined chains are called when a rule which is matched by the packet points to the chain. Each table has a set of built-in chains classified as follows: • INPUT - For packets coming into the box itself. • FORWARD - For packets being routed through the box. • OUTPUT - For locally generated packets.

Table 1-15: Levels of IP Filtering (Continued)

Rule	Each chain contains a sequence of rules that control filtering. The rules address the following issues: • How the packet should appear in order to match the rule Some information about the packet is checked according to the rule, for example, the IP header, the input and output interfaces, the TCP flags and the protocol. • What to do when the packet matches the rule The packet can be accepted, blocked, logged, or jumped to a user-defined chain. When a chain is analyzed, the rules of this chain are reviewed one-by-one until the packet matches one rule. If no rule is found, the default action for that chain will be taken.

Power Management

The KVM/net enables users who have power management permissions to power off, power on, and reboot remote devices connected to an AlterPath PM intelligent power distribution unit (IPDU). By connecting one PM to the AUX port and by daisy-chaining any combination of PM models, you can connect up to 128 outlets to one KVM/net.

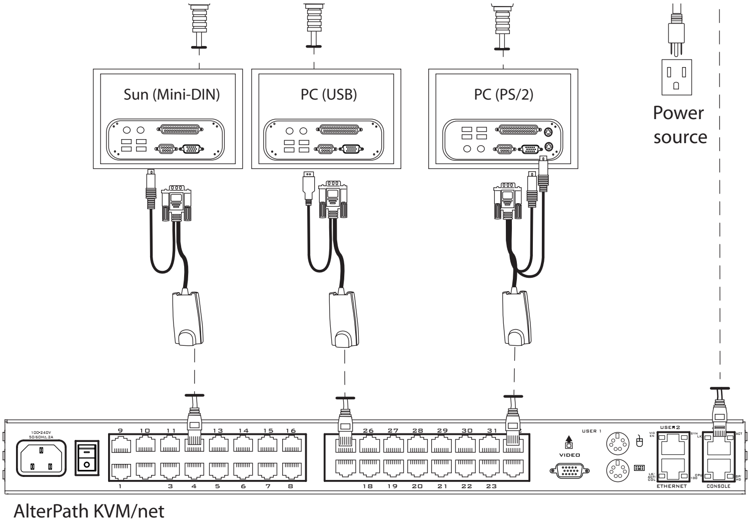


Figure 1-10: Connecting an AlterPath PM to the KVM/net

See “Setting Up and Configuring Power Management” on page 42 for information about the procedures the KVM/net administrator must perform before anyone can use the tools to manage power.

KVM/net users most commonly perform power management through the Web Manager. See “Options for Managing Power” on page 40 for more information.

Options for Managing Power

The sections listed below describe the different ways that users with power management permissions (called authorized users) can perform power management through the KVM/net and provide links to related information and procedures.

Controlling Power Through the Web Manager IPDU Power Management Forms

Through the Web Manager’s IPDU Power Management form, users with power management permissions can perform power management on any device plugged into an PM connected to the AUX port. See “Use this form to connect to servers with either an in-band or a KVM connection. See “Connecting to Servers Remotely Through the Web Manager” on page 321.” on page 304.

Administrators must configure users for IPDU power management. See “To Configure Users to Manage Specific Power Outlets” on page 166. Or see “Setting Up and Configuring Power Management” on page 42 for a list of all of the administration tasks involved in setting up power management.

Controlling Power While Connected to KVM Ports

Users who have power management permissions can do power management while connected to servers through KVM ports by using a keyboard shortcut that brings up a power management screen. The default keyboard shortcut is Ctrl+k p.

Administrators must perform multiple configuration tasks in order to set up and grant users permission for power management. See “Setting Up and Configuring Power Management” on page 42 for a list of all of the administration tasks involved in setting up power management.

Setting Up and Configuring Power Management

Administrators most commonly assign power management permissions to users and configure ports for power management using the Web Manager. However, the OSD also offers menus for configuring power management on local devices.

Two types of power management can be set up and configured on the KVM/net:

- Power management of any device plugged into an PM connected to the AUX port.

  See "Controlling Power Through the Web Manager IPDU Power Management Forms" on page 41.
- Power management while accessing a server connected to a KVM port and plugged into an PM connected to the AUX port.

  See "Controlling Power While Connected to KVM Ports" on page 41.

The following set up and configuration tasks must be performed for both types of power management:

Table 1-16: Tasks: General Power Management Set Up

	Task	Where Documented/Notes
1	Install PM units.	• "To Connect an AlterPath PM to the AUX Port" on page 117 • "To Connect Multiple PMs to the KVM/net" on page 118 See the section about installing PMs in the *AlterPath KVM/net Installation, Configuration, and User's Guide*.
2	Configure the AUX port for use with power management.	"To Configure the AUX Port for Use With an IPDU or an External Modem" on page 267

Table 1-16: Tasks: General Power Management Set Up (Continued)

3	Plug devices into outlets on the PM connected to the AUX port.	Devices plugged into connected PMs can be managed from the KVM/net Web Manager Access Page.
4	Configure users to manage power.	"To Configure Users to Manage Specific Power Outlets" on page 166

The following additional configuration tasks must be performed for power management while accessing a server connected to a KVM port and plugged into an AlterPath PM connected to the AUX port:

Table 1-17: Tasks: KVM-connected Power Management

	Task	**Where Documented/Notes**
5	Plug servers connected to KVM ports into outlets on the PM connected to the AUX port.	This is the first step in allowing users to control power not only from the Web Manager Access page, but while connected to KVM ports as well. Refer to the documentation of your PM model for more information if needed.
5	Associate the ports to which the servers are connected with the power outlets to which the servers are plugged in.	"To Configure a KVM Port for Power Management" on page 183
6	Give users full access (read, write, power) permission on the KVM port(s).	"To Assign KVM Port Access to a User or Group" on page 196

Security

The KVM/net comes with the following configurable security features:

- Security Profiles
- Encryption
- Authentication
- Lockout Macro

Security Profiles

A Security Profile consists of a set of parameters that can be configured in order to have more control over the services that are active at any time. There are three pre-defined security profiles with pre-set parameters. In addition, a Custom profile is provided where an administrator can configure individual protocols and services.

The first step in configuring your AlterPath KVM/net is to define a Security Profile. One of the following situations is applicable when you boot up the KVM/net unit.

1. KVM/net is starting for the first time or after a reset to factory default parameters.

   In this situation when you boot KVM/net up and login as an administrator to the Web Manager, a security warning dialog box appears. The Web Manager is redirected to “Step1: Security Profile”. Further navigation to other sections of the Web Manager is not possible without selecting or configuring a Security Profile. Once you select or configure a Security Profile and save the changes, KVM/net restarts.

2. KVM/net firmware is upgraded and the system is restarting with the new firmware.

   In this situation the KVM/net was already in use and certain configuration parameters were saved in the flash memory. In this case KVM/net automatically retrieves the “Custom Security Profile” parameters saved in the flash memory and behaves as it was a normal reboot.

3. KVM/net is restarting normally.

In this situation the system detects the pre-defined security profile. You can continue working in the Web Manager.

See “Step 1: Security Profile [Wizard]” on page 143 for detailed information on security profiles and configuration procedures

Encryption

Administrators can specify that communications are encrypted between the KVM/net and any computer attached to a KVM port. In the Web Manager, the administrator chooses Expert>Configuration>KVM>IP Users to bring up the IP security form.

See “Local Users and IP Users” on page 176 for instructions.

Authentication

Anyone accessing the KVM/net must log in by entering a username and password. Controlling access by requiring users to enter names and passwords is called authentication. Usernames and passwords entered during login attempts are checked against a database that lists all the valid usernames along with the encrypted passwords. Access is denied if the username or password is not valid. The password database that is used for checking can reside either locally (on the KVM/net) or on an authentication server on the network. The selected authentication server must be already installed and configured in order for authentication to work. Using one or more of the many types of popular authentication methods supported on the KVM/net can reduce administrator workload when a user account needs to be added, modified, or deleted.

Choosing Among Authentication Methods

The administrator can select among authentication methods to control logins to the following components:

- For logins to the KVM/net

  The authentication method chosen for the KVM/net is used for subsequent access through Telnet, SSH, or the Web Manager.
- For logins to all KVM ports

The following table describes the supported authentication methods and indicates which methods are available for the KVM/net and which are available for KVM ports. All authentication methods except “Local” require an authentication server, which the administrator specifies while selecting the authentication method. The KVM/net uses local authentication if any of the authentication servers fails.

Table 1-18: Supported Authentication Types for KVM/net and Port Types

Authentication Type	Description	KVM/net	All KVM Ports
None	No login required	N/A	X
Local	Uses user/password file for local authentication.	X [Default]	X [Default]
Local/Radius	Authentication is performed locally first, switching to Radius if unsuccessful.	X	N/A
Local/TacacsPlus	Authentication is performed locally first, switching to TacacsPlus if unsuccessful.	X	N/A
Local/NIS	Authentication is performed locally first, switching to NIS if unsuccessful.	X	N/A
Kerberos	Uses Kerberos network authentication protocol	X	X
Kerberos/Local	Uses local authentication if Kerberos authentication fails	X	N/A

Table 1-18: Supported Authentication Types for KVM/net and Port Types (Continued)

Authentication Type	Description	KVM/net	All KVM Ports
KerberosDownlocal	Uses local authentication if Kerberos server is down	X	X
LDAP	Uses LDAP (Light-weight directory access protocol)	X	X
LDAP/Local	Uses local authentication if LDAP authentication fails	X	N/A
LDAPDownlocal	Uses local authentication if LDAP server is down	X	X
NIS	Uses NIS authentication	X	N/A
NIS/Local	Uses local authentication if NIS authentication fails	X	N/A
NISDownlocal	Uses local authentication if NIS server is down	X	N/A
RADIUS	Uses RADIUS authentication	X	X
RADIUS/Local	Uses local authentication if RADIUS authentication fails	X	N/A

Table 1-18: Supported Authentication Types for KVM/net and Port Types (Continued)

Authentication Type	Description	KVM/net	All KVM Ports
RADIUSDownlocal	Uses local authentication if RADIUS server is down	X	X
TACACS+	Uses Terminal Access Controller Access Control System (TACACS+) authentication.	X	X
TACACS+/Local	Uses local authentication if TACACS+ authentication fails	X	N/A
TACACS+Downlocal	Uses local authentication if TACACS+ server is down	X	X
NTLM	Uses SMB authentication for Microsoft Windows NT/2000/2003	X	X
NTLM DownLocal	Uses local authentication if NTLM server is down	X	X

Tools for Specifying Authentication Methods

The administrator generally uses the Web Manager for specifying an authentication method for the KVM/net and for all KVM ports, as described in “Network” on page 226. Optionally, the administrator can use the OSD (on screen display) for selecting an authentication method and specifying an authentication server (when needed).

The following table lists the tasks necessary for specifying authentication methods using the Web Manager and the OSD:

Table 1-19: Tasks: Specifying Authentication Methods

Task	Where Documented/Notes
Choosing an authentication method for the KVM/net	• Web Manager – "To Configure an Authentication Method for KVM/net Logins" on page 206 • OSD – "Notification Screens" on page 411
Choosing an authentication method for the for all KVM ports	• Web Manager – "To Configure an Authentication Method for KVM/net Logins" on page 206 • OSD – "General Configuration Screens [OSD]" on page 362
Configuring a remote authentication server	If configuring any authentication method other than Local, an authentication server must be set up for that method. • Web Manager – "Configuring Authentication Servers for Logins to the KVM/net and Connected Devices" on page 208 • OSD – "Notification Screens" on page 411

Lockout Macro

This feature is configurable on each KVM port. It allows the KVM connected servers to automatically switch to locked state when the AlterPath Viewer is closed or an idle time-out occurs.

In addition, when a user tries to access a KVM connected server with a full or read-write permission, the lockout macro command is sent to the server to lock the current user and display the new login window.

Note: A lockout macro will not transmit if the connection is read-only.

If you switch between two KVM connected servers the lockout macro does not lock your session unless in the meantime another user has taken over your session.

The lockout macros are user-programmable. The following table shows the default key sequences on major operating systems.

Table 1-20: Lockout Macro Key Sequences

Operating System	Lockout Macro
Windows XP	[WIN] + L

Windows 2000	[Ctrl+Alt+Del] + K
	K = Lock computer
	L = Log out

Windows 2003	[WIN] + L
	[Ctrl+Alt+Del] + K
	K = Lock computer
	L = Log out

Sun Solaris 10 - CDE	By default there is no hot key defined. Follow the steps below to define a key sequence. 1. Go to Desktop Controls/Tools > Hot key Editor > New Hotkey > Show Details 2. In Hot Key target's name or path enter: /usr/dt/bin/dtaction 3. In Extra-Command-Line arguments select: LockDisplay 4. In the "Enter Hot key" type a key sequence , for example, [Ctrl+Alt] +L 5. Save as and exit 6. Save and reload

Table 1-20: Lockout Macro Key Sequences

Operating System	Lockout Macro
Sun Solaris 10 - JDS	By default there is no hot key defined. Follow the steps below to define a key sequence. 1. Go to Launch > Preferences > Desktop Preference > Keyboard > Shortcuts 2. Select “Lock Screen” and enter the desired hot key sequence, for example, [Ctrl+Alt] + L 3. Save the changes

Table 1-20: Lockout Macro Key Sequences

Operating System	Lockout Macro
SuSe 10 - KDE	Default key sequence is [Ctrl+Alt] +L If desired, follow the steps below to change the default key sequence. 1. From the K Menu, go to Control Center > Regional & Accessibility > Keyboard Shortcuts > Shortcuts Scheme > Global Shortcuts 2. Scroll down to "Desktop" to see the default shortcuts key settings. 3. Select "Lock Session" 4. Click on the Custom button, and the button which displays the current shortcut key sequence. A dialog box opens. 5. Click on "Advanced" and clear the **x** in the default shortcut sequence. 6. Enter the desired shortcut key combination.
SuSe 10 - Gnome	By default there is no defined key sequence. Follow the steps below to define a key combination. 1. Go to Desktop > Gnome Control Center > Shortcuts 2. Select "Lock Screen" and enter the desired key sequence, for example, [Ctrl+Alt] +L

You can use the escape sequence hot keys instead of the key combinations shown in the previous table. For example, [Ctrl+Alt+Del] is equivalent to "@" key.

The following table list the escape sequence hot key equivalent.

Table 1-21: Escape Sequence Hot Key Equivalent

Shortcut Key	Escape Hot Key
Ctrl	^
Alt	$
Shift	#
Win	*
Ctrl+Alt+Del	@

For configuration instructions using the Web Manager see “Configuring Individual KVM Ports” on page 183, or “KVM Ports Screens” on page 394 for using OSD.

Notifications, Alarms, and Data Buffering

The KVM/net administrator can set up logging, notifications, and alarms to alert remote administrators about problems. System-generated messages about the KVM/net, any connected PMs, computers, or other devices can be sent to syslog servers for handling.

The KVM/net administrator can also set up data buffering, so that data communications with KVM-connected computers can be stored in files at the following locations:

- Locally–stored in the flash memory of KVM/net.
- Remote files–stored in either of the two following types of servers:
  - NFS servers
  - Syslog servers

For more details about syslog servers see, “Syslog Servers” on page 54.

For more background about setting up logging, notifications, alarms, and for links to all related procedures in this manual, see “Configuring Logging, Alarms, and SNMP Traps” on page 55.

Syslog Servers

Messages about the KVM/net, its connected PMs, and other connected devices can be sent to central logging servers, called syslog servers. Data from KVM-connected computers can optionally be stored in files on syslog servers.

Syslog servers run operating systems that support system logging services, usually UNIX-based servers with the syslogd configured.

Prerequisites for Logging to Syslog Servers

An already-configured syslog server must have a public IP address that is accessible from the KVM/net. The KVM/net administrator must be able to obtain the following information from the syslog server’s administrator.

- The IP address of the syslog server
- The facility number for messages coming from the KVM/net.

  Facility numbers are used on the syslog server for handling messages generated by multiple devices. See “Facility Numbers for Syslog Messages” on page 54 for more background on how facility numbers are used.

Facility Numbers for Syslog Messages

Each syslog server has seven local facility numbers available for its system administrator to assign to different devices or groups of devices at different locations. The available facility numbers are: Local 0 through Local 7.

Example of Using Facility Numbers

The syslog system administrator sets up a server called “syslogger” to handle log messages from two KVM/net units. One KVM/net is located in São Paulo, Brazil, and the other KVM/net is in Fremont, California. The syslog server’s administrator wants to aggregate messages from the São Paulo KVM/net into the `local1` facility, and to aggregate messages from Fremont KVM/net into the `local2` facility.

On “syslogger” the system administrator has configured the system logging utility to write messages from the `local1` facility to the `/var/log/saopaulo-config` file and the messages from the `local2` facility to the `/var/log/fremont-config` file. While identifying the syslog server using the Web Manager, according to this example, you would select the facility number Local 2 from the Facility Number drop-down list on the System Log form.

SNMP Traps

SNMP traps enables system events to be monitored and a syslog notification generated whenever they occur. The following is a list of generic events.

- User Login
- User Log out
- Authentication failure
- Authentication success
- System reboot

System administrator can configure SNMP traps for various system events, and can activate or deactivate monitoring of the events using the Web Manager or OSD. For instructions using the Web Manager see “Notifications” on page 258, or for OSD see “Notification Screens” on page 411.

Configuring Logging, Alarms, and SNMP Traps

The following procedures can be used to configure logging, alarms, and data buffering.

- “To Add a Syslog Server [Wizard]” on page 158
- “To Delete a Syslog Server [Wizard]” on page 159
- “To Configure Syslogging for KVM Ports and Specify Message Filtering [Expert]” on page 232
- “To Configure Creation of Alarms and Syslog Files for IPDUs” on page 168

VPN and the KVM/net

The KVM/net administrator can set up VPN (Virtual Private Network) connections to establish encrypted communications between the KVM/net and an individual host or all the hosts on a remote subnetwork. The encryption creates a security tunnel for communications through an intermediate network which is untrustworthy.

A security gateway with the IPsec service enabled must exist on the remote network. The IPsec gateway encrypts packets on their way to the KVM/net and decrypts packets received from the KVM/net. A single host running IPsec can serve as its own security gateway. The KVM/net takes care of encryption and decryption on its end.

Connections between a machine like the KVM/net to a host or to a whole network are usually referred to as host-to-network and host-to-host tunnel. KVM/net host-to-network and host-to-host tunnels are not quite the same as a VPN in the usual sense, because one or both sides have a degenerated subnet consisting of only one machine.

The KVM/net is referred to as the Local or “Left” host, and the remote gateway is referred to as the Remote or “Right” host.

In summary, you can use the VPN features on the KVM/net to create the two following types of connections:

- Create a secure tunnel between the KVM/net and a gateway at a remote location so every machine on the subnet at the remote location has a secure connection with the KVM/net.
- Create a secure tunnel between the KVM/net and a single remote host

The gateway in the former example and the individual host in the second example both need a fixed IP address.

To set up a security gateway, you can install IPsec on any machine that does networking over IP, including routers, firewall machines, various application servers, and end-user desktop or laptop machines.

The ESP and AH authentication protocols are supported. RSA Public Keys and Shared Secret are also supported.

Considerations When Choosing Whether to Enable DHCP

DHCP is enabled by default. It relies on a DHCP server known to the KVM/net. Because a DHCP server may assign a different IP address every time the KVM/net reboots, when DHCP is enabled, a user needs to take an additional step to find out the dynamically assigned IP address before being able to bring up the Web Manager. Following are three ways to find out the dynamically assigned IP address:

- Make an inquiry to the DHCP server on the network where the KVM/net resides, using the MAC address (a 12-digit hexadecimal number, which is on a label at the bottom of the KVM/net).
- Connect to the KVM/net remotely using `telnet` or `ssh`.
- Connect directly to the KVM/net to find out the DHCP address using the `ifconfig` command.

KVM Terminator Usage and Types

An AlterPath KVM 4000 Series Terminator converts the server's keyboard monitor and mouse signals. A KVM Terminator must be connected to the monitor keyboard and mouse ports of a server before the server can be connected to a KVM/net port. The KVM Terminator is connected to the KVM/net port through a CAT-5 or greater cable with an RJ-45 connector.

Administrators or operators at remote stations who have access through the KVM/net management software to a KVM port have the same kind of access as if they were using the actual keyboard, mouse, and monitor of the computer that is connected to the port.

The Terminator comes in three models shown in the following table:

Table 1-22: AlterPath KVM Terminators

Server Type	Connection	KVM Terminator Model	Part Number
PC	VGA and PS/2 ports	PS/2	APK4615
PC / Sun	VGA and USB ports	USB	APK4635
Sun	VGA and Mini-DIN ports	Mini-DIN	APK4645

See "To Connect Computers to KVM Ports" on page 80 for instruction on using the KVM Terminators.

When a KVM/net is ordered, the customer selects a KVM Terminator for each type of computer to be connected to the KVM ports.

Activity LEDs on the Terminator

There are two activity LEDs located on the terminator.

1. The "LNK" LED displays a solid amber light when the terminator connects to the server. A quick blinking "LNK" LED indicates the Terminator microcode failed to boot.
2. The "PWR" LED displays a blinking green light when the Terminator's power is on.

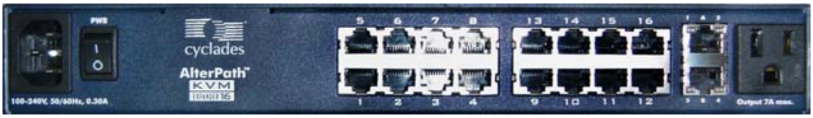
KVM Expander

The AlterPath KVM Expander is designed to connect to the primary KVM/net to increase the number of ports that a primary KVM/net can manage.

Note: The AlterPath KVM Expander is compatible with the KVM, the KVM/net, and the KVM/netPlus. The term primary KVM unit refers to the three types of KVM units.

Front view of the AlterPath KVM Expander:

Back view of the AlterPath KVM Expander 16:



The following sections offer an introduction to the KVM Expander:

- "KVM Expander Features" on page 59
- "KVM Expander Models and Components" on page 60
- "Adding the KVM Expander to the KVM/net Unit's List of Cascaded Devices" on page 67
- "Upgrading the Microcontroller Code" on page 67

KVM Expander Features

The KVM Expander has no CPU, memory, or Flash; therefore, it relies on the intelligence of the primary KVM unit to control its KVM ports, making for a simple processing core as well as a cost-effective method of cascading a KVM/net, a KVM/net, or a KVM/netPlus.

The KVM Expander does support the following features:

- Allows the connection of 8 or 16 servers

  See “KVM Expander Models and Components” on page 60 for more details.
- Supports all existing Terminators

  See “KVM Terminator Usage and Types” on page 58 for more details.
- Is compatible with the AlterPath KVM, KVM/net, and KVM/netPlus units

  See “Cascaded Devices” on page 21 for more details.
- Operates with up to two input ports – User A and User B

  See “Ports on the KVM Expander” on page 62 for more details.
- Supports horizontal or vertical rack mounting

  See “Setting Up the KVM Expander” on page 121 for more details.
- Allows daisy-chaining of KVM Expander units through its AC power outlet

  See “To Power On Devices Daisy Chained to the KVM Expander’s Power Outlet” on page 125 for more details.
- Displays port status with LEDs.

  See “LEDs on the KVM Expander” on page 63

KVM Expander Models and Components

The KVM Expander comes in two models, which differ only in number of KVM ports:

Table 1-23: KVM Expander Model Numbers and Port Options

Model Number	Part Numbers	KVM Ports
8	ATP4208	8
16	ATP4216	16

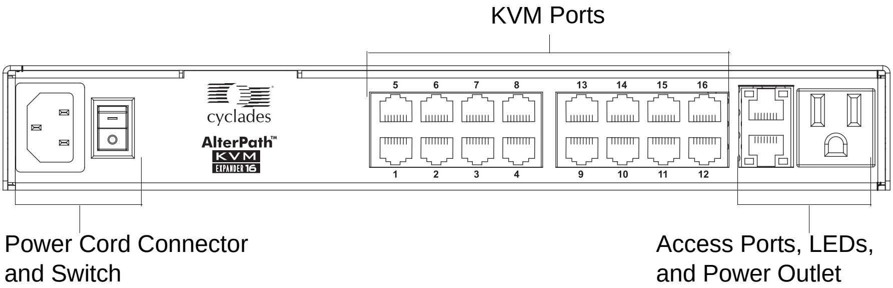

KVM Ports
5
6
7
8
13
14
15
16
1
2
3
4
9
10
11
12
cyclades
AlterPath™
KVM
EXPANDER 16
Power Cord Connector and Switch
Access Ports, LEDs, and Power Outlet

Figure 1-11: KVM Expander Back Panel Components

The following sections explain the components of the KVM Expander:

- "Ports on the KVM Expander" on page 62
- "LEDs on the KVM Expander" on page 63
- "Power Outlets on the KVM Expander" on page 63

Ports on the KVM Expander

The KVM Expander has two CAT5 access ports and either 8 or 16 KVM ports.

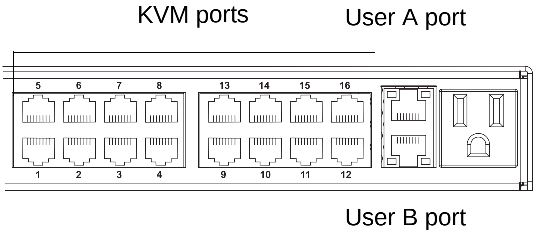


Figure 1-12: Ports on the KVM Expander Back Panel

Table 1-24: KVM Expander Port Types

Port Type	Use and Connection Information
User A and User B	The access ports can be connected with an RJ-45 cable to KVM ports on the primary KVM unit. Once the KVM Expander is configured as a cascaded device on the master KVM unit, users can connect to one or both ports. Each port allows one connection to a server plugged into the KVM Expander, so a maximum of two server connections can be made at one time. See “Installing the AlterPath KVM Expander” on page 119.
KVM ports	KVM ports on the KVM Expander work exactly as the KVM ports on the KVM/net: They allow the connection of a CAT 5 cable to a Terminator, which is connected to a server. See “KVM Ports” on page 7 for more background information on KVM ports. See “Connecting Servers to the KVM Ports” on page 78 for information on connecting servers to the KVM ports.

LEDs on the KVM Expander

The following table describes the LED activities on the KVM Expander.

Table 1-25: LED Activities on the KVM Expander

Number	Label	Function	Color/Status
1, 3	User A & User B	Connection Status	• Green - Lights when a connection is established and operational. • Orange - Lights when a connection to a port is attempted by the "master" KVM switch. • Off - When no connection is active or attempted.
2, 4	User A & User B	Power	• Green and Orange - Blinks when the KVM Expander is powered on and operates normally.

Power Outlets on the KVM Expander

The KVM Expander has a power connector for power input and a power outlet for daisy chaining additional KVM Expanders or any other device.

Caution! The total amount of power consumed by devices daisy-chained to the KVM Expander must not exceed seven amps.

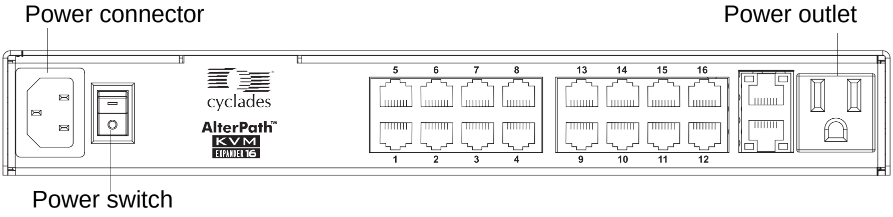


Figure 1-13: Power components on KVM Expander Back Panel

Cascading a KVM Expander

The KVM Expander can support up to two users simultaneously accessing its KVM ports. In a two-user configuration, a primary KVM switch uses two connections for each KVM Expander-to-primary KVM switch configuration:

- User A port – One CAT5 cable between a KVM port on the primary KVM unit and the User A port on the KVM Expander
- User B port – One CAT5 cable between a KVM port on the primary KVM unit and the User B port on the KVM Expander

In a single user configuration, only one CAT5 cable is connected from a KVM port on the primary KVM unit to either of the user ports on the KVM Expander.

The following diagram displays a KVM Expander cascaded from a KVM/net.

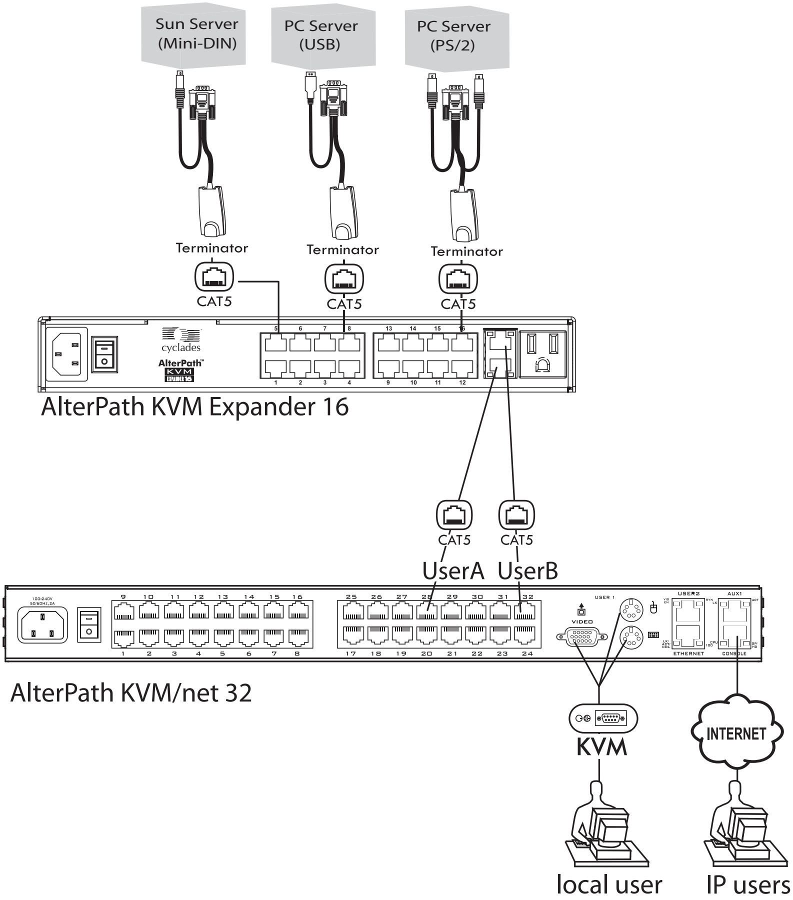


Figure 1-14: Connecting a KVM Expander to the KVM/net

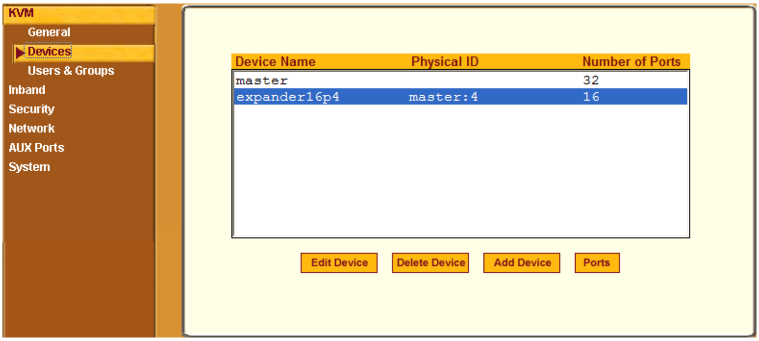
The following table shows the maximum number of servers a primary KVM, KVM/net, or KVM/netPlus can support when cascaded with a KVM Expander 8 or a KVM Expander 16.

Table 1-26: Maximum Number of Supported Servers

KVM Unit	Model Number	KVM Expander Model Number	Maximum Number of Servers
KVM	AlterPath KVM 16	KVM Expander 16	512
KVM	AlterPath KVM 32	KVM Expander 8	256
KVM/net	AlterPath KVM/net 16	KVM Expander 16	256
KVM/net	AlterPath KVM/net 32	KVM Expander 8	128
KVM/netPlus	AlterPath KVM/netPlus 1601/1602/1604	KVM Expander 16	256
KVM/netPlus	AlterPath KVM/netPlus 1601/1602/1604	KVM Expander 8	128
KVM/netPlus	AlterPath KVM/netPlus 3201/3202/3204	KVM Expander 16	512
KVM/netPlus	AlterPath KVM/netPlus 3201/3202/3204	KVM Expander 8	256

Adding the KVM Expander to the KVM/net Unit’s List of Cascaded Devices

Once the administrator connects the KVM Expander to the primary KVM unit, the administrator must add the Expander to the primary unit’s list of cascaded devices. Using the KVM/net Web Manager in Expert Mode, go to: Configuration>KVM>Devices to see the form displayed in the following figure.



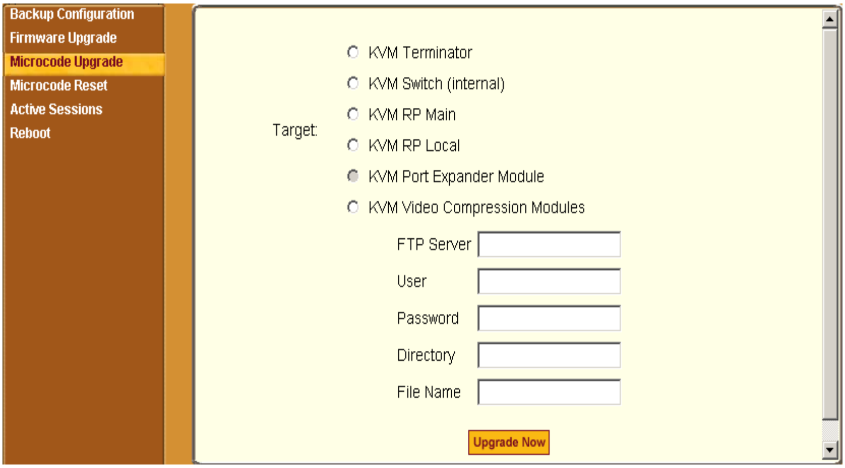
Device Name	Physical ID	Number of Ports
master		32
expander16p4	master:4	16

Figure 1-15: Devices Form on KVM/net Web Manager

See “Configuring Cascaded KVM Units” on page 187 for instructions on adding, deleting, and modifying cascaded devices.

Upgrading the Microcontroller Code

Once a KVM switch is installed and configured, administrators can use the Microcode Upgrade form on the primary KVM unit to upgrade the microcode on a KVM terminator, switch, RP, Port Expander, or video compression modules. Using the KVM/net Web Manager in Expert Mode, go to: Management > Microcode Upgrade to see the form displayed in the following figure.



Target:
○ KVM Terminator
○ KVM Switch (internal)
○ KVM RP Main
○ KVM RP Local
○ KVM Port Expander Module
○ KVM Video Compression Modules

FTP Server
User
Password
Directory
File Name

Figure 1-16: Microcode Upgrade Form on KVM/net Web Manager

See “Microcode Upgrade” on page 290 for instructions on updating the microcode on a KVM Expander.

User Access

The primary KVM switch takes care to prevent the same server port from being accessed by both user ports. If this happens, the last user to access the server port will have read-only access.

AlterPath KVM RP

While using the AlterPath KVM RP, an administrator has full access to the OSD menus, so all local administration tasks can be performed in an office or at any other location up to 500 feet away from the KVM/net. In addition, you do not need a dedicated monitor, keyboard, and mouse to use the RP; the RP box allows you to use the monitor, keyboard, and mouse of your regular work station and use keyboard shortcuts to toggle between the view at your local work station and the view of the KVM/net. The RP also offers keyboard shortcuts to manage the extended local access to the KVM/net. The following diagram displays the connections between the RP, the KVM/net, and the local keyboard, monitor, and mouse. The AlterPath KVM RP is available in one model whose part number is ATP4710.

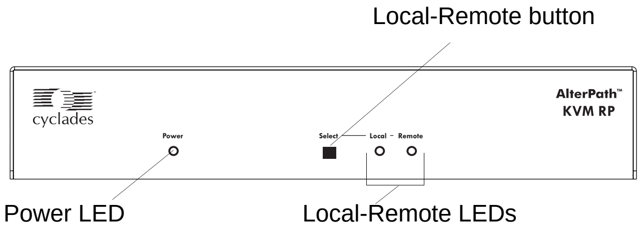


Figure 1-17: KVM RP Front

Connectors on the Back of the KVM RP

The RP has a power supply and a User, a PC, and a Remote User port as displayed in the following figure.

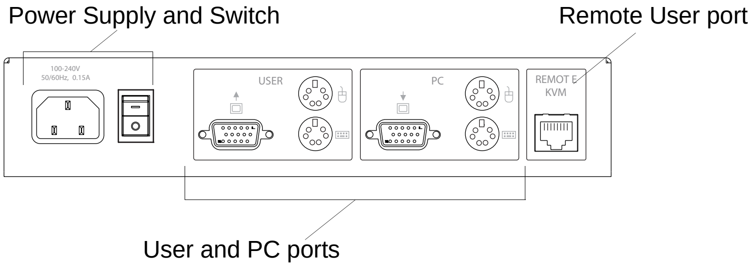


Figure 1-18: KVM RP Back Panel

The following table offers more details about the use of and cables for each port on the back of the KVM RP.

Table 1-27: KVM RP Port Types

Port Type	Use and Connection Information
Remote User	Its RJ-45 connection can be connected by a CAT5 cable to the User 2 port on the KVM/net.

Table 1-27: KVM RP Port Types (Continued)

Port Type	Use and Connection Information
User [PS/2 and VGA]	Keyboard, video, and mouse (KVM) management port. Includes two PS/2 ports and a VGA port, which can be connected with a KVM cable to the PS/2 ports and a VGA port on the back of the computer at the local work station.
PC [PS/2 and VGA]	Keyboard, video, and mouse (KVM) management port. Includes two PS/2 ports and a VGA port, which can be connected to a local station's mouse, keyboard, and monitor.

Chapter 2
Installation

This chapter outlines and described tasks for installing the KVM/net and provides other important installation-related information.

The following table lists the basic installation tasks in the order in which they should be performed and shows the page numbers where the tasks are described in more detail.

1	Review the contents of the shipping box	Page 73
2	Set up the KVM/net	Page 75
3	Make an Ethernet connection	Page 77
4	Connect servers to be managed through the KVM/net	Page 78
5	Make a direct connection (terminal or local monitor, keyboard, and mouse) to the KVM/net to prepare for basic network configuration	Page 82
6	Power on the KVM/net and connected devices	Page 83
7	Perform basic network configuration (using the wiz command or OSD network screen)	Page 84
8	Finish configuration and manage the connected devices using the Web Manager	Page 98

Also see the following instructions for setting up the KVM/net:

Changing Default Passwords	Page 99
Enabling Access to the Web Manager without Making a Direct Connection	Page 101
Preconfiguring the KVM/net for Remote Installation	Page 104
Additional Configuration Tasks	Page 105

Perform the optional procedures in “Advanced Installation Procedures” on page 115 if you are installing an AlterPath PM, an external modem, an AlterPath KVM RP, an AlterPath KVM Expander, or an other cascaded KVM devices.

Shipping Box Contents KVM/net

The shipping box for the KVM/net contains the KVM/net along with the items shown in Table 2-1. The entry for each part provides an illustration, its part number (P/N), description, and purpose. You can use check boxes to check off each item, and you can use the part numbers from this table to reorder any of the parts.

Table 2-1: Shipping Box Contents, Part Numbers, and Description (Sheet 1 of 3)

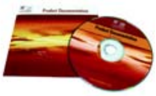
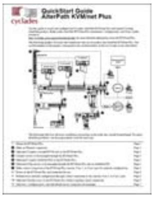
☑	Item	P/N	Description	Purpose
□		PAC0226	Documentation CD	PDF copies of this guide and all other Cyclades product documents.
□	cyclades QuickStart Guide AlterPath KVM/net Plus	PAC0303	*AlterPath* KVM/net *Quick Start Guide*	Basic installation guide for experienced users in printed format.
□		CAB0010	3-pin power cord	Use to plug into a grounded AC power outlet. For other types of power sources, contact Cyclades sales for other cord options.

Table 2-1: Shipping Box Contents, Part Numbers, and Description (Sheet 2 of 3)

☑	Item	P/N	Description	Purpose
□		CAB0018	RJ-45 to RJ-45 7ft. CAT5 cable	Use for the following: • To connect a server to a KVM port (with the appropriate Terminator from Table 1-22 on page 58). See “Connecting Servers to the KVM Ports” on page 78. • To connect an Ethernet port to the LAN. See “To Make an Ethernet Connection” on page 77. • To connect a terminal to a console port. See “To Connect to the Console Port” on page 82. • To connect an IPDU or external modem to the AUX port. See “Connecting AlterPath PMs to the KVM/net” on page 117 and “Connecting an External Modem” on page 116.
□		ADB0036	RJ45 to DB9F crossover adapter	To connect the console port to a computer that has a DB-9 connector.

Table 2-1: Shipping Box Contents, Part Numbers, and Description (Sheet 3 of 3)

☑	Item	P/N	Description	Purpose
□		HAR0220	2 - Mounting brackets with 8 - screws (2 spares	Use to mount the KVM/net to a rack or wall. See “To Mount the KVM/net” on page 76.

When ordering the KVM/net, customers also order one KVM Terminator for each server to be connected to one of the KVM ports. The number and types of KVM Terminators in each order are based on the number of KVM ports on the KVM/net model that is being shipped and on the types of servers that are to be connected to the KVM ports. For details, see “KVM Terminator Usage and Types” on page 58.

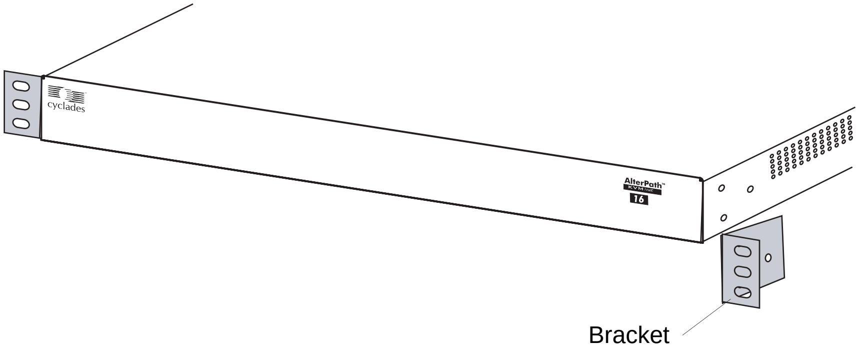
Note: For more information about cabling, see “RS-232 Cabling Tutorial” at http://www.cyclades.com/resources.” For ordering information, see “Cyclades Product Guide,” available at: http://www.cyclades.com/common/www/pdf/catalog.en.pdf.

Setting Up the KVM/net

You can mount the KVM/net on a rack or place it on a desktop or other flat surface. Two brackets are supplied with sixPhillips screws for attaching the brackets to the KVM/net for mounting.

- If you are not mounting the KVM/net, place the KVM/net on a desk or table.
- If you are mounting the KVM/net, obtain a Phillips screwdriver and appropriate nuts and bolts before starting the following procedure.

The following graphics depict the orientation of the brackets for front mounting the KVM/net.



▼ *To Mount the KVM/net*

1. Decide whether you need to mount the KVM/net by the front or back and locate the appropriate sets of holes on the KVM/net.

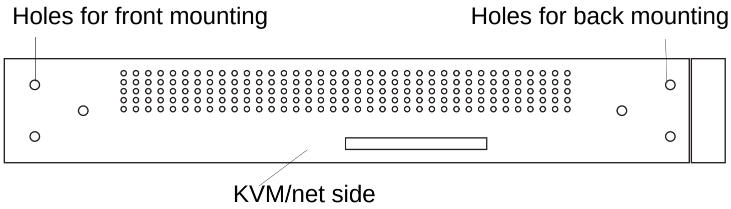
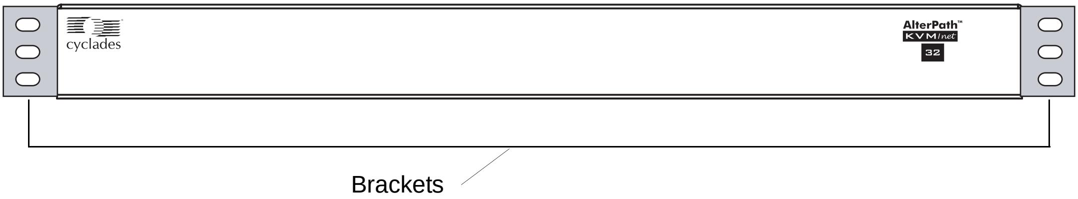


Figure 2-1: Rack Mounting Holes on the KVM/net

2. Connect the two supplied brackets to the KVM/net, connecting one bracket to each side of the box.
3. For each bracket, insert a screw through each of the three holes on the bracket into the appropriate holes at either the front or back of the KVM/net.

The following figure shows the bracket flanges on the front of the KVM/net after the brackets are installed.



4. Use a Phillips screwdriver to tighten the screws.

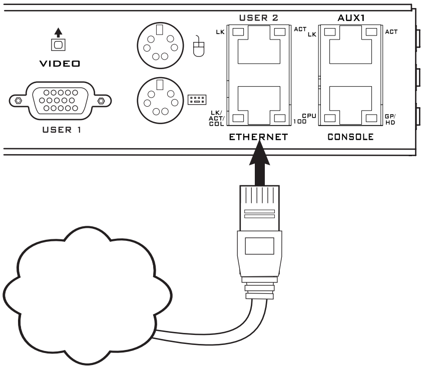
5. Use the mounting hardware recommended for your rack to mount the KVM/net on a rack.

Making an Ethernet Connection

Make an Ethernet connection to the KVM/net in order to have Ethernet access to the Web Manager and remote access to devices connected to the KVM/net.

▼ *To Make an Ethernet Connection*

1. Connect one end of an Ethernet cable to your local area network (LAN).
2. Connect the other end to the Ethernet port on the KVM/net.



Remote connections can also be made through an external modem connected to the AUX port. See “Modem Connections” on page 346 for background information and instructions.

Connecting Servers to the KVM Ports

You need to connect a KVM Terminator to every server before connecting it to a KVM port. Three Terminator types are available:

- APK4615 - PS/2 for PC servers
- APK4635 - USB for PC or Sun servers
- APK4645 - Sun Mini-DIN

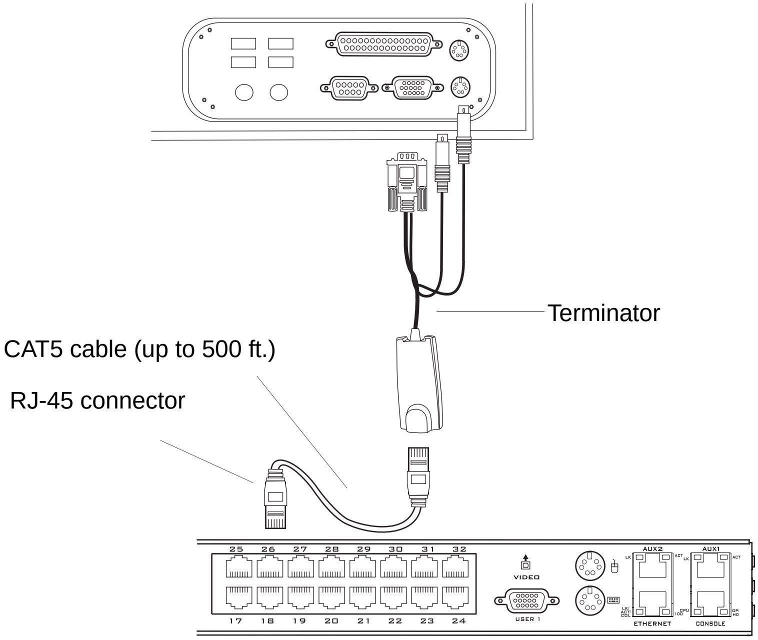


Figure 2-2: Connecting Servers to KVM Ports

Note: The KVM/net components are hot pluggable, but components of connected devices, such as the PS/2 keyboard and mouse ports on a computer, may not be hot pluggable. Turn off power to all devices before connecting them. Power on connected devices again only after the KVM/net is powered on.

Follow the procedures below when connecting computers to KVM ports on the KVM/net or on the KVM Expander. For connecting AlterPath PMs or cascaded KVM units, see Chapter 3, “Advanced Installation Procedures.”

Note: KVM port connections rely on the CAT5 cable having all four pairs wired. If you are connecting a KVM port to a server through a patch panel, make sure that all cables in the path are CAT5 or better and that the patch panel has all four pairs wired.

▼ *To Prepare to Connect Servers to the KVM/net*

1. Ensure that all configuration is complete on servers to be connected.

Work with the administrator of the devices to ensure all the following prerequisites are complete:

- All servers are installed and fully configured.
- User accounts with the appropriate permissions level exist on each server and you have the computer’s root password for users who need root access to manage the server through the KVM/net.
- On all computers to be connected to KVM server ports, the mouse settings have been modified, as described in “Disabling Mouse Acceleration” on page 106.

2. If a server is to use remote authentication, do the following steps:

a. Make sure that the following prerequisite configuration is complete:

- Authentication servers are installed and fully configured.
- You have the root password for all users who need root access to manage the server through the KVM/net.

Note: You may want to assign different passwords for a server’s administrator on the KVM/net and on the server’s remote authentication server. If the administrator logs into the server using the password for the authentication server and log in fails, the failure can indicate that the authentication server is down and that the server’s administrator should be notified to take action.

b. Obtain the information you need to identify the authentication server on the KVM/net from the server's administrator.

c. After the KVM/net is installed, make sure to specify the desired authentication method for the ports that are connected to each server.

See "Security" on page 44 for background information and see "Network" on page 226 for the procedure.

3. Because some components of connected equipment may not be hot pluggable, make sure all servers are powered off.

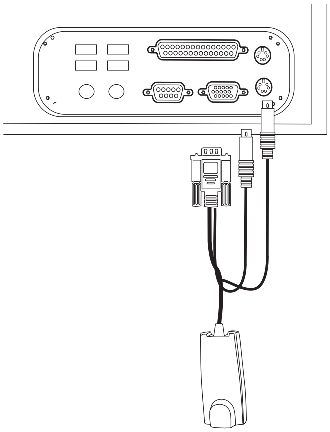
▼ *To Connect Computers to KVM Ports*

Do these steps after completing "To Prepare to Connect Servers to the KVM/net" on page 79.

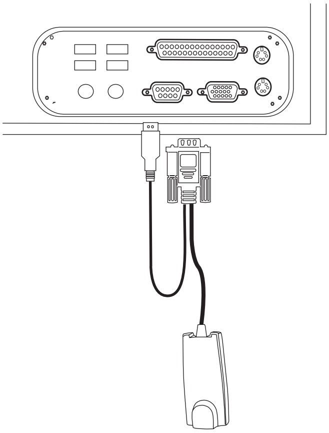
1. Select the appropriate Terminator.
2. Connect the appropriate keyboard and mouse connectors.

Important: To avoid system conflicts connect the Terminator to the server in the following order.

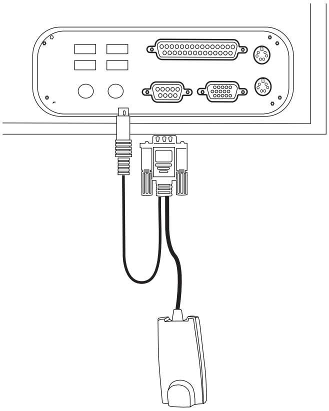
- On a PS/2 Terminator for a PC server, first connect the Terminator's green connector to the server's mouse port, and then connect the Terminator's purple keyboard connector to the server's keyboard port.



- On a USB Terminator for a PC or a Sun server, connect the Terminator's USB connector to the USB port on the server.



- On a Mini-DIN Terminator for a Sun server, connect the Terminator’s Mini-DIN connector to the Mini-DIN port on the server.



3. Connect the Terminator’s VGA (HD-15 male) connector to the computer’s VGA (monitor) port. Tighten both screws firmly but do not over-tight them.

Note: Two activity LEDs are located on the terminator. The “Link” LED displays a solid amber light when the terminator connects to the server. The “On” LED displays a blinking green light when the terminator is on.

4. To extend the connection from the computer to the KVM/net, connect an RJ-45 to RJ-45 CAT5 cable up to 500 feet long to the Terminator.

5. Connect the RJ-45 connector on other end of the cable to a KVM port on the KVM/net.
6. Repeat Step 1. through Step 5. for all computers to be connected to the KVM ports.
7. If any user is using a PC with Windows XP server pack 2 installed and Internet Explorer 5 or 6 to remotely administer a connected server, make sure the procedure under “Required Security Settings For Internet Explorer” on page 109 has been done on the PC.
8. If this is a first-time installation, go to “Making a Direct Connection for Network Configuration” on page 82.

Making a Direct Connection for Network Configuration

The system administrator must specify basic network settings on the KVM/net before administrators can connect to and manage the unit and the connected devices through a browser. To prepare to perform necessary basic network configuration, make a direct connection to the KVM/net by doing one of the following:

- Connect a terminal or computer to the CONSOLE port.

  See “To Connect to the Console Port” on page 82.
- Connect a keyboard, monitor, and mouse to the keyboard, monitor, and mouse connectors on the KVM/net.

  See “To Connect to the User 1 Management Port” on page 83.

See “Enabling Access to the Web Manager without Making a Direct Connection” on page 101, if desired, for other procedures that require advanced system administration expertise.

▼ *To Connect to the Console Port*

Perform the following steps to connect a computer to the console port of the KVM/net. This procedure assumes that you know how to use a terminal emulation program.

On a PC, ensure that HyperTerminal or another terminal emulation program is installed on the Windows operating system. On a computer running a UNIX-based operating system, such as Solaris or Linux, make sure that a compatible terminal emulator such as Kermit or Minicom, is installed.

1. Connect an RJ-45 serial cable to the console port on the KVM/net.
2. Connect the other end to a USB serial adapter or DB-9 connection on the computer.
3. Using a terminal emulation program installed on a computer, start a session with the following console port settings:

Serial Speed: **`9600`** bps	Stop Bits: **`1`**
Data Length: **`8`** bits	Flow Control: **`None`**
Parity: **`None`**	ANSI emulation

4. Go to Chapter 2. “Powering On the KVM/net and Connected Devices” on page 83.

▼ *To Connect to the User 1 Management Port*

1. Plug the station's monitor, keyboard, and mouse cables to the Keyboard, Video, and Mouse connectors, labelled User 1, on the KVM/net.
2. Go to “Powering On the KVM/net and Connected Devices” on page 83.

Powering On the KVM/net and Connected Devices

The KVM/net components are hot pluggable, but components of connected devices, such as the PS/2 keyboard and mouse ports on a computer, may not be hot pluggable. Turn off power to all devices before connecting them. Power on connected devices again only after the KVM/net is powered on.

▼ *To Power On the KVM/net*

1. Make sure the KVM/net's power switch is off.

   The power is off when the side of the power switch with the circle is pressed down.

2. Plug in the power cable.
3. Turn the KVM/net's power switch on.

   The KVM/net beeps once.

▼ *To Power On Connected Devices*

Do this after "Connecting Servers to the KVM Ports" on page 78.

- Turn on the power switches of the connected computers and devices.

Performing Basic Network Configuration

The administrator must specify basic network settings before regular users can connect to and manage the KVM/net and the connected devices through a browser. Do one of the following to assign a fixed IP address to the KVM/net, and to specify the netmask and other networking parameters:

- Through a console connection, log in and use the wiz command.

  See "Configuring Basic Networking Using the wiz Command" on page 85.
- Through a local KVM connection, log in to the OSD and configure networking through the network screen.

  See "Configuring Basic Networking Using the OSD" on page 89.

Before you start, collect the following network information from the administrator of the network where the KVM/net is to reside.

❑ Hostname:	
❑ KVM/net's public IP address:	
❑ Domain name:	

❑ DNS server’s IP address:	
❑ Gateway IP address:	
❑ Network mask:	
❑ KVM/net’s MAC address (from the label on the bottom):	
❑ NTP server’s IP address (if you are using a time/date server):	

Note: The following procedures tell you to disable DHCP. Enabling DHCP requires a DHCP server at your site. See “Considerations When Choosing Whether to Enable DHCP” on page 57 for more details and see “To Use a Dynamic IP Address to Access the Web Manager” on page 102 for the tasks that must be performed.

Configuring Basic Networking Using the wiz Command

The following procedures require a hardware connection already made between the KVM/net’s console port and the COM or USB port of a computer, as described under “To Connect to the Console Port” on page 82.

▼ *To Log in to the KVM/net Through the Console*

From your terminal emulation application, log in to the console port as root.

```
 KVM/net login: root
Password: cyclades
```

As shown in the previous screen, the default password is “cyclades.” If the password has been changed from the default, use the new password.

▼ *To Change the Password Through the Console*

If the default password “cyclades” is still in use, change the root password.

Note: Changing the default password closes a security hole that could be easily exploited.

1. Enter the **passwd** command.

```
[root@ KVM/net /]# passwd
```

2. Enter a new password when prompted.

```
New password: new_password

Re-enter new password: new_password

Password changed
```

▼ *To Use the wiz Command to Configure Network Parameters*

1. Launch the Configuration Wizard by entering the **wiz** command.

```
[root@ KVM/net /]# wiz
```

2. At the prompt, enter **n** to change the defaults.

```
Set to defaults (y/n)[n]: n
```

3. Press Enter to accept default hostname, otherwise enter your own hostname.

```
Hostname [ KVM/net]: boston_branch_kvm
```

4. Press Enter to disable DHCP.

```
Do you want to use DHCP to automatically assign an
IP for your system? (y/n)[n]: n
```

5. Enter a public IP address to assign to the KVM/net.

```
System IP[192.168.160.10]: public_IP_address
```

6. Enter the domain name.

```
Domain name[cyclades.com]: domainname
```

7. Enter the IP address of the DNS (domain name) server.

```
Primary DNS Server[192.168.44.21] :
DNS_server_IP_address
```

8. Enter the IP address for the gateway.

```
Gateway IP[eth0] : gateway_IP_address
```

9. Enter the netmask for the subnetwork.

```
Network Mask[#] : netmask
```

10. To apply and confirm these parameters, see “To Apply and Confirm the Network Parameters Defined Using the wiz Command” on page 87.

▼ *To Apply and Confirm the Network Parameters Defined Using the wiz Command*

This procedure must be completed immediately after defining network parameters using the wiz command as described in “To Use the wiz Command to Configure Network Parameters” on page 86

1. Review the values of all the network configuration parameters, as shown in the following screen example. The values shown are for example only.

```
Current configuration:

Hostname : kvm
DHCP : disabled
System IP : 192.168.45.32
Domain name : cyclades.com
drwxr-xr-x    1 root
Primary DNS Server :
192.168.44.21
Gateway IP : 198.168.44.1
Network Mask : 255.255.252.0
Are all these parameters
correct? (y/n) [n] :
```

2. Enter **y** if the values shown are correct, or press Enter.
3. The following prompt appears when “y” is entered.

```
Are all the parameters correct? (y/n)[n]: y
```

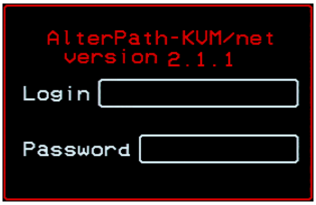
4. Enter **y** to save the changes.

```
Do you want to save your configuration to Flash?
(y/n)[n]: y
```

5. To confirm the configuration, enter the `ifconfig` command.
6. The new network parameters display.
7. Log out from the terminal session.
8. In a HyperTerminal application on a Windows PC, go to “File > Exit”.
9. If performing a first-time installation, go to “Completing Configuration Using the Web Manager” on page 98.

Configuring Basic Networking Using the OSD

This procedure requires a hardware connection already made between the KVM/net's KVM management port and a local monitor, keyboard, and mouse, as described under "To Connect to the User 1 Management Port" on page 83. After the KVM/net and monitor are powered on, the OSD login screen appears.



AlterPath-KVM/net
version 2.1.1

Login

Password

The following table shows how to perform common actions described in the following procedures when working with the OSD.

Table 2-2: OSD Equivalents for Common Actions

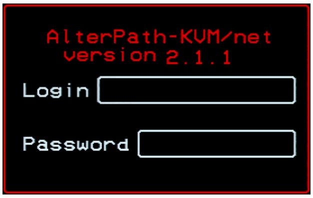
Action	OSD Equivalent
Press OK.	Tab to the OK button and press the Enter key on your keyboard.
Enter <any value>.	Type the value in the appropriate field and press the Enter key.
Save changes.	Tab to the Save button and press the Enter key.
Select <an option>.	Press an arrow key to navigate. Select the menu option and then press the Enter key.
Go to a specific screen, as in: "Go to 'Configure > Users and Groups > Local Users > Change Password'."	From the Main menu, select the first option shown in the menu path; "Configure" in the example. On the next menu, select the next option shown after the > (right angle bracket); "Users and Groups" in the example. Repeat until you select the last option in the menu path.
Exit the OSD.	Click the X box on the upper right of the viewer. If you are on the Main Menu, you can select Exit.

Note: If your keyboard has a Return key instead of an Enter key, press the "Return" key when you see "Enter."

▼ *To Log into the OSD*

1. On the OSD login screen, enter "admin" as the Login name.
2. Enter the password.

   The default password is "cyclades." If the password has been changed from the default, use the current password.



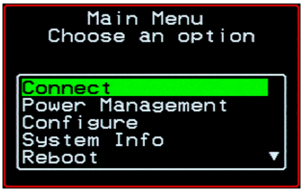
AlterPath-KVM/net
version 2.1.1

Login

Password

3. Press Enter.

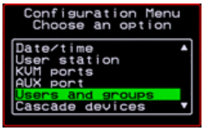
   The OSD Main Menu appears.

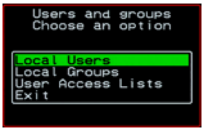


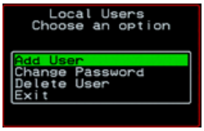
4. If you are performing an initial configuration of basic networking parameters, go to "To Change a Password Using the OSD" on page 91; otherwise, go to "To Configure Network Parameters Using the OSD" on page 92.

▼ *To Change a Password Using the OSD*

1. From the OSD Main Menu, go to Configure > Users and Groups > Local Users > Change Password.

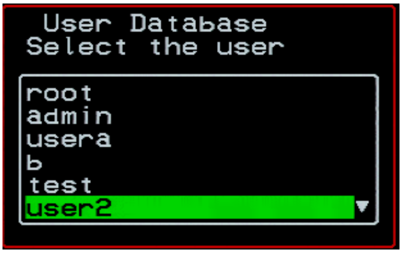




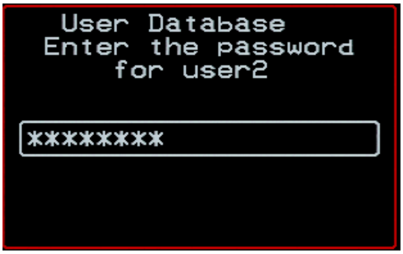


Warning! If the “admin” password has not been changed, change it now. Changing the default password closes a security hole that could be easily exploited.

2. Select the user name from the list of users on the User Database screen.



3. Enter a new password.



4. Re-enter the new password.

   The password confirmation dialog box appears.

5. Press Enter.

   The Local Users menu appears.

6. Select Exit or press the Esc key to exit the Local Users menu.

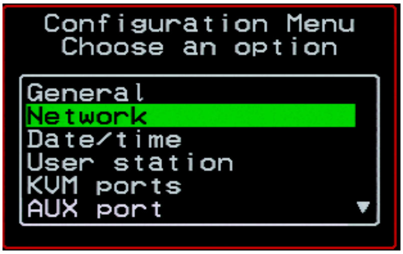
   You can use the Exit or Cancel option or the Esc key to exit any window on the OSD.

7. If you are performing an initial configuration of basic networking parameters, see “To Configure Network Parameters Using the OSD” on page 92.

8. Otherwise, go to the appropriate menu option for your next task.

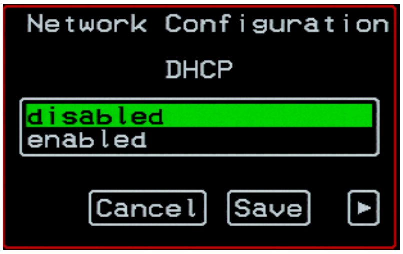
▼ *To Configure Network Parameters Using the OSD*

1. From the OSD Main Menu, go to Configure > Network.



```
  Configuration Menu
   Choose an option

General
Network
Date/time
User station
KVM ports
AUX port               ▼
```

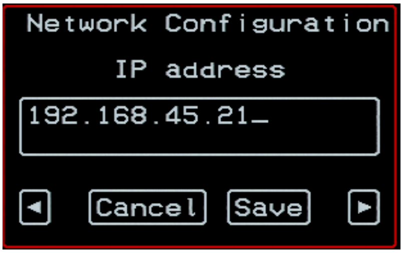
The DHCP form appears.



```
 Network Configuration

         DHCP

disabled
enabled

     Cancel  Save   ▶
```

2. Select the “disabled” option and press Enter.

   The IP address form appears.



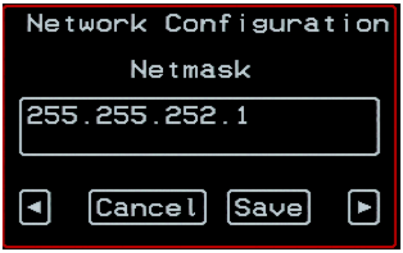
Network Configuration

IP address

192.168.45.21_

3. Enter the IP address for the KVM/net and press Enter.

   The Netmask form appears.



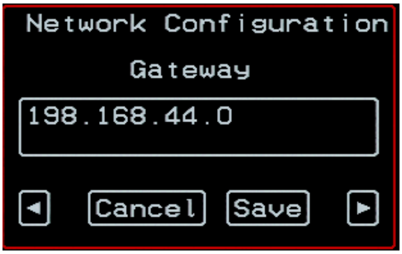
Network Configuration

Netmask

255.255.252.1

4. Enter the netmask (in the form 255.255.255.0) and press Enter.

   The Gateway form appears.



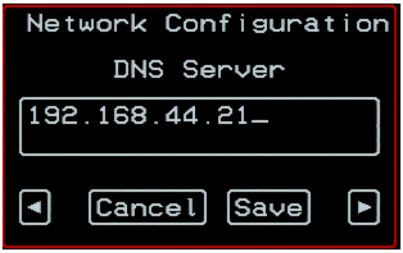
Network Configuration

Gateway

198.168.44.0

5. Enter the IP address for the gateway and press Enter.

   The DNS Server form appears.

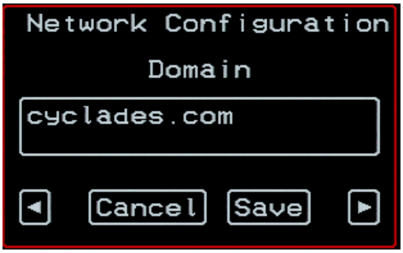

Network Configuration

DNS Server

192.168.44.21_

6. Enter the IP address for the DNS server and press Enter.

   The Domain form appears.

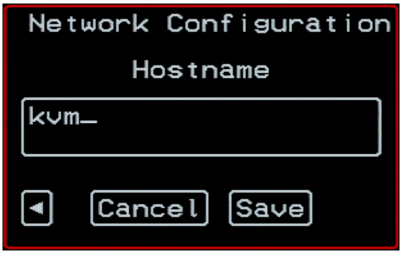

Network Configuration

Domain

cyclades.com

7. Enter the domain name and press Enter.

   The Hostname form appears.


Network Configuration

Hostname

kvm_

8. Enter the hostname for the KVM/net and save the changes to complete the basic network configuration.

   The Configuration menu appears.

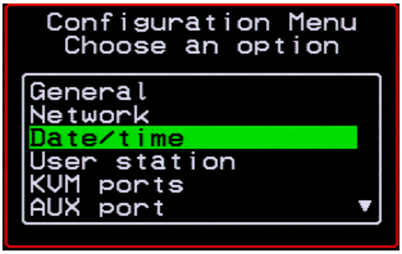
   - To configure an NTP (network time protocol) server or to enter the date and time manually, go to “To Set the Time and Date Using the OSD” on page 96.

- If you do not wish to configure the time and date at this time, and if you are performing an initial configuration of basic networking parameters, go to: “Completing Configuration Using the Web Manager” on page 98.
- Otherwise, go to the appropriate menu option for your next task or exit from the OSD.

▼ *To Set the Time and Date Using the OSD*

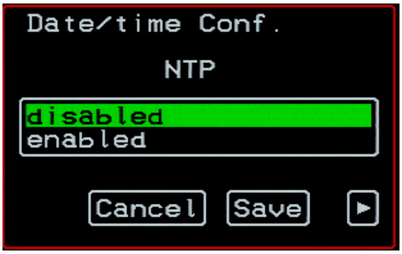
1. From the Main menu of the OSD, go to Configure.

   The Configuration menu appears.



2. Select Date/time.

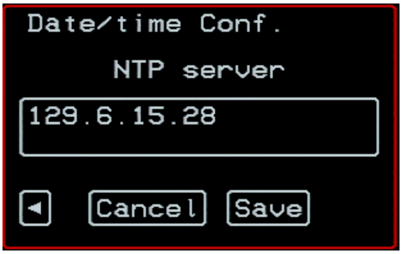
   The Date/time conf. form appears.



3. To enable the NTP time and date server, do the following.

   a. On the Date/time conf. form, select the “enabled” option.

      The NTP server screen appears


Date/time Conf.

NTP server

129.6.15.28

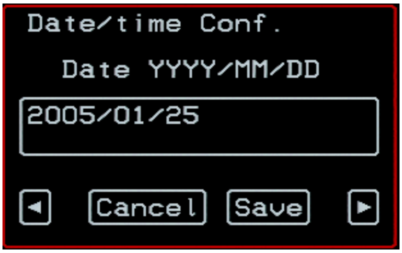
b. Enter the IP address of the NTP server.

c. Save the changes.

4. To enter the date and time manually, do the following.

a. On the Date/time conf. form, select disabled.

The Date entry screen appears.



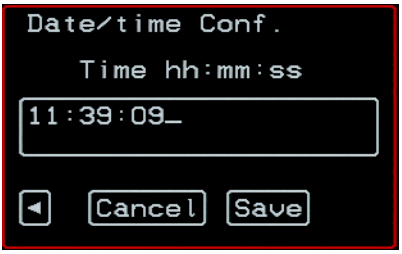
Date/time Conf.

Date YYYY/MM/DD

2005/01/25

b. Enter the date in the format shown and press Enter.

The Time entry screen appears.



Date/time Conf.

Time hh:mm:ss

11:39:09_

c. Enter the time in the format shown and save the changes.

If you are performing an initial configuration of basic networking parameters, go to: “Completing Configuration Using the Web Manager” on page 98.

Otherwise, go to the appropriate menu option for your next task.

Completing Configuration Using the Web Manager

The “admin” user can administer the KVM/net and its connected devices through the Web Manager without doing any additional configuration.

The following list shows other common configuration tasks:

- Enable direct login to ports from the Web Manager login screen
- Set up local or remote data buffering (to save console input to a log file) and specify alarms
- Set up logging of system messages to a syslog server
- Configure power management for the AUX port if the port is connected to an optional AlterPath PM
- Choose among authentication methods and specify authentication servers
- Specify optional encryption levels
- Configure rules for a firewall
- Configure a time and date (NTP) server or set the time and date manually

See “Web Manager for Administrators” on page 133 for procedures for performing the common KVM/net administration tasks listed in this section.

Following is a brief list of ways the admin can assign tasks to other users:

- Let other users manage servers or PMs without being able to make changes to the KVM/net configuration
- Assign users or groups to specific ports, restricting users to a limited set of devices
- Let other users share all administration of the KVM/net

Changing Default Passwords

For security purposes, the root and admin users must change their default passwords as soon as possible. Not changing the default passwords leaves a big security hole that can be exploited.

▼ *Changing admin’s Default Password [Web Manager]*

1. Bring up the Web Manager.
2. Log in as admin using the default password, “cyclades”.
3. In Wizard Mode, go to **Step2: Access**.
4. Select “admin” from the Users List.
5. Click the “Change Password” button.
6. Enter the password into the New Password field.
7. Enter the password again into the Repeat New Password field.
8. Click OK when done.

▼ *Changing the Root Password [Command Line]*

1. Verify that a terminal or a computer with a terminal emulator is connected to the console port on the KVM/net.
2. From the terminal or terminal emulator, log in to the console port as **root**, using the existing password. [The default password is “cyclades”.]

```
KVM login: root
```

Password: cyclades

a. Enter the **passwd** command.

```
[root@KVM /]# passwd
```

b. Enter a new password when prompted.

```
New password: new_password

Re-enter new password:
new_password

Password changed
```

3. Save the new password by entering the **saveconf command.**

```
[root@KVM /]# saveconf
```

4. Log out.

```
[root@KVM /]# logout
```

5. Close the terminal session.
6. In a HyperTerminal application on a Windows PC, choose File > Exit or F4.

Changing Default Passwords [OSD]

This procedure requires a hardware connection already made between the KVM/net's KVM management port and a local monitor, keyboard, and mouse, as described in "To Connect to the User 1 Management Port" on page 83. Do the following to change the passwords for the root and admin users.

1. Log into the OSD.
2. From the Main Menu, select the Configure option.
3. From the Configure Menu, select the Users and Groups option.
4. From the list of users on the User Database screen, select the user name.
5. On the "Enter the Password" screen, enter the new password.
6. On the password confirmation window, re-enter the password.
7. Select OK.

Enabling Access to the Web Manager without Making a Direct Connection

This section describes additional alternatives for enabling access to the Web Manager that do not require making a direct connection. Both of the two following approaches require an experienced administrator to configure:

- The KVM/net ships with a default IP address: 192.168.160.10. You can use the default address to bring up the Web Manager, assign a fixed IP address to the KVM/net and specify other network parameters without making a direct connection. To do so, you must temporarily change the IP address of a computer on the same subnet. See “To Use the Default IP Address to Access the Web Manager” on page 101.”
- DHCP is enabled on the KVM/net by default. If you have network access to the DHCP server for the KVM/net, and if you are able to discover the KVM/net’s dynamically assigned IP address, you do not need to make a direct connection. Discovering the current IP address requires entering the KVM/net’s MAC address. Make a note of the MAC address, which is on a label at the bottom of the unit in the form *NN-NN-NN-NN-NN-NN*, and go to “To Use a Dynamic IP Address to Access the Web Manager” on page 102.”

▼ *To Use the Default IP Address to Access the Web Manager*

The default IP address for the KVM/net is `192.168.160.10`. This procedure assumes that you are able to temporarily change the IP address of a computer that is on the same subnet as the KVM/net.

1. Set up the AlterPath KVM/net.

   See “To Mount the KVM/net” on page 76.

2. Connect computers and other devices to be managed through the KVM/net.

   See “Connecting Servers to the KVM Ports” on page 78.

3. Power on the KVM/net and connected devices.

   See “Powering On the KVM/net and Connected Devices” on page 83.

4. On a computer that resides on the same subnet with the KVM/net, change the network portion of the IP address of that computer to `192.168.160.`*`NN`*, where NN is not 10, and change the Netmask to `255.255.255.0`.

   For example, you could change the computer’s IP address to `192.168.160.44`. For the host portion of the IP address, use any number except `10`, `0`, or `255`.

5. Bring up a browser on the computer whose address you changed, enter the KVM/net’s default IP address (`http://192.168.160.10)`to bring up the Web Manager, and log in.

6. To allow subsequent use of the Web Manager from any computer, go to the Wizard: “Step 1: Network Settings” to change the default IP address to a fixed public IP address and to configure the other basic network parameters and save them to Flash.

7. Restore the computer’s IP address to its previous IP address.

8. Finish configuring KVM/net users and ports using the Web Manager.

▼ *To Use a Dynamic IP Address to Access the Web Manager*

This procedure assumes that DHCP is enabled on the KVM/net.

1. Set up the AlterPath KVM/net.

   See “To Mount the KVM/net” on page 76.

2. Connect computers and other devices to be managed through the KVM/net.

   See “Connecting Servers to the KVM Ports” on page 78.

3. Power on the KVM/net and connected devices.

   See “Powering On the KVM/net and Connected Devices” on page 83.

4. To obtain the KVM/net’s current IP address from the console port do the following:

   a. Using the console port, log in as “root.”

See “To Connect to the Console Port” on page 82 for instructions if needed.

b. Execute the command

```
ifconfig eth0
```

Output similar to the following will appear. The line in bold type face labelled “inet address” lists the IP address of the KVM/net:

```
eth0  Link encap:Ethernet  HWaddr
       00:60:2E:01:4F:FC
      inet addr:192.168.50.72
       Bcast:192.168.51.255
       Mask:255.255.252.0
      UP BROADCAST RUNNING MULTICAST
       MTU:1500  Metric:1
      RX packets:7282803 errors:43
       dropped:0 overruns:0 frame:43
      TX packets:167335 errors:3
       dropped:0 overruns:0 carrier:3
      collisions:0 txqueuelen:100
      RX bytes:539070845 (514.0 MiB)  TX
       bytes:18911603 (18.0 MiB
      Base address:0xe00
```

5. To obtain the KVM/net’s current IP address from the DHCP server, supply the MAC address from the bottom side of the KVM/net’s chassis. (The address has the form: *NN-NN-NN-NN-NN-NN*, as in this example: 00-60-3D-01-36-B4.)

6. Finish configuring KVM/net users and ports using the Web Manager.

Preconfiguring the KVM/net for Remote Installation

This section provides procedures that list the tasks for preconfiguring the KVM/net and setting it up in a separate location. You might preconfigure a KVM/net, for example, if you need to ship the KVM/net to a remote location that does not have a system administrator.

If you would prefer to have Cyclades pre-configure the KVM/net with basic network parameters at Cyclades before it is shipped, ask your Cyclades contact to put you in touch with Cyclades professional services. For a fee, they can preconfigure the KVM/net with parameters you supply.

▼ *To Preconfigure the KVM/net*

1. Perform the tasks listed in the following table to preconfigure the KVM/net for installation at another location.

Task	Where Documented
Make a direct connection to prepare for basic network configuration.	"Making a Direct Connection for Network Configuration" on page 82
Power on the KVM/net and connected devices.	"Powering On the KVM/net and Connected Devices" on page 83
Perform basic network configuration.	"Performing Basic Network Configuration" on page 84

2. If you ship the KVM/net to a remote location for installation, also send the following:

   - A record of the KVM/net's fixed IP address and other network parameters.
   - A copy of the instructions under "To Set Up a Preconfigured KVM/net" on page 105.

▼ *To Set Up a Preconfigured KVM/net*

Perform the tasks shown in the following table with a KVM/net that has been preconfigured as described in“To Preconfigure the KVM/net” on page 104. After the tasks are completed in the order shown, a remote administrator can bring up the Web Manager by entering the KVM/net’s fixed IP address in a browser.

	Task	Where Documented
1	Set up the AlterPath KVM/net.	“Setting Up the KVM/net” on page 75
2	Make an Ethernet connection.	“Making an Ethernet Connection” on page 77
3	Connect computers and other devices.	“Connecting Servers to the KVM Ports” on page 78
4	Power on the KVM/net and connected devices.	“Powering On the KVM/net and Connected Devices” on page 83

Additional Configuration Tasks

See the following sections for other procedures.

Task	Where Documented/Notes
Disabling Mouse Acceleration	“Disabling Mouse Acceleration” on page 106
Required Security Settings For Internet Explorer	“Required Security Settings For Internet Explorer” on page 109
Assigning Your Own TCP Viewer Port Address	“TCP Ports” on page 20

Disabling Mouse Acceleration

In a KVM-over-IP session you should synchronize the mouse cursor on your local PC or laptop with the mouse cursor of the remote server attached to a KVM port. The mouse acceleration should be disabled on the remote server's operating system.

Depending on your server's operating system refer to one of the following procedures.

- To Disable Mouse Acceleration [Windows XP/Windows 2003]
- To Disable Mouse Acceleration [Windows 2000]
- To Disable Mouse Acceleration [Windows ME]
- To Disable Mouse Acceleration [Windows 95/98/NT]
- To Disable Mouse Acceleration [Linux]

▼ *To Disable Mouse Acceleration [Windows XP/Windows 2003]*

1. As an administrator, go to Control Panel > Mouse
2. From the Mouse Properties dialog box, click the Pointer Options tab.
3. To disable "Enhance pointer precision," click the check box to clear it.
4. To set the motion speed to medium, move the slider to the middle of the "Select a pointer speed" scale.
5. Go to Control Panel > Display > Appearance > Effects
6. To disable transition effects, click both transition effects check boxes to clear them.
7. Click OK.

▼ *To Disable Mouse Acceleration [Windows 2000]*

1. As an administrator, go to Settings > Control Panel > Mouse
2. From the Mouse Properties dialog box, click the Motion tab.
3. In the Speed panel, center the Speed slider bar.

4. In the Acceleration panel, click the “None” radio button.
5. Click OK.
6. To disable transition effects do the following:
    a. Go to: Control Panel > Display > Effects.
    b. Clear **Use transition effects for menus and tooltips**.
    c. Click OK.

▼ *To Disable Mouse Acceleration [Windows ME]*

1. As an administrator, go to Settings > Control Panel > Mouse
2. From the Mouse Properties dialog box, click the Pointer Options tab.
3. Center the Pointer Speed slider bar.
4. Click Accelerate ... button.
5. Deselect Pointer Acceleration option.
6. Click OK.
7. To disable transition effects do the following:
    a. Go to: Control Panel > Display > Effects.
    b. Clear **Use transition effects for menus and tooltips**.
    c. Click OK.

▼ *To Disable Mouse Acceleration [Windows 95/98/NT]*

1. As administrator, go to Settings > Control Panel > Mouse
2. From the Mouse Properties dialog box, click the Motion tab.
3. Set the motion speed by moving the slider to the lowest setting on the “Pointer Speed” scale.
4. To disable transition effects do the following:
    a. Go to Control Panel > Display > Effects > Advanced Settings

b. Disable window, menu, and list animation by clearing “Animate windows, menus, and lists.”

▼ *To Disable Mouse Acceleration [Linux]*

This procedure assumes that you have the login name and password for an account configured with the following types of access:

- Access on the KVM/net to the port where the computer is connected
- Access as root on the connected computer

1. Log into the Cyclades Web Manager with the username and password of an account that has been configured to access the port where the computer is connected.
2. Go to Expert > Access > Connect to Server.
3. From the drop-down list select the port number or alias for the computer, and click the Connect button.
4. Open a root console session and login to the server as root.

   The root prompt appears.

```
#
```

5. Disable the mouse pointer acceleration and threshold settings by entering the **`xset m 0`** command:

```
# xset m 0
```

6. Exit the AlterPath Viewer.

Note: Repeat this procedure to synch mouse settings after every reboot of the connected computer.

Required Security Settings For Internet Explorer

The procedures described in this section must be performed on a PC running Windows XP with Service Pack 2 with Internet Explorer 5.5 or above, which is used to bring up the Cyclades Web Manager and the AlterPath Viewer.

Modify IE Security Settings

You must modify the IE security settings to enable ActiveX. Based on the IP address of your KVM/net and the method you want to configure Internet Explorer, select an **Internet zone** from the “Security” tab in the IE’s “Internet Options” menu. This could be “Internet”, “Local Intranet”, or “Trusted Sites”.

- If you select "Trusted Sites", ActiveX controls are already enabled, you simply add the IP address of the KVM/net to the list of trusted sites.
- If You select “Internet” or "Local Intranet", there is no need to add the IP address of the KVM/net to the "Trusted Sites", as long as the ActiveX controls are enabled.

Note: “Trusted Sites” is the most secure option. Choosing “Internet” or “Local Intranet” option affects all hosts that you can access.

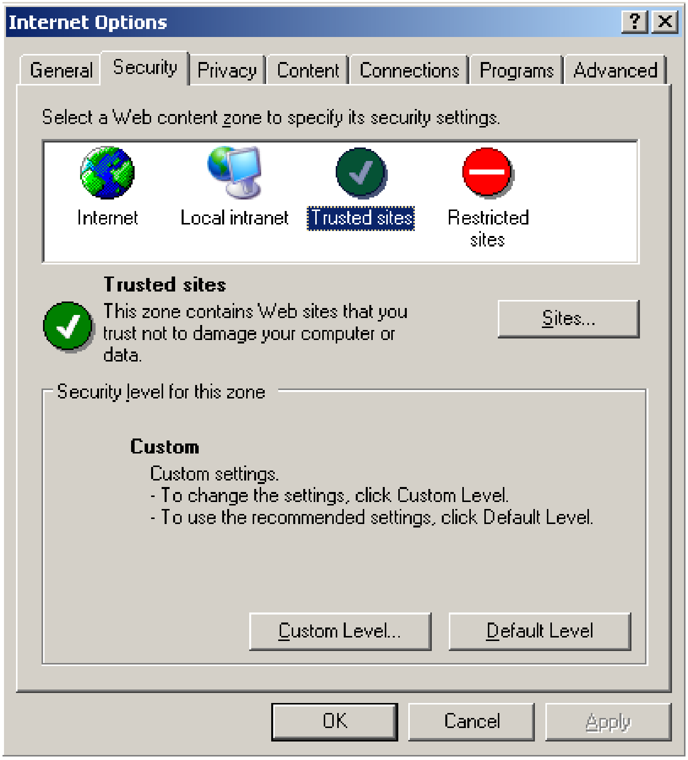
The following procedures describe the IE modification options.

▼ *To Modify “Trusted Sites” Settings*

1. From the Internet Explorer menu bar, select **Tools** > **Internet Options** > **Security** Tab.

   The **Security** form appears.

2. From the **Security** tab in the **Internet Options** select **Trusted Sites**.



Select a Web content zone to specify its security settings.

Trusted sites

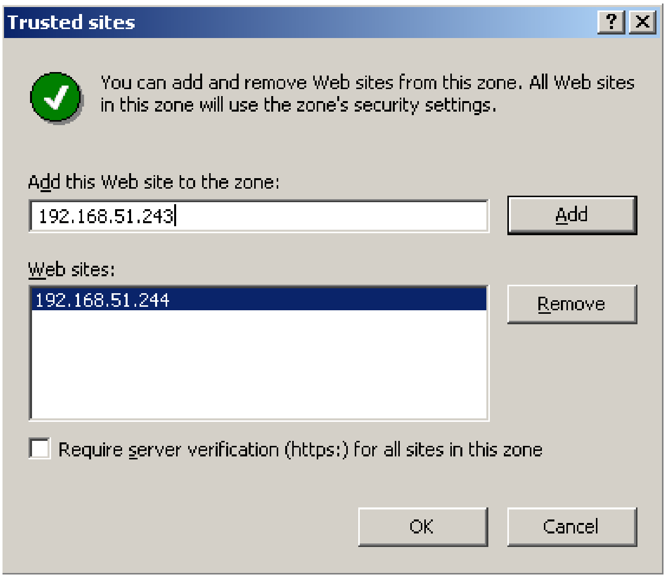
This zone contains Web sites that you trust not to damage your computer or data.

Security level for this zone

Custom

Custom settings.
- To change the settings, click Custom Level.
- To use the recommended settings, click Default Level.

3. Click the **Sites** button to open the **Trusted sites** dialog box.



Trusted sites

You can add and remove Web sites from this zone. All Web sites in this zone will use the zone's security settings.

Add this Web site to the zone: 192.168.51.243

Web sites: 192.168.51.244

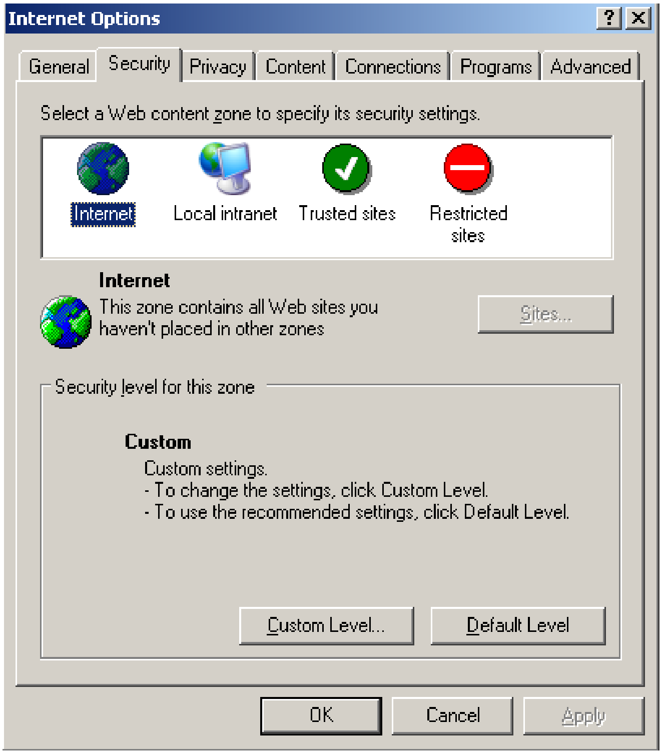
□ Require server verification (https:) for all sites in this zone

4. Add the KVM/net IP address to the list of the trusted sites and click the “Add” button.
5. Select the **OK** button to close the window.
6. Close the **Internet Options** dialog box.

▼ *To Modify “Internet” or “Local Intranet” Zone Settings*

1. From the Internet Explorer menu bar, select **Tools** > **Internet Options** > **Security** Tab.

   The **Security** form appears.



Select a Web content zone to specify its security settings.

Internet

This zone contains all Web sites you haven't placed in other zones

Security level for this zone

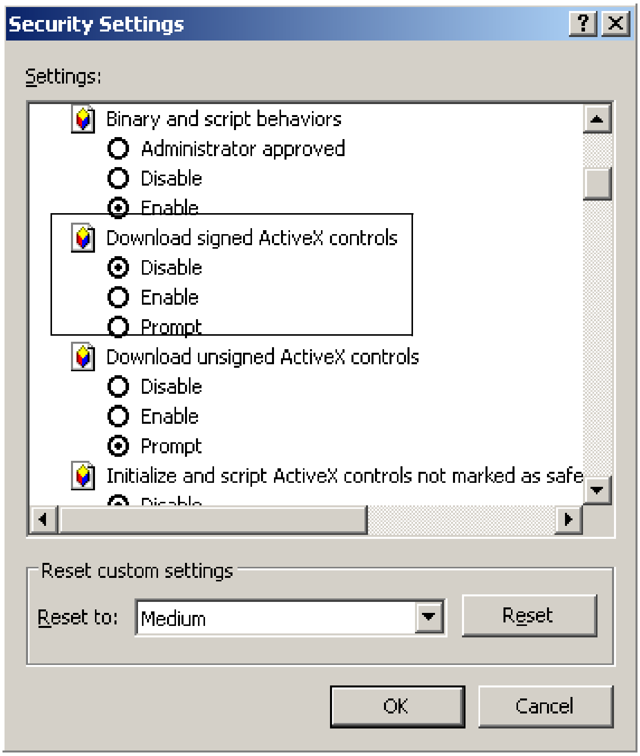
Custom

Custom settings.
- To change the settings, click Custom Level.
- To use the recommended settings, click Default Level.

2. Click the **Custom Level** button.

   The Security Settings form appears.

3. On the Security Settings form, go to **ActiveX controls and plug-ins** > **Download signed ActiveX controls.**



Security Settings

Settings:

Binary and script behaviors
○ Administrator approved
○ Disable
● Enable

Download signed ActiveX controls
● Disable
○ Enable
○ Prompt

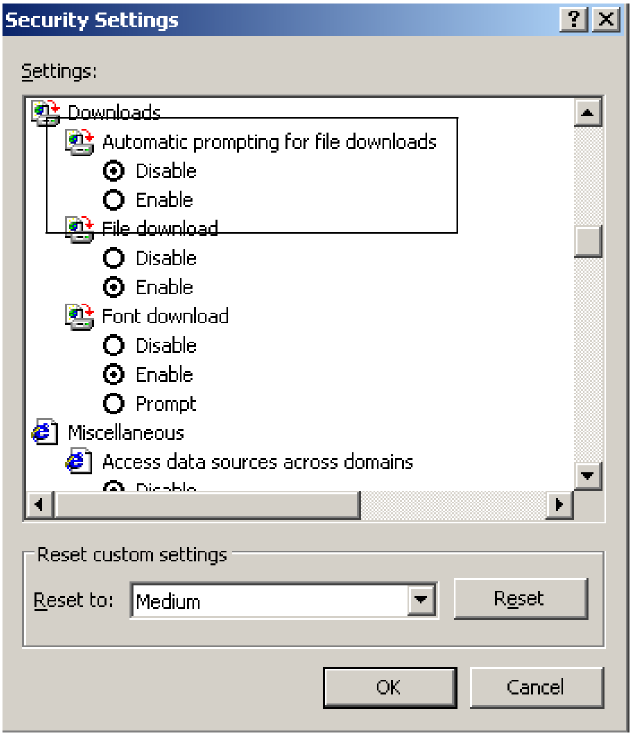
Download unsigned ActiveX controls
○ Disable
○ Enable
● Prompt

Initialize and script ActiveX controls not marked as safe
● Disable

Reset custom settings

Reset to: Medium

4. Select either **Enable** or **Prompt**.
5. If you selected **Enable**, press the **OK** button.
6. If you selected **Prompt**, go to **Downloads** > **Automatic prompting for file downloads**, and select **Enable**.



Security Settings

Settings:

- Downloads
  - Automatic prompting for file downloads
    - ● Disable
    - ○ Enable
  - File download
    - ○ Disable
    - ● Enable
  - Font download
    - ○ Disable
    - ● Enable
    - ○ Prompt
- Miscellaneous
  - Access data sources across domains
    - ● Disable

Reset custom settings

Reset to: Medium

7. Select the **OK** button to close the window.

Chapter 3
Advanced Installation Procedures

KVM/net supports the installation of related components, which are used to extend the access to and control of the KVM/net and its connected devices.

The following table lists the components that can be installed with the KVM/net and shows the page numbers where the tasks are described in more detail.

External modems	Page 116
AlterPath PM	Page 117
AlterPath KVM Expander	Page 119
Cascaded KVM units	Page 126
AlterPath KVM RP	Page 129

Connecting an External Modem

You can connect a modem to the AUX port on the KVM/net. After the modem is connected and properly configured, you can use it to dial in to the KVM/net when the production network or management network is down, or when Ethernet access is unavailable.

▼ *To Connect an External Modem to the AUX Port*

This procedure requires the following cables and connectors:

- A straight through cable with an RJ-45 connector on one end and the appropriate connector or adapter (USB, DB-9, or DB-25) on the other end for connecting the AUX port to the appropriate port on the external modem.
- A phone cord with RJ-11 connectors on both ends for connecting the modem to the phone line.

1. Connect the RJ-45 end of the cable to the AUX port on the KVM/net.
2. Connect the other end of the cable to the modem.
3. Use a phone cable to connect the jack on the modem to a live telephone jack at your site.
4. Configure the AUX port for PPP.

   See “AUX Port” on page 266 and “To Configure the AUX Port for Use With an IPDU or an External Modem” on page 267.

Connecting AlterPath PMs to the KVM/net

You can control an AlterPath Power Management (PM), intelligent power distribution unit (IPDU), by connecting it to the AUX port on the KVM/net. By daisy-chaining any combination of PM models, you can control up to 128 outlets from one KVM/net.

▼ *To Connect an AlterPath PM to the AUX Port*

1. Use an RJ-45 CAT5 cable to connect the AUX port on the KVM/net to the In port of your AlterPath PM.
2. Configure the AUX port for power management. See “To Configure the AUX Port for Use With an IPDU or an External Modem” on page 267.

After the PM is connected, you may want to perform one or more of the following tasks:

Task	Where Documented
Install multiple PM units.	“To Connect Multiple PMs to the KVM/net” on page 118
Manage the power of devices connected to configured PM units.	• Web Manager – “IPDU Power Management” on page 161 • OSD – “Power Management Menu” on page 357
Control the power of a device while connected to it through a KVM port.	• Web Manager – “To Power On, Power Off, or Reboot the Connected Server” on page 335 • OSD – “To Power On, Power Off, Lock, Unlock, or Cycle Devices Plugged into PM Outlets” on page 344

▼ To Connect Multiple PMs to the KVM/net

This procedure assumes that you have one AlterPath PM connected to the AUX port of the KVM/net. See “To Connect an AlterPath PM to the AUX Port” on page 117 for the procedure.

1. Connect one end of an RJ-45 cable to the Out port of the “master” AlterPath PM, which is connected to the AUX port of the KVM/net.
2. Connect the other end of the RJ-45 cable to the In port of the next AlterPath PM (slave).
3. To connect another PM to the slave, connect one end of an RJ-45 cable to the Out port of an already connected PM.
4. Repeat Step 3 until you have connected the desired number of PMs.

   You can control up to 128 power outlets in any combination of PM models.

See “IPDU Power Management” on page 161 for information on managing your PMs with the Web Manager.

Installing the AlterPath KVM Expander

The following table gives a high-level list of steps involved in setting up, installing, and configuring the KVM Expander with links to detailed information about each step.

1	Review the contents of the shipping box	Page 120
2	Set up the KVM Expander	Page 121
3	Connect computers to the KVM ports on the KVM Expander	Page 78
4	Connect the KVM Expander to the KVM/net	Page 128
5	Power on the KVM Expander and connected devices	Page 124
6	Add the KVM Expander to the primary KVM unit’s list of cascaded devices	Page 187

Shipping Box Contents KVM Expander

The shipping box for the AlterPath KVM Expander contains the KVM Expander along with the items shown in Table 3-1. The entry for each part provides an illustration, its part number (P/N), description, and purpose. You can use check boxes to check off each item, and you can use the part numbers from this table to reorder any of the parts.

Table 3-1: KVM Expander Shipping Box Contents, Part Numbers, and Description

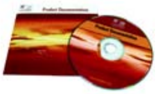
☑	Item	P/N	Description	Purpose
□		PAC0226	Documentation CD	PDF copies of this guide and all other Cyclades product documents.
□		CAB0010	3-pin power cord	Use to plug into a grounded AC power outlet. For other types of power sources, contact Cyclades sales for other cord options.
□		CAB0018	RJ-45 to RJ-45 7ft. CAT5 cable	Use for the following: • To connect a server to a KVM port (with the appropriate Terminator from Table 1-22 on page 58). See "Connecting Servers to the KVM Ports" on page 78. • To connect the KVM Expander User A or User B ports to a KVM port on the KVM/net. See "To Connect a KVM Expander to the Primary KVM/net" on page 128.

Table 3-1: KVM Expander Shipping Box Contents, Part Numbers, and Description

☑	Item	P/N	Description	Purpose
□		HAR0453	2 - Mounting brackets with 8 - screws (2 spares)	Use to mount the KVM/net to a rack or wall. See “To Mount the KVM Expander” on page 122.

When ordering the KVM Expander, customers also order one KVM Terminator for each server to be connected to one of the KVM ports. The number and types of KVM Terminators in each order are based on the number of KVM ports on the KVM Expander model that is being shipped and on the types of servers that are to be connected to the KVM ports. For details, see “KVM Terminator Usage and Types” on page 58.

Note: For more information about cabling, see “RS-232 Cabling Tutorial” at http://www.cyclades.com/resources, under “White Papers.” For ordering information, see “Cyclades Product Guide,” available at: http://www.cyclades.com/common/www/pdf/catalog.en.pdf.

Setting Up the KVM Expander

The KVM Expander is a 1U device that can be mounted on the side of a rack or placed on a desktop or other flat surface. Two brackets are supplied with six Phillips screws for attaching the brackets to the KVM Expander for mounting.

- If you are not mounting the KVM Expander, place the KVM Expander on a desk or table.
- If you are mounting the KVM Expander, obtain a Phillips screwdriver and the appropriate nuts and bolts before starting the following procedure.

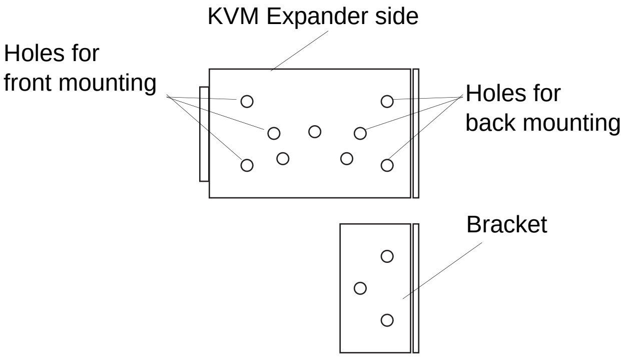
Note: Place the KVM Expander in a location that is within the 500 feet distance allowable between the KVM/net and its connected computers. Using cables longer than 500 feet in total length can compromise performance.

▼ *To Mount the KVM Expander*

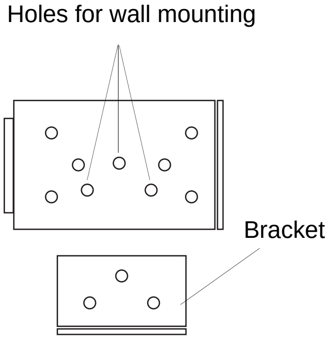
1. Connect the two supplied brackets to the KVM Expander, connecting one bracket to each side of the box.

   a. Decide whether you need to mount the KVM Expander by the front or back and locate the appropriate sets of holes on the KVM Expander.

   The following figure shows the angle of a bracket being installed for rack mounting.

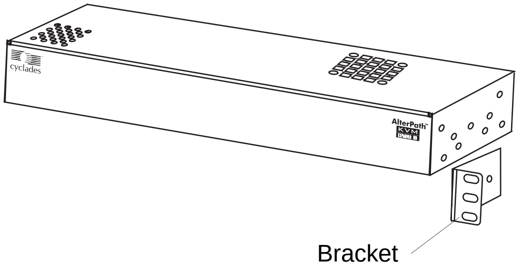


   The following figure shows the angle of a bracket being installed for wall mounting.

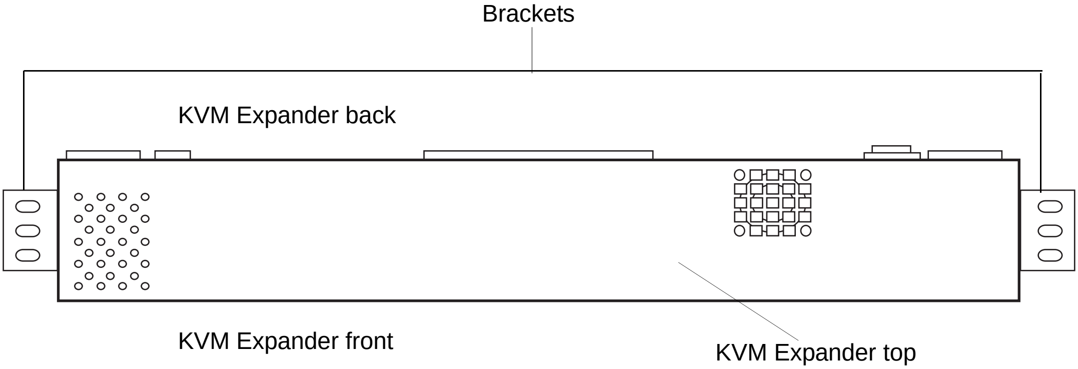


   b. For each bracket, insert a screw through each of the three holes on the bracket into the appropriate holes at either the front or back of the KVM Expander.

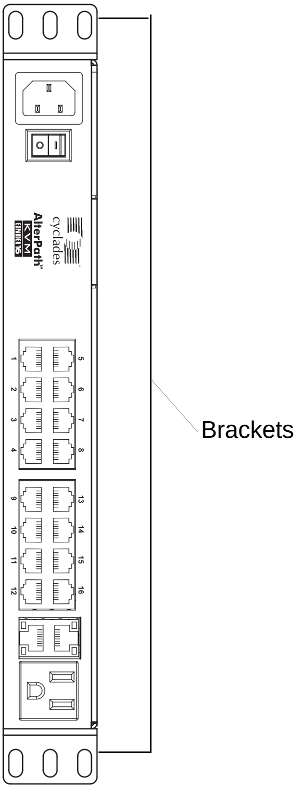
   The following figure shows the brackets as they appear from the side and front of the KVM Expander after the brackets are installed for rack mounting.



The following figure shows the brackets as they appear from the top of the KVM Expander after the brackets are installed for wall mounting.



The following figure shows the bracket flanges on the front of the KVM Expander after the brackets are installed for rack mounting.



c. Use a Phillips screwdriver to tighten the screws.

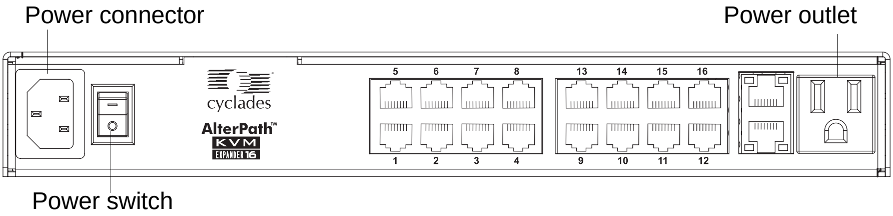
2. Use screws or nuts and bolts as appropriate to mount the KVM Expander on the wall, on a rack, or in a cabinet.

3. Use screws or nuts and bolts as appropriate to mount the KVM Expander on a rack.

Powering On the KVM Expander and Connected Devices

The KVM Expander has a power connector for power input and a power outlet for daisy chaining additional KVM Expanders or any other device.

Caution! The total amount of power consumed by devices daisy-chained to the KVM Expander must not exceed seven amps.



▼ To Power On the KVM Expander

1. Make sure the KVM Expander’s power switch is off.

   The power is off when the side of the power switch with the circle is pressed down.

2. Plug in the power cable.
3. Turn the KVM Expander’s power switch on.

▼ To Power On Devices Daisy Chained to the KVM Expander’s Power Outlet

1. Make sure the KVM Expander’s power switch is off.

   The power is off when the side of the power switch with the circle is pressed down.

2. Plug the power cable of a device in the power outlet located on the back right of the KVM Expander.
3. Turn the KVM Expander’s power switch on.

▼ To Power On KVM-connected Devices

Do this after “Connecting Servers to the KVM Ports” on page 78.

- Turn on the power switches of the connected computers and devices.

Connecting Cascaded KVM Units to the Primary KVM/net

The KVM/net supports the cascading of three types of secondary KVM devices: the AlterPath KVM, the KVM Expander, and the KVM/net. See the following sections for the appropriate instructions:

- “To Connect a Secondary KVM Unit to the Primary KVM/net” on page 127
- “To Connect a KVM Expander to the Primary KVM/net” on page 128

Each of these cascaded devices has it’s own set up and installation instructions which must be performed in addition to connecting the device to the master KVM/net:

- AlterPath KVM – See the *AlterPath KVM Installation, Administration, and User’s Guide* for installation instructions.
- KVM Expander – See the “Installing the AlterPath KVM Expander” on page 119 for installation instructions.
- KVM/net – See Chapter 2, “Installation” on page 2-71 for installation instructions.

For background information on cascading, see “Cascaded Devices” on page 21.

▼ *To Connect a Secondary KVM Unit to the Primary KVM/net*

1. Power off all KVM hardware and connected devices.
2. To connect to the User 2 port of a secondary KVM unit, do the following:
   a. Connect one end of a CAT5 cable to a KVM port on the primary KVM/net.
   b. Connect the other end of the CAT5 cable to the User 2 port on the secondary KVM unit.
3. To connect to the User 1 port of a secondary KVM unit, do the following:
   a. Connect one end of a CAT5 cable to a KVM port on the primary KVM/net.
   b. Connect the other end of the CAT5 cable to a KVM Terminator.
   c. Connect the Terminator's VGA and PS/2 connectors to the User 1 port on the secondary KVM unit.

      See "Connecting Servers to the KVM Ports" on page 78 for detailed instructions on how to connect devices to KVM ports using KVM Terminators.
4. Repeat steps 1 through 3 for each secondary KVM unit to be connected to the primary KVM/net.

▼ *To Connect a KVM Expander to the Primary KVM/net*

See “Installing the AlterPath KVM Expander” on page 119 for background information on the KVM Expander.

1. Power off all KVM hardware and connected devices.
2. Connect one end of a CAT5 cable to a KVM port on the primary KVM/net.
3. Connect the other end of the CAT5 cable to the User A and or the User B port on the secondary KVM Expander.

Note: To enable two concurrent KVM connections to ports on the KVM Expander, connect two CAT5 cables to two ports on the KVM/net. Connect one CAT5 cable to the User A port and the other CAT5 cable to the User B port on the KVM Expander.

4. Repeat steps 1 through 3 for each secondary KVM Expander to be connected to the primary KVM/net.

Installing the AlterPath KVM RP

With a CAT5 cable up to 500 feet long, the AlterPath KVM RP can be connected to the User 2 port of the KVM/net unit, enabling the extended user to perform local administration tasks or to select the local keyboard, video, and mouse console between a local station and a server connected to the KVM/net.

	Tasks	Where Documented/Notes
1	Place the KVM RP on a desk or table up to 500 feet away from the KVM/net.	You can use a CAT5 cable of up to 500 feet long to extend the local administration of the KVM/net.
2	Connect the KVM RP to the KVM/net.	“To Connect the KVM RP to the KVM/net” on page 131.
3	Connect a keyboard, monitor, and mouse to the KVM RP.	“Options for Accessing the KVM RP” on page 131
4	Supply power to and turn on the KVM RP.	“Supplying Power to the KVM RP” on page 132
5	Use the KVM RP to control the KVM/net.	“Controlling the OSD Through the AlterPath KVM RP” on page 428

Shipping Box Contents AlterPath KVM RP

The shipping box for the AlterPath KVM RP contains the KVM RP along with the items shown in Table 3-2. The entry for each part provides an illustration, its part number (P/N), description, and purpose. You can use check boxes to check off each item, and you can use the part numbers from this table to reorder any of the parts.

Table 3-2: KVM RP Shipping Box Contents, Part Numbers, and Description

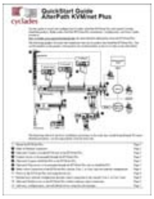
☑	Item	P/N	Description	Purpose
□	 cyclades QuickStart Guide AlterPath KVM/net Plus	PAC0303	*AlterPath KVM/net Quick Start Guide*	Basic installation guide for experienced users in printed format.
□		CAB0010	3-pin power cord	Use to plug into a grounded AC power outlet. For other types of power sources, contact Cyclades sales for other cord options.
□		CAB0018	RJ-45 to RJ-45 7ft. CAT5 cable	Use to connect the User 2 port on the KVM/net to the Remote User port on the KVM RP. See “To Connect the KVM RP to the KVM/net” on page 131.

Table 3-2: KVM RP Shipping Box Contents, Part Numbers, and Description

☑	Item	P/N	Description	Purpose
□		CAB0147	KVM PS/2 Cable, 6FT	Use to connect the VGA port, PS/2 keyboard port, and PS/2 mouse port on the back of your PC to the PC VGA port, PS/2 keyboard port, and PS/2 mouse port on the KVM RP. See “To Connect the KVM RP to the Local Work Station” on page 132 more information.

▼ To Connect the KVM RP to the KVM/net

1. Put one end of a CAT5 cable into the Remote User port on the KVM RP.
2. Put the other end of the CAT5 cable into the User 2 port on the KVM/net.

Options for Accessing the KVM RP

The KVM RP offers two options for monitor, keyboard, and mouse control. Administrators can connect a dedicated keyboard, monitor, and mouse directly to the KVM RP. Or administrators can connect the KVM RP to their local work station in order to toggle the keyboard, monitor, and mouse control between the KVM/net and the local computer.

▼ To Connect the KVM RP to a Dedicated Keyboard, Monitor, and Mouse

1. Connect your monitor’s VGA cable to the USER VGA port on the KVM RP.
2. Connect your keyboard’s PS/2 cord to the USER keyboard PS/2 port on the KVM RP.
3. Connect your mouse’s PS/2 cord to the USER mouse PS/2 port on the KVM RP.

▼ To Connect the KVM RP to the Local Work Station

1. Connect your monitor’s VGA cable to the PC VGA port on the KVM RP.
2. Connect your keyboard’s PS/2 cord to the PC keyboard PS/2 port on the KVM RP.
3. Connect your mouse’s PS/2 cord to the PC mouse PS/2 port on the KVM RP.
4. Use a KVM cable to connect the VGA port, PS/2 keyboard port, and PS/2 mouse port on the back of your PC to the PC VGA port, PS/2 keyboard port, and PS/2 mouse port on the KVM RP.

Note: When the KVM RP is connected to the local PC, as described in the previous procedure, the KVM RP receives power from the PC and does not need to be plugged into a power supply.

Supplying Power to the KVM RP

The KVM RP can be powered by a power cord connected to its power supply port, or it can be powered by the local work station. Power can be transmitted from the PC through a KVM cable to the KVM RP.

▼ To Power On the KVM RP

1. If the KVM RP has its own dedicates keyboard, monitor, and mouse connected to its USER port, do the following:
   a. Make sure the KVM/net’s power switch is off.
   b. Plug in the power cable.
   c. Turn the KVM/net’s power switch on.
2. If the KVM RP is connected to the local PC, turn the KVM/net’s power switch on.

   The power is supplied by the PC. See “To Connect the KVM RP to the Local Work Station” on page 132 for instructions on connecting the KVM RP to the local PC.

Chapter 4

Web Manager for Administrators

This chapter is for administrators who use the Web Manager for managing and configuring the KVM/net. Two types of administrators can access all the Web Manager functions described in this chapter:

- An administrator who knows the password for the “admin” account, which is configured by default
- An optionally configured regular user whose account is in the “admin” group (See “Users & Groups” on page 191 for how the “admin” user adds a regular user account and adds the account to the admin group.)

Administrators whose accounts are configured without administrative access can log in to the Web Manager as regular users and then access connected devices, as described in Chapter 5. “Web Manager for Regular Users” on page 299. For more background about the differences between user types, see “Types of Users” on page 14.

Before following the procedures in this chapter, review “Prerequisites for Using the Web Manager” on page 19, if needed, to make sure that you can connect to the Web Manager.

The sections listed in the following table give background information related to KVM/net administrators’ use of the Web Manager, including explanations of the types of information to be entered in each of the forms, and links to all the procedures performed in each mode.

Common Tasks

The following table lists common tasks that KVM/net administrators perform with links to the procedures.

Task	Where Documented/Notes
Select a pre-defined security profile, or configure a custom security profile.	• “Security Profiles” on page 221
Set up other users to access connected devices without being able to make changes to the KVM/net configuration	• “To Add a User [Wizard]” on page 153 • “To Add a User [Expert]” on page 192
Assign users or groups to specific ports, restricting access to a limited set of devices	• “To Assign KVM Port Access to a User or Group” on page 196
Set up other users to share all administration of the KVM/net	• “To Add a User [Wizard]” on page 153 • “To Add a User [Expert]” on page 192
Enable direct login to ports from the Web Manager login screen	• To Enable Direct Access to KVM Ports
Set up logging of system messages to a syslog server	• “To Add a Syslog Server [Wizard]” on page 158 • To Delete a Syslog Server [Wizard] • To Configure Syslogging for KVM Ports and Specify Message Filtering [Expert] • To Configure Creation of Alarms and Syslog Files for IPDUs

Task	Where Documented/Notes
Configure power management for the AUX port (if the port is connected to an optional AlterPath PM)	• "To Configure the AUX Port for Use With an IPDU or an External Modem" on page 267 • "To Configure a KVM Port for Power Management" on page 183
Manage power on an optional AlterPath PM)	• "To View Status, Lock, Unlock, Rename, or Cycle Power Outlets" on page 163 • "To View and Reset IPDU Information" on page 165 • "To Configure Users to Manage Specific Power Outlets" on page 166 • "To Specify or Change the Alias of an IPDU" on page 168 • "To Configure Creation of Alarms and Syslog Files for IPDUs" on page 168 • "To Upgrade Firmware on an AlterPath PM" on page 169
Choose among authentication methods and specify authentication servers for logins to the KVM/net and for logins to devices connected to the KVM/net's ports	• "To Configure an Authentication Method for KVM/net Logins" on page 206 • "See "Configuring Authentication Servers for Logins to the KVM/net and Connected Devices" on page 208." on page 207
Specify encryption levels for KVM ports	"Network" on page 226
Configure rules for the KVM/net to filter packets like a firewall	• "To Add a Chain for IP Filtering" on page 243 • "To Edit A Chain for IP Filtering" on page 244 • "To Add a Rule for IP Filtering" on page 244 • "To Edit a Rule for IP Filtering" on page 241

Common Features of Administrators’ Windows

The features of all Web Manager windows for KVM/net administrators are described in the following sections:

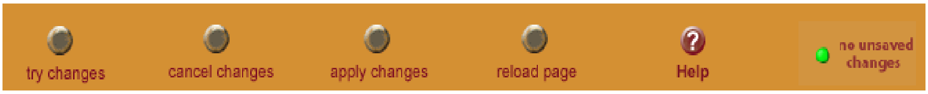
- Control and logout buttons and KVM/net Information

  See “Administrators’ Control Buttons, Logout Button, and KVM/net Information.”
- Getting more information

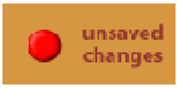
  See “Obtaining More Information” on page 137

Administrators’ Control Buttons, Logout Button, and KVM/net Information

The following figure shows the control buttons that display at the bottom of the window when the logged in user is an administrator.

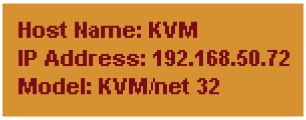


The following table describes the uses for each control button.

Button Name	Use
try changes	Tests the changes entered on the current form without saving them.
cancel changes	Cancels all unsaved changes.
apply changes	Applies all unsaved changes.
reload page	Reloads the page.
Help	Brings up the online help with information relating to the current form.
	The unsaved changes button appears on the lower right hand corner of the Web Manager and a graphical LED blinks red whenever the current user has made any changes and has not yet saved the changes.

Button Name	Use
	The no unsaved changes button appears and a graphical LED appears in green when no changes have been made that need to be saved.

The following table describes the logout button and the other information that displays in the upper right corner of all Web Manager windows.

Window Area	Purpose
	Click this button to log out.
 Host Name: KVM IP Address: 192.168.50.72 Model: KVM/net 32	Displays the hostname and IP address assigned during initial configuration (see “Performing Basic Network Configuration” on page 84). Also displays the model name of the KVM/net.

Obtaining More Information

Information about the purpose of each Web Manager form and the values to be specified on the form is available by clicking the Help button. For definitions of unfamiliar terms see the Glossary. For links to sections of the book where unfamiliar terms are discussed, see the Index.

Logging In to the Web Manager and Saving Changes

The following table lists procedures common to both Wizard and Expert mode.

To Log In to the Web Manager as Admin	Page 138
To Save Configuration Changes	Page 138

For procedures specific to each mode, see "Administrative Modes" on page 141.

▼ *To Log In to the Web Manager as Admin*

This procedure assumes that the prerequisites described under "Prerequisites for Using the Web Manager" on page 19 are done and that you can connect to the Web Manager.

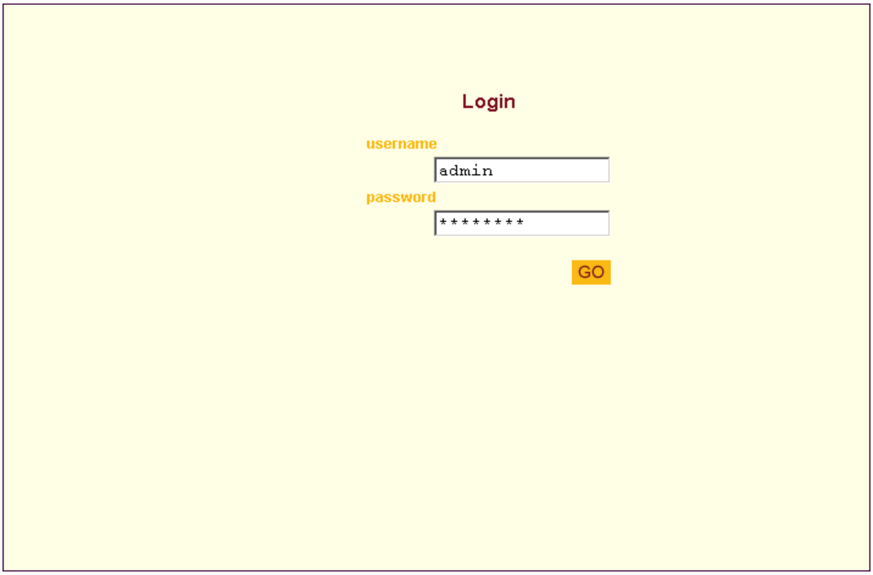
1. To bring up the Web Manager, enter the IP address of the KVM/net in the address (URL) field of a supported browser on a computer running a Windows operating system.

Note: Devices like the AlterPath KVM/net that are installed in computer rooms are usually assigned fixed IP addresses. If DHCP is enabled, you must find out the dynamically assigned IP address each time before you bring up the Web Manager. Check with the administrator who configured the basic network parameters on the KVM/net, for help finding the IP address, if needed. Or see "Considerations When Choosing Whether to Enable DHCP" on page 57 for a list of ways to find out the KVM/net IP address assigned by the DHCP server.

   a. If DHCP is enabled, enter the dynamically assigned IP address.

   b. If DHCP is not enabled, use a fixed IP address assigned by the administrator to the KVM/net.

   The Login page appears. If direct logins to ports is not enabled, a "username" and a "password" field appear on the login area of the screen, as shown in the following screen example.



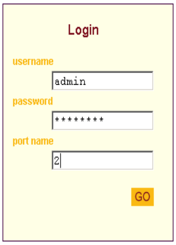
Login

username admin

password ********

Figure 4-1:KVM/net Login Form

If direct logins to KVM ports is enabled, a "port" field also appears in the login area of the screen, as shown in the following screen example.



Login

username admin

password ********

port name 2

2. If direct logins to ports is enabled, to bring up the Web Manager with the port number filled in, enter the IP address of the KVM/net followed by the port number in the form:

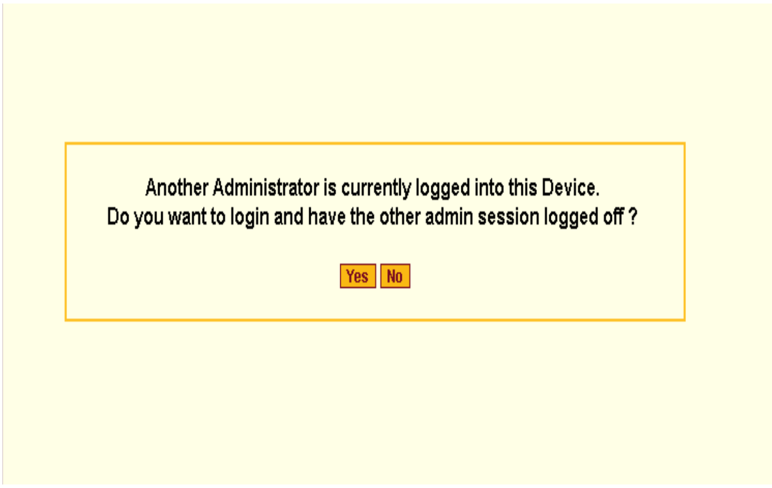
```
IP_address/login.asp?portname=portnumber
```

A login screen displays empty "username" and "password" fields and a port field filled with the name of the port from the URL you entered in the browser.

See "Web Manager Login Screen" on page 316 for background information on the multiple ways to login to the Web Manager.

3. Enter your account's username and password**.**

   If another administrator is already logged in as "admin," the dialog box shown in the following screen example appear.



Another Administrator is currently logged into this Device.
Do you want to login and have the other admin session logged off ?

Note: For more information about the number of simultaneous logins allowed, see "Guidelines for Using the KVM/net" on page 4.

   If the previous dialog box appears, go to Step 4.

4. Click the appropriate radio button, and then click Apply.

▼ *To Save Configuration Changes*

The red graphical LED in the lower right hand corner of the Web Manager blinks when any changes made in the forms have not been saved.

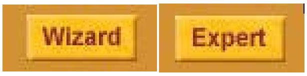
- Click the "apply changes" button to save configuration changes.

  The "no unsaved changes" graphical LED appears.

Administrative Modes

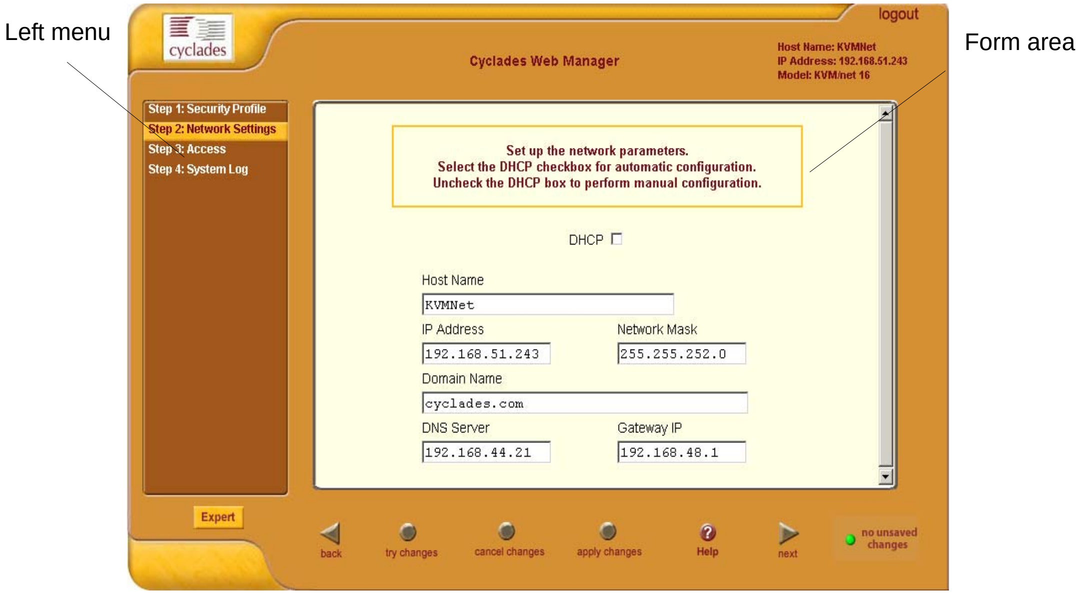
This section describes the two administrative modes of the web manager:

- “Wizard Mode” on page 141
- “Expert Mode” on page 159

	In Expert mode, the Wizard button is displayed. In Wizard mode, the Expert button is displayed. Clicking these buttons toggles between Wizard and Expert mode. Expert is the default mode.

Wizard Mode

The Wizard mode guides the administrator through four configuration steps. The following figure shows a typical window in Wizard mode. Selecting an item from the left menu brings up a corresponding form in the middle.



Set up the network parameters.
Select the DHCP checkbox for automatic configuration.
Uncheck the DHCP box to perform manual configuration.

DHCP □

Host Name: KVMNet

IP Address: 192.168.51.243

Network Mask: 255.255.252.0

Domain Name: cyclades.com

DNS Server: 192.168.44.21

Gateway IP: 192.168.48.1

Figure 4-2: Example Window in Wizard Mode

After you log in as described in “To Log In to the Web Manager as Admin” on page 138, Expert mode is in effect by default. To change to Wizard mode, select the Wizard button, which displays only in Expert mode.

Procedures in Wizard Mode

The following table lists all procedures that are performed in Wizard mode.

To Select or Configure a Security Profile [Wizard]	Page 145
To Change Network Settings [Wizard]	Page 150
To Add a User [Wizard]	Page 153
To Delete a User [Wizard]	Page 155
To Change a Password [Wizard]	Page 155

Steps in Wizard Mode [Wizard]

Four configuration steps display in the left menu of the Web Manager in Wizard mode. The following table lists the sections where the steps are described.

Step 1: Security Profile [Wizard]

The first step in configuring your AlterPath KVM/net is to define a Security Profile.

A Security Profile consists of a set of parameters that can be configured in order to have more control over the services that are active at any time. There are three pre-defined security profiles with pre-set parameters. In addition, a Custom profile is provided where an administrator can configure individual protocols and services.

Pre-defined Security Profiles

There are three pre-defined security profiles:

1. Secure - The Secure profile disables all protocols except SSHv2 and HTTPS. SSH root access is not allowed. Direct access to KVM connections are not available.
2. Moderate (Default) - The Moderate profile is the recommended security level. This profile enables SSHv1, SSHv2, HTTP, HTTPS, and Telnet. In addition, ICMP and HTTP redirection to HTTPS are enabled. Direct access to KVM connections are not available.

3. Open - The Open profile enables all services such as Telnet, SSHv1, SSHv2, HTTP, HTTPS, SNMP, RPC, ICMP, and Telnet. Direct access to KVM connections are available.

The following table show the enabled protocols and services under each Security Profile.

Table 4-1: Enabled Protocols and Services under each Security Profile

Security Profile	SSH Access	Web Access	Protocols
Secured	• SSHv2	• HTTPS	
Moderate (Default)	• SSHv1 • SSHv2 • SSH root access	• HTTP • HTTPS • HTTP redirection to HTTPS	• ICMP
Open	• SSHv1 • SSHv2 • SSH root access Direct Access to KVM Ports	• HTTP • HTTPS	• Telnet • SNMP • RCP • ICMP

Custom Security Profile

The *Custom* Security Profile opens up a dialog box to allow custom configuration of individual protocols and services.

Caution! By default a number of protocols and services are enabled in the Custom Security Profile, however, the security protocols and services are user configurable for site specific requirements. Take the required precautions to understand the potential impacts of each individual service configured under Custom Security Profile.

The following table show the available protocols and services under the Custom Security Profile.

Table 4-2: Available Protocols and Services under the Custom Security Profile

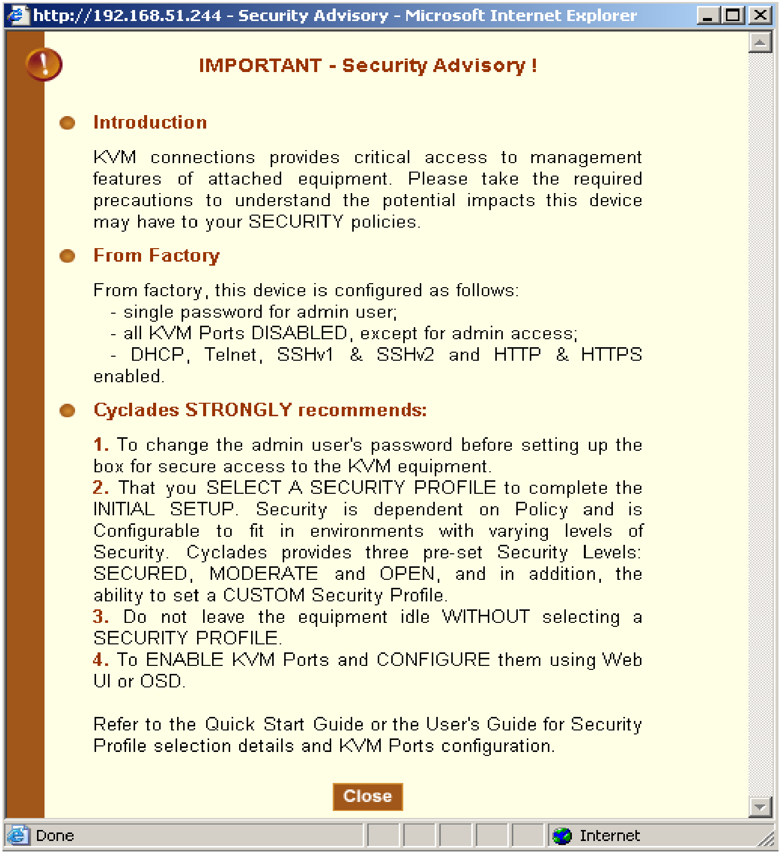
Security Profile	SSH Access	Web Access	Protocols
Custom	• SSHv1 • SSHv2 **SSH Options** •SSH port 22 • allow root access allow Direct Access to KVM Ports	• HTTP • HTTPS **HTTP Options** • HTTP port 80 • HTTP redirects to HTTPS • HTTPS port 443	• Telnet • SNMP • IPSec • FTP • RPC • ICMP

▼ *To Select or Configure a Security Profile [Wizard]*

Note: The following procedure assumes you have installed a new KVM/net at your site, or you have reset the unit to factory default.

1. Enter the assigned IP address of the KVM/net in your browser and login as an administrator.

   The following security warning dialog box appears.



http://192.168.51.244 - Security Advisory - Microsoft Internet Explorer

IMPORTANT - Security Advisory !

● Introduction

KVM connections provides critical access to management features of attached equipment. Please take the required precautions to understand the potential impacts this device may have to your SECURITY policies.

● From Factory

From factory, this device is configured as follows:
- single password for admin user;
- all KVM Ports DISABLED, except for admin access;
- DHCP, Telnet, SSHv1 & SSHv2 and HTTP & HTTPS enabled.

● Cyclades STRONGLY recommends:

1. To change the admin user's password before setting up the box for secure access to the KVM equipment.
2. That you SELECT A SECURITY PROFILE to complete the INITIAL SETUP. Security is dependent on Policy and is Configurable to fit in environments with varying levels of Security. Cyclades provides three pre-set Security Levels: SECURED, MODERATE and OPEN, and in addition, the ability to set a CUSTOM Security Profile.
3. Do not leave the equipment idle WITHOUT selecting a SECURITY PROFILE.
4. To ENABLE KVM Ports and CONFIGURE them using Web UI or OSD.

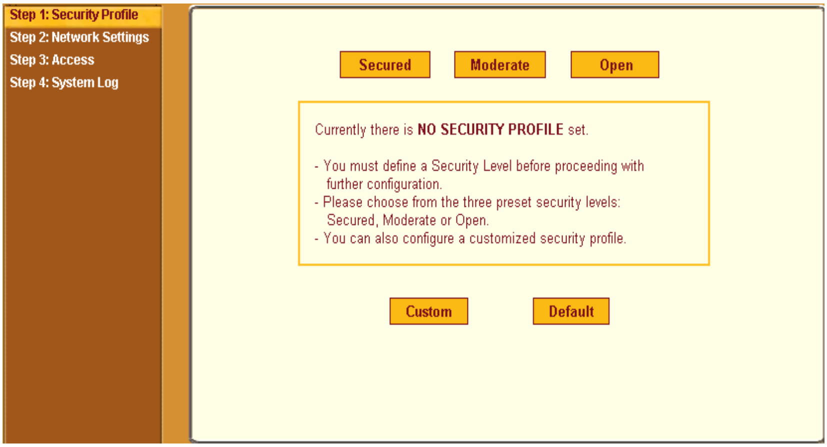
Refer to the Quick Start Guide or the User's Guide for Security Profile selection details and KVM Ports configuration.

Figure 4-3: Security Advisory Dialog Box

Note: Your browser’s pop-up blocker should be disabled for this dialog box to appear.

2. Review the Security Advisory and click the “Close” button.
3. The Web Manager is redirected to Wizard > Step 1: Security Profile

The following form is displayed.

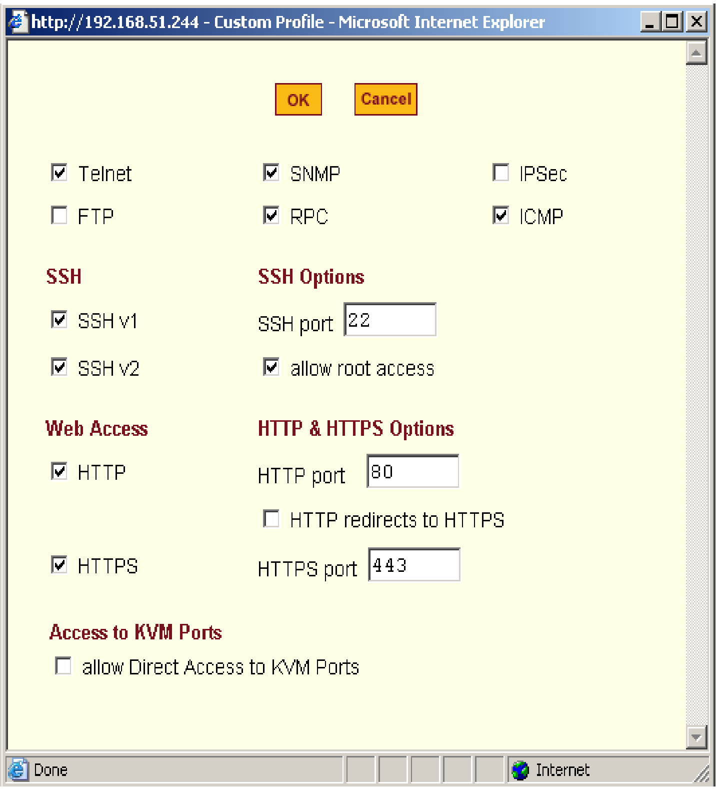


Currently there is **NO SECURITY PROFILE** set.

- You must define a Security Level before proceeding with further configuration.
- Please choose from the three preset security levels: Secured, Moderate or Open.
- You can also configure a customized security profile.

Figure 4-4: Security Profile in Wizard Mode

4. Select a pre-defined Security Profile by pressing one of the “Secured”, “Moderate”, “Open”, or “Default” profiles, or create a “Custom” profile.


http://192.168.51.244 - Custom Profile - Microsoft Internet Explorer
OK
Cancel
Done
Internet

☑ Telnet ☑ SNMP □ IPSec

□ FTP ☑ RPC ☑ ICMP

SSH

☑ SSH v1

☑ SSH v2

SSH Options

SSH port 22

☑ allow root access

Web Access

☑ HTTP

☑ HTTPS

HTTP & HTTPS Options

HTTP port 80

□ HTTP redirects to HTTPS

HTTPS port 443

Access to KVM Ports

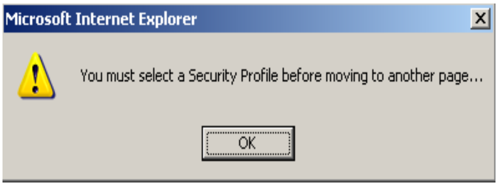
□ allow Direct Access to KVM Ports

Figure 4-5: Custom Security Profile Dialog Box

Caution! Take the required precautions to understand the potential impacts of each individual service configured under the "Custom" profile.

Refer to Table 4-1 on page 144 for a comparison of the available services in each security profile. Refer to the Glossary for a definition on the available services.

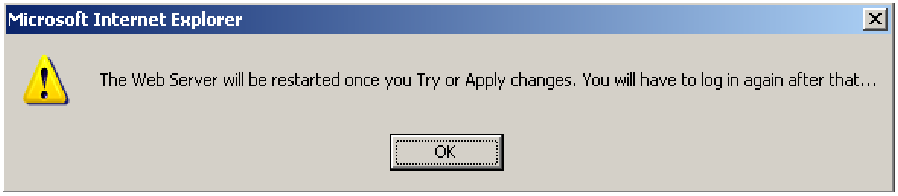
Note: It is not possible to continue working in the Web Manager without selecting a Security Profile. The following dialog box appears if you try to navigate to other sections of the Web Manager.



You must select a Security Profile before moving to another page...

5. Once you select a security profile or configure a custom profile and apply the changes, the KVM/net Web Manager restarts in order for the changes to take effect.

   The following dialog box appears.



The Web Server will be restarted once you Try or Apply changes. You will have to log in again after that...

6. Select “apply changes” to save the configuration to Flash.

   KVM/net Web Manager restarts.

7. Login after Web Manager restarts.
8. The Web Manager defaults to Access > Connect to Server page.

Proceed to the desired forms and the related tasks outlined in the table below.

Table 4-3: Configuring KVM/net in Expert Mode

Configure Users and Groups	“Users & Groups” on page 191
Configure Network Settings	“Host Settings” on page 228
Configure IPDU Power Management	“IPDU Power Management” on page 161

Step 2: Network Settings [Wizard]

In Wizard Mode, selecting "Step 2: Network Settings” brings up a form for reconfiguring existing network settings. During initial setup of the KVM/net, the administrator configures the default basic network settings that were needed to enable logins through the Web Manager. (See "Performing Basic Network Configuration" on page 84, if desired, for more information about the initial network configuration.) You can skip this step if the current settings are correct. Check with your network administrator if you are not sure.

Before making any changes to existing network settings, you may want to review "Performing Basic Network Configuration" on page 84, which provides a form to record information you need to collect ahead of time.

In Expert mode, under Configuration>Network, you can specify additional networking-related information: a Console Banner, a secondary IP address and secondary network mask, and an MTU. See "To Configure Host Settings [Expert]" on page 228. In addition, you can configure syslog servers for ports; specify rules for filtering syslog messages, VPN (Virtual Private Network), SNMP parameters; specify IP filtering rules (for the KVM/net to act as a firewall), and perform other advanced configuration tasks.

▼ *To Change Network Settings [Wizard]*

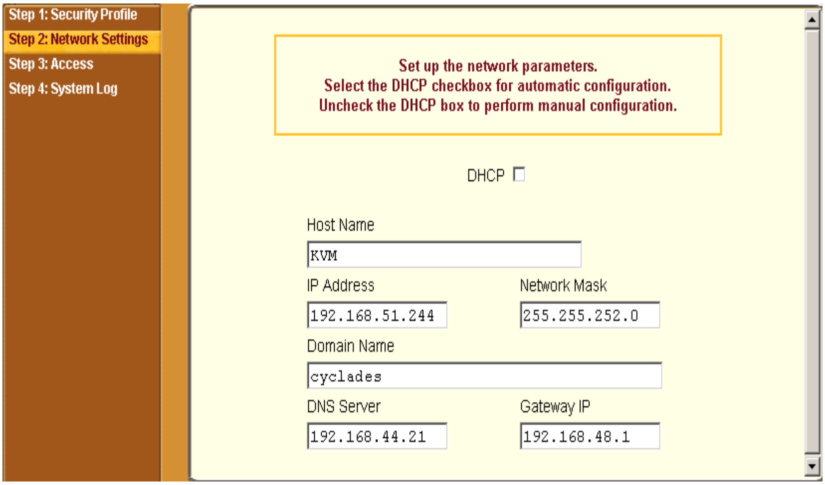
1. Collect any IP addresses or other network information to change.

   See the list of network information to collect under "Performing Basic Network Configuration" on page 84, if needed.

2. In Wizard mode, go to "Step 2: Network Settings."

   If the "DHCP" check box is not checked, the DHCP selection page displays as shown below. If the "DHCP" check box is checked, only the check box appears below the instructions.

Note: If DHCP is enabled, a local DHCP server assigns the KVM/net a dynamic IP address, which can change. The administrator chooses whether or not to use DHCP during initial setup. The initial setting may have been changed since initial configuration.



Set up the network parameters.
Select the DHCP checkbox for automatic configuration.
Uncheck the DHCP box to perform manual configuration.

DHCP □

Host Name: KVM

IP Address: 192.168.51.244

Network Mask: 255.255.252.0

Domain Name: cyclades

DNS Server: 192.168.44.21

Gateway IP: 192.168.48.1

Figure 4-6: Network Settings in Wizard Mode

3. If the “DHCP” check box is not checked, enter the network information in the fields.
4. Click the “apply changes” button.

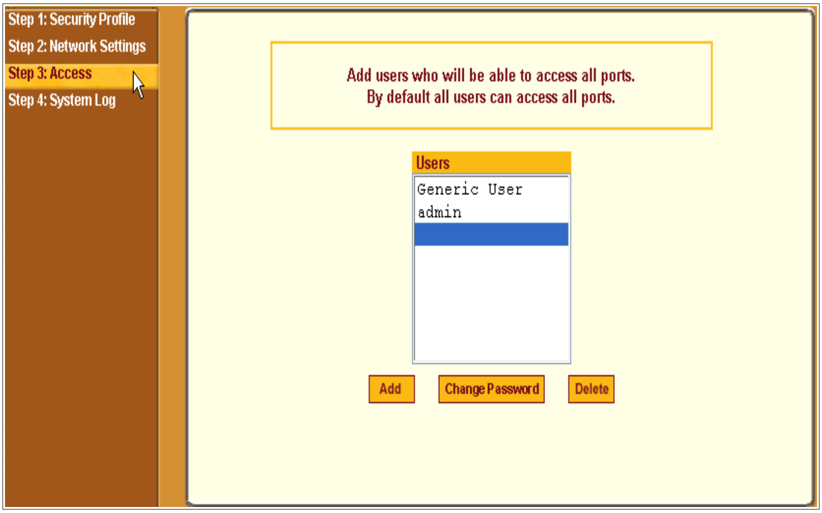
Note: If you change the KVM/net’s IP address and apply the changes, you will need to reconnect to the Web Manager with the new IP address.

---

5. Press the “Next” button or select “Step 3: Access” from the left menu**.**

Step 3: Access [Wizard]

In Wizard mode, selecting “Step 3: Access” brings up a form for adding or deleting users and for setting or changing passwords. Use this form if you want to add user accounts to allow other administrators to administer connected devices without being able to change the configuration of the KVM/net. The administrator can configure added users to administer the KVM/net by assigning them to the “admin” group.



Add users who will be able to access all ports.
By default all users can access all ports.

Generic User
admin

Figure 4-7: User Access in Wizard Mode

The Access form lists the currently defined Users and has three buttons: Add, Change Password, and Delete.

In the Users list, by default, are two user accounts that cannot be deleted:

- Admin
- Generic User

The Admin (the "admin" account) has access to all functions of the Web Manager and has access to all ports on the KVM/net.

The Generic User defines the access permissions for all users except the admin and root users. Any new regular user account automatically inherits the access permissions configured for the Generic User.

The following lists has links to the procedures for adding and deleting regular users and changing the passwords for regular users or administrators.

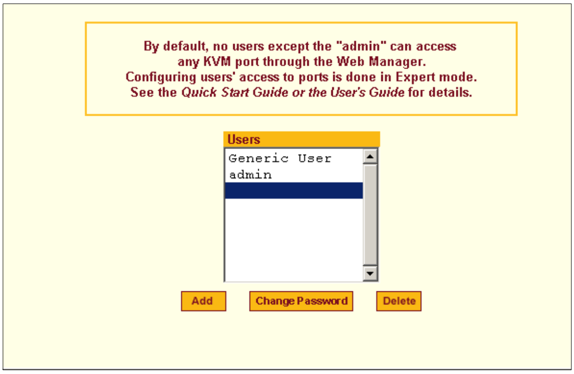
To Add a User [Wizard]	Page 153
To Delete a User [Wizard]	Page 155
To Change a Password [Wizard]	Page 155

Note: To perform advanced configuration of users and groups, for example, to restrict user access to KVM ports, or to create a group, go to Expert>Configuration>Users and Groups.

▼ *To Add a User [Wizard]*

1. In Wizard mode, go to Step 3: Access.

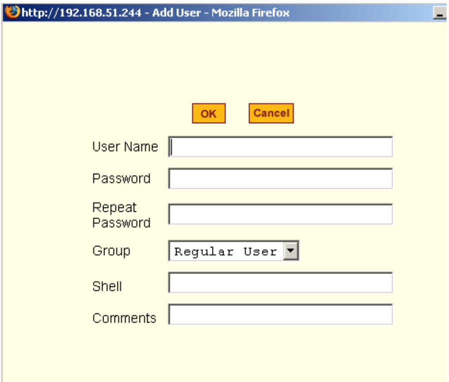
   The Access form appears.



By default, no users except the "admin" can access any KVM port through the Web Manager. Configuring users' access to ports is done in Expert mode. See the *Quick Start Guide or the User's Guide* for details.

2. Click Add.

   The "Add User" dialog box appears.



User Name

Password

Repeat Password

Group: Regular User

Shell

Comments

3. Enter the required information in the fields as shown in the following table.

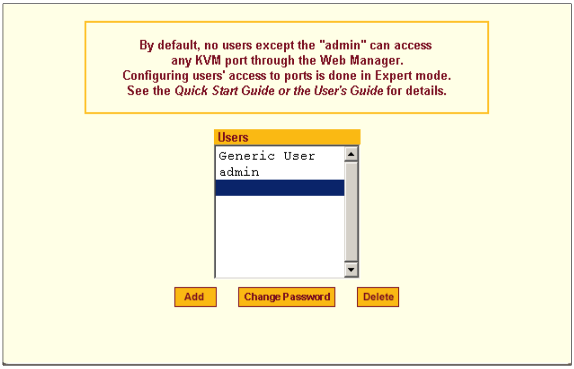
Field Name	Definition
Username	The username for the account being added.
Password	The password for the account.
Group	On the drop-down list, Select Regular User [Default] or Admin. **Note:** To configure a user to be able to perform all KVM/net administration functions, select the "Admin" group. See "Types of Users" on page 14, if needed, for more background.
Shell	Optional. The default shell when the user makes a SSH or Telnet connection with the switch. Choices are `sh` or `bash`. The default is `sh`.
Comments	Optional notes about the user's role or configuration.

4. Click OK.
5. Click the "apply changes" button.

▼ *To Delete a User [Wizard]*

1. In Wizard mode, go to “Step 3: Access.”

   The “Access” form appears.



By default, no users except the "admin" can access any KVM port through the Web Manager. Configuring users' access to ports is done in Expert mode. See the *Quick Start Guide or the User's Guide* for details.

1. Select the user name to delete.
2. Click “Delete.”

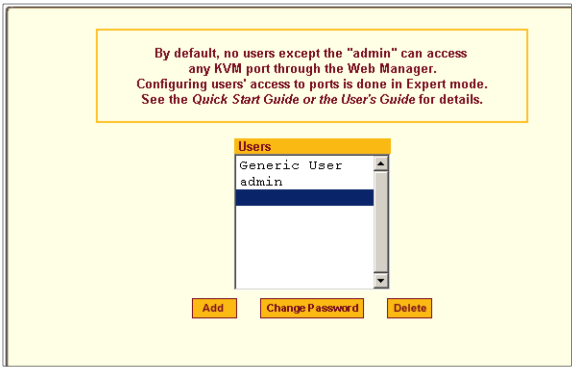
   The username disappears from the Users list.
3. Click the “apply changes” button.

▼ *To Change a Password [Wizard]*

Note: Leaving the default admin or root passwords unchanged would leave the KVM/net and connected devices open to anyone who knows the default passwords and the KVM/net’s IP address. For security’s sake, make sure the admin and root passwords have been changed from the default “cyclades.” If either the admin or root passwords have not been changed, change them now.

1. In Wizard mode, go to “Step 3: Access.”

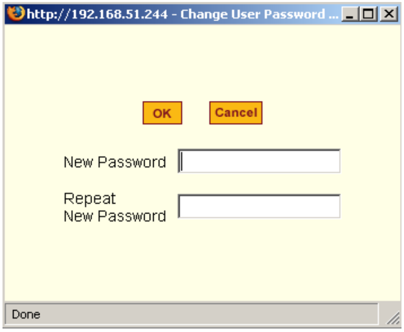
   The “Access” form appears.



By default, no users except the "admin" can access any KVM port through the Web Manager. Configuring users' access to ports is done in Expert mode. See the *Quick Start Guide or the User's Guide* for details.

2. Select the name of the user whose password you want to change.
3. Click “Change Password.”

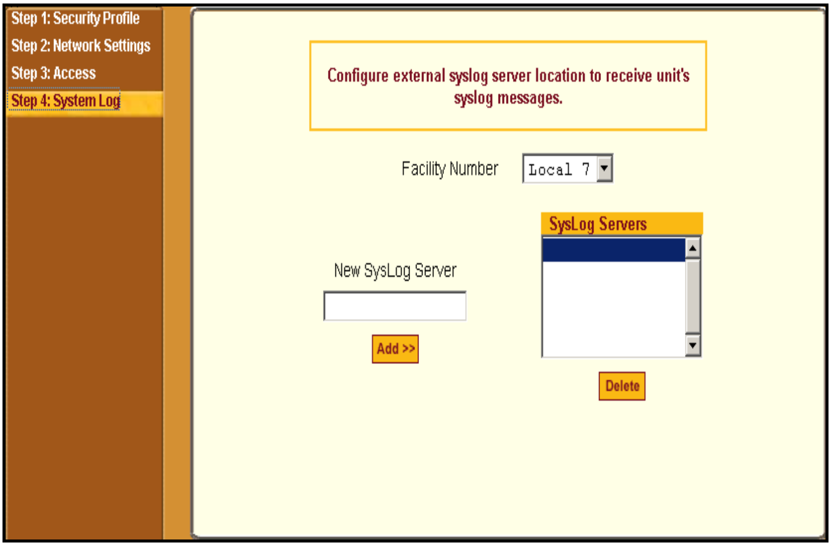
   The “Change User Password” dialog box appears.



4. Enter the new password in both fields, and click OK.
5. Click the “apply changes” button.

Step 4: System Log [Wizard]

In Wizard mode, selecting “Step 4: System Log” brings up a form for identifying one or more syslog servers to receive syslog messages from the KVM/net.



Configure external syslog server location to receive unit's syslog messages.

Facility Number: Local 7

Figure 4-8: System Log in Wizard Mode

Before performing this procedure, make sure an already-configured syslog server is available to the KVM/net.

Obtain the following information from the syslog server’s administrator:

- The IP address of the syslog server
- The facility number for messages coming from the KVM/net

Each syslog server has eight local facility numbers (Local 0 through Local 7) that the syslog server’s administrator can assign and use for handling log messages from different locations. See “Syslog Servers” on page 54, if needed, for more background on logging and on how facility numbers are used.

The following table has links to the procedures for adding and deleting a syslog server.

To Add a Syslog Server [Wizard]	Page 158
To Delete a Syslog Server [Wizard]	Page 159

Use this form to configure system logging for the KVM/net. More advanced configuration of syslog servers and event notification can be done in Expert mode. To configure system logging for messages relating to KVM ports, in Expert mode go to "To Configure Syslogging for KVM Ports and Specify Message Filtering [Expert]" on page 232.

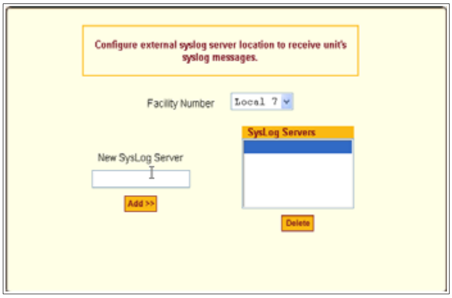
▼ *To Add a Syslog Server [Wizard]*

This procedure assumes you have the following information:

- The IP address of the syslog server
- The facility number for messages coming from the KVM/net

1. In Wizard mode, go to "Step 4: System Log."

   The System Log form appears.



Configure external syslog server location to receive unit's syslog messages.

Facility Number: Local 7

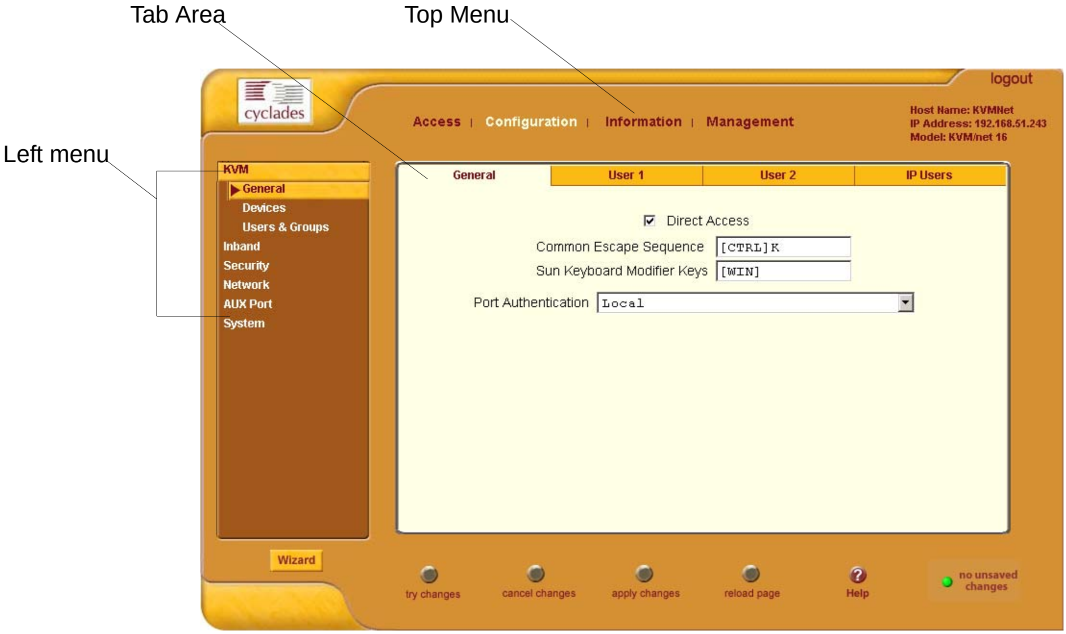
2. From the Facility Number drop-down list, select the facility number.
3. In the New Syslog Server field, enter the IP address of a syslog server, and select the Add button. (Repeat this step until all syslog servers are listed.)
4. The new server(s) appear in the Syslog Servers list.
5. Click "apply changes."

▼ *To Delete a Syslog Server [Wizard]*

1. From the Syslog Server list, select the syslog server that you want to delete from the current facility location, and select Delete.
2. Repeat this step for as many servers you need to delete.
3. Click “apply changes.”

Expert Mode

To perform advanced configuration, click the Expert button at the bottom of the left menu to switch to Expert mode. The following figure shows a typical window in Expert mode.



☑ Direct Access

Common Escape Sequence [CTRL]K

Sun Keyboard Modifier Keys [WIN]

Port Authentication Local

Figure 4-9: An Example of a typical form in Expert Mode

Making a selection from the top menu changes the list of menu options displayed in the left menu.

An option in the left menu (such as KVM in the preceding figure) often has several forms associated with it. Selecting a tab labeled with the name of the form or selecting the form's name in the left menu brings up the form.

Note: Procedures in this manual use shortcuts to tell how to get to Web Manager forms. For example, a step telling the user to access the "User 1" form in the right tab in the above figure would use this convention, "In Expert mode, go to Configuration>KVM>General>User 1."

Access

In Expert mode, the following form appears when "Access" is selected from the top menu bar.

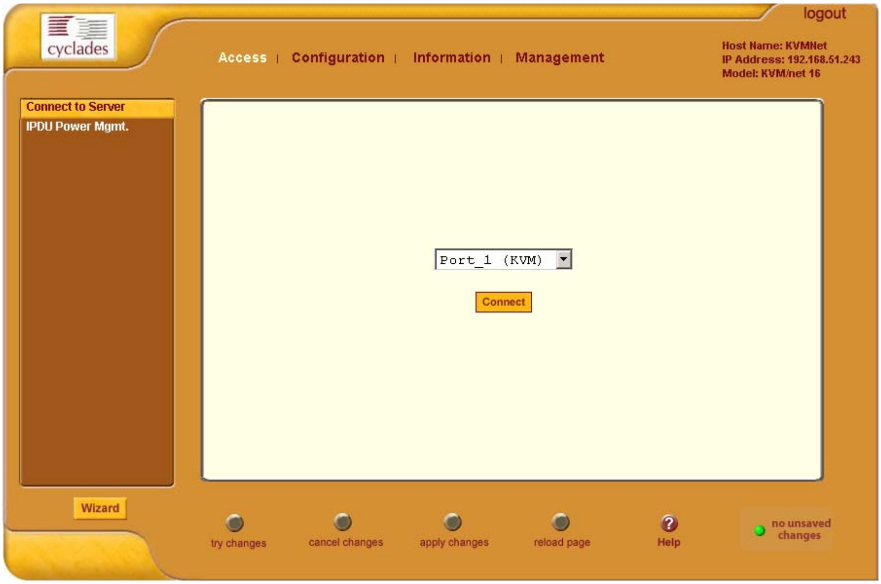


Figure 4-10: Access Form in Expert Mode

See the following sections for details about the tasks performed using the forms under Access in Expert mode.

- “Connect to Server” on page 161
- “IPDU Power Management” on page 161

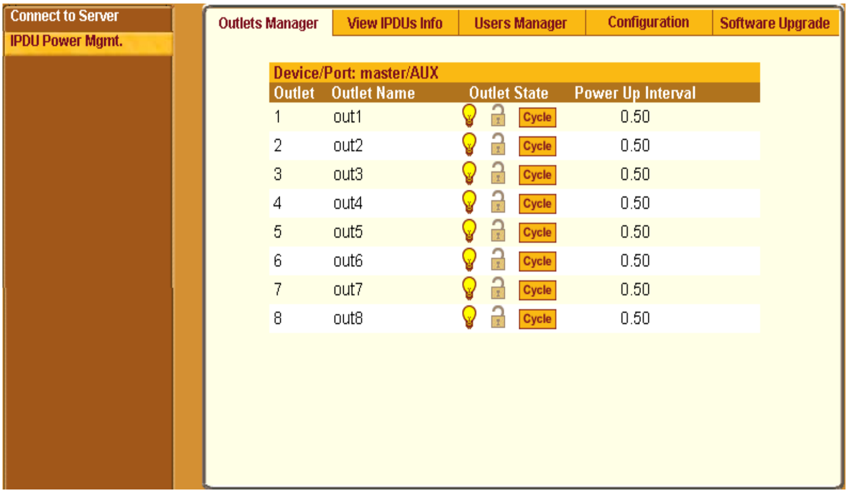
For instructions for forms that allow the regular user to connect to ports on the KVM/net to administer connected devices and perform power management, see Chapter 5: Web Manager for Regular Users.

Connect to Server

On the “Connect to Server” form under Access, you can access servers that are connected to KVM ports or to inband servers that use RDP (Remote Desktop Protocol). Chapter 6: Accessing Connected Devices discusses connecting to servers in more detail.

IPDU Power Management

On the “IPDU Power Management” forms under “Access” in Expert mode, you can manage power of devices that are plugged into the outlets on one or more intelligent power distribution units
(IPDUs).



Device/Port: master/AUX

Outlet	Outlet Name	Outlet State	Power Up Interval
1	out1	💡 🔓 Cycle	0.50
2	out2	💡 🔓 Cycle	0.50
3	out3	💡 🔓 Cycle	0.50
4	out4	💡 🔓 Cycle	0.50
5	out5	💡 🔓 Cycle	0.50
6	out6	💡 🔓 Cycle	0.50
7	out7	💡 🔓 Cycle	0.50
8	out8	💡 🔓 Cycle	0.50

Figure 4-11: Power Management Form in Expert Mode

You can manage power when the following two prerequisites are completed:

- An AlterPath PM is connected to an AUX port on the KVM/net. The AlterPath PM can be daisy chained to allow you to manage power for up to 128 devices from the KVM/net.

  See “To Connect an AlterPath PM to the AUX Port” on page 117 for installation procedures.
- The AUX port is configured for power management.

  See “To Configure the AUX Port for Use With an IPDU or an External Modem” on page 267.

See the following sections for details about the tasks performed using the forms under IPDUPower Management.

- “Outlets Manager” on page 162
- “View IPDUs Info” on page 164
- “Users Manager” on page 165
- “Configuration” on page 167
- “Software Upgrade” on page 169

See the following sections for related procedures:

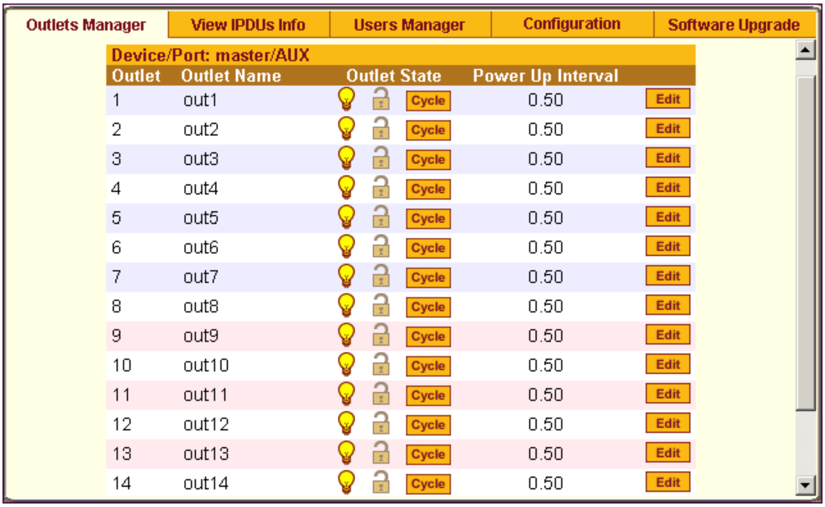
- “To View Status, Lock, Unlock, Rename, or Cycle Power Outlets” on page 163
- “To View and Reset IPDU Information” on page 165
- “To Configure Users to Manage Specific Power Outlets” on page 166
- “To Configure Creation of Alarms and Syslog Files for IPDUs” on page 168
- “To Upgrade Firmware on an AlterPath PM” on page 169

Outlets Manager

On the “Outlets Manager” form under Access>IPDUPower Management in Expert mode, you can do the following for all outlets on all connected IPDUs:

- Check the status of outlets
- Turn outlets on and off
- Cycle (Briefly switching the outlet off and on)
- Lock outlets in the on or off state to prevent accidental changes

- Unlock the outlets
- Assign a name to the outlet, for example, identify the device for which it provides power.
- Change the power up interval. The power up interval is the time interval (in seconds) that the system waits between turning on the currently-selected outlet and the next outlet.



Device/Port: master/AUX

Outlet	Outlet Name	Outlet State	Power Up Interval	
1	out1	💡 🔓 Cycle	0.50	Edit
2	out2	💡 🔓 Cycle	0.50	Edit
3	out3	💡 🔓 Cycle	0.50	Edit
4	out4	💡 🔓 Cycle	0.50	Edit
5	out5	💡 🔓 Cycle	0.50	Edit
6	out6	💡 🔓 Cycle	0.50	Edit
7	out7	💡 🔓 Cycle	0.50	Edit
8	out8	💡 🔓 Cycle	0.50	Edit
9	out9	💡 🔓 Cycle	0.50	Edit
10	out10	💡 🔓 Cycle	0.50	Edit
11	out11	💡 🔓 Cycle	0.50	Edit
12	out12	💡 🔓 Cycle	0.50	Edit
13	out13	💡 🔓 Cycle	0.50	Edit
14	out14	💡 🔓 Cycle	0.50	Edit

Figure 4-12: Power Management - Outlets Manager Form

▼ *To View Status, Lock, Unlock, Rename, or Cycle Power Outlets*

1. In Expert mode, go to Access> IPDU Power Mgmt.> Outlets Manager.

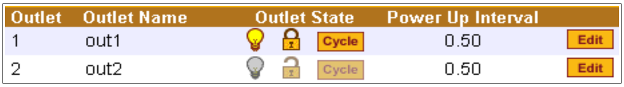
The “Outlets Manager” form appears.

Yellow bulbs indicate an outlet is switched on and an opened padlock indicates that the outlets are unlocked. An orange “Cycle” button is active next to each outlet that is on.

2. To switch an outlet on or off, click the adjacent light bulb.

3. To lock or unlock an outlet, click the adjacent padlock.

In the example below, outlet 1 is switched on and locked, and outlet 2 is switched off and unlocked.

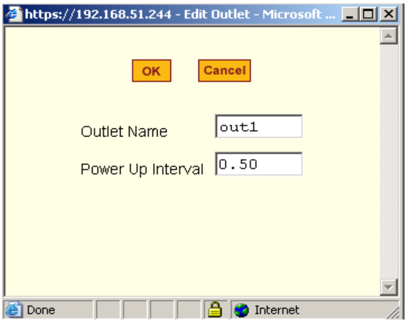


Outlet	Outlet Name	Outlet State	Power Up Interval	
1	out1	Cycle	0.50	Edit
2	out2	Cycle	0.50	Edit

4. To momentarily power an outlet off and then on again, click the adjacent "Cycle" button.

5. To change the outlet's name or the power up interval, click the adjacent "Edit" button.

   The Edit Outlet dialog box appears.



Outlet Name: out1

Power Up Interval: 0.50

   a. To change the name assigned to the outlet, enter a new name in the "Outlet Name" field.

   b. To change the time between when this outlet is turned on and another can be turned on, change the default 0.50 number of seconds in the "Power Up Interval" field.

6. Click OK.

7. Click "apply changes."

View IPDUs Info

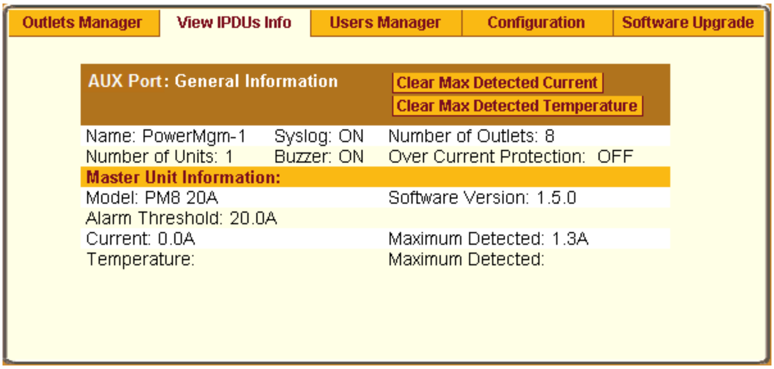
On the "View IPDUs Info" form under Access>IPDUPower Management in Expert mode, you can view the following information about any connected IPDUs:

- Number of outlets on each unit
- Current
- Temperature

- Alarm threshold levels
- Firmware version

You can also clear values for the maximum current and the maximum temperature.

Figure 4-13: Power Management - View IPDUs Info Form



AUX Port: General Information

Name: PowerMgm-1	Syslog: ON	Number of Outlets: 8
Number of Units: 1	Buzzer: ON	Over Current Protection: OFF
Master Unit Information:		
Model: PM8 20A		Software Version: 1.5.0
Alarm Threshold: 20.0A		
Current: 0.0A		Maximum Detected: 1.3A
Temperature:		Maximum Detected:

▼ *To View and Reset IPDU Information*

1. In Expert mode, go to Access>IPDUPower Management>View IPDUs Info.

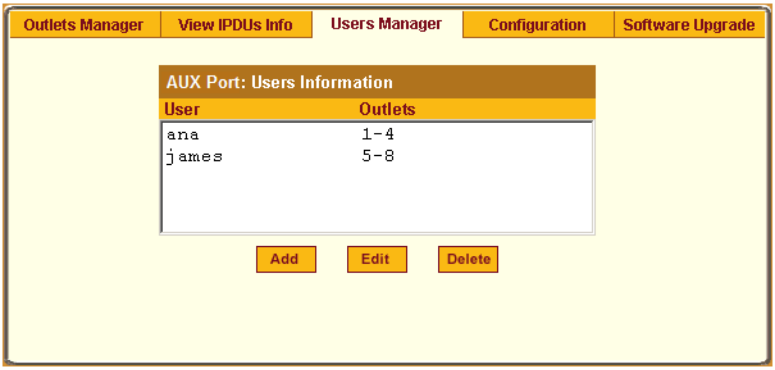
   The “View IPDUs Info” form appears.

2. To clear the stored values for the maximum detected current, select the “Clear Max Detected Current” button.
3. To clear the stored values for the maximum detected temperature, click the “Clear Max Detected Temperature” button.
4. Click “apply changes.”

Users Manager

On the “Users Manager” form under Access>IPDUPower Management in Expert mode, you can assign users to outlets.

Figure 4-14: Power Management - Users Manager Form



AUX Port: Users Information

User	Outlets
ana	1-4
james	5-8

▼ *To Configure Users to Manage Specific Power Outlets*

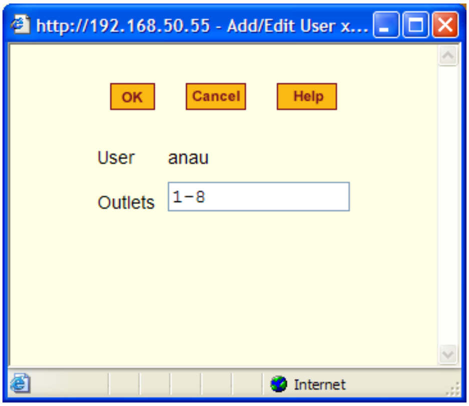
1. In Expert mode, go to Access>IPDUPower Management>Users Manager.

   The “Users Manager” form appears.

2. To remove a user’s ability to manage power, select the username and click “Delete.”

3. To edit a user, select the username from the view table and click “Edit.” Skip to Step 5.

   The “Add/Edit User x Outlets” dialog box appears.



User anau

Outlets 1-8

4. To add a new user, click “Add.”

   The “Add/Edit User x Outlets” dialog box appears.

5. In the “Add/Edit User x Outlets” dialog box, do the following as appropriate.

   a. Enter the username in the “User” field.

   b. Enter or modify the numbers of the outlets to which the user is assigned in the “Outlets” field.

      Use a comma to separate outlet numbers, and use a hyphen to indicate a range of outlets (for example: 1, 3, 6, 9-12).

6. Click OK.

7. Click “apply changes.”

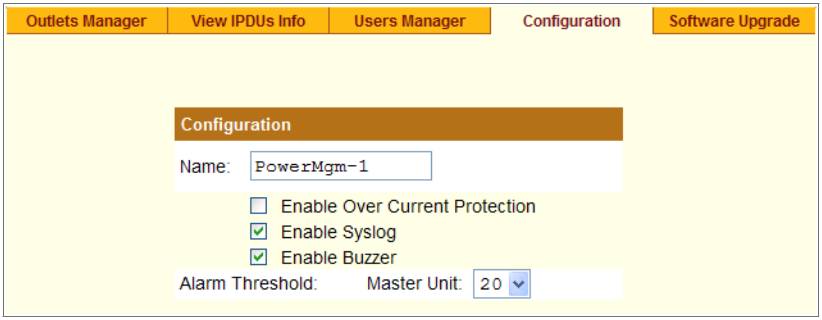
Configuration

On the “Configuration” form under Access>IPDUPower Management in Expert mode, you can specify the following:

- Whether syslog messages are generated for power management events
- Over current protection:
  - An alarm threshold
  - Whether a buzzer sounds whenever the current exceeds the defined threshold.

You can define the alarm threshold for both a master and a slave unit and define aliases for each connected IPDU.

The Configuration form shows the ports that are currently connected to IPDUs. The following figure displays an example form that appears for a KVM/net with an AlterPath PM connected to AUX port.



Configuration

Name: PowerMgm-1

□ Enable Over Current Protection

☑ Enable Syslog

☑ Enable Buzzer

Alarm Threshold: Master Unit: 20

Figure 4-15: Power Management - Configuration Form

▼ *To Specify or Change the Alias of an IPDU*

1. In Expert mode, go to Access>IPDUPower Management>Configuration.

   The Configuration form displays entries for all ports configured for power management.

2. In the Name field, enter the alias of the IPDU.

3. Click “apply changes.”

▼ *To Configure Creation of Alarms and Syslog Files for IPDUs*

1. In Expert mode, go to Access>IPDUPower Management>Configuration.

   The Configuration form displays entries for all ports configured for power management.

2. Click the appropriate check boxes to enable or disable Over Current Protection, the generation of Syslog files, and the sounding of a Buzzer if a defined threshold is exceeded.

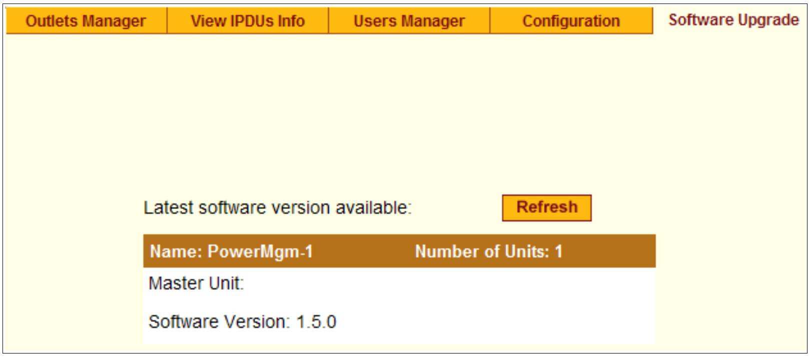
   An alarm sounds on the PM, not the KVM/net.

3. If enabling the buzzer or alarm notification, select an Alarm Threshold (1-20 amps) from the drop-down list for the master and any slave unit.

4. Click “apply changes.”

Software Upgrade

On the "Outlets Manager" form under Access>IPDUPower Management in Expert mode, you can upgrade the Power Management firmware for AlterPath PM IPDUs.



Latest software version available:

Name: PowerMgm-1 Number of Units: 1

Master Unit:

Software Version: 1.5.0

Figure 4-16: Power Management - Software Upgrade Form

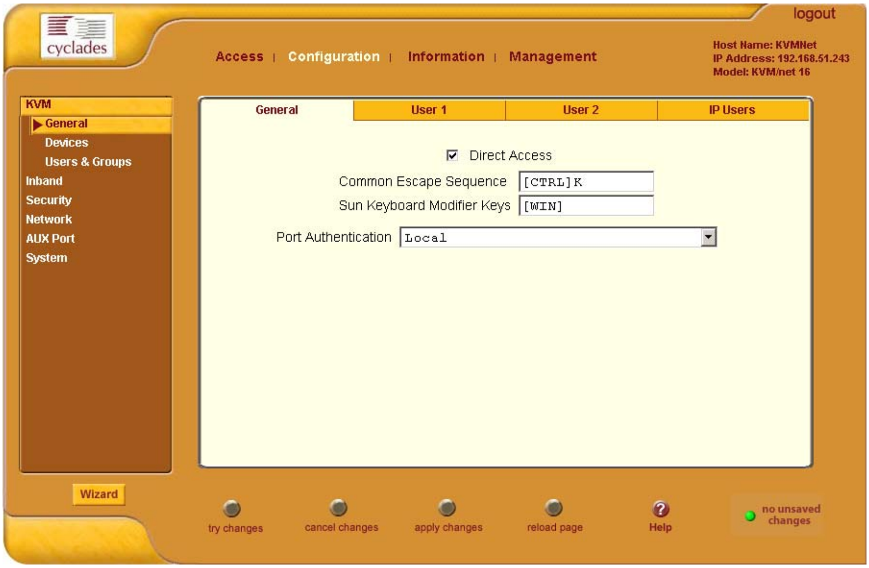
An entry appears for every connected PM and for each slave. The version of the currently installed firmware displays on the form.

▼ *To Upgrade Firmware on an AlterPath PM*

1. Contact the Cyclades FTP server, and if a more recent version of the firmware is available, download the updated firmware onto a computer with a direct connection to the KVM/net.
2. Copy the firmware file to the KVM/net and place it in /`tmp/pmfirmware`.
3. In Expert mode, go to Access>Power Management>Software Upgrade.
4. Click the Refresh button to install the updated firmware onto the PM.
5. Click "Update."
6. Click "apply changes."

Configuration

Under "Configuration" in Expert mode, number of options appear in the left menu, as shown in the following figure.



☑ Direct Access

Common Escape Sequence [CTRL]K

Sun Keyboard Modifier Keys [WIN]

Port Authentication Local

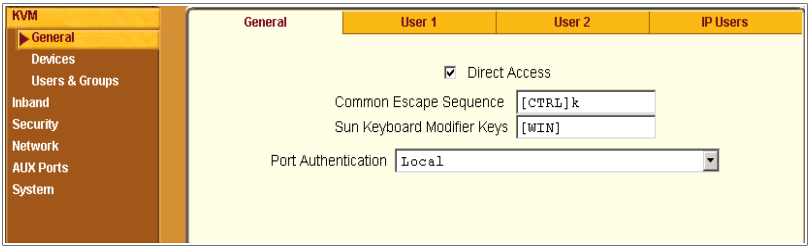
Figure 4-17:KVM Configuration General Form

See the following sections for details about the tasks performed using the forms under Configuration in Expert mode:

- "KVM" on page 170
- "Configuring Inband (RDP) Servers" on page 199
- "Security" on page 204
- "Network" on page 226
- "AUX Port" on page 266
- "System" on page 268

KVM

Selecting Configuration>KVM in Expert mode brings up KVM options in the left menu as shown in the following figure.



☑ Direct Access

Common Escape Sequence [CTRL]k

Sun Keyboard Modifier Keys [WIN]

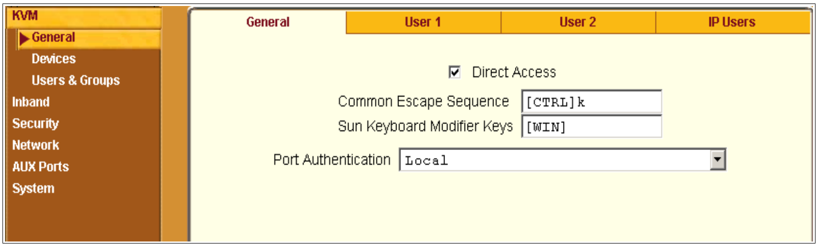
Port Authentication Local

You can use the KVM menu options for custom configuration of KVM ports. The following table provides links to the sections where the options are described.

Web Manager Form	Where Documented
General	“General” on page 171
Devices	• “Configuring Individual KVM Ports” on page 183 • “Configuring Cascaded KVM Units” on page 187
Users & Groups	“Users & Groups” on page 191

General

Selecting Configuration>KVM>General in Expert mode brings up the form shown in the following figure.



☑ Direct Access

Common Escape Sequence [CTRL]k

Sun Keyboard Modifier Keys [WIN]

Port Authentication Local

The following table provides links to the sections that describe how to use the forms under Configuration>KVM>General in Expert mode.

General	"General" on page 172.
User 1 , User 2, and IP Users	"Local Users and IP Users" on page 176

General

On the General form under Configuration>KVM>General in Expert mode, you can specify the parameters shown in the following table, which offers cross-references to where you can find more information on each parameter.

Parameter Name	Definition	Where Documented
Direct Access	Selecting this check box enables logins to KVM ports directly from the Web Manager Login screen.	• "Enabling Direct Access to KVM Ports" on page 173
Common Escape Sequence	Redefines keyboard shortcuts used during localKVM connections	• "Redefining KVM Connection Keyboard Shortcuts (Hot Keys)" on page 173
Sun Keyboard Modifier Keys	Redefines the modifier key to emulate a Sun keyboard. The default is `[WIN]`.	• "Redefining Sun Keyboard Modifier Keys" on page 175

Parameter Name	Definition	Where Documented
Port Authentication	Allows you to choose an authentication method for “Direct Access” only. **Note:** To enable the port authentication drop-down menu, activate the “Direct Access” option.	• “See “Configuring Authentication Servers for Logins to the KVM/net and Connected Devices” on page 208.” on page 207 “To Configure an Authentication Method for KVM/net Logins” on page 206

Enabling Direct Access to KVM Ports

When direct access to KVM ports is enabled, users authorized to access KVM ports can use a port field on the Web Manager login screen to log in and connect directly to the port. See “To Log In to the Web Manager as Admin” on page 138, if desired, for an example of the login screen when direct login is enabled.

Note: If KVM/net is configured with a Secure or Moderate Security Profile, direct access is not permitted.

▼ *To Enable Direct Access to KVM Ports*

1. Go to Configuration>KVM>General in Expert mode.

   The General form appears.

2. Select the “Direct access” check box.
3. Click “apply changes.”

Redefining KVM Connection Keyboard Shortcuts (Hot Keys)

You can use the General, User 1, User 2, and IP Users forms to redefine a default set of keyboard shortcuts (called hot keys), which allow administrators to perform common actions while connected to KVM ports. You redefine the common escape sequence portion of each hot key separately from the command key.

The following table summarizes the format of the hot keys for KVM connections, the defaults, and where they can be redefined.

	Common Escape Sequence	**Command Key**	**Where Defined**
Format	"Ctrl" + "*letter key*"	"*letter key*"	• Configuration>KVM>General> General
Defaults	Ctrl+k	"p" to bring up the "power management" window, "q" to quit. See Table 6-4, "Default KVM Connection Keyboard Shortcuts," on page 329 for all the default command keys.	• Configuration>KVM>General> User 1 • Configuration>KVM>General> User 2 • Configuration>KVM>General> IP Users

▼ *To Redefine KVM Session Keyboard Shortcuts*

1. Go to Configuration>KVM>General in Expert mode.

   The General form appears.

2. To redefine the "Common Escape Sequence" enter a key combination starting with the Ctrl key and followed by a letter, for example, **`Ctrl m`**.

3. To redefine the command key portion of any KVM-session keyboard shortcuts, do one of the following steps.

   - To change the command key for administrators who access KVM ports through the User 1 port, go to the User 1 tab.

   - To change the command key for administrators who access KVM ports through the User 2 port, go to the User 2 tab.

   - To change the command key for users who access KVM ports through the Web Manager, go to the IP Users tab.

4. On the “User 1”, “User 2”, or “IP Users” tab, redefine the command keys, if desired, in any of the following fields: “Quit,” “Power Management,” “Mouse/Keyboard Reset,” “Video Control,” “Switch Next,” “Switch Previous,” “Port Info.”
5. Click “apply changes.”

Redefining Sun Keyboard Modifier Keys

The KVM/net provides a default set of hot keys for use while connected to Sun servers. You can use the PC keyboard to emulate keys that are present on Sun keyboards but are not available on PC keyboards. See “Hot Keys for Emulating Sun Keyboard Keys” on page 330.

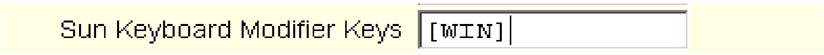
The hot keys are made up of a modifier key followed by a function key. The default modifier key in KVM/net is the Windows key, which is labeled with the Windows logo, and is located between the `Ctrl` and `Alt` keys on a PC keyboard.

▼ To Redefine the Sun Keyboard Modifier Keys

You can redefine the default `[WIN]` modifier key to `[Ctrl], [Shift], or [Alt]` using the KVM/net Web Manager, if desired.

1. Go to Configuration>KVM>General in Expert Mode.

   The General form appears.
2. To redefine the default `[WIN]` modifier key, enter another modifier key such as `[Ctrl],[Shift], or [Alt]` in the “Sun Keyboard Modifier Keys” field.



Sun Keyboard Modifier Keys [WIN]

3. Click “apply changes.”

Specifying Authentication for KVM Port Logins

By default, users with administrative privileges have full access to all ports. Using the Port Authentication drop-down list on the KVM>General page, you can configure a single authentication method for direct access to a device connected to any KVM port.

Note: The Port Authentication drop-down menu is disabled by default. To enable, activate the “Direct Access” check box on the KVM > General form. If the “Direct Access” check box is greyed out, you need to modify the security profile to Open, or select the Custom security profile and enable “Access to KVM Ports” option. See Configuration>Security>Profile form. Authentication method serves as a direct access authentication to the connected servers or devices only.

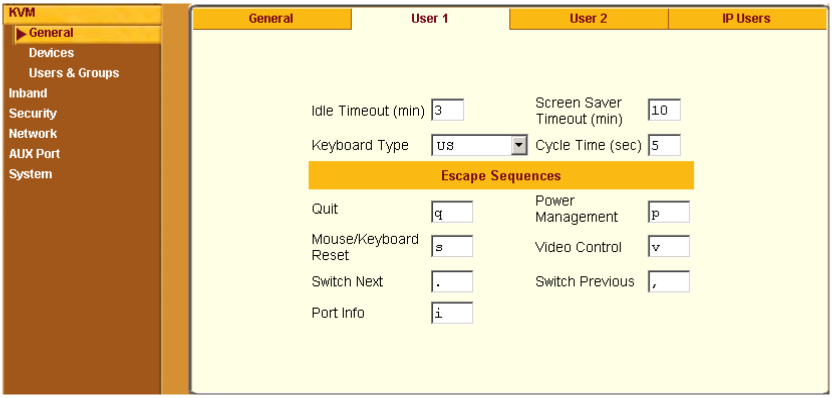
Choice of authentication types for KVM ports are:

- None
- Local
- Kerberos (either Kerberos or Kerberos/DownLocal),
- LDAP (either LDAP or LDAP/DownLocal)
- NTLM (either NTLM Windows NT/2000/2003 or NTLM/DownLocal)
- RADIUS (either RADIUS or RADIUS/DownLocal)
- TACACS+ (either TACACS+, and TACACS+/DownLocal)

“See “Configuring Authentication Servers for Logins to the KVM/net and Connected Devices” on page 208.” on page 207 for the instructions on specifying an authentication method.

Local Users and IP Users

Selecting Configuration>KVM>General>User 1 brings up a form with the fields shown in the following figure.



Idle Timeout (min)	3	Screen Saver Timeout (min)	10
Keyboard Type	US	Cycle Time (sec)	5

Escape Sequences

Quit	q	Power Management	p
Mouse/Keyboard Reset	s	Video Control	v
Switch Next	.	Switch Previous	,
Port Info	i		

Figure 4-18:KVM Configuration User 1/User 2/IP Users Form

On the “User 1” form under Configuration>KVM>General in Expert mode you can redefine the default session parameters that apply when a user (called the *Local User*) is using the OSD through a direct connection to the KVM.

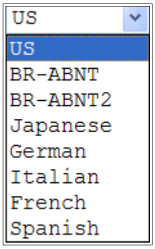
On the “User 2” form, you can redefine the default session parameters that apply when a user is using the OSD through a KVM RP connection to the User 2 port on the KVM/net.

On the “IP Users” form you can define the default session parameters that apply when a remote user (called the *IP User*) is connected to a KVM port through the Web Manager (in a type of session called *KVM over IP*).

In addition, on the “User 1” , “User 2”, and “IP Users” forms, you can redefine the command key portion of keyboard shortcuts. For more information about redefining keyboard shortcuts, see “Redefining Keyboard Shortcuts (Hot Keys)” on page 35 and “To Redefine KVM Session Keyboard Shortcuts” on page 174 if needed.

The following tables describes the parameters that appear on the User 1 and User 2 forms.

Table 4-4: User 1 and User 2 forms parameters

Field Name	Definition
Idle Timeout (min)	Sets the maximum time (in minutes) for the session to be idle before it is closed. The default value is 3 minutes. The maximum value is 60 minutes. A value of 0 disables the idle timeout.
Screen Saver Timeout (min)	Sets the time (in minutes) for the session to be idle before the screen saver activates. The default value is 10 minutes. The maximum value is 60 minutes. A value of 0 disables the idle timeout.
Keyboard Type	Sets the keyboard type. Choose the type of keyboard connected to the User 1 and User 2 ports on the KVM/net. The options from the drop-down list are shown in the figure.  US US BR-ABNT BR-ABNT2 Japanese German Italian French Spanish
Cycle Time	Change the cycle time (in seconds) within a 3 to 60 seconds range. The default is 5 seconds.
Escape Sequences	Redefine the common escape sequence portion of each hot key, which allow administrators to perform common actions while connected to KVM ports.

The following tables describes the parameters that appear on the IP Users form.

Table 4-5: IP Users form parameters

Field Name	Definition
Idle Timeout (min)	Sets the maximum time (in minutes) for the session to be idle before it is closed. The default value is 3 minutes. The maximum value is 60 minutes. A value of 0 disables the idle timeout.
TCP Viewer Ports	Change the number of the TCP port used for the AlterPath Viewer. [IP Users only.] The default is 5900+. You may need to change the default, for example, if your firewall is blocking port 5900. (For more details, see “TCP Ports” on page 20.) Port numbers 1-1024 are reserved. Indicate a range of ports by entering a plus sign (+) after the first port number (as in 2500+) or by entering a dash between two port numbers (as in 2500-2501). Indicate a set of nonadjacent port numbers by separating port numbers with commas (as in 2500, 2508).
IP Security	Sets a desired encryption option. User can select no data encryption, encrypt keyboard/mouse data only, or include video encryption to the keyboard/mouse data. Another option allows 3DES encryption method implemented on a video session.
Escape Sequences	Redefine the common escape sequence portion of each hot key, which allow administrators to perform common actions while connected to KVM ports.

▼ *To Configure Local User 1 and User 2 Sessions*

Perform this procedure if you want to redefine the parameters that apply to KVM port sessions when a local user is directly logged in to the KVM/net.

1. In Expert mode, go to Configuration>KVM>General>.
2. To configure parameters for the User 1 port, select the User 1 tab.
3. To configure parameters for the User 2 port, select the User 2 tab.

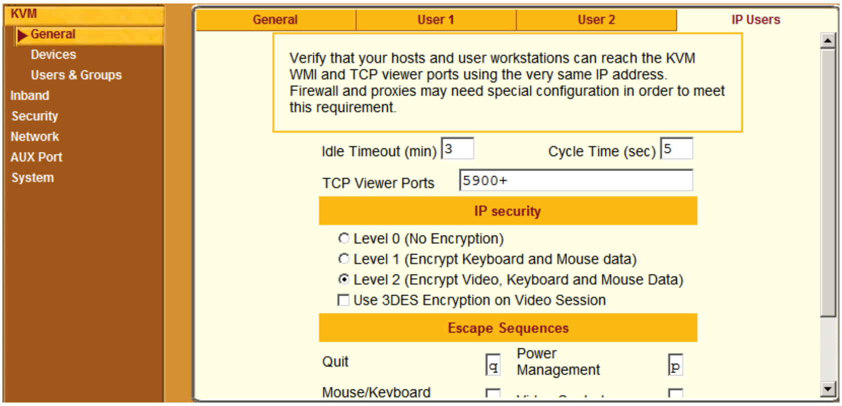
Note: The User 1 and User 2 forms are identical except that User 1 modifies the User 1 port options, while User 2 modifies the User 2 port options.

4. To change the idle timeout, enter a different number of minutes in the “Idle Timeout” field.
5. To change the screen saver timeout, enter a different number of minutes in the “Screen Saver Timeout” field.
6. To change the keyboard type, select a different keyboard from the “Keyboard type” drop-down list.
7. To change the cycle time, enter a different number of seconds in the “Cycle Time” field.
8. To change any of the command key portions of KVM hot key combinations, enter a different letter in the “Quit,” “Power Management,” “Mouse/Keyboard Reset,” “Video Control,” “Switch Next,” “Switch Previous,” or “Port Info” fields.
9. Click “apply changes.”

▼ *To Configure IP User (KVM Over IP) Sessions [Expert]*

Perform this procedure if you want to redefine the parameters that apply to KVM port sessions when a remote user is connected through the Web Manager (in a KVM over IP session).

1. Go to Configuration>KVM>General>IP Users in Expert mode.



Verify that your hosts and user workstations can reach the KVM WMI and TCP viewer ports using the very same IP address. Firewall and proxies may need special configuration in order to meet this requirement.

Idle Timeout (min) 3

Cycle Time (sec) 5

TCP Viewer Ports 5900+

IP security

○ Level 0 (No Encryption)

○ Level 1 (Encrypt Keyboard and Mouse data)

● Level 2 (Encrypt Video, Keyboard and Mouse Data)

□ Use 3DES Encryption on Video Session

Escape Sequences

Quit q

Power Management p

Mouse/Keyboard

2. Modify the number of minutes in the “Idle Timeout” field, and the number of seconds in the “Cycle Time” field, if desired. The default is 3 minutes and 5 seconds respectively.
3. In the “TCP Viewer Ports” field change the TCP port number used by the AlterPath Viewer, if required.
4. Check the appropriate radio button for no encryption (Level 0), keyboard and mouse data encryption (Level 1), or video, keyboard, and mouse data encryption (Level 2).

   If you select Level 2 encryption and make a KVM connection, the "No Encryption" option under the “Connection” drop-down menu in the AlterPath Viewer will be greyed-out. In case of Level 1 encryption, the keyboard and mouse are disabled when you select "No Encryption" from the Connection drop-down menu in the AlterPath Viewer.

   The encryption level is enabled by the system administrator. The user will not be able to turn off encryption.

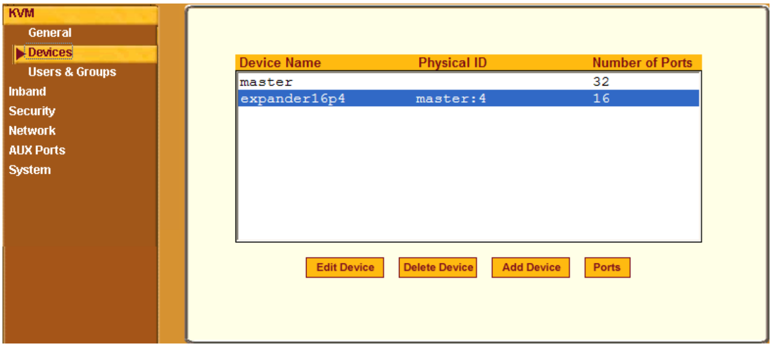
Note: 3DES encryption can be selected for a video session. RC4 is the default encryption if 3DES is not selected.

5. To change any of the command key portions of KVM hot key combinations, enter a different letter in the “Quit,” “Power Management,” “Mouse/Keyboard Reset,” “Video Control,” “Switch Next,” “Switch Previous,” or “Port Info” fields.
6. Click “apply changes” to complete the procedure.

Note: Your firewall and proxies may require reconfiguration. Check to make sure that your host can reach the KVM Web Manager and TCP Viewer ports using its assigned IP address.

Devices

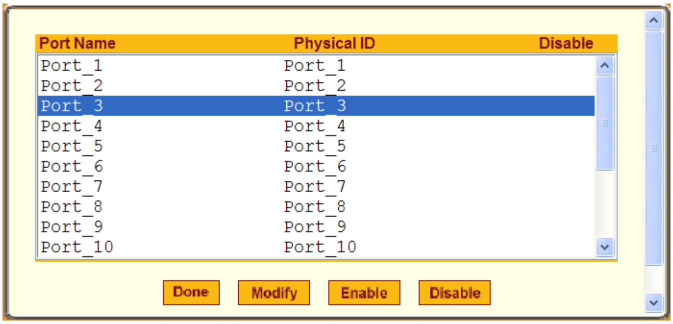
Selecting Configuration>KVM>Devices in Expert mode brings up the form shown in the following figure.



Device Name	Physical ID	Number of Ports
master		32
expander16p4	master:4	16

Figure 4-19:KVM Device Configuration Form

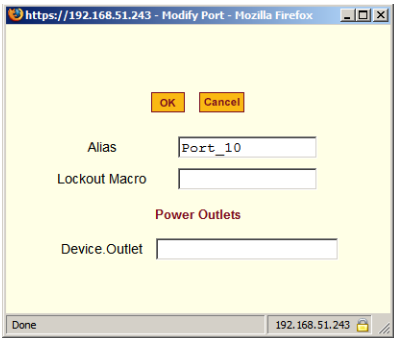
The device name “master” stands for the KVM/net, which is the master KVM unit in a cascaded configuration. Other device names may appear below “master” depending on the number of KVM units cascaded to the master. Selecting the name of a KVM unit in the list and clicking the “Ports” button brings up a list of the KVM ports on the KVM/net, as shown in the following figure.



Port Name	Physical ID	Disable
Port_1	Port_1	
Port_2	Port_2	
Port_3	Port_3	
Port_4	Port_4	
Port_5	Port_5	
Port_6	Port_6	
Port_7	Port_7	
Port_8	Port_8	
Port_9	Port_9	
Port_10	Port_10	

When you select one or more ports, you can enable or disable the KVM port(s) using the “Enable” or “Disable” buttons on the form.

When you select a port and click the “Modify” button, the dialog box shown in the following figure appears.



https://192.168.51.243 - Modify Port - Mozilla Firefox

Alias: Port_10

Lockout Macro:

Power Outlets

Device.Outlet:

Configuring Individual KVM Ports

On the Modify Port dialog box, you can do the following:

- Configure an alias for a single KVM port
- Assign a Lockout Macro to the KVM connected server
- Configure power management for the server that is connected to the KVM port while the user is logged in to the server
- Enable or disable KVM ports

The following table lists the related procedures with links to where they are described.

To Configure a KVM Port for Power Management	Page 183
To Specify or Change the Alias for a KVM Port	Page 186
To Enable or Disable a KVM Port	Page 186

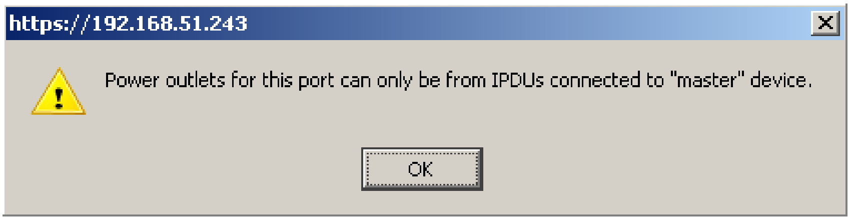
▼ To Configure a KVM Port for Power Management

Power outlets are configured per KVM port. If you have a cascade configuration, note the following:

- The KVM port on the master KVM/net can only be assigned outlets from the IPDUs connected to the master. You can not assign outlets from an

IPDU connected to the cascaded KVM to servers connected to the master KVM/net.

The following error message appears if you try to configure a master KVM port with the slave connected IPDU.


https://192.168.51.243

Power outlets for this port can only be from IPDUs connected to "master" device.

- If the KVM port is on the cascaded device, for example Slave-1, the power outlets can be assigned from the IPDUs connected to the master KVM/net or from the IPDUs connected to Slave-1.

Perform the following procedure to enable a user who is connected to a server through a KVM port to perform power management.

Before you start make sure the following prerequisites are complete:

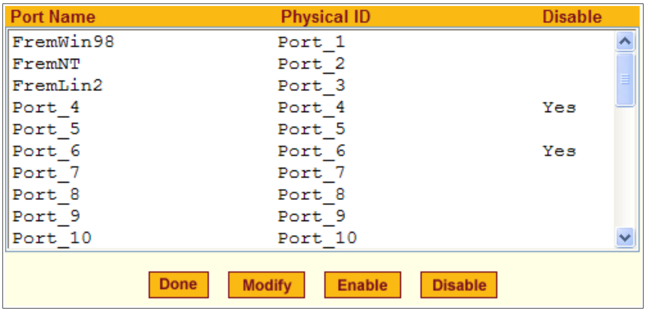
- The computer is plugged into an IPDU connected to the KVM/net's AUXport.
- The AUXport has been configured for power management.
- You know the outlet number or numbers to which the computer's power cable or cables are plugged.

1. In Expert mode, go to Configuration>KVM>Devices.

   The Devices form appears.

2. Select the Device that contains the port(s) to be configured and click the Port button.

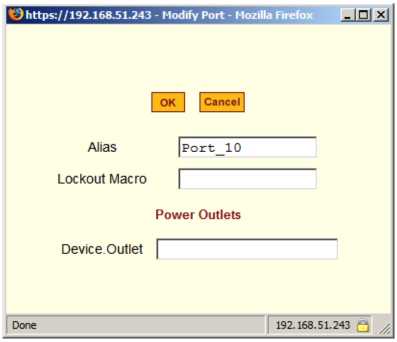
   The Port Name list appears.



Port Name	Physical ID	Disable
FremWin98	Port_1	
FremNT	Port_2	
FremLin2	Port_3	
Port_4	Port_4	Yes
Port_5	Port_5	
Port_6	Port_6	Yes
Port_7	Port_7	
Port_8	Port_8	
Port_9	Port_9	
Port_10	Port_10	

3. Select the port you want to modify and click the Modify button.

   The Modify Port dialog box appears.



Alias: Port_10

Lockout Macro:

Power Outlets

Device.Outlet:

4. In the Alias field, type an alias for the port
5. In the Lockout Macro field, enter the key sequence assigned to lock the server. See “Lockout Macro Key Sequences” on page 50.
6. In the Device.Outlet field, type the outlet number(s) of the IPDU that the server is plugged into.

   Use commas (,) to separate outlets and use a hyphen (-) to indicate a range.

   If you have a cascade configuration, use the <outlet-number> for the master, or <device-name>.<outlet-number> for the slave.
7. Click the OK button.
8. Click the “apply changes” button to save your configuration.

▼ *To Specify or Change the Alias for a KVM Port*

1. Go to Configuration>KVM>Devices in Expert mode, select the device that includes the port(s) you wish to modify.
2. Click the "Ports" button.

   A list of all the selected ports appears.
3. Select a single port to be modified, and then select the "Modify" button.

   The "Modify Port" dialog box appears.
4. To change the port's alias, do the following steps.

   a. Enter a new alias in the "Alias" field.

   b. Click OK on the dialog box.
5. Click "Done" on the form listing all the ports.
6. Click "apply changes."

▼ *To Enable or Disable a KVM Port*

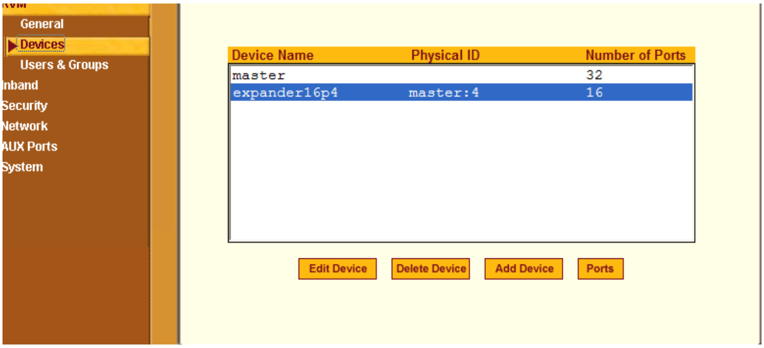
1. Go to Configuration>KVM>Devices in Expert mode, and select the device that contains the port(s) you wish to enable or disable.
2. Click the "Ports" button.

   A form listing all the selected ports appears.
3. Select the port(s) to be enabled or disabled, and then select the "Enable" or "Disable" button.
4. Click "Done" on the form listing all the ports.
5. Click "apply changes."

Configuring Cascaded KVM Units

The Devices form allows you to configure one or more secondary KVM units to a primary KVM unit, a process also known as cascading or daisy-chaining. See “Cascaded Devices” on page 21 for background information.

Selecting Configuration>KVM>Devices in Expert mode brings up the Devices form on which you can perform the following tasks.



Device Name	Physical ID	Number of Ports
master		32
expander16p4	master:4	16

- Add a secondary KVM unit to be cascaded from the master KVM/net.

  See “To Add a Secondary KVM Unit to be Cascaded from the Master KVM/net” on page 187
- Edit the configuration of a cascaded device.

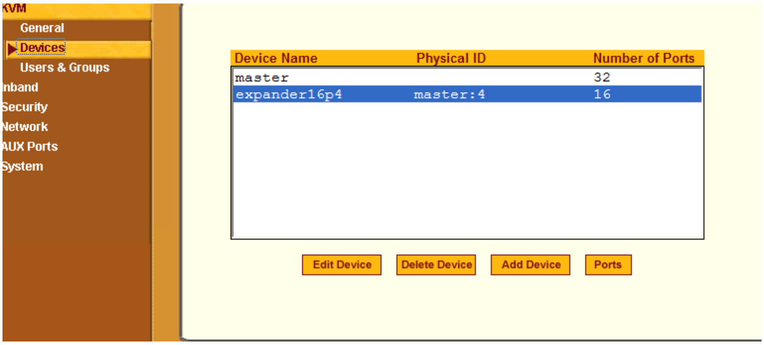
  See “To Edit the Configuration of a Cascaded KVM Unit” on page 189
- Delete the configuration of a cascaded device.

  See “To Delete the Configuration of a Cascaded KVM Unit” on page 191

▼ *To Add a Secondary KVM Unit to be Cascaded from the Master KVM/net*

1. In Expert mode, go to: Configuration>KVM>Devices.

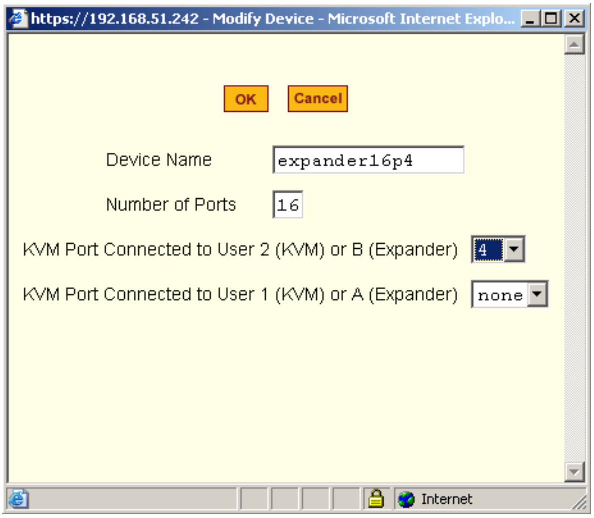
The Devices configuration form appears.



Device Name	Physical ID	Number of Ports
master		32
expander16p4	master:4	16

2. Click the Add Device button.

   The Modify Device dialog box appears.


https://192.168.51.242 - Modify Device - Microsoft Internet Explo...
OK
Cancel
Internet

Device Name: expander16p4

Number of Ports: 16

KVM Port Connected to User 2 (KVM) or B (Expander): 4

KVM Port Connected to User 1 (KVM) or A (Expander): none

3. In the Device Name field, specify a name for the secondary device or KVM unit.

4. In the Number of Ports field, enter the number of ports contained in the cascaded device.

5. In the KVM Port Connected to User 2 (KVM) or B (Expander) drop-down list, enter the port number of the master KVM/net that is connected to the User 2 port of the secondary KVM device or the B port on the Expander.

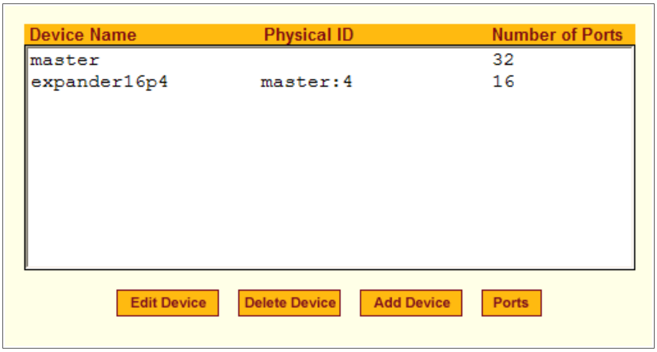
Note: See “Connecting Cascaded KVM Units to the Primary KVM/net” on page 126 for a background on the possible devices that can be cascaded and for instructions on connecting these devices to the master KVM/net.

6. In the Port Connected to User 1 or (KVM) or A (Expander) drop-down list, enter the secondary KVM port that is connected to the User 1 port of the primary KVM/net or the User A port on the Expander.
7. Click the OK button when done.
8. On the configuration window, select “apply changes” to save your configuration.

▼ *To Edit the Configuration of a Cascaded KVM Unit*

1. In Expert mode, go to: Configuration>KVM>Devices.

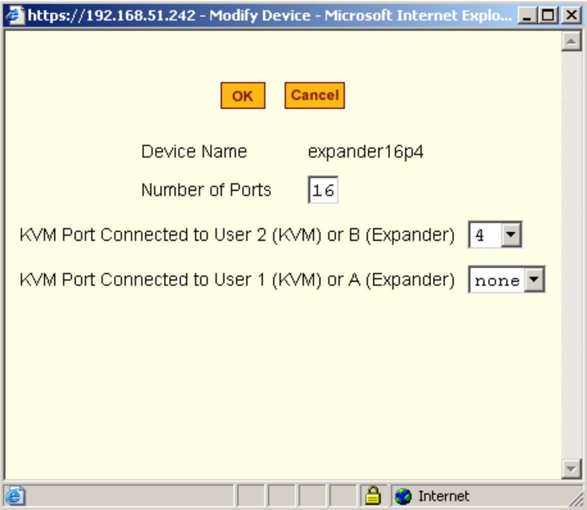
   The Devices form appears.



Device Name	Physical ID	Number of Ports
master		32
expander16p4	master:4	16

2. Select the item you wish to edit and click the Edit button.

   The Modify Port dialog box appears.


https://192.168.51.242 - Modify Device - Microsoft Internet Explo...
OK
Cancel
Internet

Device Name expander16p4

Number of Ports 16

KVM Port Connected to User 2 (KVM) or B (Expander) 4

KVM Port Connected to User 1 (KVM) or A (Expander) none

3. In the Number of Ports field, enter the number of ports contained on the cascaded device.

4. To enable one user to access the ports on the cascaded KVM unit, in the KVM Port Connected to User 2 (KVM) or B (Expander) drop-down list, select the port number on the master KVM/net that is connected to the User 2 port on the secondary KVM device or the B port on the Expander.

Note: See “Connecting Cascaded KVM Units to the Primary KVM/net” on page 126 for a background on the possible devices that can be cascaded and for instructions on connecting these devices to the master KVM/net.

5. To enable two users to access the ports on the cascaded KVM unit, in the Port Connected to User 1 or (KVM) or A (Expander) drop-down list, enter the secondary KVM port that is connected to the User 1 port of the primary KVM/net or the User A port on the Expander.

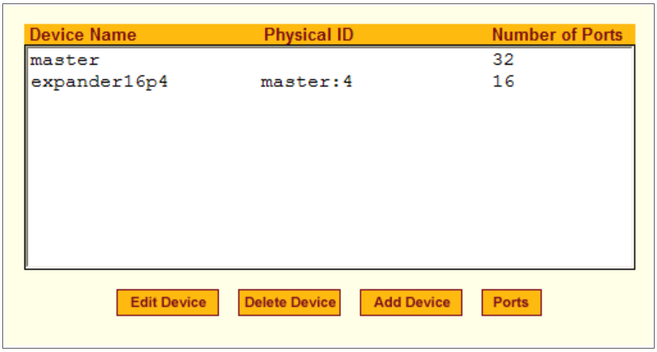
6. Click the OK button.

7. Click “apply changes” to save your configuration.

▼ *To Delete the Configuration of a Cascaded KVM Unit*

1. In Expert mode, go to: Configuration>KVM>Devices.

The Devices form appears.



Device Name	Physical ID	Number of Ports
master		32
expander16p4	master:4	16

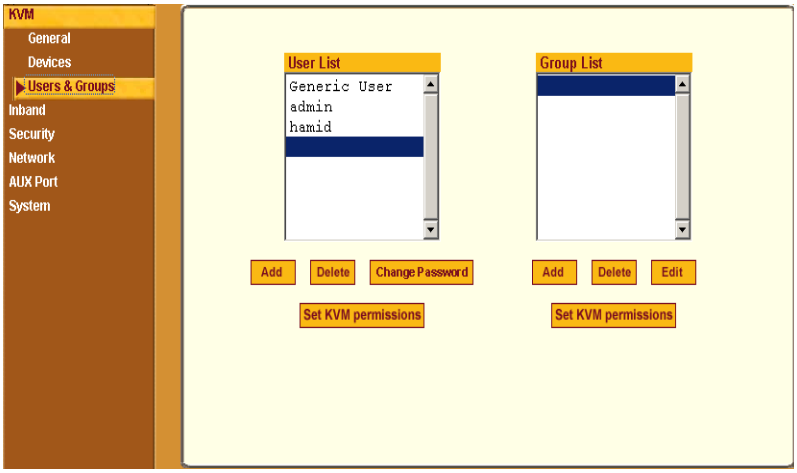
2. Select the item you wish to delete and click the Delete button.

The system deletes the selected device.

3. Click “apply changes” to save your configuration.

Users & Groups

Selecting Configuration>KVM>Users & Groups in Expert mode brings up the form shown in the following figure.



Generic User
admin
hamid

Figure 4-20:KVM Users & Groups Configuration Form

You can use the Users & Groups form to do the following:

- Add or delete users.
- Assign or change user passwords.
- Reset the permissions of the Generic User.

Note: Permissions assigned to the Generic User define the default permissions for regular users.

- Set unique permissions for individual users.
- Assign permissions by group.
- Add or delete user groups from the Group Access List and assign users to a group.
- Restrict all users’ access to devices connected to KVM ports by setting KVM permissions for users and groups of users for selected ports.

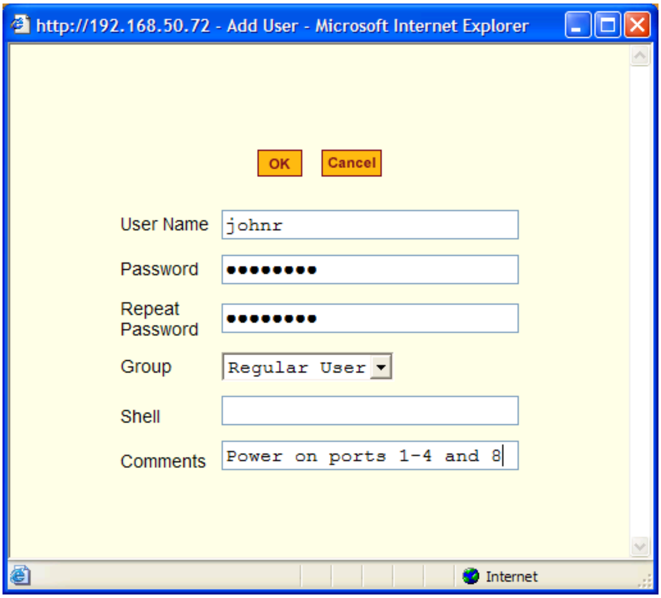
▼ *To Add a User [Expert]*

1. In Expert mode, go to Configuration>Users & Groups.

The Users & Groups form appears.

2. Click “Add.”

The “Add User” dialog box appears.



http://192.168.50.72 - Add User - Microsoft Internet Explorer
OK
Cancel
Internet

User Name johnr

Password ●●●●●●●●

Repeat Password ●●●●●●●●

Group Regular User

Shell

Comments Power on ports 1-4 and 8

3. Either type the required information in the fields or select the desired option from the drop-down list as shown in the previous screen and defined in the following table.

Field Name	**Definition**
Username	Name of the user to be added.
Password	The password associated with the user name.
Group	On the left drop-down list, select “Regular User [Default]” or “Admin.” **`Note:`** To configure a user to be able to perform all administrative functions, select the “Admin” group. See “Types of Users” on page 14 for more details.
Shell	Optional. The default shell when the user makes an `ssh` or `telnet` connection with the switch. Choices are: `sh` or `bash`. The default is `sh`.
Comments	Optional notes about the user’s role or configuration.

4. Click OK.
5. Click “apply changes.”

▼ *To Delete a User or Group [Expert]*

1. In Expert mode, go to Configuration>Users & Groups.

   The Users & Groups form appears.
2. Select the name of a user or group to delete.
3. Click “Delete.”
4. Click “apply changes.”

▼ *To Change a User’s Password [Expert]*

1. In Expert mode, go to Configuration>Users & Groups.

   The Users & Groups form appears.
2. Select the name of the user whose password you want to change.
3. Click “Change Password.”

   The Change User Password” dialog box appears.
4. Enter the new password in the “New Password” filed and enter it again in the “Repeat New Password” field.
5. Click OK.
6. Click “apply changes.”

▼ *To Add a Group*

1. In Expert mode, go to Configuration>Users & Groups.

   The Users & Groups form appears.
2. Under the list of groups, click “Add.”

   The “Add Group” dialog box appears.
3. Type the name for the new group.
4. Type the usernames of the users you want to add to the group.

   Use commas to separate the names.

5. Click OK.
6. Click “apply changes.”

▼ To Modify a Group

1. In Expert mode, go to Configuration>Users & Groups.

   The Users & Groups form appears.
2. Select the name of a group to modify.
3. Click “Edit.”

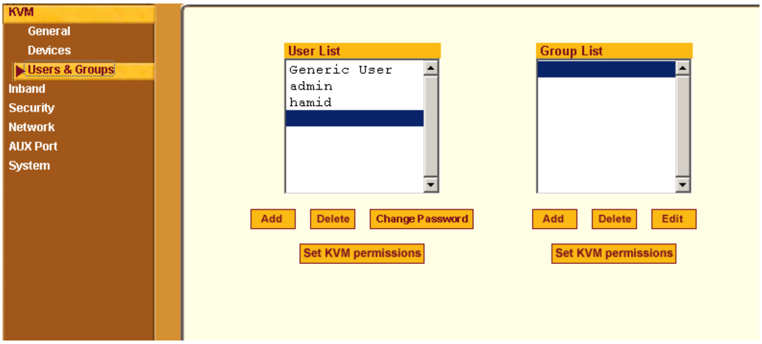
   The “Edit Group” form appears.
4. Add or delete users from the group as desired.
5. Click OK.
6. Click “apply changes.”

▼ To Select Users and Groups for Assigning KVM Port Access

Perform this procedure to select users to access computers connected to KVM ports.

1. Go to Expert>Configuration>Users & Groups.

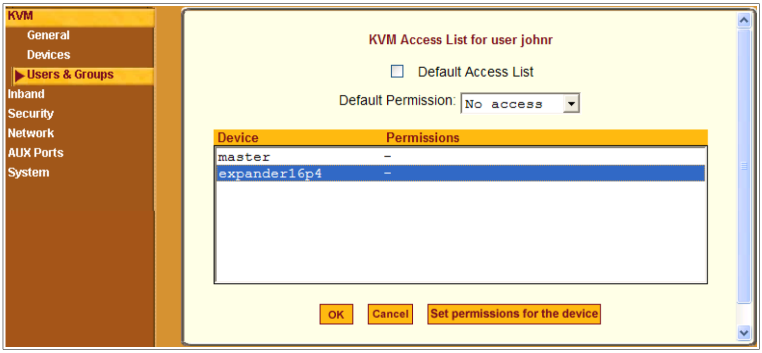
   The Users & Groups form appears.
2. To set KVM port access for a regular user, select the name of the user or of multiple users from User List.



```
Generic User
admin
hamid
```

3. To set KVM port access permissions for a group, select the name of the group from the Group List.
4. Click the “Set KVM Permissions” button.

The “KVM Access list for “username” or “groupname” dialog box appears.



KVM Access List for user johnr

□ Default Access List

Default Permission: No access

Device	Permissions
master	-
expander16p4	-

Note: When the “Default Access List” check box is checked, the user or group has the same permissions that are assigned to the Generic User. Changes made on this form when a username is selected convert the user into a non-generic user.

5. Go to “To Assign KVM Port Access to a User or Group” on page 196.

▼ To Assign KVM Port Access to a User or Group

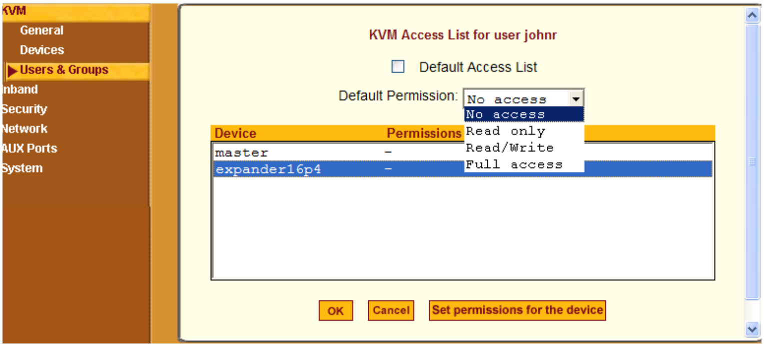
Perform this procedure when you want to specify the types of access a user or group of users can have to computers that are connected to the KVM/net’s KVM ports.

1. Go to Expert>Configuration>Users & Groups, and select a user or group.

   If needed see “To Select Users and Groups for Assigning KVM Port Access” on page 195.

2. To assign to the selected user or group the same permissions assigned to the Generic User, make sure the “Default Access List” check box is checked and click OK.
3. To re-define the KVM permissions for the selected user or group, clear the check box.

4. Select the desired access option from the “Default Permission:” drop-down list.



KVM Access List for user johnr

□ Default Access List

Default Permission: No access

No access
Read only
Read/Write
Full access

Device	Permissions
master	-
expander16p4	-

As shown in the previous screen example, the options are: “No access,” “Read only,” “Read/Write,” “Full access.”

5. To configure access to a device and all of its ports, do the following:

   a. Select one or more devices from the Device list.

   b. From the Default Permissions drop-down list, select the permissions you wish to apply.

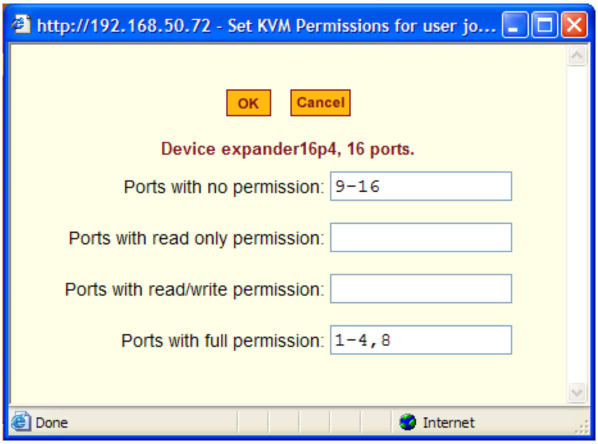
   c. Go to Step 8.

6. To configure access to individual ports or groups of ports, do the following:

   a. Select a device from the Device list.

   b. Click the “Set permissions for the device” button.

   The “Set KVM Permissions for the device” dialog box displays as shown in the following screen example. (The example shows the dialog box when the “master” device is selected.)



Device expander16p4, 16 ports.

Ports with no permission: 9-16

Ports with read only permission:

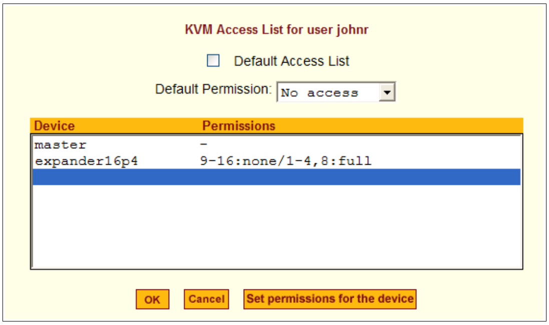
Ports with read/write permission:

Ports with full permission: 1-4,8

In the fields for each desired category, type either port aliases or numbers, separating them either by commas or dashes.

7. Click OK.

   The newly set permissions appear next to the Device name in the Permissions column, as shown in the following screen example, which shows the restrictions applied to the user name "johnr."



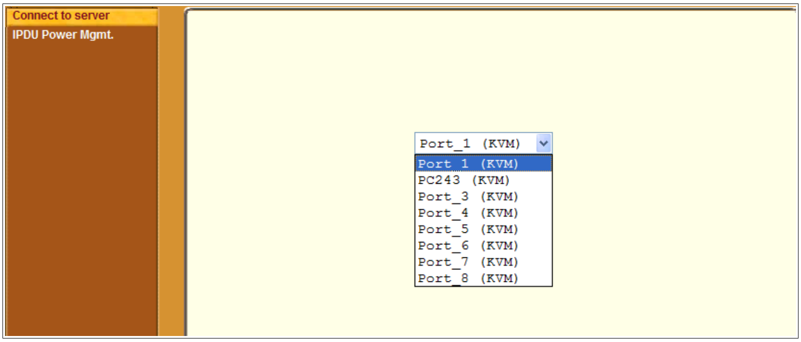
KVM Access List for user johnr

□ Default Access List

Default Permission: No access

Device	Permissions
master	-
expander16p4	9-16:none/1-4,8:full

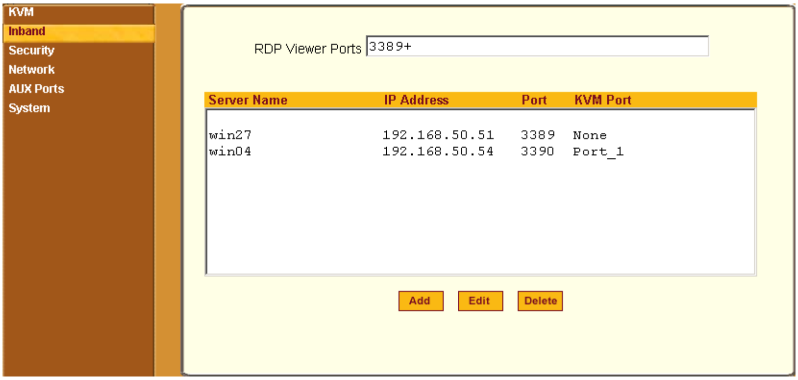
The following screen example illustrates how the previous settings affect access to ports. When an individual or member of a group with the access permissions shown in the previous screen logs into the Web Manager, the list of ports displayed does not include ports 9 to 16 (because they were configured with no access).



8. Click OK.
9. Click “apply changes.”

Configuring Inband (RDP) Servers

Selecting Configuration>Inband in Expert mode brings up the form displayed in the following figure.



RDP Viewer Ports 3389+

Server Name	IP Address	Port	KVM Port
win27	192.168.50.51	3389	None
win04	192.168.50.54	3390	Port_1

Figure 4-21: Inband Configuration Form

You can use the Add, Edit, and Delete buttons to configure inband server connections to Windows Terminal Servers using RDP. Up to 16 or 32 inband servers can be configured on a KVM/net depending on the model ordered.

If secondary KVM/net units are cascaded to the master KVM/net, administrators can configure additional inband servers. The total number of inband servers configured is the same as the total number of KVM ports in the whole infrastructure (master and cascaded devices). Even though it is possible to configure a KVM port on the master or on any cascaded device for each inband server, all inband configuration and connections are done through the master KVM/net.

For more complete access and as a backup to inband connection failures, inband servers can also be connected to KVM ports on the KVM/net. This enables out-of-band access to the inband server so that if the inband connection fails, the user is able to reconnect to the server using a KVM connection. This also enables users to view the BIOS, POST, and boot messages for server administration.

See "Server Access: Inband and Out of Band" on page 29, for a description of the differences between inband and KVM connections.

Prerequisites for Inband Access to RDP Servers

The following prerequisites must be met in order for a KVM/net inband connection to work:

- The connected server must be a Windows (Win2000, 2003, XP, and NT) Terminal Server with RDP enabled.

  Windows Terminal Servers do not have RDP enabled by default: The administrator of these servers must enable RDP on the server in order for the KVM/net inband connection to work.
- A KVM/net user who needs to access any inband server must have the following:
  - A valid account created on the inband server.

    The KVM/net does not authenticate or offer permissions configuration for inband connections.
  - Internet access and Microsoft Internet Explorer 6 on a remote Windows client machine.
- The Windows Terminal Server must be configured on the Inband page of the Web Manager. See "To Add or Modify an inband (RDP) Server" on page 201 for configuration instructions.
- If you want to enable an out-of-band, KVM connection as back up for an inband connection failure or if you want to view the BIOS, POST, and boot messages on the server, the RDP server must be connected to a KVM port on the master KVM/net or on a cascaded and configured KVM unit.

See “To Connect Computers to KVM Ports” on page 80 for instructions on physically connecting a server to a KVM/net port.

Note: RDP connections does not work if IPSec is used to communicate with a RDP enabled server. NAT is used when a connection is established from the workstation to a RDP enabled server. IPSec does not allow NAT'ed packets.

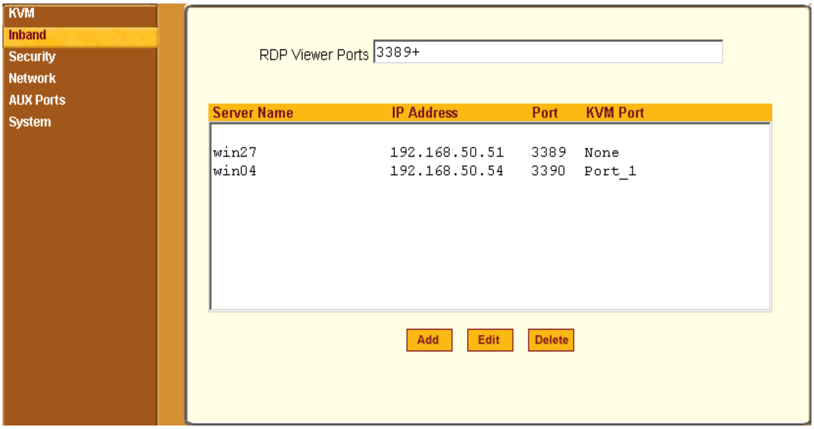
Note: Remote drives and printers are accessible through RDP. When you are connected to a RDP server, the drives and printers on the server are accessible as they were installed locally. Therefore, it is possible to print a file through the RDP server, or drag and drop files from the RDP server to the local station.

▼ *To Add or Modify an inband (RDP) Server*

See the previous section “Prerequisites for Inband Access to RDP Servers” on page 200 for prerequisite information to this procedure.

1. In Expert mode, go to: Configuration>Inband.

The Inband form appears.

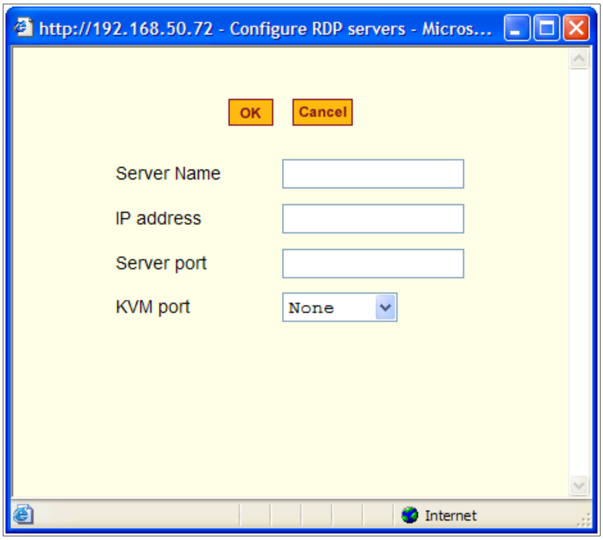


RDP Viewer Ports 3389+

Server Name	IP Address	Port	KVM Port
win27	192.168.50.51	3389	None
win04	192.168.50.54	3390	Port_1

2. To add a server to the list, click Add.

The Configure RDP Servers dialog box appears.



Server Name

IP address

Server port

KVM port: None

The connected server must be a Windows (Win2000 or NT) Terminal Server with RDP enabled.

3. To modify a server, select the server on the list and click Modify.
4. In the Server Name field, specify a unique name for the inband server.

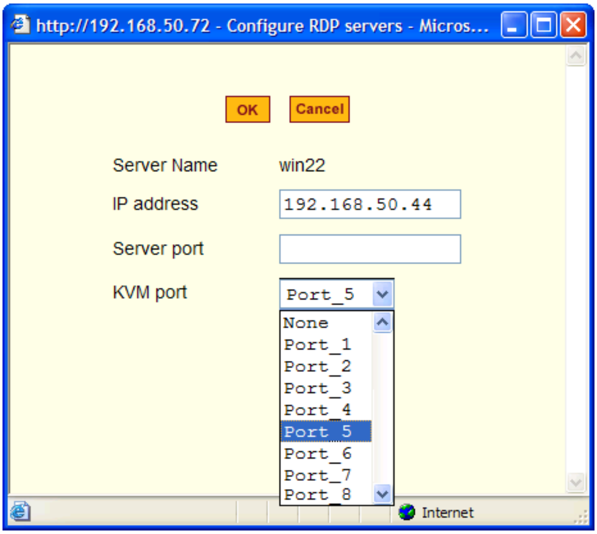
   This name will appear in the drop-down list on the Connect to Server form.

Note: Once a name is given to an inband server, it cannot be modified. In order to change the name of an inband server, you must delete the server configuration and add the server again to the KVM/net.

---

5. In the IP Address field, enter the IP address of the inband server.
6. (Optional) In the Server Port field, specify a port to be used if it differs from the default which is 3389.

   All servers with RDP enabled are configured with 3389 as the default port unless the administrator of the RDP server changes it.
7. To enable a back up KVM connection for the inband server, from the KVM Port drop-down list, select the KVM port to which the inband server is connected.



Server Name win22

IP address 192.168.50.44

Server port

KVM port Port_5

This enables both inband and out-of-band access to the connected server. If the inband connection fails or if an RDP session already exists, the user is able to reconnect to the server using a KVM connection. This also enables users to view the BIOS, POST, and boot messages for server administration.

8. Click OK to close the dialog box.

9. Specify the TCP ports or a range of TCP ports to be used in the RDP Viewer Ports field.

   You must have at least eight valid TCP ports specified in order to have up to eight simultaneous inband connections through the KVM/net.

   For example, if you want ports 3389 to ports 10000 to be used, type “3389 - 10000”. If you want to use ports 3389 and higher, type “3389+”. If you want to use ports 3389 and below, type “3389-”.

   You can request valid TCP ports from your network administrator.

10. Click “apply changes.”

11. Repeat steps 1-9 for every inband server connection required.

    The KVM/net supports the configuration of up to 16 or 32 inband servers depending on the number of KVM ports on the KVM/net model ordered.

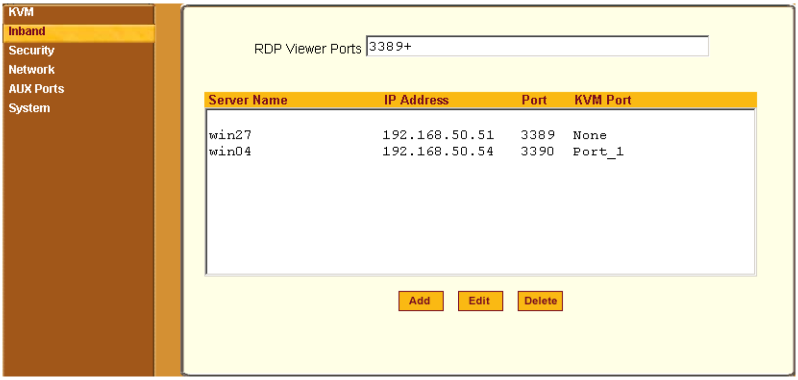
12. To connect to the inband server, in Expert mode, go to Access>Connect to Server.

    See “To Connect to Servers Through The Web Manager’s “Connect To Server” Form” on page 322.

▼ To Delete an inband (RDP) Server

1. In Expert mode, go to: Configuration>Inband.

   The Inband form appears.



RDP Viewer Ports 3389+

Server Name	IP Address	Port	KVM Port
win27	192.168.50.51	3389	None
win04	192.168.50.54	3390	Port_1

2. Select the inband server from the list and click Delete.
3. Click “apply changes.”

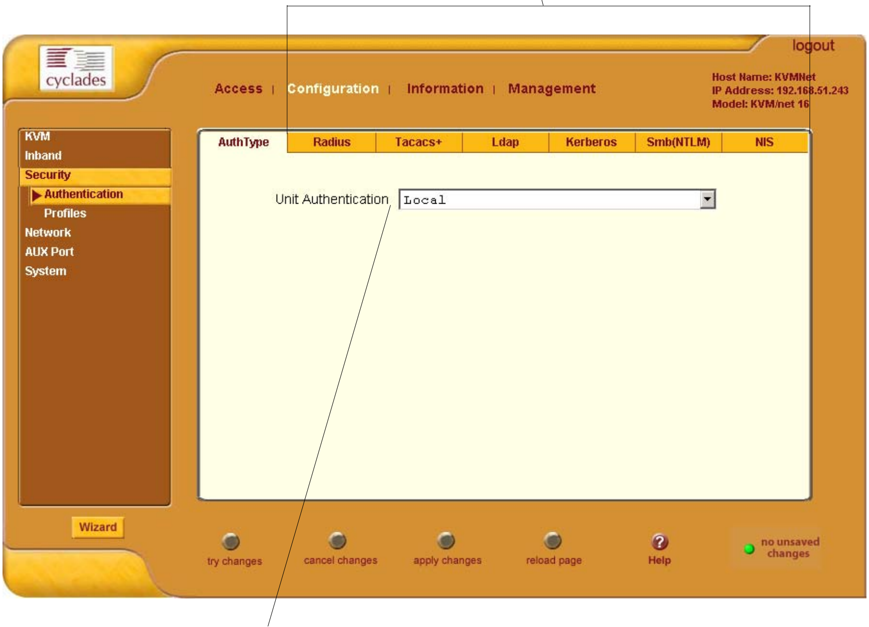
Security

Selecting Configuration > Security provide options to configure the KVM and server authentication, and selecting a pre-defined security profile or define a custom security profile for access to KVM.

Configuring an Authentication Method

Configuration>Security>Authentication in Expert mode brings up the form shown in the following figure.

Authentication Form Tabs



Host Name: KVMNet
IP Address: 192.168.51.243
Model: KVM/net 16

Unit Authentication: Local

Pull-down Menu of Authentication Methods

Figure 4-22: Authentication Configuration Form

The administrator uses the Authentication forms for two main purposes:

- To select an authentication method for the KVM/net *only.*

  The default authentication method for the KVM/net is Local. The administrator can either accept the default or select one of the other authentication methods from the drop-down list on the AuthType form.

  See “To Configure an Authentication Method for KVM/net Logins” on page 206 for the procedure.

Any authentication method chosen for the KVM/net is used for authentication of any users attempting access through `telnet`, `ssh`, or the Web Manager.

See “Authentication” on page 45 for more details.

- To configure all authentication servers for the KVM/net ports.

  The administrator fills out one of the tabbed forms to set up an authentication server for each authentication method to be used by the KVM/net and by any of its ports: RADIUS, TACACS+, LDAP, Kerberos, SMB (ports only), NIS. See “Configuring Authentication Servers for Logins to the KVM/net and Connected Devices” on page 208.

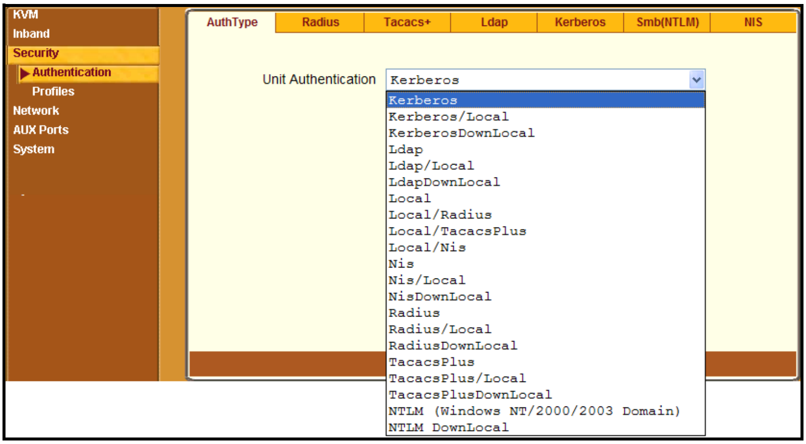
See “To Configure an Authentication Method for KVM/net Logins” on page 206 for instruction on how to specify an authentication method for ports.

▼ *To Configure an Authentication Method for KVM/net Logins*

See “Network” on page 226, if needed, for background information.

1. Go to Configuration>KVM>Authentication in Expert mode.

The AuthType form displays, as shown in the following figure.



Unit Authentication: Kerberos

Figure 4-23:KVM Unit Authentication Configuration Form

2. To specify an authentication method for logins to the KVM/net, select a method from the Authentication drop-down list.

3. Make sure that an authentication server is specified for the selected authentication type.

   See “Configuring Authentication Servers for Logins to the KVM/net and Connected Devices” on page 208.

▼ *To Configure an Authentication Method for KVM Port Logins*

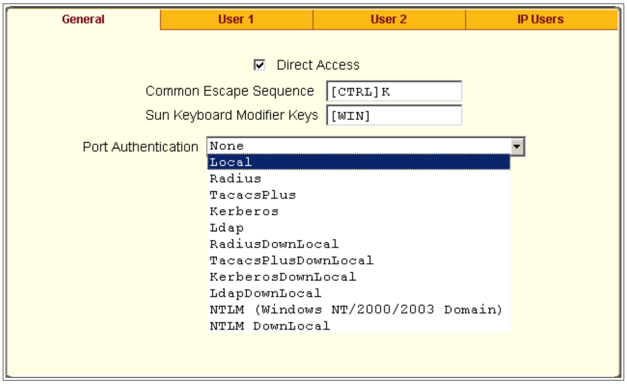
This procedure configures a single authentication method that applies whenever anyone attempts to log in to a device through a connected KVM port.

1. Go to Configuration>KVM>General in Expert mode.

   The General form appears.

2. Select an authentication method from the Port Authentication drop-down list.

   The default option is None.



☑ Direct Access

Common Escape Sequence [CTRL]K

Sun Keyboard Modifier Keys [WIN]

Port Authentication None

3. Click “Done.”

4. Click “apply changes.”

   The changes are stored in `/etc/kvmd.conf` on the KVM/net.

5. If you select any authentication method other than None or Local, make sure that an authentication server is specified for the selected authentication type.

   See “Configuring Authentication Servers for Logins to the KVM/net and Connected Devices” on page 208.

Configuring Authentication Servers for Logins to the KVM/net and Connected Devices

The administrator fills out the appropriate form to set up an authentication server for every authentication method to be used by the KVM/net and by any of its ports. The available authentication methods are RADIUS, TACACS+, LDAP, Kerberos, SMB/NTLM, and NIS.

The following table lists the procedures that apply to each authentication method.

Method	**Variations**	**Procedures**
RADIUS	RADIUS, Local/RADIUS, RADIUS/Local, or RADIUS/DownLocal	"To Identify a RADIUS Authentication Server" on page 217
TACACS+	TACACS+, Local/TACACS+, TACACS+/Local, or TACACS+/DownLocal	"To Identify a TACACS+ Authentication Server" on page 219
LDAP	LDAP, Local/LDAP, LDAP/Local, or LDAP/DownLocal	"To Identify an LDAP Authentication Server" on page 212
Kerberos	Kerberos, Local/Kerberos, Kerberos/Local, or Kerberos/DownLocal	"To Identify a Kerberos Authentication Server" on page 209
SMB (NTLM)	NTLM (Windows NT/2000/2003 Domain), or NTLM/DownLocal	"To Configure an SMB(NTLM) Authentication Server" on page 214
NIS	NIS, Local/NIS, NIS/Local, or NIS/DownLocal	"To Configure an NIS Authentication Server" on page 216

Group Authorization

Group authorization adds an additional level of system security by enabling a network-based authorization in addition to the initial authentication.

A group information retrieval from the TACACS+, RADIUS, LDAP, and NTLM authentication servers enables authorization in addition to authentication. An administrator can configure the authentication server to add group authorization checking.

The following table points to procedures on configuring an authentication server for group authorization.

To Configure Group Authorization on a LDAP Server	Page 214
To Configure Group Authorization on a NTLM Server	Page 214
To Configure Group Authorization on a RADIUS Server	Page 218
To Configure Group Authorization on a TACACS+ Server	Page 221

▼ To Identify a Kerberos Authentication Server

Perform this procedure to identify the authentication server when the KVM/net or any of its ports is configured to use the Kerberos authentication method or any of its variations (Kerberos, Local/Kerberos, Kerberos/Local, or KerberosDownLocal.)

Before starting this procedure, find out the following information from the Kerberos server's administrator:

- Realm name and KDC address
- Host name and IP address for the Kerberos server

Also, work with the Kerberos server's administrator to ensure that following types of accounts are set up on the Kerberos server and that the administrators of the KVM/net and connected devices know the passwords assigned to the accounts:

- An account for “admin”
- If Kerberos authentication is specified for the KVM/net, accounts for all users who need to log in to the KVM/net to administer connected devices.
- If Kerberos authentication is specified for KVM ports, accounts for users who need administrative access to connected devices

1. Make sure an entry for the KVM/net and the Kerberos server exist in the KVM/net’s `/etc/hosts` file.

   a. Go to Configuration>Network>Host Table in Expert mode.

   The “Host Table” form appears.

   b. Add an entry for KVM/net if none exists and an entry for the Kerberos server.

      i. Click “Add.”

      The “New/Modify Host” dialog appears.

      ii. Enter the address in the “IP Address” field.

      iii. Enter the name in the “Name” field.

      iv. If desired, enter an optional alias in the “Alias” field.

2. Make sure that timezone and time and date settings are synchronized on the KVM/net and on the Kerberos server.

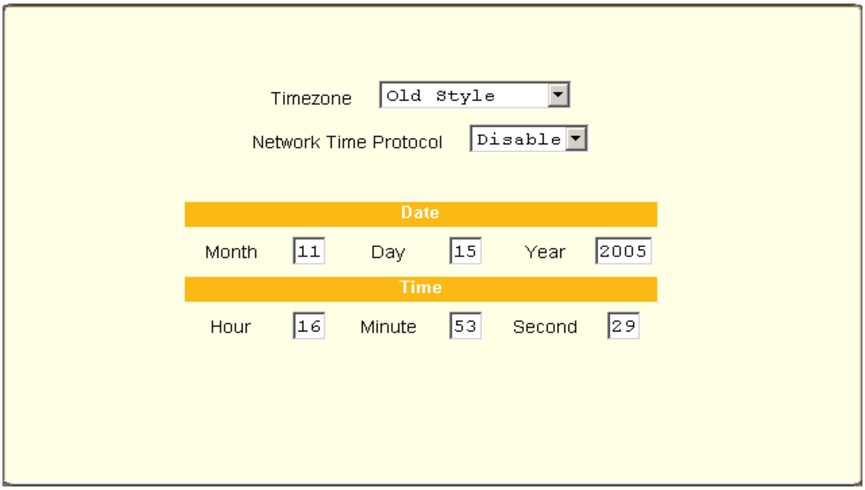
Kerberos authentication depends on time synchronization. Time and date synchronization can be achieved by setting both to use the same NTP server.

   a. To specify an NTP server, follow the procedure under “To Set The Time and Date With NTP” on page 270.

   b. To customize a timezone on KVM/net, follow “Creating a Custom Timezone Selection” on page 272.

   c. Work with the authentication server’s administrator to synchronize the time and date between the KVM/net and the server.

3. Set the timezone by going to Configuration > System > Time/Date in Expert mode, as per the following figure. The default is GMT.



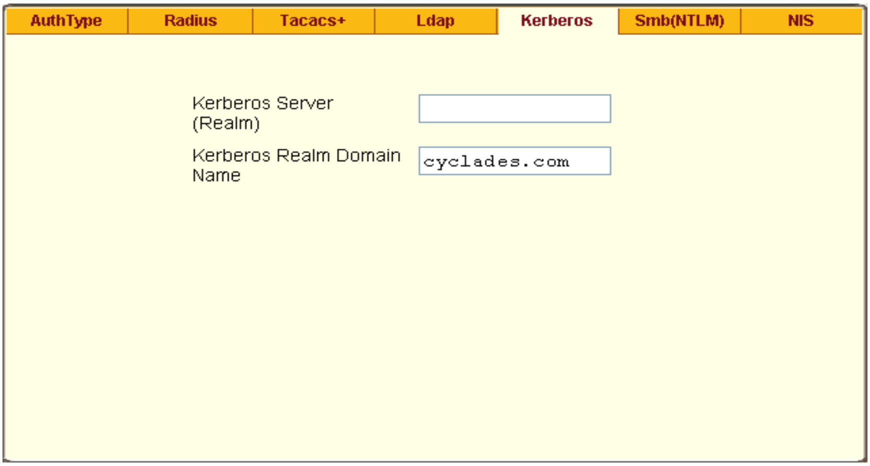
Timezone: Old Style
Network Time Protocol: Disable

Date					
Month	11	Day	15	Year	2005

Time					
Hour	16	Minute	53	Second	29

4. Go to Security > Authentication> Kerberos in Expert mode.

   The Kerberos form displays as shown in the following figure.



Kerberos Server (Realm):
Kerberos Realm Domain Name: cyclades.com

Figure 4-24: Kerberos Server Authentication Form

5. Fill in the form according to your local setup of the Kerberos server.
6. Click “apply changes.”

▼ *To Identify an LDAP Authentication Server*

Perform this procedure to identify the authentication server when the KVM/net or any of its ports is configured to use the LDAP authentication method or any of its variations (LDAP, Local/LDAP, LDAP/Local, or LDAP/DownLocal).

Before starting this procedure, find out the following information from the LDAP server's administrator:

- The distinguished name of the search base
- The LDAP domain name
- Whether to use secure LDAP
- The authentication server's IP address

You can enter information in the following two fields, but an entry is not required:

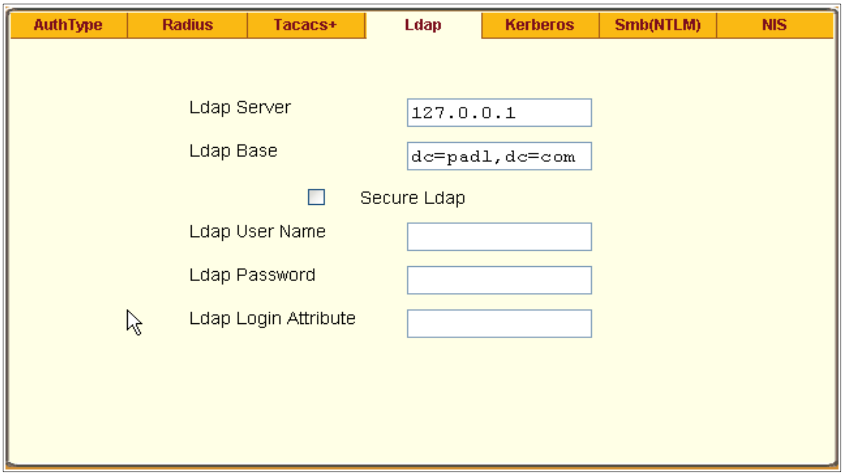
- LDAP password
- The LDAP user name
- LDAP Login Attribute

Work with the LDAP server's administrator to ensure that following types of accounts are set up on the LDAP server and that the administrators of the KVM/net and connected devices know the passwords assigned to the accounts:

- An account for "admin"
- If LDAP authentication is specified for the KVM/net, accounts for all users who need to log in to the KVM/net to administer connected devices.
- If LDAP authentication is specified for KVM ports, accounts for users who need administrative access to the connected devices.

1. Go to Configuration>Authentication>LDAP in Expert mode.

   The "LDAP" form displays with "LDAP Server" and "LDAP Search Base" fields filled in from the current values in the `/etc/ldap.conf` file.



Ldap Server: 127.0.0.1

Ldap Base: dc=padl,dc=com

□ Secure Ldap

Ldap User Name:

Ldap Password:

Ldap Login Attribute:

Figure 4-25:LDAP Server Authentication Form

2. Supply the IP address of the LDAP server in the “LDAP Server” field.

3. If the LDAP authentication server uses a different distinguished name for the search base than the one displayed in the “LDAP” Base field, change the base definition.

The default distinguished name is “dc,” as in `dc=`*value*`,dc=`*value*. If the distinguished name on the LDAP server is “o,” then replace `dc` in the base field with `o`, as in `o=`*value*`,o=`*value.*

4. Replace the default base name with the name of your LDAP domain.

For example, for the LDAP domain name cyclades.com, the correct entry is: `dc=cyclades,dc=com`.

5. Enable “Secure LDAP”, if required.

6. Enter optional information in “LDAP User Name”, “LDAP Password”, and “LDAP Login Attribute” fields.

7. Click “apply changes.”

The changes are stored in `/etc/ldap.conf` on the KVM/net.

▼ *To Configure Group Authorization on a LDAP Server*

On the LDAP server edit the “info” attribute for the group and add the following syntax.

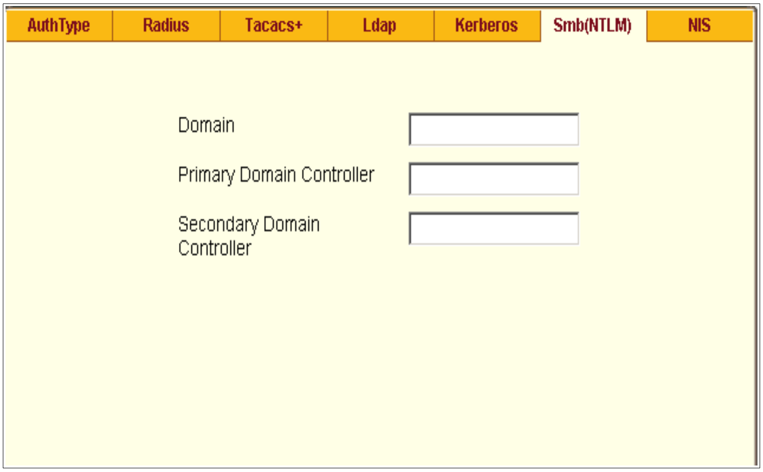
```
info: group_name=<Group1>[,<Group2>,...,<GroupN>];
```

▼ *To Configure an SMB(NTLM) Authentication Server*

Perform the following to identify the authentication server if any of the ports is configured to use the NTLM (Windows NT/2000/2003 Domain) authentication method or NTLM/Downlocal.

1. Go to Configuration>Authentication>SMB(NTLM) in Expert mode.

   The SMB(NTLM) form displays as shown in the following figure.



Domain

Primary Domain Controller

Secondary Domain Controller

Figure 4-26:SMB(NTLM) Server Configuration Form

2. Fill in the form according to your configuration of the SMB server.
3. Click “Done.”
4. Click “apply changes.”

▼ *To Configure Group Authorization on a NTLM Server*

To configure group authorization install the required tools from the Windows Server Administration Pack. The primary tools are Active Directory Schema

MMC Snap-in for adding the attribute "info" to the objectclass "Users”, and the ADSI Edit MMC Snap-in to edit the property "comment" as "group_name=<Group1> [,<Group2,...,GroupN>];

1. Install the tools from the Windows Administration Pack.
2. Select [Start] > [Run] from the windows desktop.
3. In the Run field type "mmc /a" and click [OK].

   A Console window appears.
4. Click Console in the console window menu bar and select "Add/Remove Snap-in ...".

   The "Add/Remove Snap-in" window appears.
5. Select [Add].

   The "Add Standalone Snap-ins" window appears.
6. From the list, select "Active Directory Schema" and click [Add]; select "ADSI Edit" and click [Add], and [Close].
7. Click [OK] in the "Add/Remove Snap-in ..." window.

Configuring Active Directory Schema

1. In the console window, double click "Active Directory Schema". You will see the paths "Classes" and "Attributes".
2. Double click "Attributes" and confirm that the "info" attribute is present.
3. Double click "Classes" and locate the class "Users", and right click to select "Properties".
4. Select the "Attributes" tab and click [Add].
5. Locate “info” in the attributes list; click [Apply] then [OK].

Configuring ADSI Edit

1. In the console window, double click "ADSI Edit", and on the menu bar select "Action" > "Connect to...".

   The "Connection" window appears.
2. Use the defaults and Select [OK].

You will see the path "Domain NC*[domain.com]*.

3. Double click "Domain NC*[domain.com]*.

   You will see expanded path "DC=xxx,DC=xxx,DC=com".

4. Double click "DC=xxx,DC=xxx,DC=com".

   You will see the expanded classes "CN=Builtin, ..."

5. Double click "CN=Users".

   You will see the expanded users list.

6. Right click an admin user and select "Properties".

   You will see the window "CN=<username> Properties".

7. In the Optional, "Select a property to view:" , locate [comment].

8. In the field "Edit Attribute", enter [group_name=admin] and click [OK].

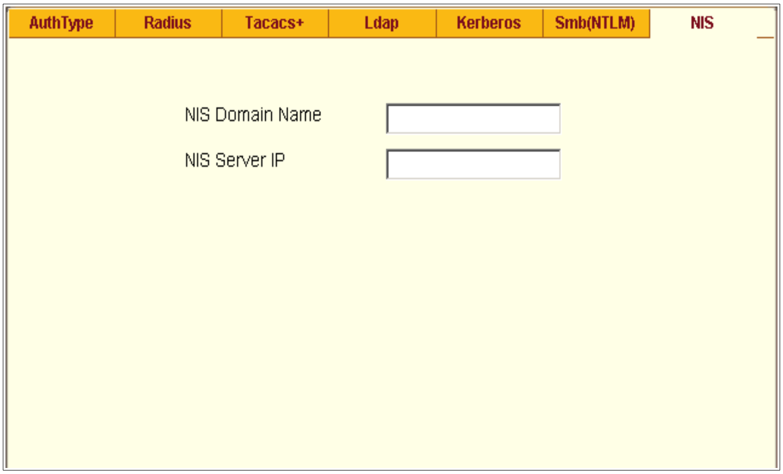
9. Close or save the remaining windows.

▼ *To Configure an NIS Authentication Server*

Perform this procedure to identify the authentication server when the KVM/net or any of its ports is configured to use the NIS authentication method or any of its variations (Local/NIS, NIS/Local, or NIS/DownLocal).

1. Go to Configuration>Authentication>NIS in Expert mode.

   The NIS form displays as shown in the following figure.



NIS Domain Name

NIS Server IP

Figure 4-27:NIS Server Authentication Form

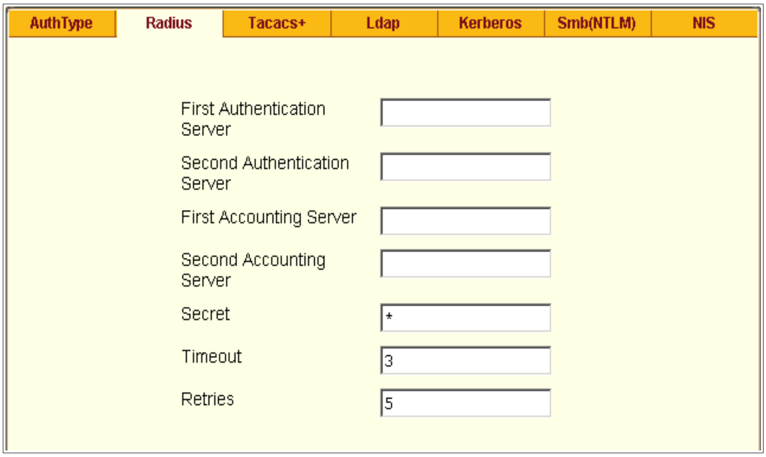
2. Fill in the form according to your configuration of the NIS server.
3. Click “Done.”
4. Click “apply changes.”

▼ *To Identify a RADIUS Authentication Server*

Perform this procedure to identify the authentication server when the KVM/net or any of its ports is configured to use the RADIUS authentication method or any of its variations (Local/RADIUS, RADIUS/Local, or RADIUS/DownLocal).

1. Go to Configuration>Authentication>RADIUS in Expert mode.

   The RADIUS form displays as shown in the following figure.



AuthType | Radius | Tacacs+ | Ldap | Kerberos | Smb(NTLM) | NIS

First Authentication Server	
Second Authentication Server	
First Accounting Server	
Second Accounting Server	
Secret	*
Timeout	3
Retries	5

Figure 4-28: Radius Server Authentication Form

2. Fill in the form according to your local setup of the RADIUS server or servers.
3. Click “Done.”
4. Click “apply changes.”

   The changes are stored in `/etc/raddb/server` on the KVM/net.

▼ *To Configure Group Authorization on a RADIUS Server*

1. On the server, edit `/etc/raddb/users` and add a new string attribute (ATTRIBUTE Framed-Filter-Id 11) similar to the following example.

```
groupuser1

Auth-Type= Local, Password =”xxxx”
Service-Type=Callback-Framed-User,
Callback-Number=”305”,
Framed-Protocol=PPP,
Framed-Filter-
Id=”group_name=<Group1>[,<Group2>,...,<GroupN>];”,
Fall-Through=No
```

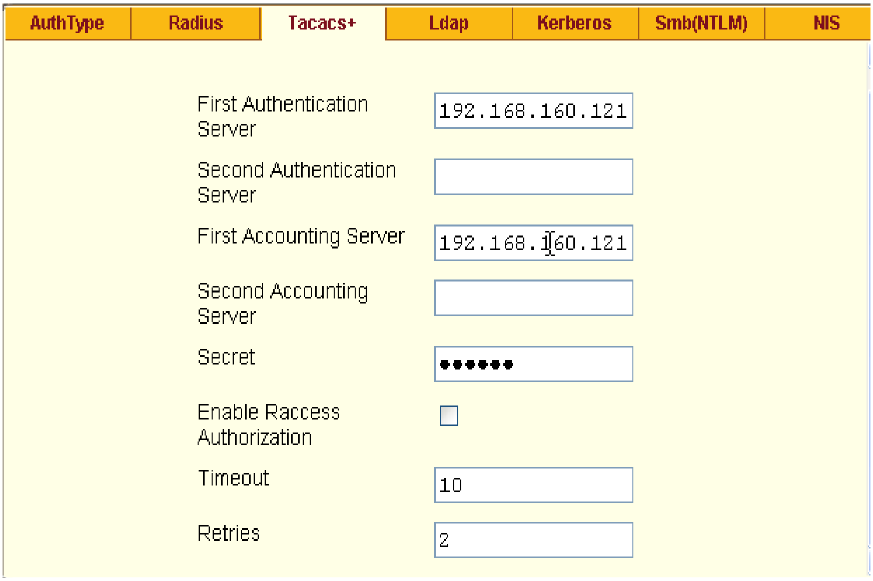
If the Frame-Filter-Id already exists, just add the group_name to the string starting with a colon “:”.

▼ *To Identify a TACACS+ Authentication Server*

Perform this procedure to identify the authentication server when the KVM/net or any of its ports is configured to use the TACACS+ authentication method or any of its variations (Local/TACACS+, TACACS+/Local, or TACACS+/DownLocal).

1. Go to Configuration>Authentication>TACACS+ in Expert mode.

The TACACS+ form appears.



First Authentication Server	192.168.160.121
Second Authentication Server	
First Accounting Server	192.168.160.121
Second Accounting Server	
Secret	••••••
Enable Raccess Authorization	□
Timeout	10
Retries	2

Figure 4-29: Tacacs+ Server Authentication Form

2. Fill in the form according to your local setup of the TACACS+ server or servers.

3. To apply “Authorization” in addition to authentication to the box and ports, select the “Enable Raccess Authorization” check box.

By default “Raccess Authorization” is disabled, and no additional authorization is implemented. When “Raccess Authorization” is enabled, the authorization level of users trying to access KVM/net or its ports using TACACS+ authentication is checked. Users with administrator privileges have administrative access, and users with regular user privileges have regular user access.

4. To specify a time out period in seconds for each authentication attempt, type a number in the “Timeout” field.

   If the authentication server does not respond to the client’s login attempt before the specified time period, the login attempt is cancelled. The user may retry depending on the number specified in the “Retries” field on this form.

5. To specify a number of times the user can request authentication verification from the server before sending an authentication failure message to the user, enter a number in the “Retries” field.

6. Click “apply changes.”

7. The changes are stored in `/etc/tacplus.conf` on the KVM/net.

Group Authorization on TACACS+

Selecting Configuration>Security>Authentication>Tacacs+ in Expert mode brings up the TACACS+ form where an administrators can enable group authorization checking.

By enabling the “Enable Raccess Authorization” check box, an additional level of security checking is implemented. After each user/group is successfully authenticated through the standard login procedure, the KVM/net uses TACACS+ server to authorize whether or not each user/group is allowed access to the connected devices.

By default the “Enable Raccess Authorization” is disabled allowing all users full authorization. When this feature is enabled by placing a check mark in the box, users are denied access unless they have the proper authorization, which must be set on the TACACS+ authentication server itself.

▼ *To Configure Group Authorization on a TACACS+ Server*

1. On the server, add “raccess” service to the user configuration and define which group or groups the user belongs to.

```
user = usergroup1 {
    service = raccess {
    group_name = <Group1>[,<Group2>,...,<GroupN>];
  }
}
```

2. If "raccess" service is already defined, add the group information to it.

3. “Enable Raccess Authorization” on KVM/net through the Web Manager at Configuration>Security>Authentication>Tacacs+ form.

Security Profiles

A Security Profile consists of a set of parameters that can be configured in order to have more control over the services that are active at any time. There are three pre-defined security profiles with pre-set parameters. In addition, a Custom profile is provided where an administrator can configure individual protocols and services.

Pre-defined Security Profiles

There are three pre-defined security profiles:

1. Secure - The Secure profile disables all protocols except SSHv2 and HTTPS. SSH root access is not allowed. Direct access to KVM connections are not available.
2. Moderate (Default) - The Moderate profile is the recommended security level. This profile enables SSHv1, SSHv2, HTTP, HTTPS, and Telnet. In addition, ICMP and HTTP redirection to HTTPS are enabled. Direct access to KVM connections are not available.
3. Open - The Open profile enables all services such as Telnet, SSHv1, SSHv2, HTTP, HTTPS, SNMP, RPC, ICMP, and Telnet. Direct access to KVM connections are available.

The following table show the enabled protocols and services under each Security Profile.

Table 4-6: Enabled Protocols and Services under each Security Profile

Security Profile	SSH Access	Web Access	Protocols
Secured	• SSHv2	• HTTPS	
Moderate (Default)	• SSHv1 • SSHv2 • SSH root access	• HTTP • HTTPS • HTTP redirection to HTTPS	• ICMP
Open	• SSHv1 • SSHv2 • SSH root access Direct Access to KVM Ports	• HTTP • HTTPS	• Telnet • SNMP • RCP • ICMP

Custom Security Profile

The *Custom* Security Profile opens up a dialog box to allow custom configuration of individual protocols and services.

Caution! By default a number of protocols and services are enabled in the Custom Security Profile, however, the protocols and services are user configurable for site specific requirements. Take the required precautions to understand the potential impacts of each individual service configured under Custom Security Profile.

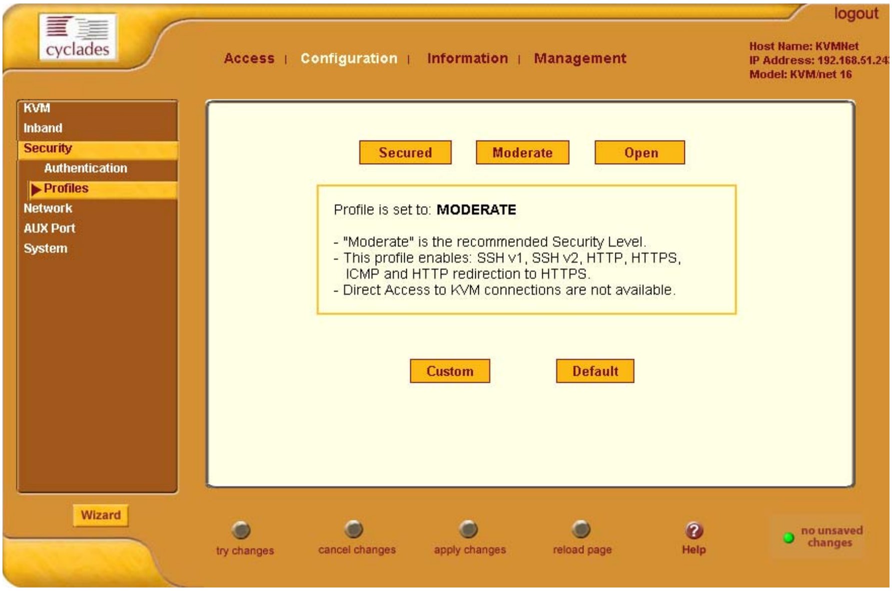
The following table show the available protocols and services under the Custom Security Profile.

Table 4-7: Available Protocols and Services under the Custom Security Profile

Security Profile	SSH Access	Web Access	Protocols
Custom	• SSHv1 • SSHv2 **SSH Options** •SSH port 22 • allow root access allow Direct Access to KVM Ports	• HTTP • HTTPS **HTTP Options** • HTTP port 80 • HTTP redirects to HTTPS • HTTPS port 443	• Telnet • SNMP • IPSec • FTP • RPC • ICMP

▼ *To Select or Configure a Security Profile [Expert]*

Selecting Configuration>Security>Profiles brings up the form shown in the following figure.



Host Name: KVMNet
IP Address: 192.168.51.24
Model: KVM/net 16

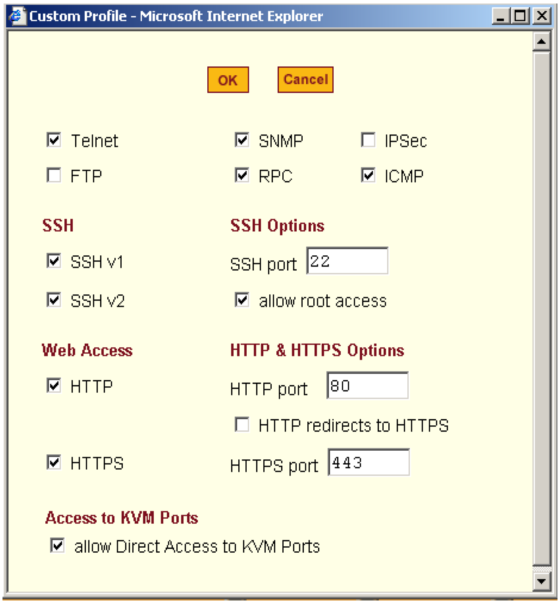
Profile is set to: **MODERATE**

- "Moderate" is the recommended Security Level.
- This profile enables: SSH v1, SSH v2, HTTP, HTTPS, ICMP and HTTP redirection to HTTPS.
- Direct Access to KVM connections are not available.

Figure 4-30: Security Profiles Configuration Form [Expert]

1. Select a pre-defined Security Profile or click on the “Custom” button to configure individual protocols and services.

   The following “Custom Profile” dialog box opens.



☑ Telnet ☑ SNMP □ IPSec

□ FTP ☑ RPC ☑ ICMP

SSH

☑ SSH v1

☑ SSH v2

SSH Options

SSH port 22

☑ allow root access

Web Access

☑ HTTP

☑ HTTPS

HTTP & HTTPS Options

HTTP port 80

□ HTTP redirects to HTTPS

HTTPS port 443

Access to KVM Ports

☑ allow Direct Access to KVM Ports

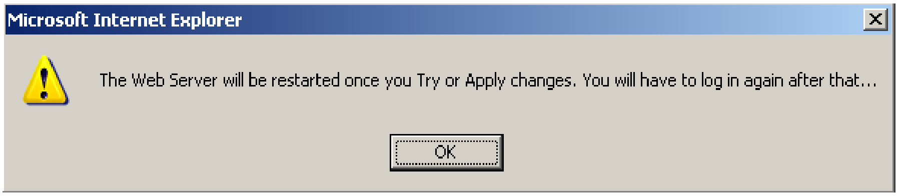
Figure 4-31: Custom Security Profile Dialog Box

Caution! Take the required precautions to understand the potential impacts of each individual service configured under the "Custom" profile.

Refer to Table 4-1 on page 144 for a comparison of the available services in each security profile. Refer to the Glossary for a definition on the available services.

2. Once you select a security profile or configure a custom profile and apply the changes, the KVM/net Web Manager restarts in order for the changes to take effect.

   The following dialog box appears.



The Web Server will be restarted once you Try or Apply changes. You will have to log in again after that...

3. Select “apply changes” to save the configuration to Flash.

   KVM/net Web Manager restarts.
4. Login after Web Manager restarts.
5. The Web Manager defaults to Access > Connect to Server form.

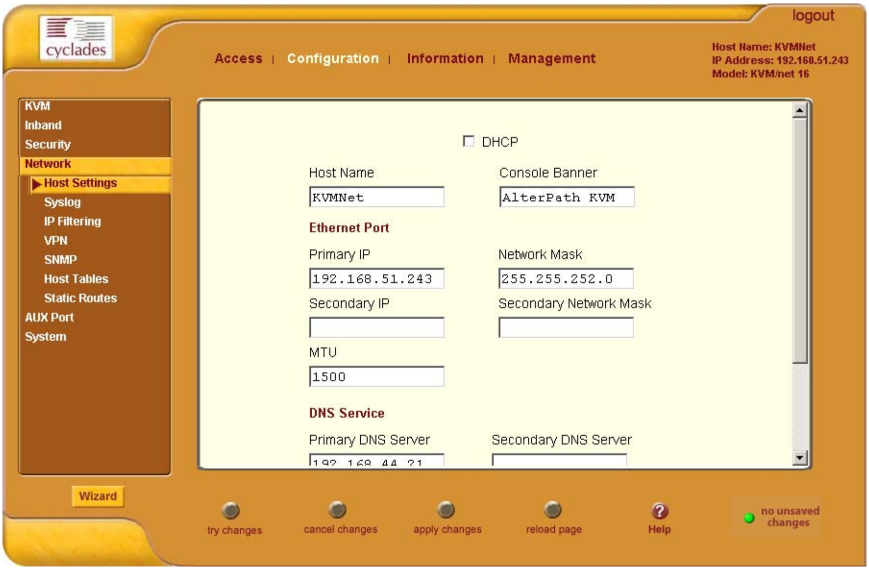
Proceed to the desired forms and the related tasks outlined in the table below.

Table 4-8: Configuring KVM/net in Expert Mode Security

Configure Users and Groups	“Users & Groups” on page 191
Configure Network Settings	“Host Settings” on page 228
Configure IPDU Power Management	“IPDU Power Management” on page 161

Network

Selecting Configuration>Network in Expert mode brings up the following form.



Host Name: KVMNet
IP Address: 192.168.51.243
Model: KVM/net 16

□ DHCP

Host Name: KVMNet
Console Banner: AlterPath KVM

Ethernet Port

Primary IP: 192.168.51.243
Network Mask: 255.255.252.0
Secondary IP:
Secondary Network Mask:
MTU: 1500

DNS Service

Primary DNS Server: 192.168.44.21
Secondary DNS Server:

Figure 4-32: Host Settings Configuration Form

Network configuration comprises eight forms:

Table 4-9: Network Forms

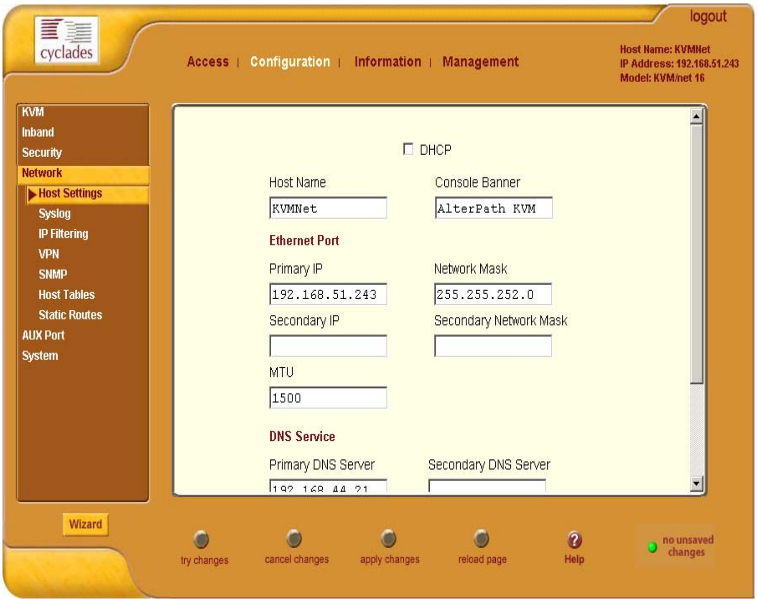
Form	Use this form to:	Where Documented
Host Settings	Configure host connections, including: Ethernet Port connections, DNS Service, and Name Service Access.	"Host Settings" on page 228
Syslog	Define the Syslog Servers to enable system logging.	"Syslog" on page 231

Table 4-9: Network Forms (Continued)

Form	Use this form to:	Where Documented
IP Filtering	Configure the selective filtering of packets that may potentially crack your network system or generate unnecessary traffic.	"IP Filtering" on page 233
VPN	Configure IPsec tunnels to establish a secure connection between KVM/net and a security gateway machine.	"VPN" on page 250
SNMP	Configure the SNMP server to manage complex networks.	"SNMP" on page 253
Host Table	View hosts list and add, edit, and delete hosts.	"Notifications" on page 258
Static Routes	View, create, and delete routes from the table.	"Static Routes" on page 264

Host Settings

When Configuration>Network>Host Settings is selected in Expert mode, the form shown in the following figure appears.



Host Name: KVMNet
IP Address: 192.168.51.243
Model: KVM/net 16

☐ DHCP

Host Name: KVMNet
Console Banner: AlterPath KVM

Ethernet Port

Primary IP: 192.168.51.243
Network Mask: 255.255.252.0
Secondary IP:
Secondary Network Mask:
MTU: 1500

DNS Service

Primary DNS Server: 192.168.44.21
Secondary DNS Server:

▼ To Configure Host Settings [Expert]

The Host Settings form allows you to configure the network settings for the KVM/net.

1. Go to Expert>Network>Host Settings.

   The Host Settings form appears.

2. By default, the DHCP is enabled. To disable DHCP, clear the DHCP check box.

   The system adds the Ethernet Port and DNS Service sections.

3. Complete or edit the fields described in the following table as necessary.

Table 4-10: Host Settings Configuration Fields

Field Name	Definition
Host Name	The fully qualified domain name identifying the specific host computer within the Internet.
Console Banner	A text string designed to appear on the console upon logging into and exiting from a port as a way to verify or identify the particular port connection.
Ethernet Port	
Primary IP	The 32-bit numeric IP address of the KVM/net unit on the Internet.
Network Mask	The 32-bit number used to group IP addresses together or to indicate the range of IP addresses for this IP network/subnet/supernet.
Secondary IP	The 32-bit numeric, secondary IP address of the KVM/net unit on the Internet.
Secondary Network Mask	The network mask of the secondary IP.
MTU	Maximum Transmission Unit used by the TCP protocol.
DNS Service	
Primary DNS Server	Address of the Domain Name Server.
Secondary DNS Server	Address of the backup Domain Name Server.

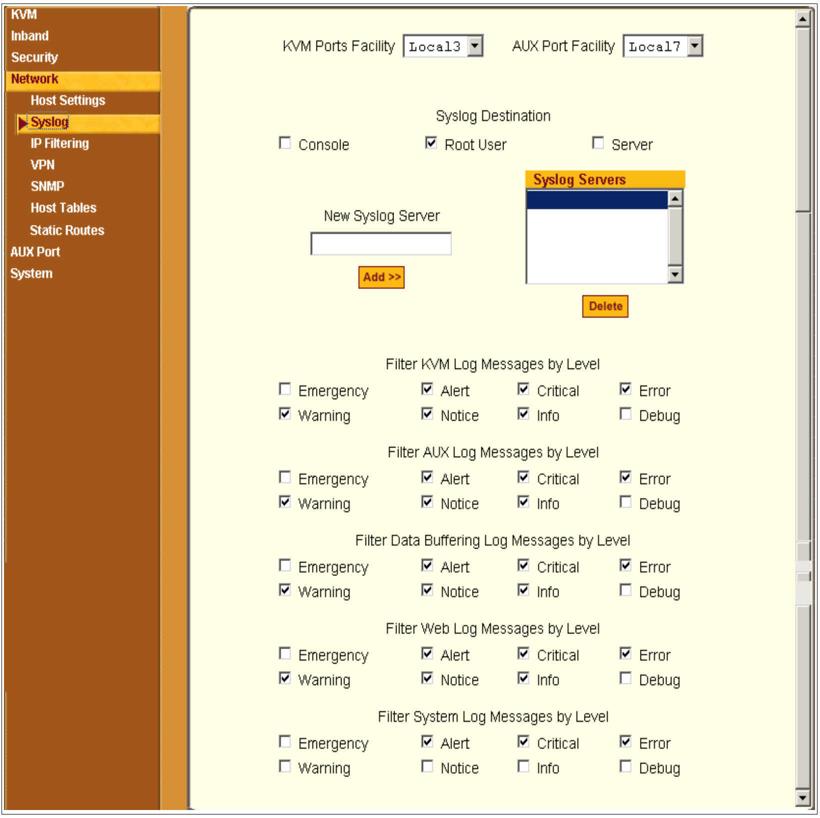
Table 4-10: Host Settings Configuration Fields (Continued)

Field Name	Definition
Domain Name	The name that identifies the domain (for example, domainname.com).
Gateway IP	The gateway numeric identification number.

4. Select “apply changes” when done to save your configuration to flash.

Syslog

When Configuration>Network>Syslog is selected in Expert mode, the form shown in the following figure appears.



KVM Ports Facility Local3 AUX Port Facility Local7

Syslog Destination

☐ Console ☑ Root User ☐ Server

Syslog Servers

New Syslog Server

Filter KVM Log Messages by Level

☐ Emergency ☑ Alert ☑ Critical ☑ Error
☑ Warning ☑ Notice ☑ Info ☐ Debug

Filter AUX Log Messages by Level

☐ Emergency ☑ Alert ☑ Critical ☑ Error
☑ Warning ☑ Notice ☑ Info ☐ Debug

Filter Data Buffering Log Messages by Level

☐ Emergency ☑ Alert ☑ Critical ☑ Error
☑ Warning ☑ Notice ☑ Info ☐ Debug

Filter Web Log Messages by Level

☐ Emergency ☑ Alert ☑ Critical ☑ Error
☑ Warning ☑ Notice ☑ Info ☐ Debug

Filter System Log Messages by Level

☐ Emergency ☑ Alert ☑ Critical ☑ Error
☐ Warning ☐ Notice ☐ Info ☐ Debug

Figure 4-33: Syslog Configuration Form

You can use the Syslog form to configure how the KVM/net handles syslog messages. The Syslog form allows you to do the following:

- Specify one or more syslog servers to receive syslog messages related to ports.
- Specify rules for filtering messages.

The top of the form is used to tell the KVM/net where to send syslog messages:

- You can specify one facility number for messages from AUXports and another facility number for messages from KVM ports.

  Obtain the facility numbers to use from the syslog server's administrator. See "To Add a Syslog Server [Wizard]" on page 158 for how syslogging is configured for the KVM/net under the Configuration>General form. You can specify the same or different syslog servers and the same or duplicate facility numbers according to your site's configuration.
- You can send syslog messages to the console port (for logging the messages even if no user is logged in); to all sessions where the root user is logged in, or to one or more syslog servers.
- You can add or delete entries for syslog servers.

The bottom of the form has check boxes for specifying which types of messages are forwarded based on the following criteria:

- Their severity level: "Emergency," "Alert," "Critical," "Error," "Warning," "Notice," "Info," "Debug"
- Their category "KVM", "AUX", "Data Buffering", "Web", or "System" log messages.

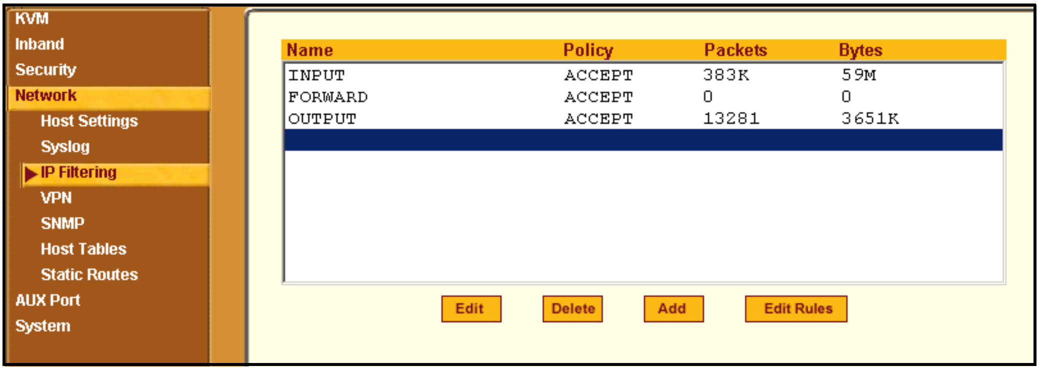
▼ *To Configure Syslogging for KVM Ports and Specify Message Filtering [Expert]*

1. Go to Configuration>Network>Syslog in Expert mode.

   The Syslog form appears.
2. Select a destination for the Syslog messages by clicking the check box next to one or all of the options: "Console," "Root User," or "Server."
3. Add a syslog server to the Syslog Servers list, by entering its IP address in the "New Syslog Server" field, and clicking the "Add>>" button.
4. Select a facility number for messages generated by KVM ports by selecting the number from the "KVM Ports Facility" drop-down list.
5. Select a facility number for messages generated by AUX ports by selecting the number from the "AUX Port Facility" drop-down list.
6. Click "apply changes."

IP Filtering

Selecting Configuration>Network>IP Filtering in Expert mode brings up the IP Filtering form as shown in the following figure.



Name	Policy	Packets	Bytes
INPUT	ACCEPT	383K	59M
FORWARD	ACCEPT	0	0
OUTPUT	ACCEPT	13281	3651K

Figure 4-34:IP Filtering Configuration Form

You can use the IP Filtering form to filter traffic to and from the KVM/net and block traffic according to rules you define.

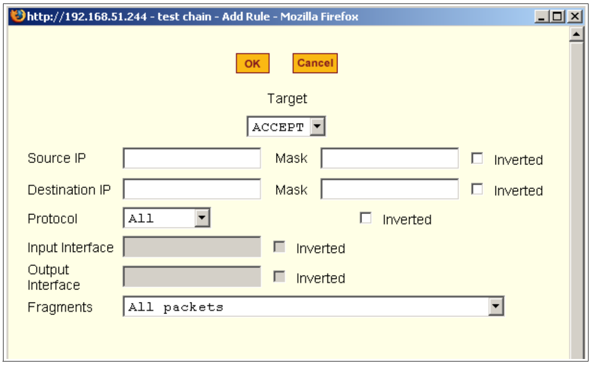
The KVM/net uses chains and rules for filtering packets like a firewall. Each entry in the list represents a chain with a set of rules.

The form by default has three built-in chains, as shown in the previous figure. The chains accept all INPUT, FORWARD, and OUTPUT packets. You can use the form to do the following to specify packet filtering:

- Add a new chain and specify rules for that chain
- Add new rules
- Delete existing chains and rules.

Add Rule and Edit Rule Options

The Add Rule and Edit Rule dialog boxes have the fields and options shown in the following figure.



http://192.168.51.244 - test chain - Add Rule - Mozilla Firefox

Target: ACCEPT

Source IP ______ Mask ______ □ Inverted

Destination IP ______ Mask ______ □ Inverted

Protocol: All □ Inverted

Input Interface ______ □ Inverted

Output Interface ______ □ Inverted

Fragments: All packets

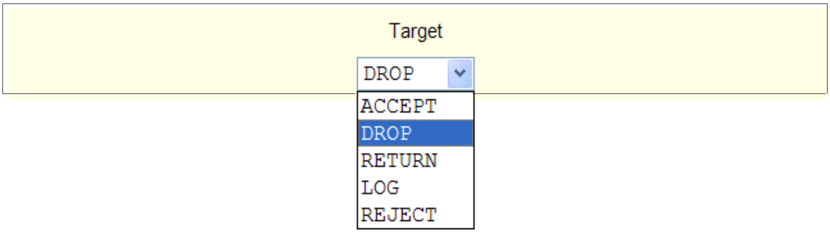
Inverted Check Boxes

If you check the “Inverted” check box on any line, the target action is performed on packets that do not match any of the criteria specified in that line when any other specified criteria are also met.

For example, if you select DROP as the target action, check “Inverted” on the line with a source IP address specified, and do not specify any other criteria in the rule, any packets arriving from any other source IP address than the one specified are dropped.

Target Drop-down List Options

The “Target” is the action to be performed on an IP packet that matches all the criteria specified in a rule.The target drop-down list is shown in the following figure.



Target: DROP

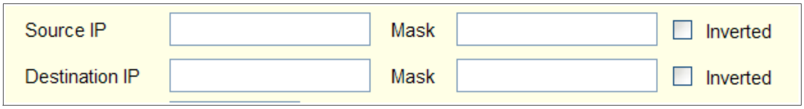
If the “LOG” and “REJECT” targets are selected, additional fields appear as described under “LOG Target” on page 238 and “REJECT Target” on page 239.

Source or Destination IP and Mask

If you fill in the “Source IP” field, incoming packets are filtered for the specified IP address. If you fill in the “Destination IP” field, outgoing packets are filtered for the specified IP address.

If you fill in either “Mask” field, incoming or outgoing packets are filtered for IP addresses from the network in the specified netmask.

The source and destination IP and related fields are shown in the following figure.

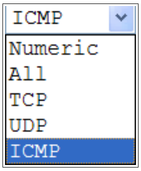


Source IP Mask □ Inverted

Destination IP Mask □ Inverted

Protocol

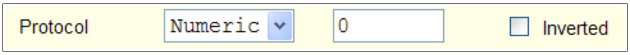
You can select a protocol for filtering from the “Protocol” drop-down list, which is shown in the following figure.



The additional fields that appear for each protocol are explained in the following sections.

Numeric Protocol Fields

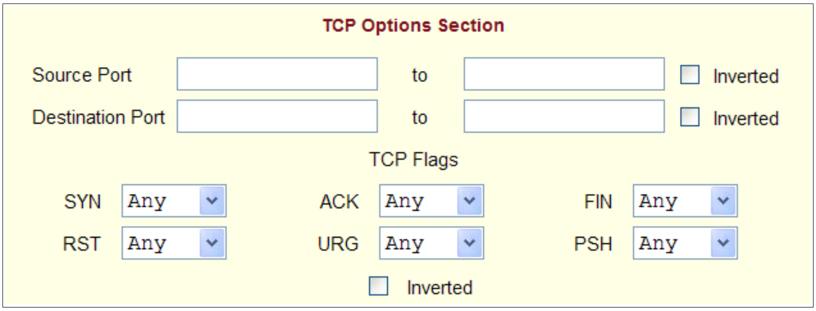
If you select Numeric as the protocol when specifying a rule, a text field appears to the right of the menu for you to enter the desired number, as shown in the following figure.



Protocol Numeric 0 □ Inverted

TCP Protocol Fields

If you select TCP as the protocol when specifying a rule, the additional fields shown in the following figure appear for you to fill out at the bottom of the form.



TCP Options Section

Source Port [ ] to [ ] □ Inverted

Destination Port [ ] to [ ] □ Inverted

TCP Flags

SYN Any ▾ ACK Any ▾ FIN Any ▾

RST Any ▾ URG Any ▾ PSH Any ▾

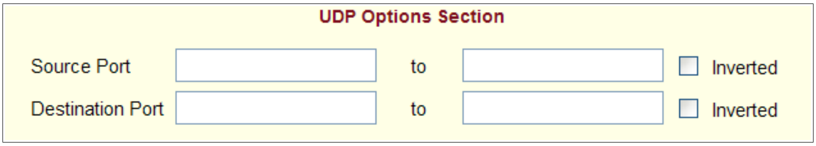
□ Inverted

The following table defines the fields and menu options in the “TCP Options Section.”

Field/Menu Option	Definition
Source Port - OR - **Destination Port** -AND- **to**	You can specify a source or destination port number for filtering in the “Source Port” or “Destination Port” field. If you specify a second number in the “to” field, TCP packets are filtered for any port number within the range that starts with the first port number and that ends with the second.
TCP Flags	You can select the check box next to any of the TCP flags: “SYN” (synchronize), “ACK” (acknowledge), “FIN” (finish), “RST” (reset), “URG” (urgent), or “PSH” (push) and select either “Any,” “Set,” or “Unset,” TCP packets are filtered for the specified flag and the selected condition.

UDP Protocol Fields

If you select UDP as a protocol when specifying a rule, the additional fields shown in the following figure appear at the bottom of the form.



UDP Options Section

Source Port [ ] to [ ] □ Inverted

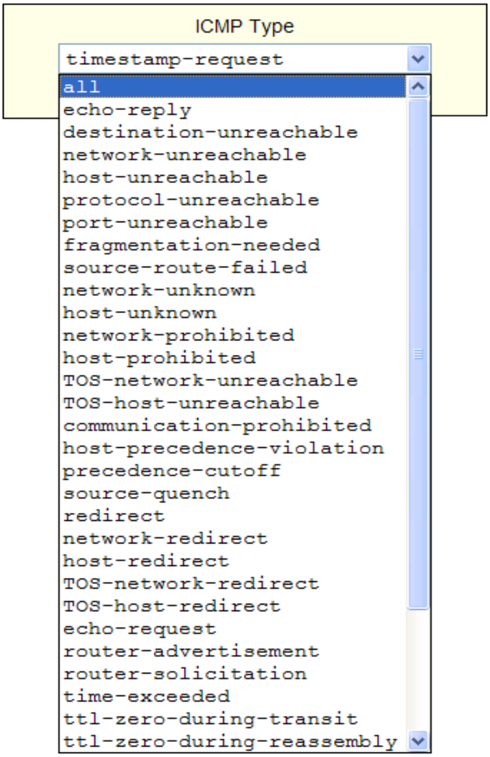
Destination Port [ ] to [ ] □ Inverted

The following table defines the fields in the UDP Options Section.

Field	Definition
Source Port - OR - **Destination Port** -AND- **to**	Specify a source or destination port number for filtering in the “Source Port” or “Destination Port” field. You can specify a source or destination port number for filtering in the “Source Port” field. If you specify a second number in the “to” field, TCP packets are filtered for any port number within the range that starts with the first port number and that ends with the second.

ICMP Protocol Fields

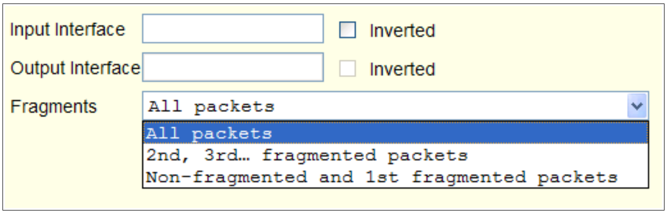
If you select ICMP as a protocol when specifying a rule, the ICMP Type drop-down list appears in the ICMP Options Section at the bottom of the IP Filtering form. The following figure shows the options.



Input Interface, Output Interface, and Fragments

If you enter an interface (such as `eth0` or `eth1`) in the “Input Interface” field, incoming packets are filtered for the specified interface. If you enter an interface in the “Output Interface” field, outgoing packets are filtered for the specified interface.

These fields are shown in the following figure.



Input Interface □ Inverted

Output Interface □ Inverted

Fragments: All packets

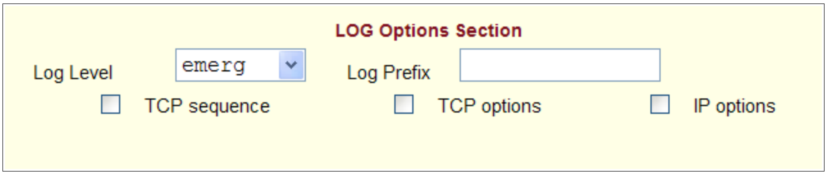
All packets
2nd, 3rd… fragmented packets
Non-fragmented and 1st fragmented packets

The following table defines the fields in the previous figure.

Field	**Definition**
Input Interface	The input interface (eth*N*) for the packet
Output Interface	The output interface (eth*N*) for the packet
Fragments	The types of packets to be filtered: All packets 2nd, 3rd... fragmented packets Non-fragmented and 1st fragmented packets

LOG Target

If you select “LOG” from the “Target” field, the following fields and menus appear in the “LOG Options Section” at the bottom of the form.



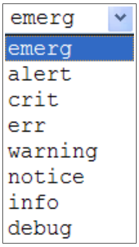
LOG Options Section

Log Level: emerg

Log Prefix

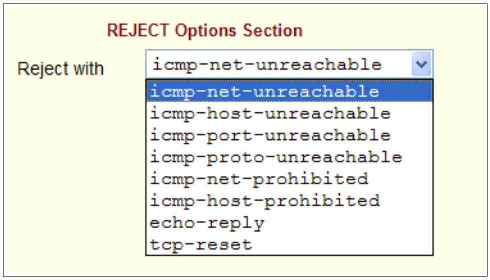
□ TCP sequence □ TCP options □ IP options

The following table defines the menu options, field, and check boxes in the "LOG Options Section."

Field or Menu Name	Definition
Log Level	One of the options in the drop-down list:  emerg emerg alert crit err warning notice info debug
Log Prefix	The prefix to use in the log entry.
TCP Sequence	Checking the box includes the TCP sequence in the log.
TCP Options	Checking the box includes TCP options in the log.
IP Options	Checking the box includes IP options in the log.

REJECT Target

If you select REJECT from the Target drop-down list, the following drop-down list appears



Any "Reject with" option causes the input packet to be dropped and a reply packet of the specified type to be sent.

Firewall Configuration Procedures

The following table has links to the procedures for defining packet filtering:

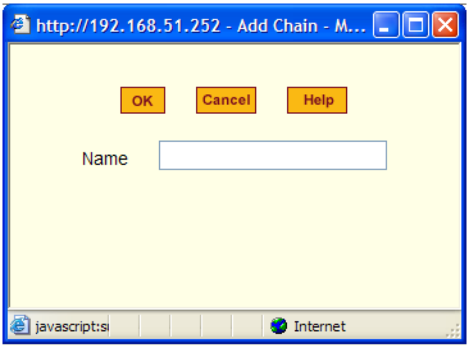
▼ *To Add a Chain*

1. Go to Configuration>Network>Firewall Configuration in Expert Mode.

   The IP Filtering form appears.

2. Click “Add.”

   The “Add Chain” dialog box appears.



3. Enter the name of the chain to be added in the “Name” field and then click OK.

   Spaces are not allowed in the chain name.

   The name of the new chain appears in the list.

4. Finish defining the chain by adding one or more rules, as described in to “To Add a Rule for IP Filtering” on page 244.

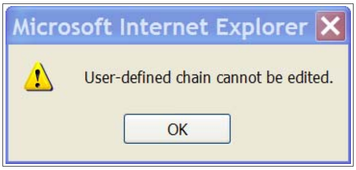
▼ *To Edit a Chain*

Perform this procedure if you want to change the policy for a default chain.

Note:User-defined chains cannot be edited.

1. Go to Configuration>Network>Firewall Configuration in Expert Mode.
2. Select one of the default chains from Chain list, and then click the "Edit" button.

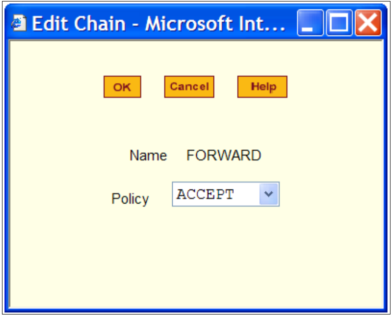
   If you select a user-defined chain, the following dialog box appears.

   Microsoft Internet Explorer

   User-defined chain cannot be edited.

   If you select one of the default chains, the "Edit Chain" dialog box appears.

   Edit Chain - Microsoft Int...

   Name FORWARD

   Policy ACCEPT

3. Select the desired policy from the Policy drop-down list, and then click OK.
4. Click "apply changes."
5. To edit any rules for this chain, go to "To Edit a Rule."

▼ *To Edit a Rule for IP Filtering*

1. In Expert mode go to: Configuration>Network>IP Filtering.

   The IP Filtering configuration form appears.

   See "To Add a Rule for IP Filtering" on page 244 procedure section for a definition of the user input fields.

2. Select a chain whose rule you want to edit.
3. Click the Edit Rule button.

   The Edit Rules form appears. Each line represents a rule for the selected chain.
4. Select the Chain you wish to edit from the Chain list, and click the Edit Rule button.

   The Edit Rules form appears.
5. Specify the rule as desired.

   See “IP Filtering” on page 233 for a definition of the input fields, if needed.
6. Click on the “apply changes” button to complete the procedure.

▼ *To Add a Packet Filtering Rule*

1. Go to Configuration>Network>Firewall Configuration in Expert Mode.
2. Select the chain whose rule you want to edit from Chain list, and then and then click the “Edit Rules” button.
3. Click the “Edit Rule” button.

   The “Edit Rule for Chain” dialog box appears.
4. Specify the rule as desired.
5. Click the “Add” button.

   The “Add Rule” dialog box appears.
6. Complete the Add Rule dialog box.
7. Click “apply changes.”

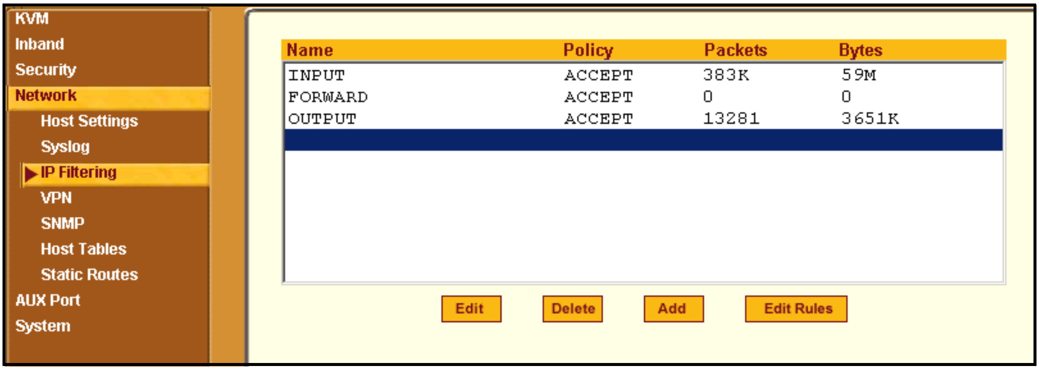
You can perform the following task from the IP Filtering Form:

- “To Add a Chain for IP Filtering” on page 243
- “To Edit A Chain for IP Filtering” on page 244
- “To Add a Rule for IP Filtering” on page 244
- “To Edit a Rule for IP Filtering” on page 241

▼ *To Add a Chain for IP Filtering*

1. In Expert mode go to: Configuration>Network>IP Filtering.

The IP Filtering configuration form appears.

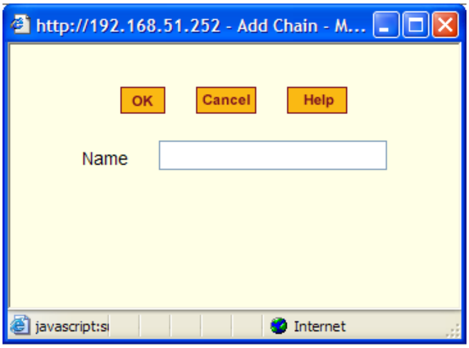


Name	Policy	Packets	Bytes
INPUT	ACCEPT	383K	59M
FORWARD	ACCEPT	0	0
OUTPUT	ACCEPT	13281	3651K

Each line in the list box represents a chain. For a definition or explanation of the field columns, refer to the introductory section of this procedure or to the field definitions for the Edit Rule dialog box, next section.

2. To add a chain, select the Add button.

The Add Chain dialog box appears.



3. Enter the name of the chain that you are adding to the filter table, and then select OK. (Spaces are not allowed in the chain name.)

4. After entering a new chain name, click on the Edit Rules button to enter the rules for that chain.

5. Select OK to commit your changes.
6. To add rules to your new chain, see “To Add a Rule for IP Filtering” on page 244.

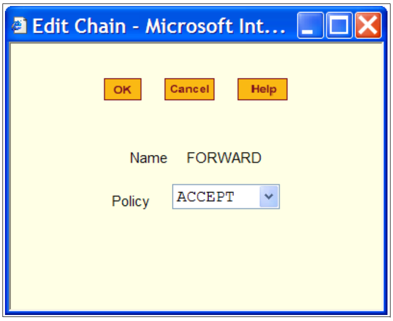
▼ To Edit A Chain for IP Filtering

1. In Expert mode go to: Configuration>Network>IP Filtering.

   The IP Filtering configuration form appears.

2. Select the Chain you wish to edit from the Chain list box (or filter table), and select the Edit button.

   The Edit Chain dialog box appears.



Name FORWARD

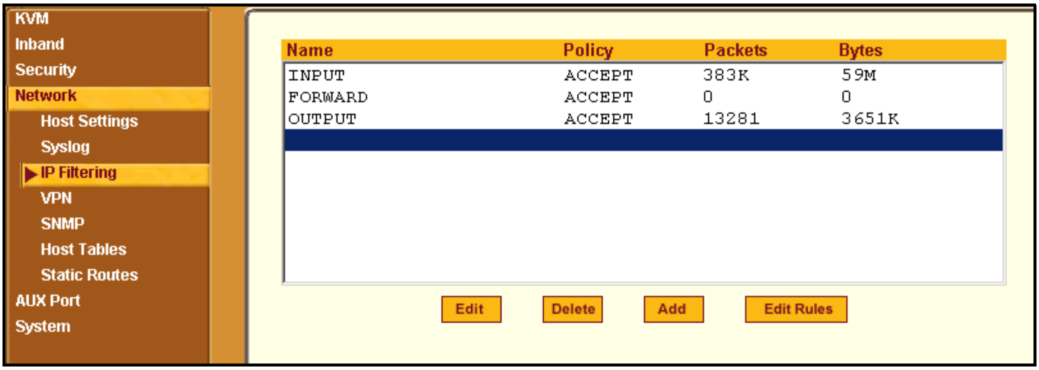
Policy ACCEPT

3. Modify the Policy field, as needed, and select OK.
4. Verify your entry from the main form and click “apply changes” to save your changes.
5. If you need to add any rules for this chain, go to “To Add a Rule for IP Filtering” on page 244.

▼ To Add a Rule for IP Filtering

1. In Expert mode go to: Configuration>Network>IP Filtering.

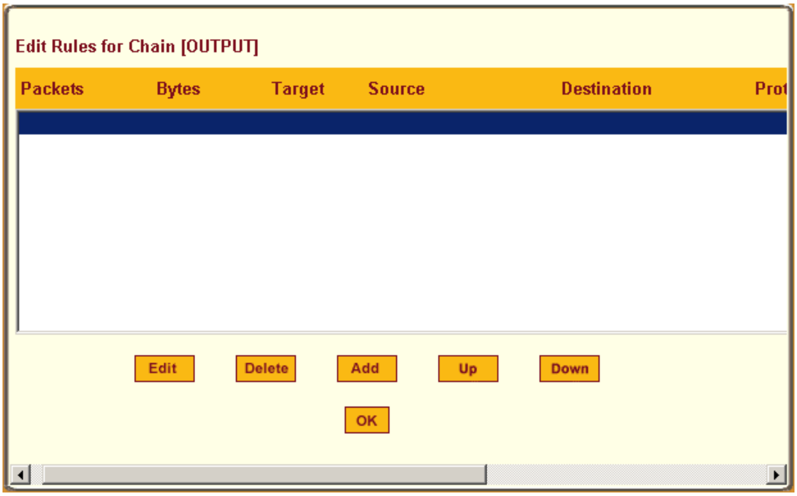
   The IP Filtering configuration form appears.



Name	Policy	Packets	Bytes
INPUT	ACCEPT	383K	59M
FORWARD	ACCEPT	0	0
OUTPUT	ACCEPT	13281	3651K

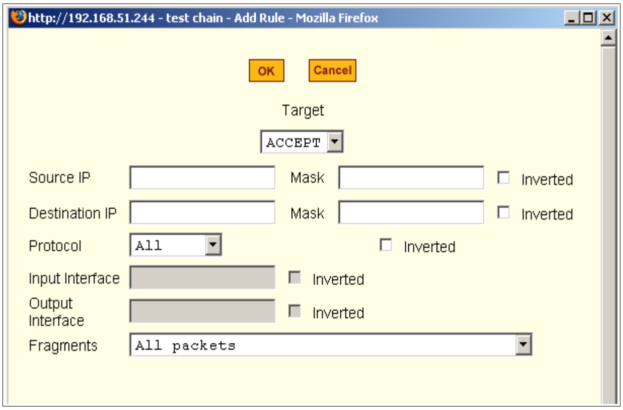
2. Click the Edit Rule button.

   The Edit Rules for Chain configuration form appears.


Edit Rules for Chain [OUTPUT]

3. Click the Add button.

The Add Rule dialog box appears.


http://192.168.51.244 - test chain - Add Rule - Mozilla Firefox
OK
Cancel

Target

ACCEPT

Source IP □ Mask □ □ Inverted

Destination IP □ Mask □ □ Inverted

Protocol All □ Inverted

Input Interface □ □ Inverted

Output Interface □ □ Inverted

Fragments All packets

4. Complete the following data fields as necessary:

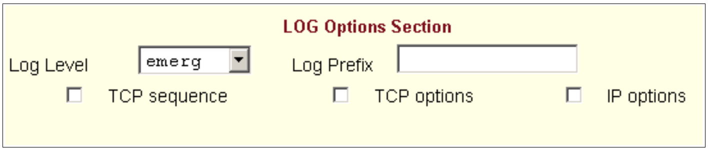
Field Name	Definition
Target	Indicates the action to be performed to the IP packet when it matches the rule. For example, the kernel can ACCEPT DROP, RETURN, LOG or REJECT the packet by sending a message, translating the source or the destination IP address/port or sending the packet to another user-defined chain.
Source IP	The source IP address.
Mask	Source network mask. Required when a network should be included in the rule.
Inverted	Select the check box adjacent to Source IP to invert the target action. For example, the action assigned to the target will be performed to all source IPs/Masks except to the one just defined.
Destination IP	Destination IP address.

Field Name	Definition
Mask	Destination network mask.
Inverted	Select the check box adjacent to Destination IP to invert the target action. For example, the action assigned to the target will be performed to all Destination/ Mask IPs except to the one just defined.
Protocol	The transport protocol to check. If the numeric value is available, select Numeric and type the value in the adjacent field; otherwise, select one of the other options.
Inverted	Select the check box adjacent to Protocol to invert the target action. For example, the action assigned to the target will be performed to all protocols except to the one just defined.
Input Interface	The interface where the IP packet should pass. The Input Interface option appears only for the INPUT and FORWARD chains.
Inverted	Select the check box adjacent to Input Interface to invert the target action. For example, the action assigned to the target will be performed to all interfaces except to the one just defined.
Output Interface	The interface where the IP packet should pass. The Output interface option will appear for the chains FORWARD and OUTPUT.

Field Name	Definition
Inverted	Select box adjacent to Output Interface to invert the target action. For example, the action assigned to the target will be performed to all interfaces except to the one just defined.
Fragments	Indicates the fragments or unfragmented packets to be checked. The IP Tables can check for: • All Packets • 2nd, 3rd... fragmented packets • Non-fragmented and 1st fragmented packets
ICMP Type	This dropdown list box contains all the ICMP types that may be applied to the current rule.
Inverted	This ICMP option will be applied to all rules except the currently selected rule.

5. Complete the following additional fields as necessary:

- If you selected Log from the Target field, the following options also appear.



LOG Options Section

Log Level: emerg

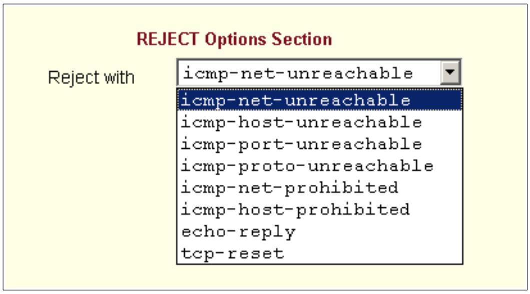
Log Prefix:

□ TCP sequence □ TCP options □ IP options

Field Name	Definition
Log Level	The log level classification to be used based on the type of error message (such as, alert, warning, info, debug, and so on.).

Field Name	Definition
Log Prefix	The prefix that will identify the log.
TCP Sequence	Check box to include TCP sequence in the log.
TCP Options	Check box to include TCP options in the log.
IP Options	Check box to include IP options in the log.

- If you selected Reject from the Target field, the following field appears:



REJECT Options Section

Reject with: icmp-net-unreachable

"Reject with" means that the filter drops the input packet and sends back a reply packet according to any of the reject types listed below.

Using tcp flags and appropriate reject type, the packets are matched with the REJECT target. The following options are available:

- icmp-net-unreachable – ICMP network unreachable alias
- icmp-host-unreachable – ICMP host unreachable alias
- icmp-port-unreachable – ICMP port unreachable alias
- icmp-proto-unreachable – ICMP protocol unreachable alias
- icmp-net-prohibited – ICMP network prohibited alias
- icmp-host-prohibited – ICMP host prohibited alias
- echo-reply – Echo reply alias
- tcp-reset – TCP RST packet alias

6. Click on the OK button when done.

7. Click on "apply changes."

VPN

VPN, or Virtual Private Network enables a secured communication between KVM/net and a remote network by utilizing a gateway, and creating a secured tunnel between KVM/net and the gateway. IPSec is the protocol used to construct the secure tunnel. IPSec provides encryption and authentication services at the IP level of the protocol stack.

When VPN Connections is selected under Configuration>Network in Expert mode, you can configure one or more VPN connections.

Selecting one of the existing VPN connections and clicking the edit button or the add button launches a dialog box to prompt for the details of the connection. Complete the fields in the dialog box. The RSA keys may be entered using the Copy and Paste feature of your Browser.

If needed, see “VPN and the KVM/net” on page 56 for background information.

▼ To Configure VPN

For the VPN to function to properly, ensure that you have also enabled IPsec. See “To Select or Configure a Security Profile [Wizard]” on page 145 for instructions on configuring IPsec.

1. In Expert mode, go to: Configuration>Network>VPN.

The VPN form appears.

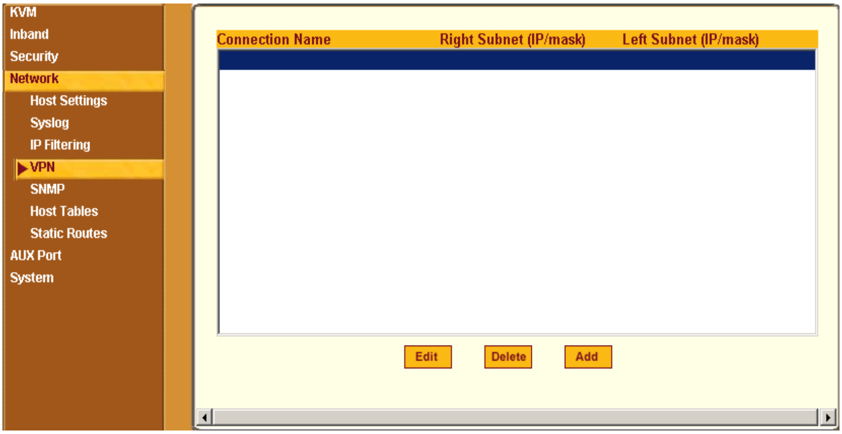


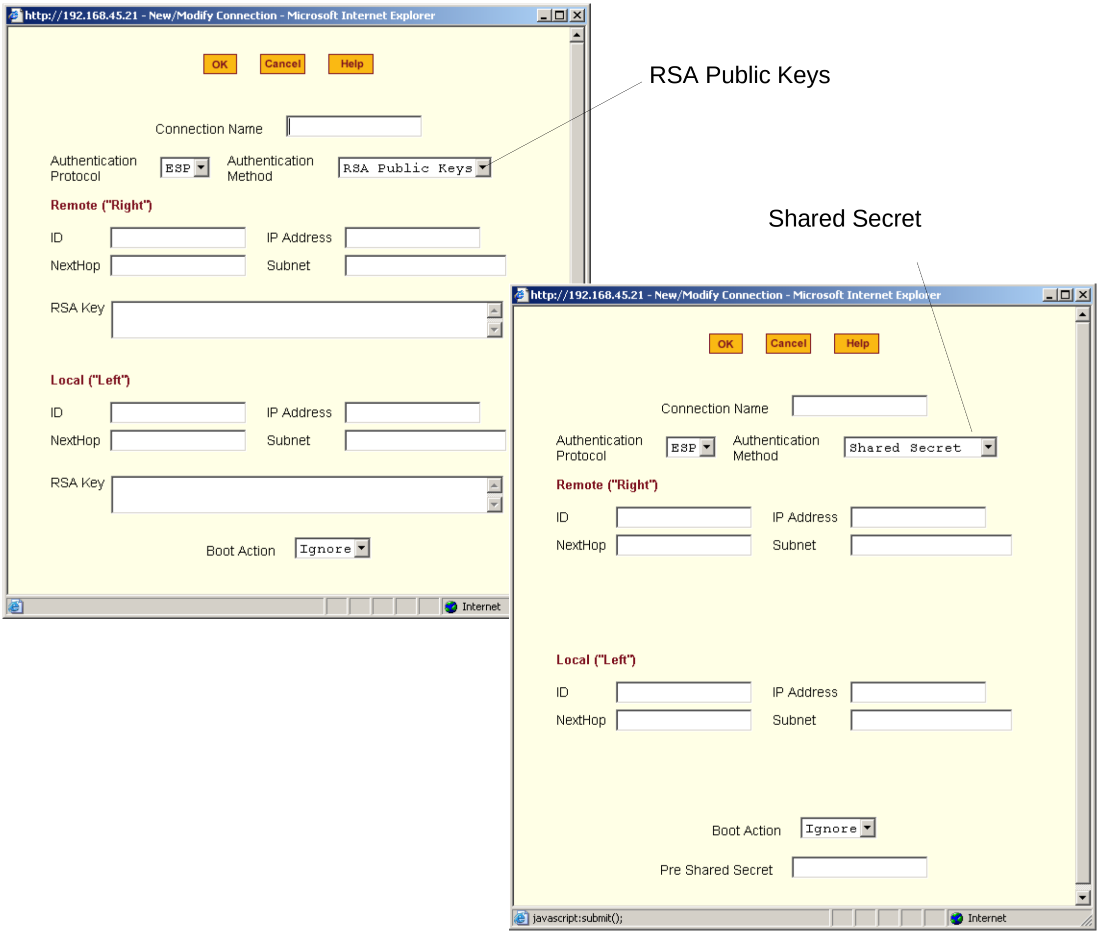
Figure 4-35:VPN Configuration Form

2. To edit a VPN connection, select the VPN connection that you wish to edit from the form, and then select the Edit button.

   - OR -

   To add a VPN Connection, select the Add button.

   The New/Modify Connection dialog box appears.



RSA Public Keys

http://192.168.45.21 - New/Modify Connection - Microsoft Internet Explorer

Connection Name

Authentication Protocol: ESP

Authentication Method: RSA Public Keys

Remote ("Right")

ID

IP Address

NextHop

Subnet

RSA Key

Local ("Left")

ID

IP Address

NextHop

Subnet

RSA Key

Boot Action: Ignore

Shared Secret

http://192.168.45.21 - New/Modify Connection - Microsoft Internet Explorer

Connection Name

Authentication Protocol: ESP

Authentication Method: Shared Secret

Remote ("Right")

ID

IP Address

NextHop

Subnet

Local ("Left")

ID

IP Address

NextHop

Subnet

Boot Action: Ignore

Pre Shared Secret

javascript:submit();

Note: If the selected authentication method is RSA Public Keys, the dialog box on the left of the previous figure is used; if the authentication method is Shared Secret, the dialog box on the right is used.

3. Edit or complete the appropriate fields as follows.

Field Name	Definition
Connector Name	Any descriptive name you want to use to identify this connection such as “MYCOMPANYDOMAIN-VPN.”
Authentication Protocol	The authentication protocol used, either “ESP” (Encapsulating Security Payload) or “AH” (Authentication Header).
Authentication Method	Authentication method used to establish a VPN connection, either “RSA Public Keys” or “Shared Secret.”
ID	This is the hostname that a local system and a remote system use for IPSec negotiation and authentication. It can be a Fully Qualified Domain Name preceded by @. For example, hostname@xyz.com
IP Address	The IP address of the host.
NextHop	The router through which the KVM/net (on the left side) or the remote host (on the right side) sends packets to the host on the other side.

Field Name	Definition
Subnet	The netmask of the subnetwork where the host resides. **Note:** Use CIDR notation, nnn.nnn.nnn.nnn/nn. The IP number followed by a slash and the number of 'one' bits in the binary notation of the netmask. For example, 192.168.0.0/24 indicates an IP address where the first 24 bits are used as the network address. This is the same as 255.255.255.0.
RSA Key (If RSA Public Keys is selected)	You need to generate a public key for the KVM/net and find out the key used on the remote gateway. You can use copy and paste to enter the key in the "RSA Key" field.
Pre-Shared Secret (If "Shared Secret" is selected)	Pre-shared password between left and right users.
Boot Action	The boot action configured for the host, either Ignore, Add, Start.

4. Select the OK button when done.
5. Select the "apply changes" button to save your configuration.

SNMP

Short for Simple Network Management Protocol, SNMP is a set of protocols for managing network devices. SNMP works by sending messages, called protocol data units (PDUs), to different parts of a network. SNMP-compliant devices (*agents*), store data about themselves in Management Information Bases (MIBs) and return this data to the SNMP requesters.

The KVM/net uses the Net-SNMP package (http://www.net-snmp.org/). The Net-SNMP package contains various tools relating to the Simple Network Management Protocol including an extensible agent, an SNMP library, tools to request or set information from SNMP agents, tools to generate and handle

SNMP traps, a version of the Unix 'netstat' command using SNMP, and a Tk/Perl mib browser.

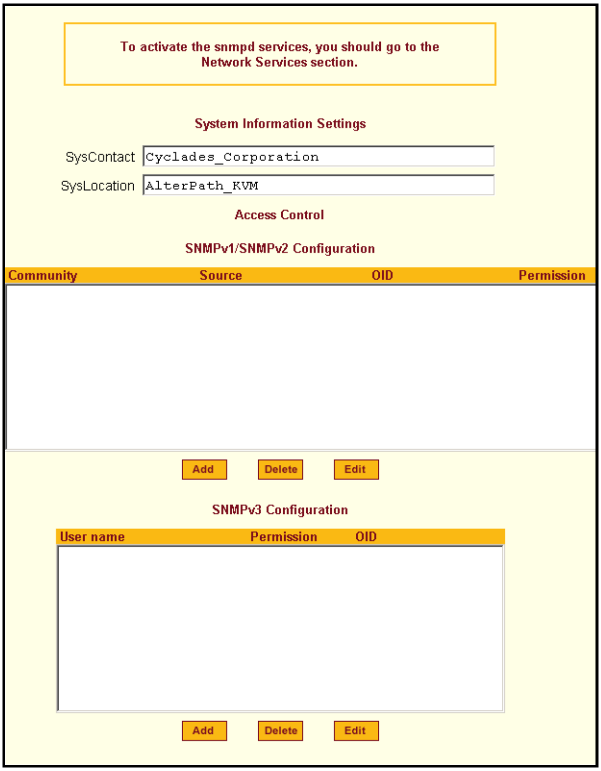
SNMP is configured with community names, OID and user names. The KVM/net supports SNMP v1, v2, and v3. The two versions require different configurations. SNMP v1/v2 requires community, source, object ID and the type of community (read-write, read-only). V3 requires user name.

Important: Check the SNMP configuration before gathering information about KVM/net by SNMP. An unauthorized user can implement different types of attacks to retrieve sensitive information contained in the MIB. By default, the SNMP configuration in KVM/net cannot permit the public community to read SNMP information.

▼ *To Configure SNMP*

1. In Expert Mode go to: Configuration>Networks>SNMP.

The SNMP form appears.



To activate the snmpd services, you should go to the Network Services section.

System Information Settings

SysContact: Cyclades_Corporation

SysLocation: AlterPath_KVM

Access Control

SNMPv1/SNMPv2 Configuration

Community	Source	OID	Permission

SNMPv3 Configuration

User name	Permission	OID

2. Enter the following system information, as necessary:

Field Name	Definition
Community	The community name acts as a password to authenticate messages sent between an SNMP client and a router containing an SNMP server. The community name is sent in every packet between the client and the server.
SysContact	The email of the person to contact regarding the host on which the agent is running (for example, me@mymachine.mydomain)

Field Name	Definition
SysLocation	The physical location of the system (for example, mydomain).

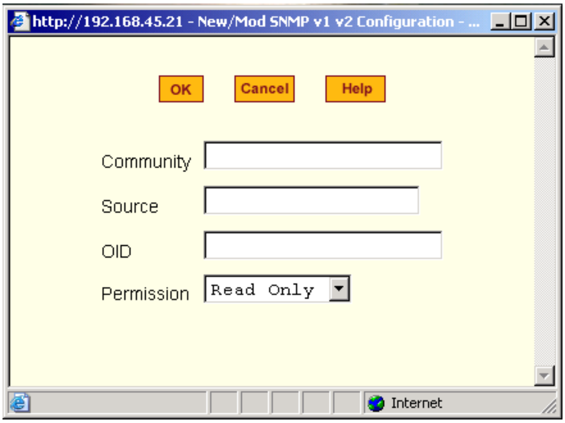
If you are using SNMPv3, skip to Step 6.

3. To Add an SNMP agent using SNMPv1/SNMP2 Configuration, select the Add button located at the bottom of this view table.

OR

To edit an SNMP agent, select the Edit button.

The New/Modify SNMP Daemon Configuration dialog box appears.


http://192.168.45.21 - New/Mod SNMP v1 v2 Configuration - ...
OK
Cancel
Help
Internet

Community

Source

OID

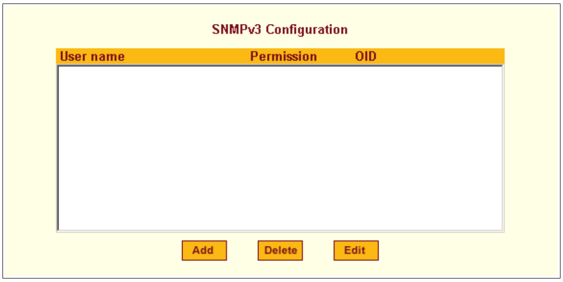
Permission Read Only

4. Complete the dialog box as follows:

Field Name	Definition
Community	The community name acts as a password to authenticate messages sent between an SNMP client and a router containing an SNMP server. The community name is sent in every packet between the client and the server.
Source	The source IP address or range of IP address.

Field Name	Definition
OID	Object Identifier.
Permission	Select the permission type: • Read Only – Read-only access to the entire MIB except for SNMP configuration objects. • Read/Write – Read-write access to the entire MIB except for SNMP configuration objects. • Admin – Read-write access to the entire MIB.

5. If you are adding or editing an SNMP agent using SNMPv3, scroll down to the lower half of the SNMP Configuration form and select the Add button located at the bottom of this view table



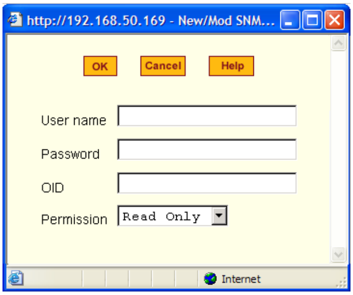
SNMPv3 Configuration

User name	Permission	OID

6. To add an SNMP agent using SNMPv3, click Add.

7. To edit an SNMP agent using SNMPv3, click Edit.

   The New/Modify SNMP Daemon Configuration dialog box.



http://192.168.50.169 - New/Mod SNM...

User name

Password

OID

Permission Read Only

8. Complete the form and when done.

Field Name	Definition
Username	Name of user account accessing the KVM/net.
Source	SNMP v1 and v2 only. Valid entries are “default” or a subnet address, for example, `193.168.44.0/24`.
OID	Object Identifier. Each managed object has a unique identifier.
Permission	Select the permission type: • Read Only – Read-only access to the entire MIB except for SNMP configuration objects. • Read/Write – Read-write access to the entire MIB except for SNMP configuration objects.

9. Click the OK button.

10. Verify your entry or modification on the SNMP form.

11. Click “apply changes” to complete the procedure.

Notifications

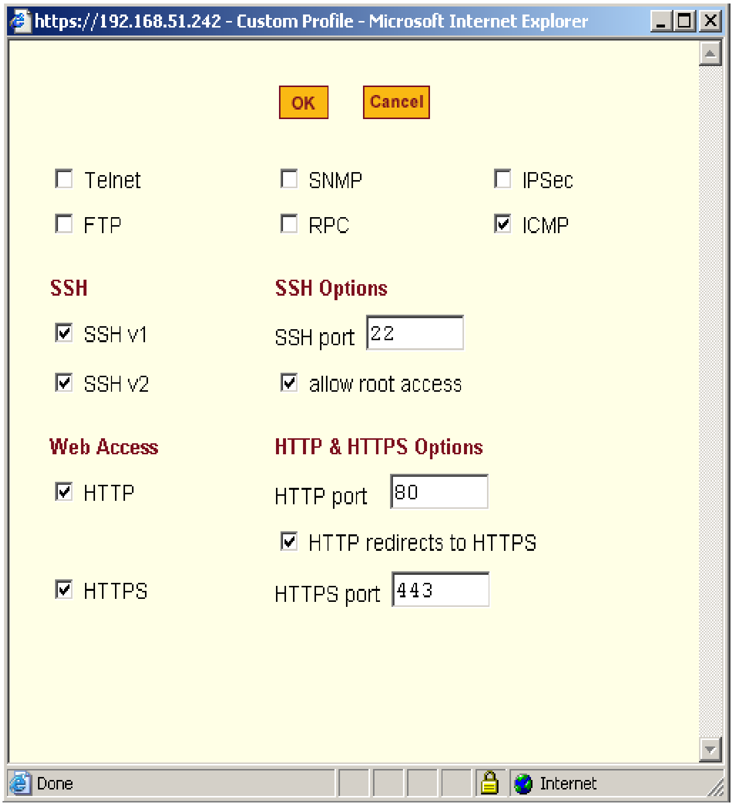
The Notifications form allows you to configure the KVM/net to monitor and send notifications on the following system events by the way of SNMP traps.

- User Login
- User Log out
- Authentication failure
- Authentication success
- System reboot

In order to send notifications on these events to an SNMP management application make sure to activate the SNMP service through Security > Profiles > Custom.

▼ *To Configure SNMP Traps*

1. Go to Security>Profiles, click on Custom button to open the Custom Profile dialog box as shown below and enable SNMP service.


https://192.168.51.242 - Custom Profile - Microsoft Internet Explorer
OK
Cancel
Done
Internet

☐ Telnet ☐ SNMP ☐ IPSec

☐ FTP ☐ RPC ☑ ICMP

SSH

☑ SSH v1

☑ SSH v2

SSH Options

SSH port 22

☑ allow root access

Web Access

☑ HTTP

☑ HTTPS

HTTP & HTTPS Options

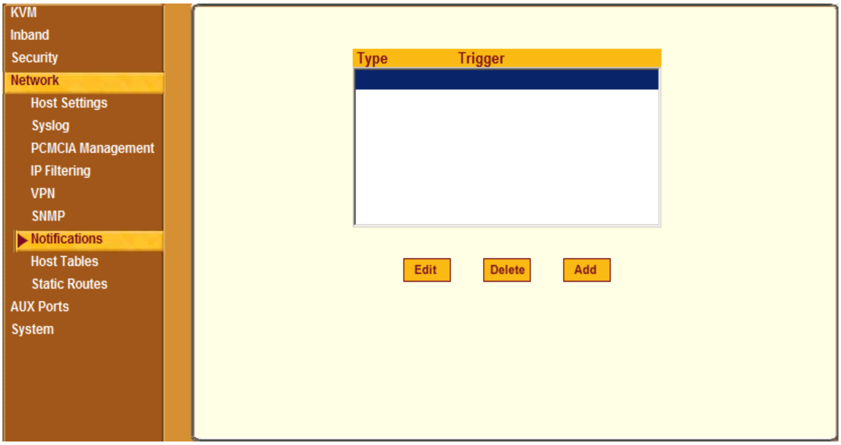
HTTP port 80

☑ HTTP redirects to HTTPS

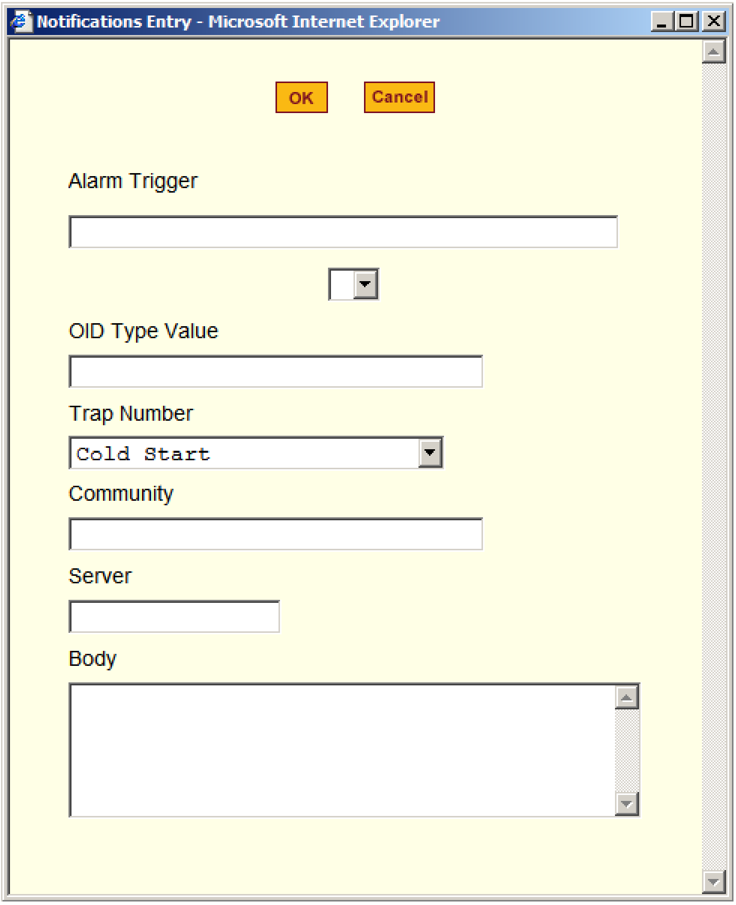
HTTPS port 443

2. Go to Configuration>Network>Notifications.

The following form appears.



3. Click the “Add” button to open the Notifications Entry dialog box as shown in the following figure, and populate the fields per your site requirements.



Alarm Trigger

OID Type Value

Trap Number

Cold Start

Community

Server

Body

The following table describes the fields in the Notifications Entry dialog box.

Table 4-11: SNMP Traps Notifications Entry

Field Name	Description
Alarm Trigger	Define the event you want to trigger a notification for.
OID Type Value	Object Identifier. Each managed object has a unique identifier.

Table 4-11: SNMP Traps Notifications Entry

Field Name	Description
Trap Number	The trap types listed in the drop-down menu translates to a trap number in the system logs.
Community	A Community defines an access environment. The type of access is classified under “Permission”: either read only or read write. The most common community is “public”. Take caution in using a “public” community name as it is commonly known.
Server	The SNMP server’s IP address or DNS name.
Body	The text you want sent in the trap message.

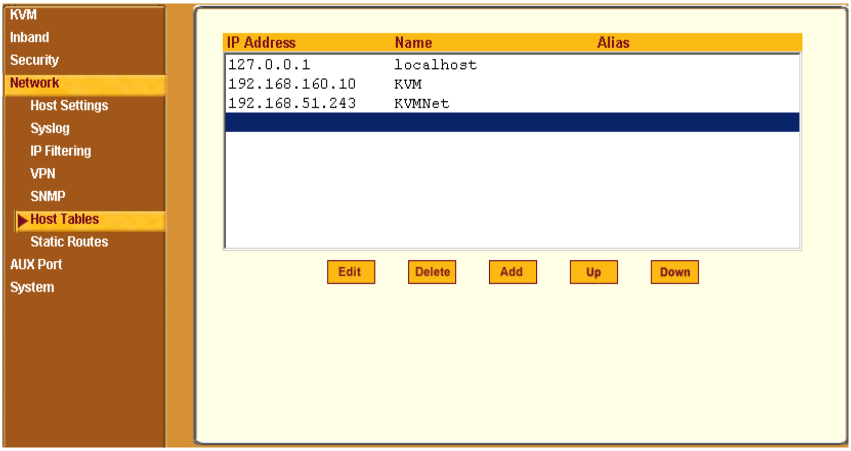
Host Tables

The Host Tables form enables you to keep a table of host names and IP addresses that comprise your local network, and thus provide information about your network environment.

▼ *To Configure Hosts*

1. In Expert Mode, go to: Configuration>Network>Host Tables.

   The Host Tables form appears.



IP Address	Name	Alias
127.0.0.1	localhost	
192.168.160.10	KVM	
192.168.51.243	KVMNet	

Figure 4-36: Host Tables Configuration Form

2. Do on of the following:

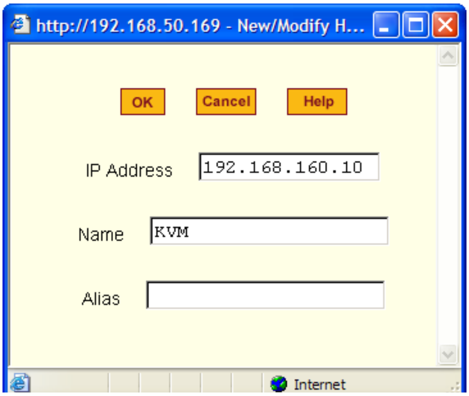
- To edit a host, select the host IP address from the Host Table and then click the Edit button.

  If the list is long, use the Up and Down buttons to go through each item in the list.

- OR -

- To add a host, click the Add button.

The New/Modify Host dialog box appears.



IP Address 192.168.160.10

Name KVM

Alias

3. Enter the new or modified host address in the IP Address field and the host name in the Name field.
4. Click the OK button.
5. To delete a host, select the host you wish to delete from the Host Table form, and select the Delete button on the form.
6. Select “apply changes” to save your configuration to Flash.

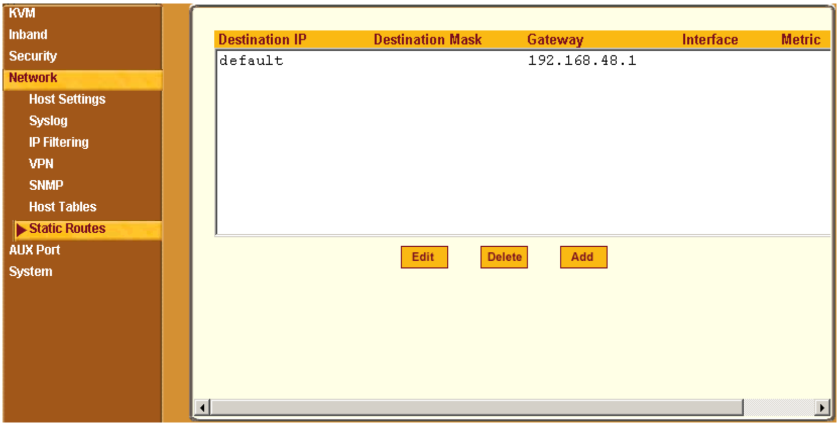
Static Routes

The Static Routes form allows you to manually add routes. The Routing Table defines which interface should transmit an IP packet based on destination IP information. Static routes are a quick and effective way to route data from one subnet to another.

▼ To Add, Edit, or Delete a Static Route

1. In Expert mode, go to: Configuration>Network>>Static Routes.

   The Static Routes table form appears.



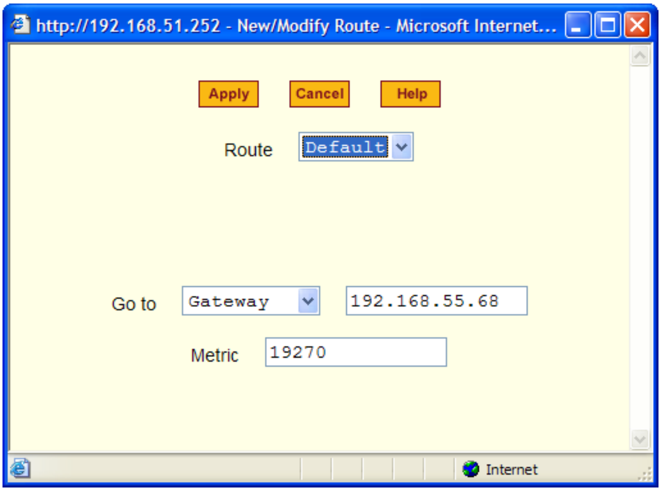
Destination IP	Destination Mask	Gateway	Interface	Metric
default		192.168.48.1		

Figure 4-37: Static Routes Configuration Form

2. Do one of the following:
   - To edit a static route, select a route from the Static Routes form, and click the Edit button.

- To add a static route, select the Add button from the form.

The New/Modify Route dialog box appears.


http://192.168.51.252 - New/Modify Route - Microsoft Internet...
Apply
Cancel
Help
Internet

Route: Default

Go to: Gateway 192.168.55.68

Metric: 19270

3. Complete the dialog box as follows:

Table 4-12: Add/Modify Static Routes Fields

Field Name	Definition
Route	Select Default, Network, or Host.
Network IP	The address of the destination network. This field appears only if Network is selected.
Network Mask	The mask of the destination network. This field appears only if Network is selected.
Host IP	The IP address of the destination host. This field appears only if Host is selected.
Go to	Select Gateway or Interface.

Table 4-12: Add/Modify Static Routes Fields

Field Name	Definition
Field Adjacent to Go to	The address of the gateway or interface.
Metric	The number of hops.

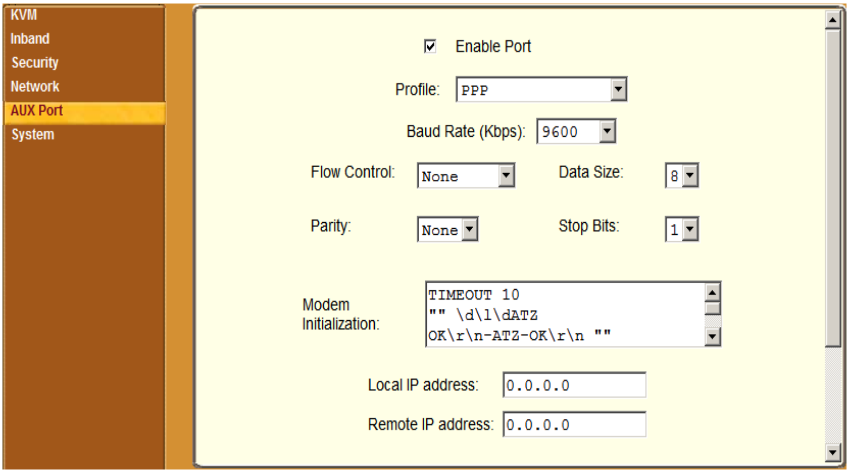
4. Click the Apply button to close the dialog box.

   The new or modified route appears in the list.

5. To delete a static route, select a route from the list and click Delete.
6. Click “apply changes.”

AUX Port

Selecting Configuration>AUX Port in Expert mode brings up the following form.



☑ Enable Port

Profile: PPP

Baud Rate (Kbps): 9600

Flow Control: None

Data Size: 8

Parity: None

Stop Bits: 1

Modem Initialization:

```
TIMEOUT 10
"" \d\l\dATZ
OK\r\n-ATZ-OK\r\n ""
```

Local IP address: 0.0.0.0

Remote IP address: 0.0.0.0

Figure 4-38:AUX Port Configuration Form

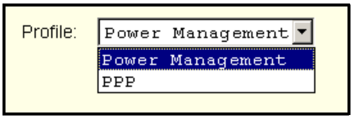
The AUX Port form is used to configure the port for use with an AlterPath PM or an external modem

▼ *To Configure the AUX Port for Use With an IPDU or an External Modem*

1. In Expert mode, go to: Configuration>AUX Port.

   The Aux Port form appears.

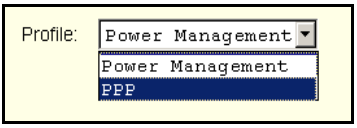
2. To configure the AUX Portfor Power Management, make sure that Power Management is selected in the Profile drop-down list. Note that the Aux port is enabled by default.



3. Click “apply changes.”

See “Power Management” on page 40 for background information on power management and lists of related tasks.

4. To configure the AUX Port for an external modem, make sure that PPP is selected in the Profile drop-down list.



   Additional fields appear on the form.

5. Complete the fields as shown below.

Table 4-13: PPP Fields for Configuring the AUX Port

Field Name	**Definition**
Baud Rate	The port speed.
Flow Control	Gateway or interface address used for the route.
Data Size	The number of data bits.
Parity	None, even or odd.

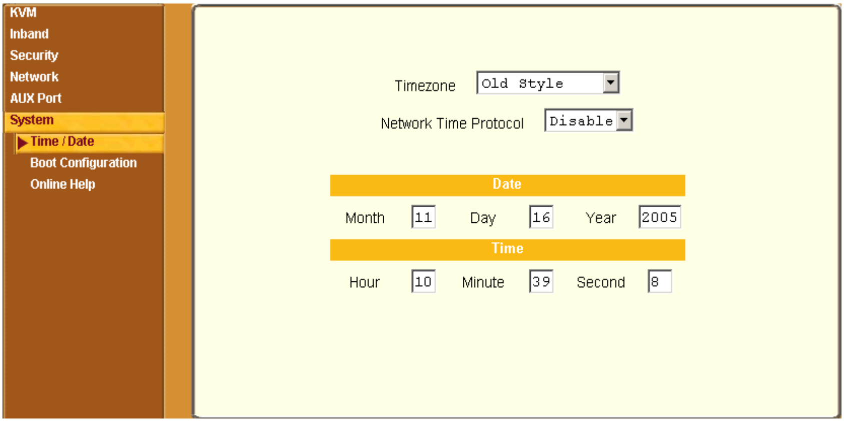
Table 4-13: PPP Fields for Configuring the AUX Port (Continued)

Field Name	Definition
Stop Bits	The number of stop bits.
Modem Initialization	The modem initialization string.
Local IP Address	The IP address of the KVM/net.
Remote IP Address	The remote IP address
Authentication Required	Select check box if authentication is required.
MTU/MRU	The maximum transmission unit / maximum receive units for the PPP.
PPP Options	The options for this protocol.

6. Click "apply changes."

System

Selecting Configuration>System in Expert mode brings up the System form as shown in the following figure.



Timezone: Old Style
Network Time Protocol: Disable

Date
Month 11 Day 16 Year 2005

Time
Hour 10 Minute 39 Second 8

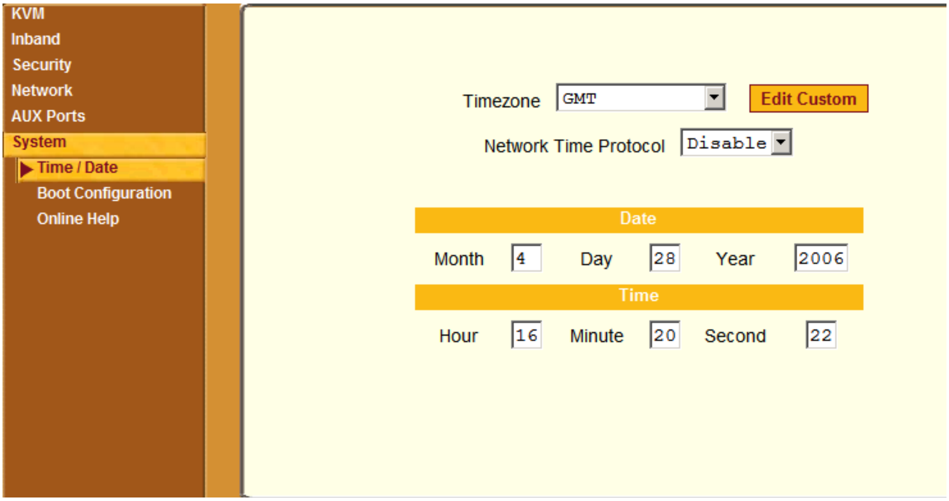
Figure 4-39: System Time and Date Configuration Form

With the System form administrators can set the time and date on the KVM/net and reboot the KVM/net if necessary. The following procedures are available on the System form:

- “Creating a Custom Timezone Selection” on page 272
- “To Set The Time and Date With NTP” on page 270
- “Boot Configuration” on page 273
- “To Configure KVM/net Boot” on page 276

Time/Date

Selecting Configuration > System > Time/Date in Expert mode brings up the form shown in the following figure.



Timezone GMT

Network Time Protocol Disable

Date

Month 4 Day 28 Year 2006

Time

Hour 16 Minute 20 Second 22

You can use the Time/Date form in Expert mode to set the KVM/net’s time and date in one of the following two methods.

- Configuring manually by entering the time and date in the form
- Configuring using the NTP server

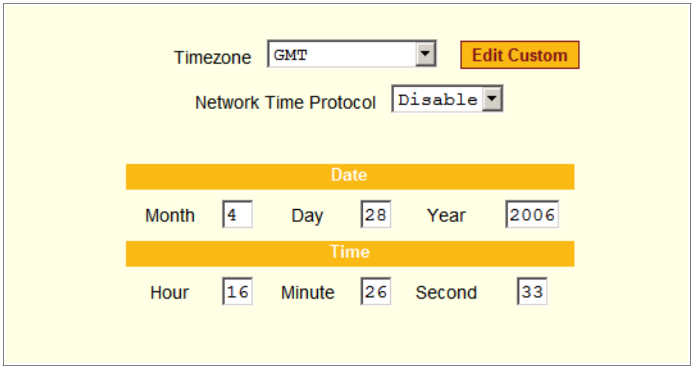
  Enabling Network Time Protocol (NTP) synchronizes the KVM/net’s system clock with an NTP server, which maintains the true time (the average of many high-accuracy clocks around the world).
- Setting up a customized timezone configuration

▼ *To Set the KVM/net's Date and Time Manually*

1. In Expert Mode, go to: Configuration>System>Time/Date.

   The Date/Time form appears.

2. Make sure that Disabled is selected in the Network Time Protocol drop-down list.



Timezone GMT

Network Time Protocol Disable

Date

Month 4 Day 28 Year 2006

Time

Hour 16 Minute 26 Second 33

3. Fill in the date and time fields by selecting the appropriate numbers from the drop-down lists.

4. Click "apply changes."

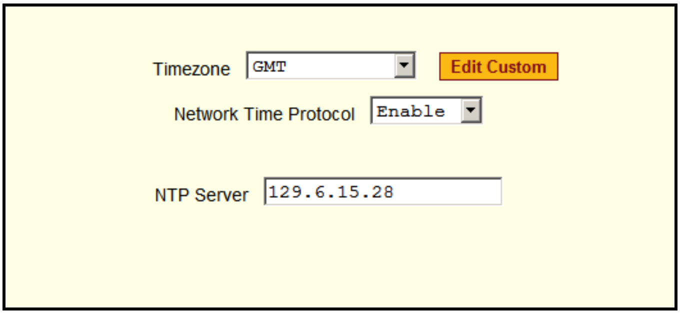
▼ *To Set The Time and Date With NTP*

1. In Expert Mode, go to: Configuration>System>Time/Date.

   The Date/Time form appears.

2. Choose Enable from the Network Time Protocol drop-down list.

   The NTP Server field appears.



Timezone GMT
Network Time Protocol Enable
NTP Server 129.6.15.28

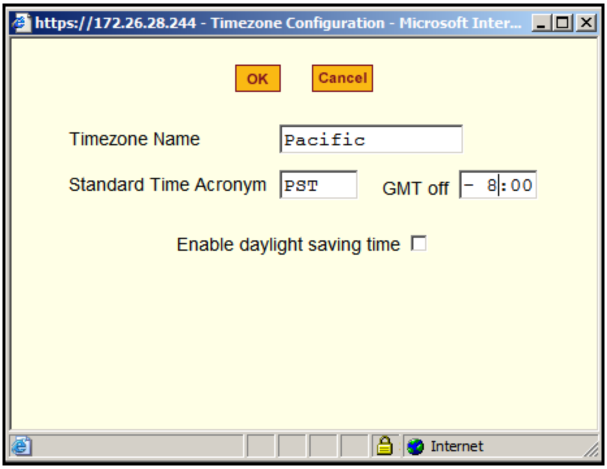
3. Enter the address of the NTP server in the NTP Server field.

4. Click the “apply changes” button.

Setting up Customized Timezone Configuration

The “Edit Custom” button next to the Timezone field allows you to set up a customized timezone function, such as for daylight savings time or any other timezone offset anomaly that might occur anywhere in the world. You can create a timezone identifier of your choice, which will be added to the Timezone pulldown menu options in the main Time/Date menu.

When you select the Custom button, the following dialog box will appear:



https://172.26.28.244 - Timezone Configuration - Microsoft Inter...

Timezone Name Pacific
Standard Time Acronym PST
GMT off - 8:00
Enable daylight saving time □

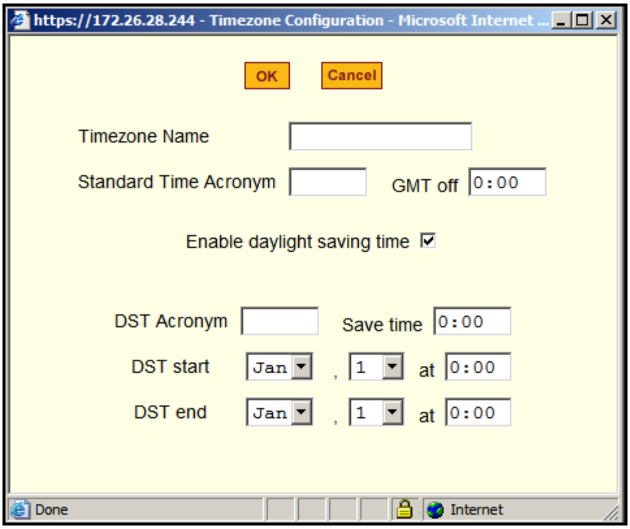
Figure 4-40: Configuration>System>Time/Date>Edit Custom

▼ *Creating a Custom Timezone Selection*

1. Enter the name of the timezone you would like to appear in the Timezone pulldown menu on the main Time/Date screen. (“Pacific” entered here as an example.)
2. Choose the preferred or standard acronym for the timezone (“PST” is shown here for Pacific Standard Time).
3. Enter the offset from GMT for the timezone (west of GMT is entered as a negative number
4. Click “OK.”
5. Click “apply changes.”

▼ *Using the Custom Option to Set Daylight Savings Time*

1. Select the “Enable daylight saving time” checkbox. DST or Daylight Saving Time configuration fields appear, as shown in the following figure.


https://172.26.28.244 - Timezone Configuration - Microsoft Internet ...
OK
Cancel
Done
Internet

Timezone Name

Standard Time Acronym GMT off 0:00

Enable daylight saving time ☑

DST Acronym Save time 0:00

DST start Jan , 1 at 0:00

DST end Jan , 1 at 0:00

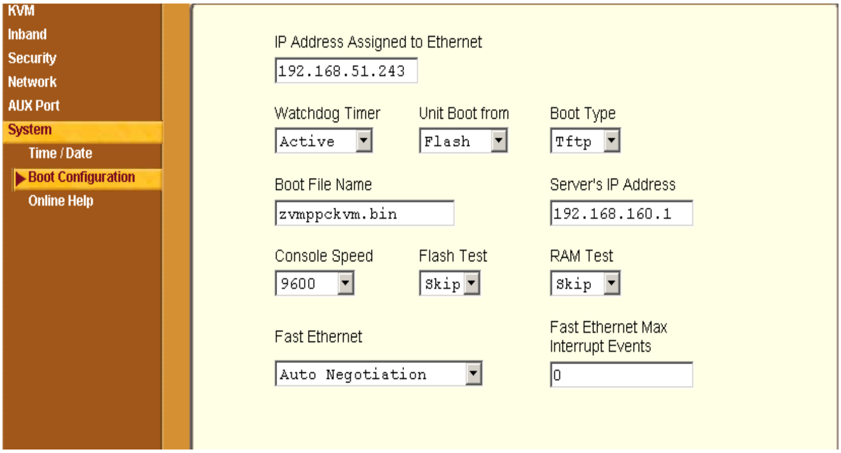
Figure 4-41: Configuration > System > Time/Date > Edit Custom

2. Enter the Daylight Savings Time (DST) acronym of your choice in the “DST Acronym” field.

3. Enter the number of Hours:Minutes that the clock will be reset at the beginning of the Daylight Savings Time period. (Positive number only.)
4. In the following fields, enter the date (month, day) and time (hours:minutes) for both the beginning and ending dates of daylight time.
5. Click OK to update the Time/Date settings and return to the main Time/ Date screen.
6. Click “apply changes.”

Boot Configuration

Selecting Configuration>System>Boot Configuration brings up the following form.



IP Address Assigned to Ethernet: 192.168.51.243

Watchdog Timer: Active

Unit Boot from: Flash

Boot Type: Tftp

Boot File Name: zvmppckvm.bin

Server's IP Address: 192.168.160.1

Console Speed: 9600

Flash Test: Skip

RAM Test: Skip

Fast Ethernet: Auto Negotiation

Fast Ethernet Max Interrupt Events: 0

Figure 4-42: System Boot Configuration Form

On the Boot Configuration form, you can redefine the location from which the KVM/net boots.

Boot configuration defines the location from where KVM/net loads the operating system. The KVM/net can boot from its internal firmware or from the network. By default, KVM/net boots from flash memory.

If you need to boot from the network, you need to make sure the following prerequisites are met.

- A TFTP or BOOTP server must be available on the network.
- An upgraded KVM/net boot image file must be downloaded from Cyclades and available on the TFTP or BOOTP server.
- KVM/net must be configured with a fixed IP address.
- The boot filename and the IP address of the TFTP or BOOTP server is known.

The boot configuration related options are described in the following table.

Table 4-14: Boot Configuration Fields and Options

Field or Value Name	Description
IP Address assigned to Ethernet	A new IP address for the KVM/net.
Watchdog Timer	Whether the watchdog timer is active. If the watchdog timer is active the KVM/net reboots if the software crashes.
Unit boot from	Choose one or more images and “Network” from the list.
Boot Type	Boot from a TFTP server, a BOOTP server, or both.
Boot File Name	An alternative name for the boot file.
Server’s IP Address	An IP address for a boot server.
Console Speed	An alternative console speed from 4800 to 115200 (9600 is the default).
Flash Test	Select to test boot from the Flash card. You can Skip this test or do a Full test.
RAM Test	Select to test boot from RAM. You can Skip this test, do a Quick test, or a Full test.

Table 4-14: Boot Configuration Fields and Options (Continued)

Field or Value Name	Description
Fast Ethernet	The speed of the Ethernet connection. Select the appropriate Ethernet setting if you need to change the Auto Negotiation (default value) 100BaseT Half-Duplex 100BaseT Full-Duplex 10BaseT Half-Duplex 10BaseT Full-Duplex
Fast Ethernet Max Interrupt Events	The maximum number of packets that the CPU handles before an interrupt (0 is the default).

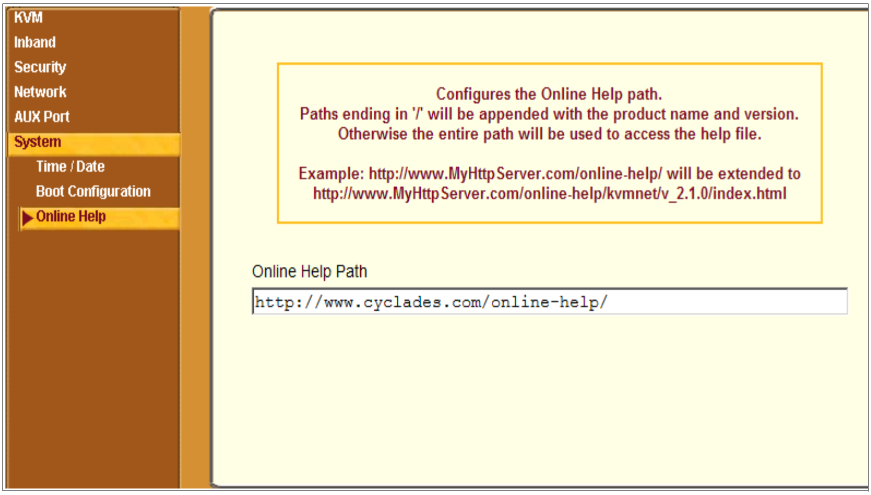
▼ *To Configure KVM/net Boot*

For more information about the fields in the “Boot Configuration” form, see Table 4-14 on page 274, if desired.

1. Go to Configuration>System>Boot Configuration in Expert mode.
2. Enter the IP address of the KVM/net in the “IP Address assigned to Ethernet” field.
3. Accept or change the selected option in the “Watchdog Timer” field.
4. Select to boot from “Flash” or “Network” from the “Unit boot from” menu.
5. Select “TFTP”, “BOOTP”, or “Both” from the “Boot Type” menu if you have selected “Network” from the “Unit boot from”.
6. Accept or change the filename of the boot program in the “Boot File Name” field.
7. If specifying network boot, do the following steps.
   a. Enter the IP address of the tftp server in the “Server’s IP Address” field.
   b. Select a console speed to match the speed of the tftp server from the “Console Speed” drop-down list.
   c. Select “Skip” or “Full” from the “Flash Test” pull-down menu to bypass or run a test on the flash memory at boot time.
   d. Select “Skip”, “Quick”, or “Full” from the “RAM Test” pull-down menu to bypass or run a test on the RAM at boot time.
   e. Choose an Ethernet speed from the “Fast Ethernet” drop-down list.
   f. Specify the maximum number of packets that the CPU handles before an interrupt in the “Fast Ethernet Max. Interrupt Events” field.
8. Click “apply changes.”

Online Help

Selecting Configuration > System > Online Help in Expert mode brings up the form shown in the following figure.



Configures the Online Help path.
Paths ending in '/' will be appended with the product name and version.
Otherwise the entire path will be used to access the help file.

Example: http://www.MyHttpServer.com/online-help/ will be extended to http://www.MyHttpServer.com/online-help/kvmnet/v_2.1.0/index.html

Online Help Path: http://www.cyclades.com/online-help/

Figure 4-43: Online Help Configuration Form

Cyclades host the online-help on a HTTP server accessible from the Internet. From any form in the Web Manager; pressing the “Help” button opens a new window and redirect its content to the configured path for the online help documentation.

The KVM/net administrator can download the online help, and reconfigure the path to a local server where the online help can be stored. The KVM/net firmware stores the new link in flash and accesses the online help files whenever the help button is clicked.

▼ To Configure the Online Help Path

1. Navigate to http://www.cyclades.com/support/downloads.php, select KVM/net, and download the online help zip file.
2. Extract the files and place them under an accessible directory on your server.

3. In the KVM/net Web Manager navigate to Configuration > System > Online Help in Expert mode.
4. In the “Online Help Path” field add the path to the online help directory on your local web server.

   If the online help path is ended with a “/”, when the user clicks on the “Help” button, WMI software appends the product name and version to the URL and invokes the index.html file in a browser.

   For example, http://www.myserver.com/online-help/ would be http://www.myserver.com/online-help/kvmnet/<firmware version>/index.html

Viewing System Information

The Information menu provides the following forms for viewing information about your KVM/net:

- General
- Station Status

General

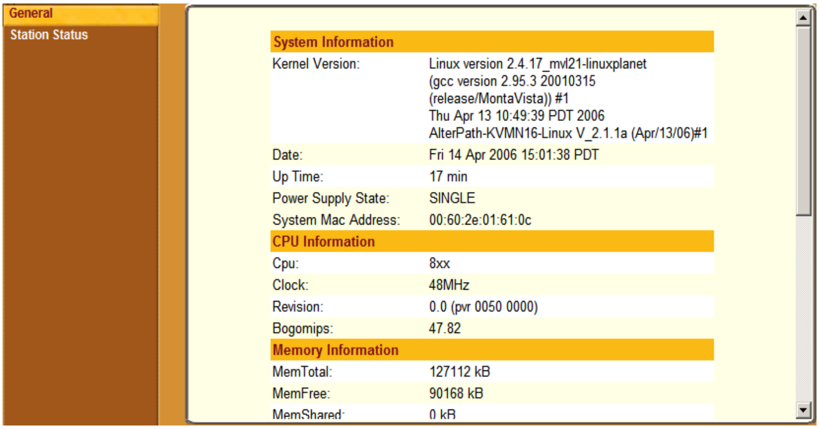
Use the General form to view system information in the following categories:

- System – Kernel version, date, uptime, power supply
- CPU – CPU, clock, revision, Bogomips
- Memory – Total, free, cached, active/inactive, and so on.
- Fan Status – Rotations per minute
- Ram Disk Usage – 1k-blocks, used/available, percent used, and mounted

▼ *To View General Information for Your KVM/net*

1. In Expert mode, go to: Information>General.

The General information form appears.



System Information	
Kernel Version:	Linux version 2.4.17_mvl21-linuxplanet (gcc version 2.95.3 20010315 (release/MontaVista)) #1 Thu Apr 13 10:49:39 PDT 2006 AlterPath-KVMN16-Linux V_2.1.1a (Apr/13/06)#1
Date:	Fri 14 Apr 2006 15:01:38 PDT
Up Time:	17 min
Power Supply State:	SINGLE
System Mac Address:	00:60:2e:01:61:0c
CPU Information	
Cpu:	8xx
Clock:	48MHz
Revision:	0.0 (pvr 0050 0000)
Bogomips:	47.82
Memory Information	
MemTotal:	127112 kB
MemFree:	90168 kB
MemShared:	0 kB

Figure 4-44: General System Information Form

Station Status

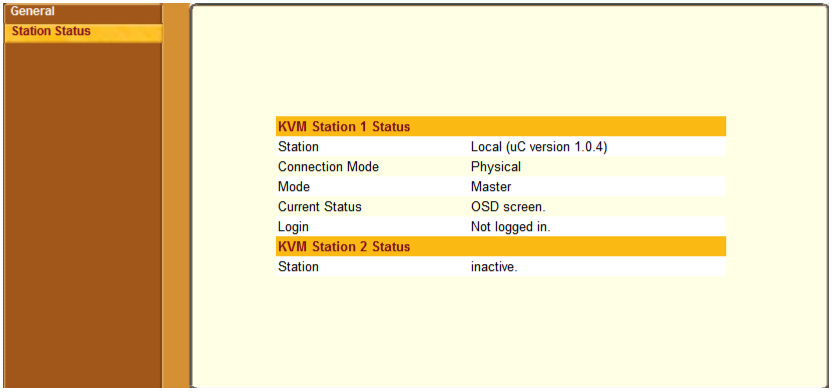
Use the Station Status form to view the status of each KVM station on the KVM/net. The Station Status form displays information for two stations–one local and one remote.

Note: Remote stations does not appear on the Station Status form unless one or more remote ports is configured in the system.

▼ To View Station Status

1. In Expert mode, go to: Information>Station Status.

The Station Status form appears.



KVM Station 1 Status	
Station	Local (uC version 1.0.4)
Connection Mode	Physical
Mode	Master
Current Status	OSD screen.
Login	Not logged in.
KVM Station 2 Status	
Station	inactive.

Figure 4-45:KVM Station Status Information Form

The following table describes the information displayed for each station on the Station Status form.

Table 4-15: Station Status Information

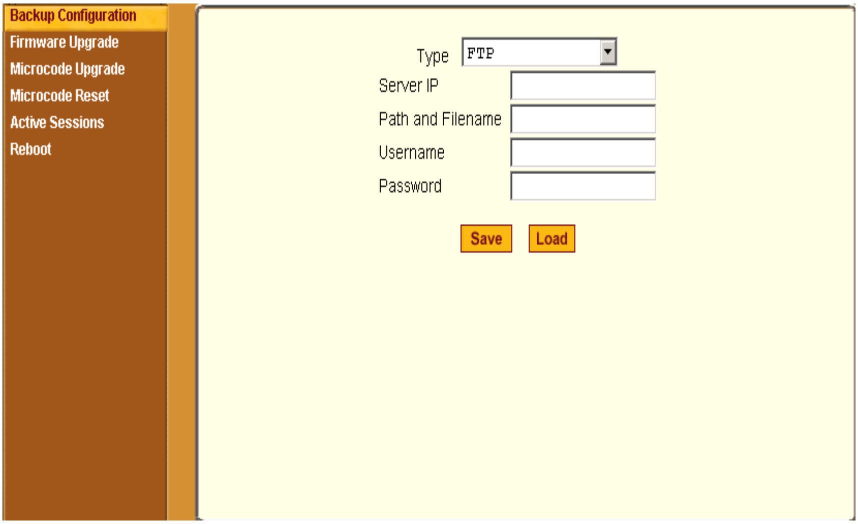
Field	Information
Station	Displays whether the station is Local, Remote, or Inactive and lists the microcontroller version used. This field also displays whether the KVM/net is a Master or Slave and lists the model number of the master KVM/net.
Connection Mode	Displays whether the connection is **Network** or **Physical** or if the system is **Trying to connect** (if the cable is disconnected).
Mode	Displays whether the configured port is on the master or slave.
Current Status	Displays the name of the current active page for that session.

Table 4-15: Station Status Information

Field	Information
Login	If a user is logged in, displays the user name and duration of the session in seconds.
Current Server	When connected to a port, displays the server name.
Connection Status	When connected to a port, displays the type of switch, expander, and version number used.
Current Permissions	When connected to a port, displays the permissions the current user has on that port.
Cycle	When connected to a port and in Cycle Mode, this field displays the time in seconds that the system has been cycling.

Management

Selecting Management in Expert mode brings up the form displayed in the following figure.



Type FTP

Figure 4-46:KVM Management Form

Administrators can use the management menu to perform system and software management such as booting, backing up, upgrading firmware, and handling configuration data.

Menu Selection	Use this menu to:
Backup Configuration	Use a FTP server to save or retrieve your configuration data.
Firmware Upgrade	Upload firmware from the web to the KVM/net and save the new software version or update.
Microcode Upgrade	Update any of the microcontroller microcodes that are stored in the KVM Terminator, main AlterPath KVM RP, local AlterPath KVM RP, KVM Port Expander, KVM Video Compression Modules, and internal KVM/net switch.
Microcode Reset	Reset any of the micro controller microcodes.

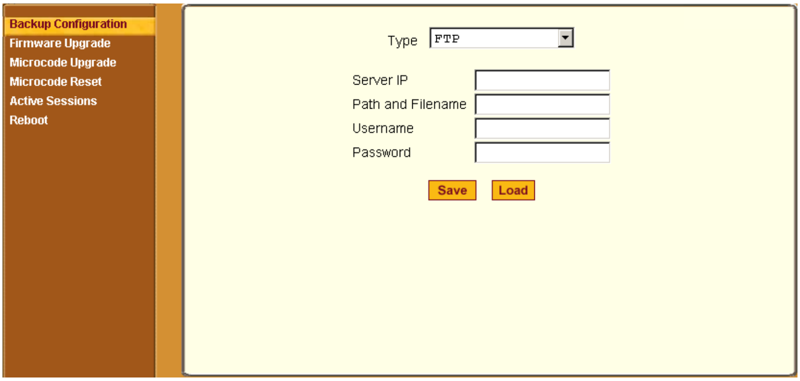
Menu Selection	Use this menu to:
Active Sessions	View the status of all active sessions as well as reset or kill sessions.
Reboot	Reboot the system.

Backup Configuration

The Backup Configuration form allows you to set the KVM/net to use an FTP server to save and retrieve its configuration data.

For the backup configuration to work, the FTP server must be on the same subnet as the KVM/net. Ping the FTP server, to ensure that it is accessible from the KVM/net.

Selecting Management>Backup Configuration in Expert mode brings up the form shown in the following figure.



Type FTP

Server IP

Path and Filename

Username

Password

Figure 4-47:KVM Backup Configuration

You can use the form to specify an FTP server for saving the KVM/net configuration, so you can retrieve the configuration if it is ever erased. You can also use the form for retrieving a copy of the backed up configuration file from the FTP server.

The FTP server must be on the same subnet. Ensure that it is accessible by pinging the FTP server.

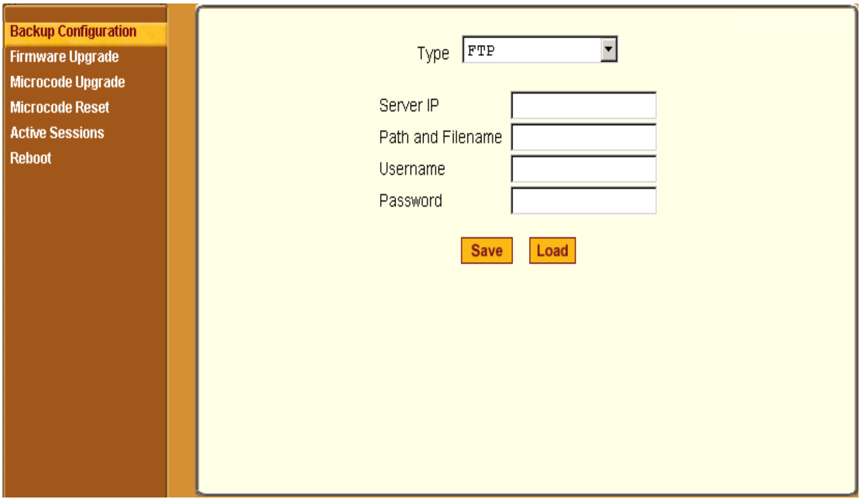
The following table describes the information you need to enter in the fields on the “Backup Configuration” form when FTP is selected from the “Type” drop-down list.

Field	Definition
Server IP	IP address of the FTP server
Path and Filename	Path of a directory on the FTP server where you have write access for saving the backup copy of the configuration file. Specify a filename if you want to save the file under another name. For example, to save the configuration file in a file whose name identifies its origin and date (such as `KVM8802config040406`) in a directory called “`upload`” on the FTP server, you would enter the following in the “Path and Filename” field: `upload/KVM8802config040406`.
Username and Password	Username for accessing FTP server (check with the FTP server’s administrator, if needed to obtain the username and password to use),

▼ To Back Up or Retrieve KVM/net Configuration Data

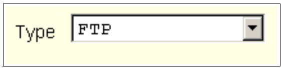
1. In Expert mode, go to: Management>Backup Configuration.

   The Backup Configuration form appears.

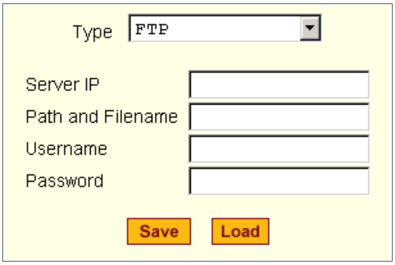


2. To save or retrieve data from an FTP server, do the following:

   a. From the Type drop-down list, select FTP.



   Selecting FTP (default) brings up the fields displayed in the following figure.



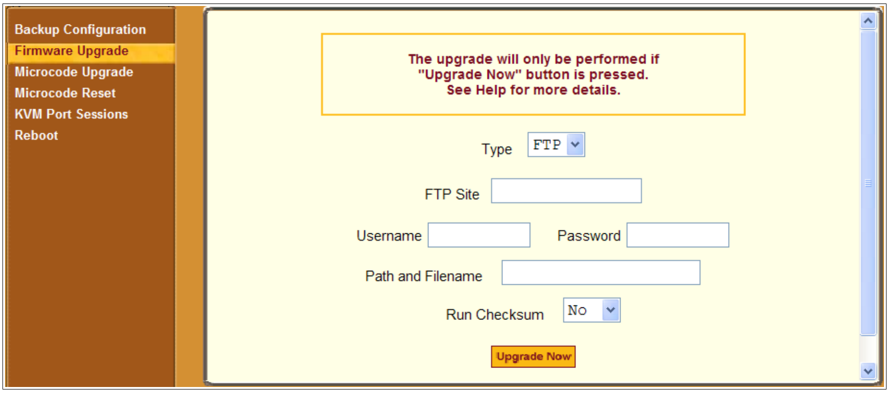
   b. Fill in the following fields with appropriate connection information:

- Server IP
- Path and Filename
- Username
- Password

3. Click Save to save the configuration to the selected location.
4. Click Load to load the configuration from the selected location.
5. Click “apply changes.”
6. To run the loaded configuration, reboot the KVM/net.

Firmware Upgrade

Selecting Management>Firmware Upgrade in Expert mode brings up the form shown in the following figure.



The upgrade will only be performed if "Upgrade Now" button is pressed. See Help for more details.

Type FTP

FTP Site

Username

Password

Path and Filename

Run Checksum No

Figure 4-48: Firmware Upgrade

You can use the form to set up operating system upgrade on the KVM/net. The form collects information used to download software from an FTP server and install it on the KVM/net.

The following table defines the information you need to supply on the form.

Field/Menu Name	Definition
Type	FTP is the only supported type.
FTP Site	The address of the FTP server where the microcode is located. You can use any FTP server if you download the firmware on it first. The Cyclades FTP site address is: `ftp.`cyclades`.com.` If desired, see "To Upgrade Firmware" on page 290 for instructions on how to download the firmware for installation on your own local FTP server.
Username	Username recognized by the FTP server. The Cyclades FTP username for microcode downloads is "anonymous."
Password	Password associated with the Username. An empty password is accepted for anonymous login at the Cyclades FTP server
Path and File Name	The pathname of the software on the FTP server. On the Cyclades FTP server, the directory is under `pub/cyclades/alterpath/KVMnet/released/`*`version_number`*`/filename`, where *`version_number`* is `V_`*`N.N.N`*., and *`N.N.N`* is the most recent version number. For example, 2.1.1. The filename includes the version number in the following format: `zImage_kvm_`*`NNN`*`.bin`. The pathname for this example would be: `pub/cyclades/alterpath/KVMnet/released/V_2.1.1/zImage_kvm_210.bin` Go to `ftp://ftp.cyclades.com/pub/cyclades/alterpath/KVMnet/released` in a browser, if needed, to verify the correct pathname and file names for the software (`zImage`) for the KVM/net.

The following table has links to the related procedures.

To Find the Cyclades Pathname for Firmware or Microcode Upgrades	Page 289
To Upgrade Firmware	Page 290
To Download Microcode From an FTP Server	Page 293

To Find the Cyclades Pathname for Firmware or Microcode Upgrades

1. To find the correct filename for the firmware or microcode updates at Cyclades, Corp., enter the following address in a browser:

ftp://ftp.cyclades.com/pub/cyclades/alterpath/KVMnet/released

2. In the `released` directory, go to the directory with the latest version number by clicking on the name of the directory. For example, V 2.0.0. You would see several files like those shown in the following figure.

```
KVM-V_2.0.0.tgz
KVMterm_v107.bin
KVMterm_v107.bin.md5
zImage_kvm_200.bin
zImage_kvm_200.bin.md5
```

3. If upgrading the KVM/net kernel, applications, and configuration files, take a note of the filenames that starts with `zImage` and has the `.bin` suffix and go to “To Upgrade Firmware” on page 290.

4. If upgrading the microcode on a KVM Terminator, take a note of the filename that starts with `KVMterm` and has the `.bin` suffix and go to “To Download Microcode From an FTP Server” on page 293.

5. If upgrading the KVM switch microcode, take a note of the filename that starts with `KVM switch` and has the `.bin` suffix and go to “To Download Microcode From an FTP Server” on page 293.

6. If upgrading the microcode on KVM/net IP modules take a note of the filename that starts with a series of numbers separated by dots, for

example, `1.0.5.6-04.10.18.4.bin`, and go to “To Download Microcode From an FTP Server” on page 293.

▼ To Upgrade Firmware

1. In the Web Manager, go to Management>Firmware Upgrade in Expert mode.

The Firmware Update form appears.

2. Choose FTP from the Type menu.

3. Enter the name of the FTP server in the “FTP Site” field.

The Cyclades FTP site address is: `ftp.cyclades.com.`

4. Enter the username recognized by the FTP server in the “Username” field.

The Cyclades FTP username for firmware downloads is “anonymous.”

5. Enter the password associated with the username on the FTP server in the “Password” field.

The Cyclades FTP server accepts any password for “anonymous” login.

6. Enter the pathname of the file on the FTP server in the “Path and Filename” field.

On the Cyclades FTP server, the directory is under `pub/cyclades/alterpath/KVMnet/released/`*`version_number/`*

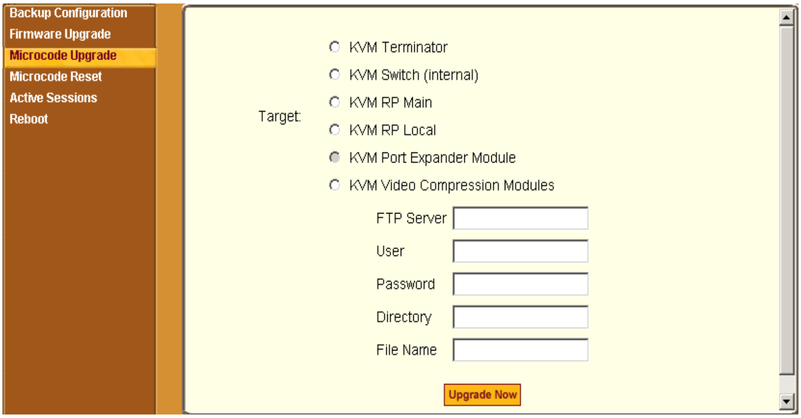
See ““To Find the Cyclades Pathname for Firmware or Microcode Upgrades” on page 289, if needed.

7. Press the “Upgrade Now” button.

8. Click “apply changes.”

Microcode Upgrade

Selecting Management>Microcode Upgrade in Expert mode bring sup the following form.



Target:

○ KVM Terminator
○ KVM Switch (internal)
○ KVM RP Main
○ KVM RP Local
○ KVM Port Expander Module
○ KVM Video Compression Modules

FTP Server

User

Password

Directory

File Name

Figure 4-49: Microcode Upgrade Form

You can use the form to specify information used to automatically download microcode from an FTP server and install the microcode on various KVM/net components. You can specify either the Cyclades FTP server, `ftp://ftp.cyclades.com`, or a local FTP server where you have previously downloaded the microcode.

The following table shows the terms used on the form, the corresponding component names, and the filename formats uses for each type of microcode.

Target Name Used on Form	Filename Format	Component
KVM Terminator	KVMterm_v*NNN*.bin	KVM Terminator
KVM RP Local		KVM RP Local
KVM Switch (internal)	KVMswitch_v*NNN*.bin	KVM switch (internal)
KVM RP Main		KVM RP Main
KVM Port Expander Module	KVMexpander_v*NNN*.bin	KVM Port Expander
KVM Video Compression Modules	*N.N.N.N-NN.NN.NN.N*.bin	IP modules

You need to enter the actual pathname components in the “Directory” and “File Name” fields. If needed, go to: “To Find the Cyclades Pathname for Firmware or Microcode Upgrades” on page 289.

The following table defines the information you need to supply on the form.

Field Name	Definition
Target	The name of the component that you wish to upgrade the microcode.
FTP Server	The address of the FTP server where the microcode is located. You can use any FTP server if you download the firmware on it first. The Cyclades FTP site address is: `ftp.cyclades.com.`
Username	Username recognized by the FTP server. The Cyclades FTP username for microcode downloads is “anonymous.”
Password	Password associated with the Username. An empty password is accepted for anonymous login at the Cyclades FTP server
Directory	The pathname where the microcode resides on the FTP server. On the Cyclades FTP server, the directory is under `pub/cyclades/alterpath/KVMnet/released/`*`version_number`*`/filename`. Go to `ftp://ftp.cyclades.com/pub/cyclades/alterpath/KVMnet/released` in a browser, if needed, to verify the correct pathname and file names for the microcode for the KVM/net.
File Name	The file name of the microcode for the “Target.”

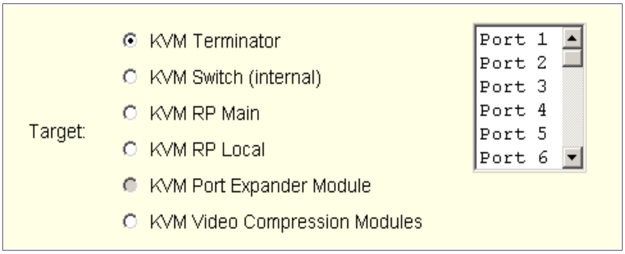
▼ *To Download Microcode From an FTP Server*

1. Go to Management>Microcode Upgrade in Expert mode.

   The Microcode form appears.

2. Click the radio button next to the “Target” component, which you want to update the microcode.

   If you select the KVM Terminator radio button, a scrollable port list appears next to the Target list.



Target:

● KVM Terminator
○ KVM Switch (internal)
○ KVM RP Main
○ KVM RP Local
○ KVM Port Expander Module
○ KVM Video Compression Modules

Port 1
Port 2
Port 3
Port 4
Port 5
Port 6

3. The KVM Port Expander Module microcode can be upgraded when it is configured as a slave in a cascade configuration. To download microcode for a KVM Terminator, select a port from the scrollable port list.

4. Enter the IP address or name of the FTP server in the “FTP Server” field.

   The Cyclades FTP site address is: `ftp.cyclades.com.`

5. Enter the username recognized by the FTP server in the “User” field.

   The Cyclades FTP username for microcode downloads is “anonymous.”

6. Enter the password associated with the username on the FTP server in the “Password” field.

   The Cyclades FTP server accepts an empty password for “anonymous” login.

7. Enter the pathname to the directory where the microcode resides on the FTP server in the “Directory” field.

   On the Cyclades FTP server, the directory is `pub/cyclades/alterpath/KVMnet/`*`released/version_number/`*

8. Enter the name of the microcode file in the “File Name” field.

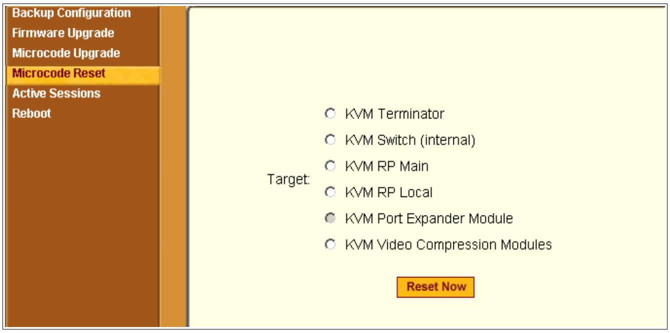
9. Click the “Upgrade Now” button.

10. Click “apply changes.”

11. Go to “To Reset the Microcode After Upgrade” on page 294.

Microcode Reset

Selecting Management>Microcode Reset in Expert mode brings up the form shown in the following figure.



Target:
○ KVM Terminator
○ KVM Switch (internal)
○ KVM RP Main
○ KVM RP Local
○ KVM Port Expander Module
○ KVM Video Compression Modules

Figure 4-50: Microcode Reset Form

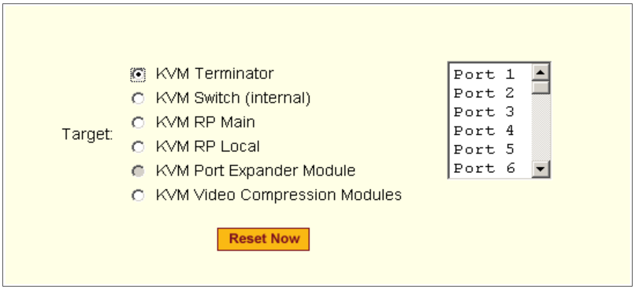
You can use the form to reset the microcode after an upgrade.

▼ *To Reset the Microcode After Upgrade*

Perform this procedure if you have upgraded microcode as described in “To Upgrade Firmware” on page 290.

1. Go to Management>Microcode Reset in Expert mode.

The Microcode Reset form appears.



Target:
● KVM Terminator
○ KVM Switch (internal)
○ KVM RP Main
○ KVM RP Local
○ KVM Port Expander Module
○ KVM Video Compression Modules

Port 1
Port 2
Port 3
Port 4
Port 5
Port 6

2. To reset the microcode of a Target component, click the radio button for the Target component.

   If you select the KVM Terminator radio button, a scrollable port list appears next to the Target list. Select the port to which the KVM Terminator is connected from the port list.

3. Press the “Reset Now” button.

4. To reset another type of microcode, select the radio button next to the target you want to upgrade, and press the “Reset Now” button.

Note: The KVM Port Expander Module microcode can be reset after an upgrade when it is configured as a slave in a cascade configuration.

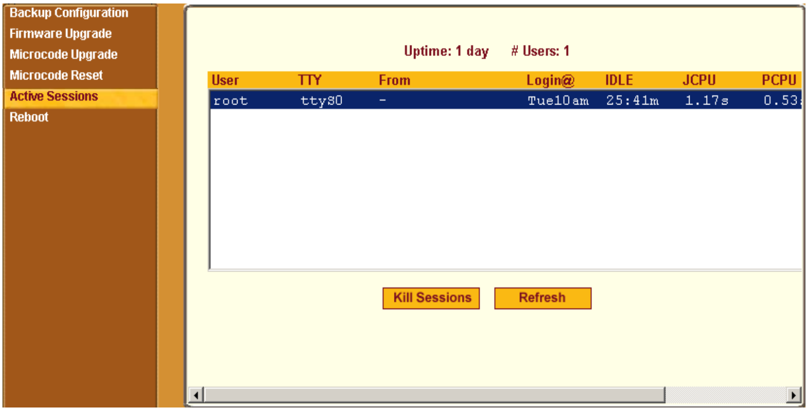
Active Sessions

The Active Sessions form is designed to provide you quick status and usage information pertaining to all active server sessions. Administrators may also kill sessions from this form.

▼ To View Active Sessions Information

1. In Expert mode, go to Management>Active Sessions.

The Active Sessions window appears.



Uptime: 1 day # Users: 1

User	TTY	From	Login@	IDLE	JCPU	PCPU
root	ttyS0	-	Tue10am	25:41m	1.17s	0.53:

Figure 4-51: Active Sessions Form

2. Review the session information as described in the following table.

Column	Definition
Uptime	Time the KVM/net has been on in minutes and seconds (mm:ss).
# Users	Number of users connected to server.
User	The user who initiated the session.
TTY	The name of the KVM port.

Column	Definition
From	The network machine to which the port is connected.
Login@	The day and time of the last login.
Idle	The time when the session or server became inactive.
JCPU	The duration of time used by all processes attached to the tty. It does not include past background jobs; only currently running background jobs.
PCPU	The time used by the current process that is named in the What column.
What	The current process attached to the tty.

3. Select the Refresh button to update the form with current information.

▼ *To Kill an Active Session*

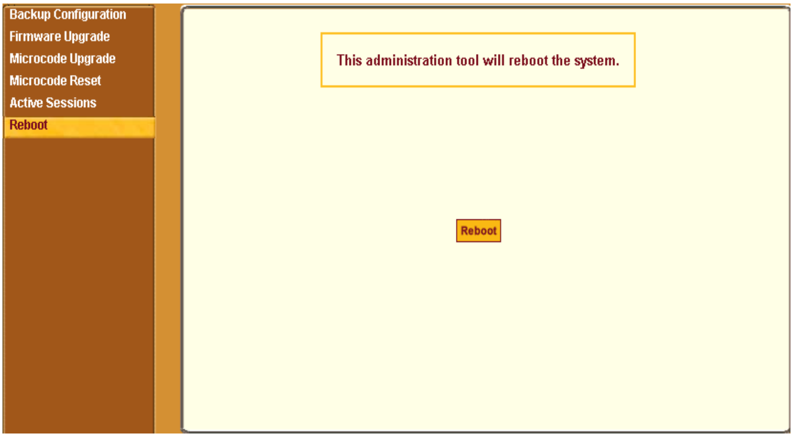
1. In Expert mode, go to Management>Active Sessions.

   The Active Sessions window appears.

2. Select the sessions you wish to kill.
3. Click Kill Session.
4. Click “apply changes.”

Reboot

Selecting Management>Reboot in Expert mode, brings up the following form.



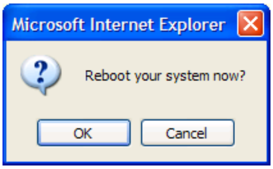
This administration tool will reboot the system.

Figure 4-52: Reboot Form

Selecting the Reboot button allows you to reboot the system without physically turning off the hardware.

▼ To Reboot the KVM/net From a Remote Location

1. In Expert mode, go to: Management>Reboot
2. Click the Reboot button.
3. A confirmation page appears.



Reboot your system now?

4. Click OK to reboot the system.

Chapter 5
Web Manager for Regular Users

With the KVM/net Web Manager, regular users can,

- Connect to PCs with USB or PS/2 connectors.
- Connect to Sun servers with USB connectors through out-of-band.
- Connect to Windows Terminal Servers through in-band connections.
- Manage power of devices connected to AlterPath PMs from anywhere on a network.
- Maintain their user passwords.

For more information on in-band and out-of-band connections see “Server Access: Inband and Out of Band” on page 29.

For more information on power management, see “Use this form to connect to servers with either an in-band or a KVM connection. See “Connecting to Servers Remotely Through the Web Manager” on page 321.” on page 304.

For procedures on how to operate the KVM/net as an administrator, see Chapter 4: Web Manager for Administrators.

Web Manager for Regular Users

When users without administrative privileges log in to the KVM/net, the Web Manager appears with three menu options:

- Connect to Server – Form used to connect to servers with either an in-band or a KVM connection.

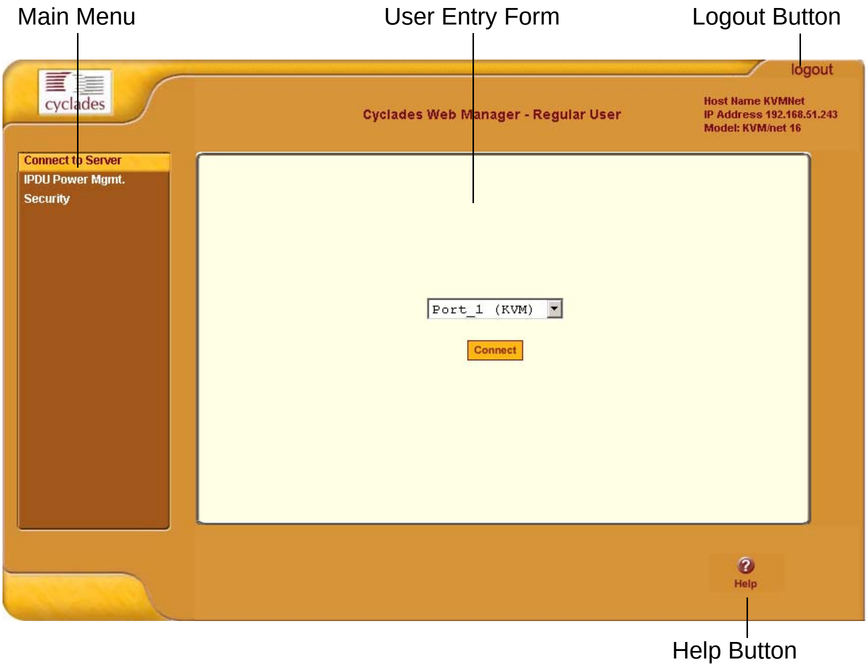
  See "Connecting to Servers Remotely Through the Web Manager" on page 321.
- IPDU Power Management – Form used to control the power of devices plugged in to AlterPath PMs.

  See "Use this form to connect to servers with either an in-band or a KVM connection. See "Connecting to Servers Remotely Through the Web Manager" on page 321." on page 304.
- Security – Form used to change your password.

  See "Changing Your KVM/net Password" on page 306.

The IPDU Power Management and Security forms can be accessed by clicking the corresponding menu items.

The Web Manager interface provides you with a static main menu and a user entry form as displayed in Figure 5-1. The content of the user entry form changes based on your menu selection.



Cyclades Web Manager - Regular User

Host Name KVMNet
IP Address 192.168.51.243
Model: KVM/net 16

Port_1 (KVM)

Figure 5-1: Example of Regular User Web Manager Form

Prerequisites for Logging in to the Web Manager

You must collect the following information from your KVM/net administrator before accessing and logging into the KVM/net:

- KVM/net IP address
- Username
- Password

See the “Prerequisites for Accessing Servers With KVM Connections” on page 314.

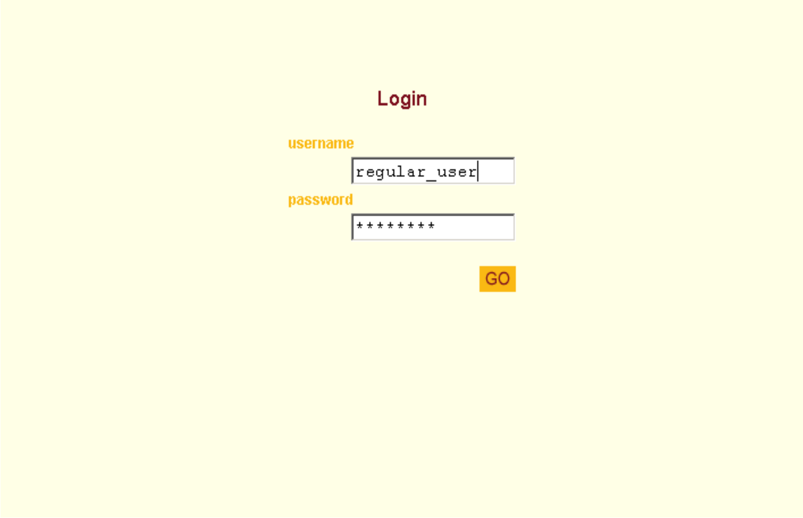
See the following sections for prerequisites for accessing servers with KVM and in-band connections:

- “Prerequisites for Accessing Servers With In-band Connections” on page 313
- “Prerequisites for Accessing Servers With KVM Connections” on page 314

▼ *To Log Into the KVM/net Web Manager as a Regular User*

1. Launch a supported browser and type the KVM/net IP address (for example http://10.0.0.1/) into the browser’s URL field.

   The AlterPath KVM/net log in screen appears.



Login

username

regular_user

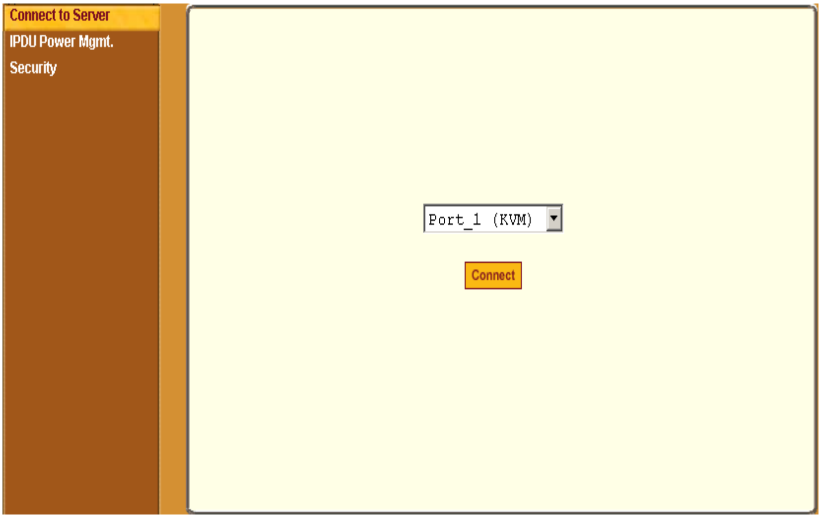
password

****

2. Enter your username and password as provided to you by your KVM/net administrator

3. Click Go.

   The “Connect to Server” form appears.

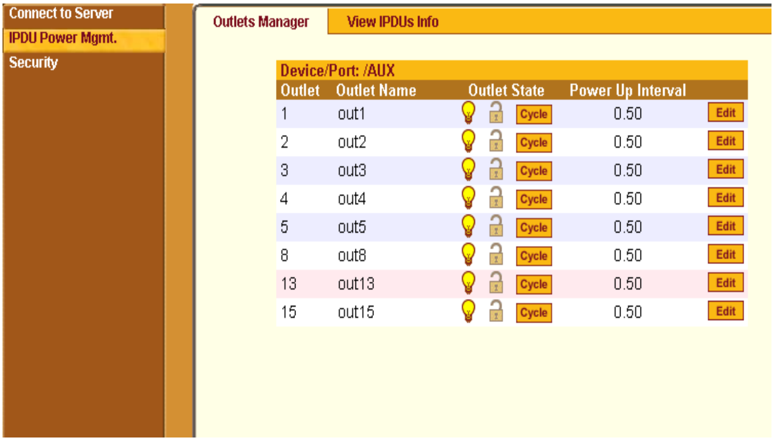


Connect to Server

Use this form to connect to servers with either an in-band or a KVM connection. See “Connecting to Servers Remotely Through the Web Manager” on page 321.

IPDU Power Management

IPDU power management allows you to manage the outlets plugged into a PM that is configured on the KVM/net. When you select the “IPDU Power Mgmt.” option, if you have permission to manage the PM outlets two tabs appear at the top of the form, as shown in the following figure, “Outlets Manager” and “View IPDUs Info”.



Device/Port: /AUX

Outlet	Outlet Name	Outlet State	Power Up Interval	
1	out1	Cycle	0.50	Edit
2	out2	Cycle	0.50	Edit
3	out3	Cycle	0.50	Edit
4	out4	Cycle	0.50	Edit
5	out5	Cycle	0.50	Edit
8	out8	Cycle	0.50	Edit
13	out13	Cycle	0.50	Edit
15	out15	Cycle	0.50	Edit

Figure 5-2: Regular User IPDU Power Management Form

The KVM/net offers two modes of controlling power:

- Power control of any device plugged into a PM that is configured on the KVM/net.

  See “Power Control of Any Device Plugged Into an AlterPath PM on the KVM/net” on page 305.
- Power control of a server while connected to that server through a KVM port.

See "Controlling Power of a KVM-connected Server" on page 335.

Power Control of Any Device Plugged Into an AlterPath PM on the KVM/net

Depending on your access rights, the KVM/net allows you to view and manage all PMs connected to the KVM/net. Regular users can go to the IPDU Power Management menu on the Web Manager and use the Outlets Manager and the View IPDUs Info forms to manage and view the status of PMs and the devices plugged into them.

The following table lists the power management tasks available to regular users through the Web Manager and links to the associated procedures.

Table 5-1: Power Management Tasks Available to Regular Users

Task	Where Documented
Switch on/off and lock/unlock outlets; reboot the network devices, and create an alias for an outlet.	• "Outlets Manager" on page 162 • "To View Status, Lock, Unlock, Rename, or Cycle Power Outlets" on page 163
View IPDU information by ports on a master and a slave PM unit.	• "View IPDUs Info" on page 164 • "To View Status, Lock, Unlock, Rename, or Cycle Power Outlets" on page 163
Switch on/off and lock/unlock outlets; reboot servers connected to KVM ports.	"To Power On, Power Off, or Reboot the Connected Server" on page 335

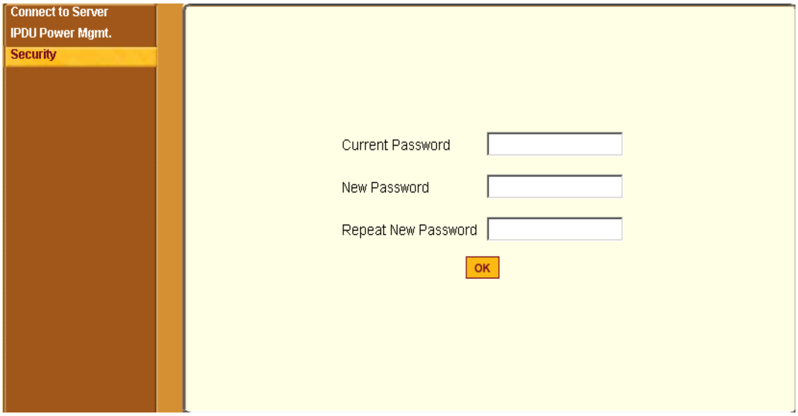
Changing Your KVM/net Password

On the Security form on the KVM/net Web Manager, you can change your old password to a new password.

▼ *To Change Your KVM/net Password*

1. Log in to the Web Manager.
2. Select Security in the Main Menu.

The Security Form appears.



Current Password

New Password

Repeat New Password

Figure 5-3: Regular User Password Management Form

3. Type your current password in the Current Password field.
4. Type your new password in the New Password field and again in the Repeat New Password field.
5. Click OK.

Chapter 6
Accessing Connected Devices

With the KVM/net, users and administrators can connect to any PC or USB Sun servers through out-of-band, KVM connections and manage power of devices connected to AlterPath PMs from anywhere on a network with the Web Manager or locally with the OSD. Users and administrators can also connect to Windows Terminal Servers through in-band connections.

This chapter gives an overview of the options for accessing servers that are connected to ports on the KVM/net.

The following table lists the procedures in this chapter.

To Connect to a KVM Port Through the Web Manager Login Screen	Page 324
To Connect to Servers Through The Web Manager’s “Connect To Server” Form	Page 322
To Connect to Servers Through the OSD Connection Menu	Page 326
To Return to the Connection Menu After Connecting to a Port	Page 331
To View Connected Port Information	Page 331
To Initiate Cycle by Server	Page 332
To Connect to the Next Authorized Server from the Current Server	Page 333
To Connect to the Previous Authorized Server from the Current Server	Page 333
To Adjust Screen Brightness and Cable Length	Page 333
To Reset the Keyboard and Mouse	Page 334
To Power On, Power Off, or Reboot the Connected Server	Page 335
To Close a KVM Connection	Page 336
To Power On, Power Off, Lock, Unlock, or Cycle Devices Plugged into PM Outlets	Page 344
To Configure a PPP Connection on a Remote Computer	Page 347
To Make a PPP Connection From a Remote Computer	Page 348

Who Can Access Connected Devices

Authorized users have the permissions they need to access one or more servers or other devices that are connected to ports on the KVM/net. See “Types of Users” on page 14 and KVM users can use the master KVM to access all devices connected to KVM ports on the master and slave KVM units. However, only two port connections can be made to each cascaded unit at any time. Each physical port connection (for example to User 1 or User B) to the cascaded KVM devices allows a user to connect to one KVM port on the secondary KVM unit. So any user can connect to up to two KVM ports on a cascaded device at any time. See “Guidelines for Using the KVM/net” on page 4for more information.

Authorized users and KVM/net administrators have the following options for accessing connected devices:

- Use the Web Manager for most connections to devices.

  See “Cyclades Web Manager” on page 18 and “Prerequisites for Using the Web Manager” on page 19 for background information about the Web Manager, if needed.

  See “Connecting to Servers Remotely Through the Web Manager” on page 321 for instructions on how to log in to the Web Manager and connect to devices.
- Use the on-screen display (OSD) to access devices that are connected to the KVM/net’s KVM ports.

  Local users and administrators who have access to a directly connected Local User station can use the OSD Connect menu.

  Chapter 7: “On Screen Display” describes how to access connected devices through the OSD.
- Dial into the KVM/net through a modem

  See “Modem Connections” on page 346.

Server Connections: What You See

Once connected to a server, one or two windows appear depending on the type of server connection being made:

- KVM connections
  - AlterPath Viewer is launched with the same interface as if you were directly logging into the connected server.
  - The Access Window with an interface for managing up to four server connections.

  See “Viewing KVM Connections” on page 311.
- In-band connections

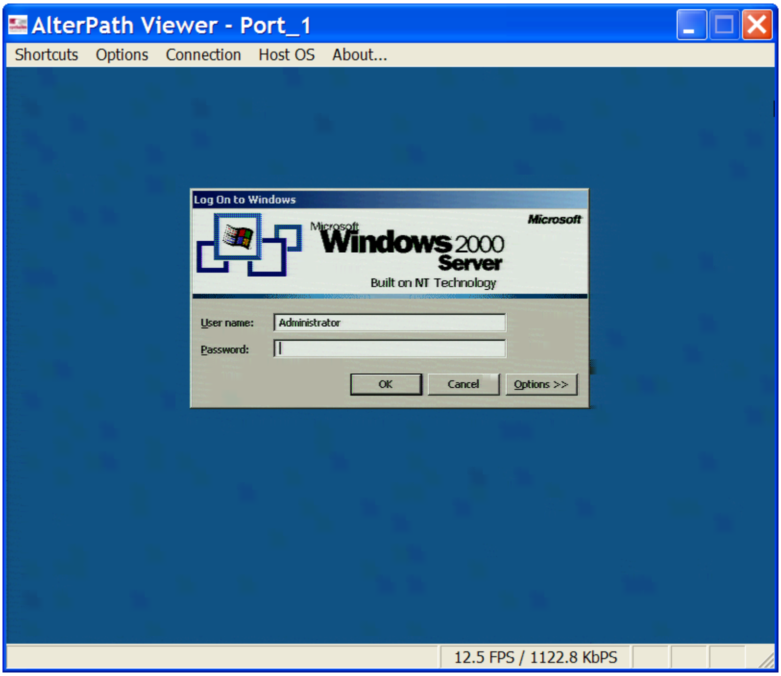
  An ActiveX viewer is launched with the same interface as if you were directly logging into the connected server.

  See “Viewing In-band Connections” on page 313.

Viewing KVM Connections

The AlterPath Viewer is the interface you use to manage servers over KVM over IP connections. Logins persist across connection sessions. If you close a connection without logging out, you are still logged in the next time you connect, unless the system has closed your session. If you are not currently logged in, you see a login screen or prompt.

The connected servers's login prompt appears. The following example shows a login prompt for a Windows 2000 server displayed by the AlterPath Viewer. If you are connected to a Linux server without a graphical display, you see a "Login:" prompt.



User name: Administrator

Password:

12.5 FPS / 1122.8 KbPS

Figure 6-1: AlterPath Viewer for KVM Connections

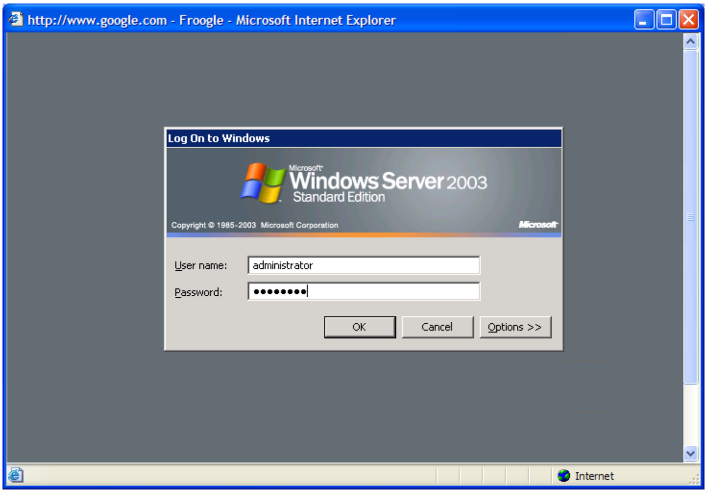
See “AlterPath Viewer Settings” on page 339 for more detailed information about using the AlterPath Viewer.

Local KVM connections through the OSD do not use the AlterPath Viewer. Instead, the view of the connected server takes up the entire screen of local work station. See “Controlling KVM Port Connections” on page 328 for more information on local KVM connections.

Viewing In-band Connections

The ActiveX viewer is the interface you use to manage servers over an in-band connection.

The following graphic displays the login screen of a server running Windows 2003 in the ActiveX viewer for in-band connections.



http://www.google.com - Froogle - Microsoft Internet Explorer

Log On to Windows

Microsoft Windows Server 2003 Standard Edition

Copyright © 1985-2003 Microsoft Corporation

User name: administrator

Password: ●●●●●●●●●

Figure 6-2: ActiveX Viewer for In-band Connections

Prerequisites for Accessing Servers With In-band Connections

A KVM/net user who needs to access any RDP server must have the following:

- The username and password of a valid account on the RDP server.
- Internet access and Microsoft Internet Explorer on a remote Windows client machine.

Prerequisites for Accessing Servers With KVM Connections

The following prerequisites must be met before you can access a KVM-connected server:

- Know the KVM Port(s) to which you have access (specially if direct access to a port is configured)
- Have the username and password of a valid account on the connected server
- If you are connecting through the Web Manager, have the following:
  - A remote computer running a Windows operating system with Internet access and a supported browser installed
  - The IP address of the KVM/net
- If you are making a local connection, have a direct connection made to the User 1 or User 2 ports of the KVM.

Disabling Mouse Acceleration

In a KVM-over-IP session you should synchronize the mouse cursor on your local PC or laptop with the mouse cursor of the remote server attached to a KVM port. The mouse acceleration should be disabled on the remote server's operating system.

Depending on your server's operating system refer to one of the following procedures.

- "To Disable Mouse Acceleration [Windows XP/Windows 2003]" on page 106
- "To Disable Mouse Acceleration [Windows 2000]" on page 106
- "To Disable Mouse Acceleration [Windows ME]" on page 107
- "To Disable Mouse Acceleration [Windows 95/98/NT]" on page 107
- "To Disable Mouse Acceleration [Linux]" on page 108

Screen Resolution and Refresh Rate

The following table summarizes the supported screen resolutions and refresh rates for IP access and local KVM connections.

Table 6-1: Supported Screen Resolutions and Refresh Rates

Resolution	Refresh Rates (Hz)
640 x 480	60, 72, 75, 85, 90, 100, 120
720 x 400 (standard text mode)	75
800 x 600	60, 70, 72, 75, 85, 90, 100, 120
1024 x 768	60, 70, 72, 75, 85, 90, 100, 120
1152 x 864	60, 70, 75, 85
1150 x 900	66
1280 x 1024	60
1600 x 1200 (local KVM connection)	60, 75

Web Manager Login Screen

The following table list the sections that describe the three different possible views of the Web Manager login screen that can appear under various conditions.

Table 6-2: Web Manager Login Screen Options

Conditions	Where Documented
Direct logins to KVM ports not enabled: • You enter the KVM/net's IP address in a browser to bring up the Web Manager login screen. • You can log in to the Web Manager and perform administration. • If you want to access a server connected to a KVM port after logging into the Web Manager, you can connect to the KVM port from the Connect to Server form.	"Login Screen: Direct Logins Not Enabled" on page 318
Direct logins to KVM ports enabled (option 1): • You enter the KVM/net's IP address in a browser to bring up the Web Manager login screen. • You enter your username and password and the desired KVM port number on the Web Manager login screen and connect to a KVM port directly without logging into the Web Manager first.	"Login Screen: Direct Logins Enabled, Only IP Address Entered" on page 320

Table 6-2: Web Manager Login Screen Options (Continued)

Conditions	Where Documented
Direct logins to KVM ports enabled (option 2): • You enter the KVM/net’s IP address along with the port name in a browser to bring up the Web Manager login screen. • The port field is already filled in when the Web Manager appears. • You save the URL that includes the port in a favorites file to save time when logging into the same port in the future. • You enter your username and password on the Web Manager login screen and connect to a KVM port directly without logging into the Web Manager first, as in the previous row.	“Login Screen: Direct Logins Enabled, IP Address and Port Entered” on page 320

Note: The direct access method allows users to access servers that are connected to KVM ports only or servers that are connected to KVM ports and are available for in-band access as well. This method is particularly useful for users who may need direct KVM access to a server that has both KVM and in-band access enabled.

Login Screen: Direct Logins Not Enabled

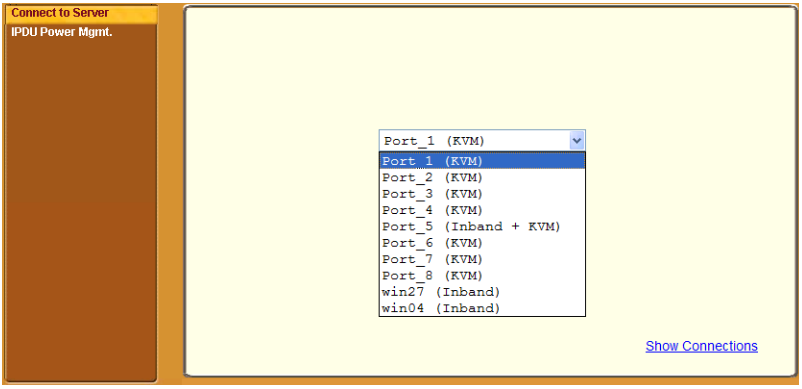
The following screen shows an example of the Web Manager login screen as it appears if the following two conditions are true:

- The IP address of the KVM/net is entered in the browser.
- Direct logins to KVM ports is not enabled.

As shown in Figure 3-1, the Web Manager login screen displays only two fields, “username” and “password.”

Connect to Server Drop-down List

With the connect to server drop-down list, you can select the in-band or KVM server you want to connect to.



```
Port_1 (KVM)
Port_1 (KVM)
Port_2 (KVM)
Port_3 (KVM)
Port_4 (KVM)
Port_5 (Inband + KVM)
Port_6 (KVM)
Port_7 (KVM)
Port_8 (KVM)
win27 (Inband)
win04 (Inband)
```

The following sections can help you to identify whether a server has an in-band connection, KVM connection, or both and whether it is connected to a cascaded KVM device.

Servers and Connection Types in the Connect to Server Drop-down List

There are two levels of identifying servers in the Connect to Server drop-down list:

- Connection Type – The types of connections that can be made to each server is displayed in parenthesis at the end of each server entry in the list. An entry with “(KVM)” at the end of it can be accessed with a KVM connection only. An entry with "(In-band)" at the end of it can be accessed with an in-band connection only. An entry with "KVM + In-band") can be accessed with both connection methods. See "Determining the Connection Type and its Supported Functionality" on page 31 for more detailed information.

- Server Name or Port Name/Number – The type of connection determines the type of name applied:
  - Individual KVM ports are either labelled by the port number in the form Port_# or by an administrator-defined alias, which should describe the type of computer connected to the port or be the actual name of the connected server.
  - Individual in-band connections are labelled by an administrator-defined server name, which should identify the type of computer being accessed or be the actual name of the server.

Note: A server that is configured for both in-band and KVM connections can have two different aliases configured: one for the KVM port and one for the in-band connection. In this case, the alias that appears in the Connect to Server drop-down list is the alias assigned to the KVM port.

Port Numbers of Cascaded KVM Devices in the Connect to Server Drop-down List

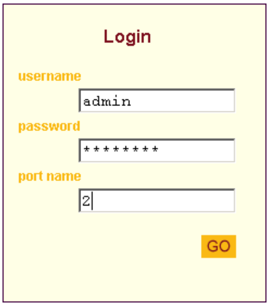
In the Connect to Server drop-down list on the Connect to Server form, a name and a number connected by a period (.) indicate the alias or name of the cascaded KVM unit followed by its physical port.

For example, in the port name kvm2.4, kvm2 is the name of the cascaded device, and 4 is the physical port on the device named kvm2.

Login Screen: Direct Logins Enabled, Only IP Address Entered

The following screen shows an example of the format of the Login portion of the Web Manager login screen as it appears if the following two conditions are true:

- The IP address of the KVM/net is entered in a browser.
- Direct logins to KVM ports is enabled.



Login

username: admin

password: ********

port name: 2

Login Screen: Direct Logins Enabled, IP Address and Port Entered

This section describes how the Web Manager login screen appears if the following two conditions are true:

- Direct logins to KVM ports is enabled,
- The IP address of the KVM/net is entered along with a port ID (in the required format) in a browser

The required format is:

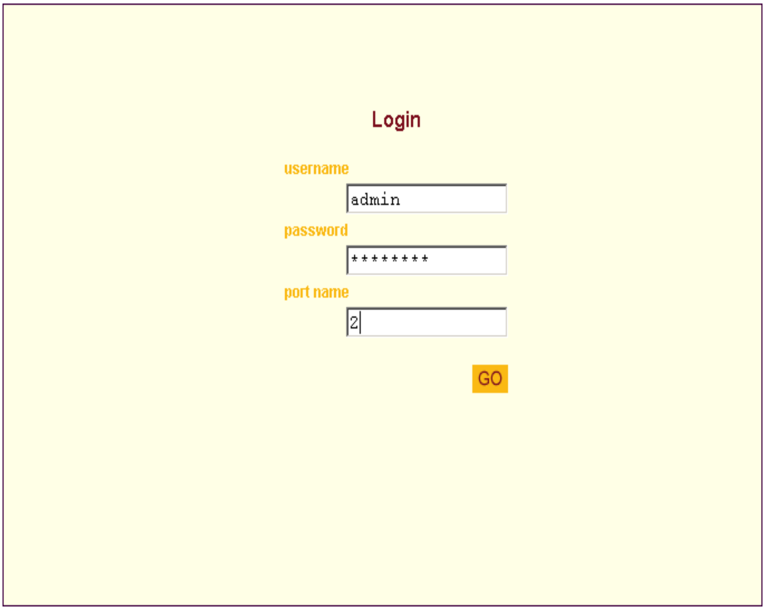
```
IP_address/login.asp?portname=portnumber
```

where *IP_address* is the IP address of the KVM/net and *portnumber* is the portnumber or alias assigned to the KVM port.

Entering the port number along with the IP address makes it possible to connect directly to a KVM port without going to the Web Manager’s Access page first. You can save the URL as a bookmark or in your browser’s favorites list and go directly to the port login later without typing in the entire URL.

The “port” field is filled in with the port number when the Web Manager login window appears.

The example in the following figure shows `http://192.168.46.169/login.asp?portname=Port_1` entered in the Address field of a Microsoft Internet Explorer browser. The login screen displays empty “username” and “password” fields and a port field filled with the name of the port from the URL, in this case “Port_1.”



Login

username: admin

password: ********

port name: 2

Connecting to Servers Remotely Through the Web Manager

KVM/net administrators who are logging into the Web Manager to perform KVM/net configuration can use any browser (such as Internet Explorer 5.5 or above, Netscape 6.0 or above, Mozilla, or Firefox).

See “Web Manager Login Screen” on page 316 for a description of the ways authorized users can connect to servers from the Web Manager.

See the following procedures for connecting to servers:

To Connect to a KVM Port Through the Web Manager Login Screen	Page 324
To Connect to Servers Through The Web Manager's "Connect To Server" Form	Page 322

If needed, see one of the following login procedures.

To Log In to the Web Manager as Admin	Page 138
To Log Into the KVM/net Web Manager as a Regular User	Page 302

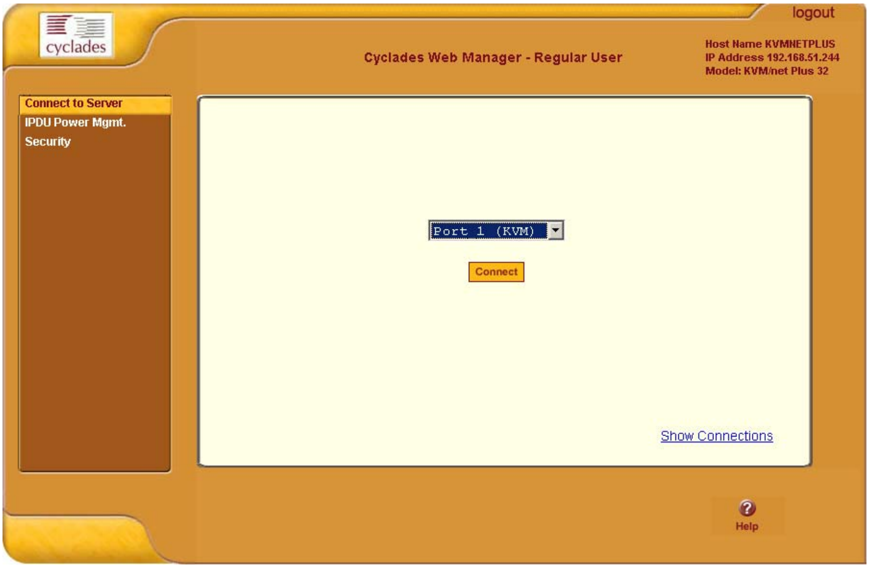
▼ To Connect to Servers Through The Web Manager's "Connect To Server" Form

1. Log in to the KVM/net using your username and password.

   See "To Log Into the KVM/net Web Manager as a Regular User" on page 302 or "To Log In to the Web Manager as Admin" on page 138 for detailed instructions on logging in to the Web Manager.

2. From the left menu panel, select Connect to Server.

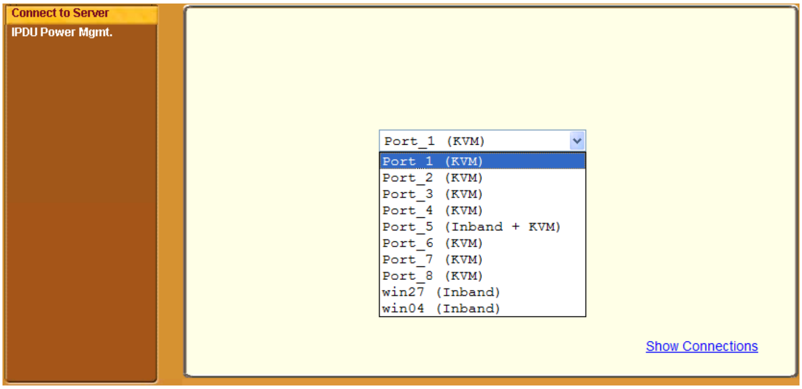
   The Port Connection form appears.



Host Name KVMNETPLUS
IP Address 192.168.51.244
Model: KVM/net Plus 32

3. From the drop-down menu, select the server or port to which you want to connect.

A list similar to the list in the following graphic appears.



See “Determining the Connection Type and its Supported Functionality” on page 31 for a description of each type of connection method and what happens once connected.

4. Click on the Connect button.

The system may launch one or two browser windows: the AlterPath Viewer and the Access Window for KVM connections, or an ActiveX viewer for RDP connections. See “Server Connections: What You See” on page 310 for a description of each window.

Note: The first time the system invokes the AlterPath Viewer, it prompts you to accept a security certificate. Click Accept.

▼ *To Connect to a KVM Port Through the Web Manager Login Screen*

This procedure assumes that the KVM/net administrator has enabled direct logins to KVM ports.

1. Enter the IP address of the KVM/net alone or the IP address of the KVM/net followed by the KVM port number (in the required format) in the address field of a browser.

The required format for entering a KVM port number in the URL is:

```
IP_address/login.asp?portname=portnumber
```

where *`IP_address`* is the IP address of the KVM/net and *`portnumber`* is the portnumber or alias assigned to the KVM port.

Note: Check with the administrator who configured the basic network parameters on the KVM/net, for help finding the IP address and the “admin” password, if needed. Also if needed, see an example of the proper format for entering the port number in “Login Screen: Direct Logins Enabled, IP Address and Port Entered” on page 320.

- If DHCP is not enabled, use a fixed IP address assigned by the network administrator to the KVM/net.
- If DHCP is enabled, enter the dynamically assigned IP address.

The Web Manager login screen appears. If you entered a KVM port ID in the URL, the “port field” is filled in with the port ID you entered.

2. If you entered a KVM port ID in the URL, save the URL as a bookmark or in your favorites list in the browser.

   For future connections to that port, you can click on the bookmark or item in favorites list to easily bring up the Web Manager login screen again with the port number filled in.

3. Enter your account name in “username” field and the account’s password in the “password” field.

4. If no port is listed in the “port” field, enter a port alias or number.

5. Press “Go.”

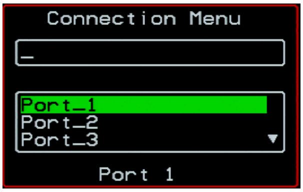
   If the Web Manager Access “Connect to Server” form appears, you are finished logging in.

6. For administrators, if a dialog box prompts you to verify whether you want to proceed by logging the other admin out or by cancelling your login attempt, click the appropriate radio button and then click Apply.

Note: Only one admin can be logged in at a time.

Connecting to Servers Locally Through the OSD

Administrators and authorized regular users who have local access to the KVM/net can use the Connection Menu, as displayed in the following figure, to connect to and control servers that are connected to KVM ports on the master KVM/net or on any cascaded KVM device.



Access to the OSD requires a local keyboard, monitor, and mouse connected to the KVM management ports, User 1 or User 2, on the back of the KVM/net. See “To Connect to the User 1 Management Port” on page 83 for instructions on connecting to the User 1 port, or see “To Connect the KVM RP to the KVM/net” on page 131 for instructions on connecting to the User 2 port.

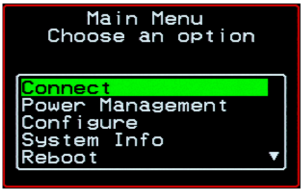
Connections made through the OSD are to physically connected devices only. Use the Web Manager to connect to a remote device. See “To Connect to Servers Through The Web Manager’s “Connect To Server” Form” on page 322 for instructions.

Note: The OSD cannot be used to access in-band servers. See “Connecting to Servers Remotely Through the Web Manager” on page 321 for information and instructions on accessing in-band servers.

▼ *To Connect to Servers Through the OSD Connection Menu*

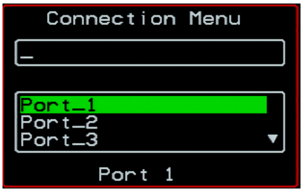
1. On the OSD Login window, enter your username and password as provided to you by the KVM/net administrator.

   The OSD Main Menu appears.



2. From the OSD Main Menu, select Connect.

   The Connection Menu appears.



3. To select the port you wish to connect to, do one of the following procedures:

- Type the first letters of the port name in the quick search box until the desired port is highlighted in the port list box.

  This field is case-sensitive.
- Select the desired port using the port list box.

4. Press Enter.

   Your monitor displays the work station of the connected server.

See Table 6-3, “Tasks Available While Connected to KVM Ports,” on page 328 for a complete lists of the tasks available while connected to KVM ports and references to the related instructions.

Controlling KVM Port Connections

Once connected to a server, you may want do one or more of the procedures listed in the following table.

Table 6-3: Tasks Available While Connected to KVM Ports

Task	Where Documented
Return to the OSD Connection menu after connecting to a port.	"To Return to the Connection Menu After Connecting to a Port" on page 331.
Access a port that is already in use by another user.	"Sharing KVM Port Connections" on page 336
Make direct connections to other servers without returning to the OSD Connection Menu.	• "To Initiate Cycle by Server" on page 332 • "To Connect to the Next Authorized Server from the Current Server" on page 333 • "To Connect to the Previous Authorized Server from the Current Server" on page 333
Reset your keyboard and mouse.	"To Reset the Keyboard and Mouse" on page 334
Adjust the color and brightness of the server window.	"To Adjust Screen Brightness and Cable Length" on page 333
Power on, power off, or reboot the connected server.	"To Power On, Power Off, or Reboot the Connected Server" on page 335
View information about the currently selected port.	"To View Connected Port Information" on page 331

Hot Keys for KVM Connections

Predefined keyboard shortcuts (also called hot keys) allow you to perform common actions and launch management windows while connected through a KVM port.

The default hot keys are described in the following table. A plus (+) between two keys indicates that both keys must be pressed at once. When two keys are separated by a space, each key must be pressed separately. For example, “Ctrl+k p” means to press the Ctrl and “k” keys together followed by the “p” key, and “Ctrl Shift+i” means press the Ctrl key followed by the Shift and “i” keys pressed together.

Table 6-4: Default KVM Connection Keyboard Shortcuts

Key Combination	Action
Ctrl+k q	Brings up the port connection list so you can switch ports. If you press "Esc", you will get disconnected. You can press "Enter" after selecting a different port, "Cycle", or "Exit".
Ctrl+k p	Power management. Brings a power management menu with the options to turn on, off, or cycle the power for outlets to which the current server is connected.
Ctrl+k .	Next Port. Goes to the next authorized port.
Ctrl+k ,	Previous Port. Returns to the previous authorized port.
Ctrl+k v	Video. Brings up a menu that allows you to change between “Automatic control”, which compensates for the cable length running from the KVM/net to the KVM Terminator connected to the server, and “Manual control” for screen brightness and cable length adjustment for video quality.
Ctrl+k s	Reset keyboard and mouse. Allows you to reset the keyboard and mouse if either of them stops responding.

The KVM/net administrator may redefine the keyboard shortcuts, as described in “Redefining KVM Connection Hot Keys” on page 35. If the defaults shown in the previous table do not work, check with your KVM/net administrator for the site-specified keys to use.

Hot Keys for Emulating Sun Keyboard Keys

The KVM/net provides a default set of hot keys for use while connected to Sun servers. You can use the PC keyboard to emulate keys that are present on Sun keyboards but are not available on PC keyboards.

The hot keys are made up of a modifier key followed by a function key. The default modifier key is the Windows key `[WIN]`, which is labeled with the Windows logo. The Windows key usually appears on the Windows keyboard between the `Ctrl` and `Alt` keys. The following table shows function keys and a key from the numeric keypad that emulate Sun equivalent keys when you enter them at the same time as the hot key. For example, to use the Sun `Find` key, you would press the Windows `[WIN]`key at the same time you press the `F9` function key.

Table 6-5: Default Sun Key Emulation Hot Keys

Win Function Key	**Sun Key**
F1	Stop
F2	Again
F3	Props
F4	Undo
F5	Front
F6	Copy
F7	Open
F8	Paste
F9	Find
F10	Cut
F11	Help
* **(Numeric Keypad)**	Compose

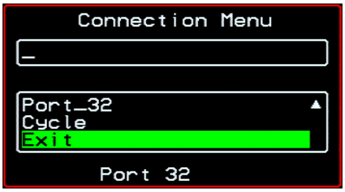
KVM/net administrators can change the default modifier key portion of the Sun keyboard emulation hot keys from `[WIN] to [Ctrl], [Shift],or`

`[Alt].` See "Redefining Sun Keyboard Modifier Keys" on page 175 for procedures.

▼ To Return to the Connection Menu After Connecting to a Port

1. Press Ctrl+k q to display the OSD Connect Menu.

   The Connection Menu appears.



2. Do one of the following:

   - To make a new server connection, select another port from the list.
   - To return to the Main Menu, select Exit.
   - To cycle through all servers, select Cycle.

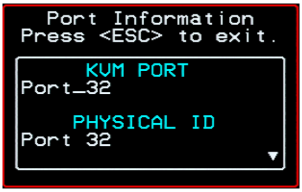
     The cycle option does not appear when you are connected through the Web Manager.

▼ To View Connected Port Information

1. Use the information keyboard shortcut.

   The default is **Ctrl+k i**.

   The following window appears.


Port Information
Press <ESC> to exit.

KVM PORT
Port_32

PHYSICAL ID
Port 32

2. Press Esc to exit the Port Information window and return to the connected server.

Cycling Between Servers

Cycle refers to the capability to connect to one or more authorized servers from the server to which you are currently connected. Through the OSD menus or by using a keyboard shortcut, you have immediate access to all configured and authorized servers.

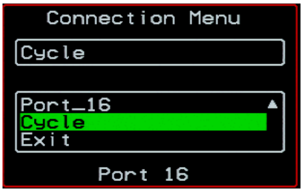
There are two types of cycle commands:

- Cycle by Server – View all authorized servers on a continuous basis until all servers have been exhausted and then start over again.
- Cycle by Key Sequence – View or access the server connected to the next or previous port in the Connection Menu list.

The servers are cycled in the order in which their ports are listed in the Server Connection form.

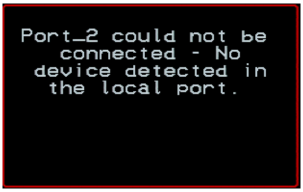
▼ To Initiate Cycle by Server

1. From the Connection Menu, choose Cycle.



2. Select Cycle at the bottom of the list.

   The system initiates the cycle from the first authorized server, and the servers connected to all authorized ports appear for a few moments. If there is no device attached to the port associated with the next logical port, a message appears to indicate that there is no device connected.



Port_2 could not be connected - No device detected in the local port.

3. To abort the process and close the session, press the escape sequence.

The default is Ctrl+k q.

▼ To Connect to the Next Authorized Server from the Current Server

- Use the Next keyboard shortcut.

  The default is **Ctrl+k .**

  The next authorized server appears. Repeat this step to move to the next server.

▼ To Connect to the Previous Authorized Server from the Current Server

- Use the Previous keyboard shortcut.

  The default is **Ctrl+k ,**.

  The previous authorized server appears. Repeat this step to move to the previous server.

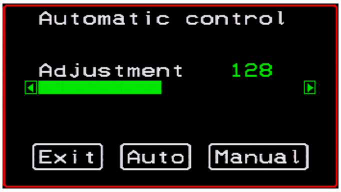
▼ To Adjust Screen Brightness and Cable Length

1. Press the video control keyboard shortcut.

   The default is **Ctrl+k v**.

   Depending on which window was accessed last, one of the following windows appears.

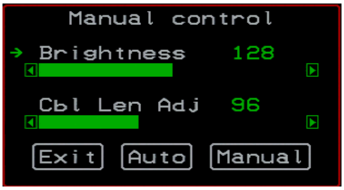
   - Automatic Control



Automatic control

Adjustment 128

   - Manual Control



2. To switch to the Auto control window or the Manual control window select Auto or Manual respectively.

3. To adjust screen brightness on the Automatic Control window, select the right or left arrows to set the desired adjustment value.The Automatic Control window is used to compensate for cable length.

   The default value for “Cable Length Adjustment” is 80. You can adjust the video quality and compensate for cable length from the KVM/netPlus to the server by increasing or decreasing this value.

4. To adjust screen brightness and cable length on the Manual control page, select the arrow keys to increase or decrease the brightness and cable length adjustment to compensate for video quality.

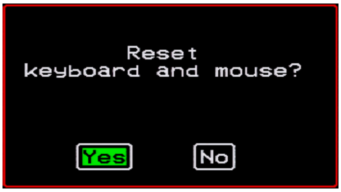
Resetting the Keyboard and Mouse

You can use the “Keyboard/Mouse Reset” hot key to bring up the “Reset keyboard and mouse?” screen if the keyboard and mouse is not working properly when accessing a server through a KVM port. This command is equivalent to unplugging and replugging the keyboard and mouse.

▼ To Reset the Keyboard and Mouse

1. Type the “Keyboard/Mouse Reset” hot key.

   The default is Ctrl-k s. The following confirmation window appears.


Reset
keyboard and mouse?

2. Select Yes to enable your keyboard and mouse again.

Controlling Power of a KVM-connected Server

In order to control power of a server while connected to the server, the following conditions must be met:

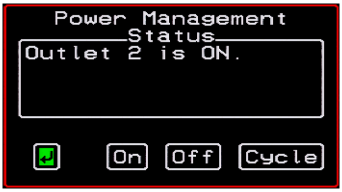
- The server must have at least one power cord plugged into an AlterPath PM that is properly configured and connected to the AUX port.
- The power outlet(s) that the server is connected to must be configured to the port.
- If a regular user is accessing this device, the user must have the following permissions:
  - Full control (read, write, power) permission on the port,
  - Permission to control power on the PM outlet that the device is plugged into.

▼ To Power On, Power Off, or Reboot the Connected Server

1. While connected to a server, use the power management keyboard shortcut.

   The default is **Ctrl+k p**.

   A window similar to the following appears.



Outlet 2 is ON.

2. Select the configured outlet.
3. Do one of the following:
   - To turn the power on, select On.
   - To turn the power off, select Off.
   - To reboot, select Cycle.

   To lock or unlock outlets, you must go to the Power Management menu. See “Power Management” on page 343 for more information.

Closing a KVM Connection

The ways you can close a KVM connection are listed below:

- For IP connections, select “Exit Viewer Client” from the AlterPath Viewer Shortcuts menu.
- Use a hot key sequence (Ctrl+k q) to bring up the Connection menu, then select the Exit option.
- Let the session time out.

▼ To Close a KVM Connection

Do one of the following steps.

1. To use the menu option from the AlterPath Viewer menu bar, go to Shortcuts and select “Exit Viewer Client.”

- OR-

2. To use the escape hot key, do the following steps.

   a. Type the hot key escape sequence.

      Ctrl+k q is the default.

      The Connection menu appears.

   b. Type “e” in the text field to highlight the Exit option.

   c. Click Enter.

1. Type the hot key escape sequence.

   Ctrl+k q is the default.

   The Connection menu appears.

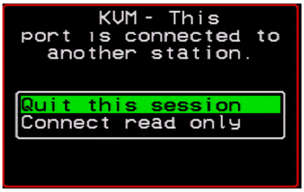
2. Type “e” in the text field to highlight the Exit option.

3. Click Enter.

Sharing KVM Port Connections

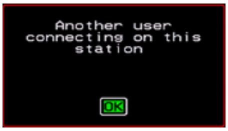
Two authorized users can connect simultaneously to a single KVM port.

When a user connects to a KVM port that is already in use, the software presents a menu to the connecting user. The options on the menu depend on the connecting user’s access permissions. The following figure shows two options that are always presented on the menu to the connecting user.

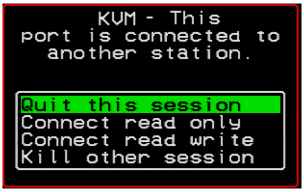


KVM - This port is connected to another station.

The two menu options are described in the following table.

Quit this session	Ends the connection attempt and returns the user to the Connection Menu
Connect read only	Connects the user in read-only mode and sends this notice to the current user:  Another user connecting on this station

If the connecting user has either read-write, or full access permissions for the KVM port, additional menu options appear, as shown in the following figure.

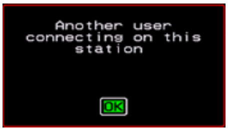


KVM - This port is connected to another station.

The two menu options are described in the following table.

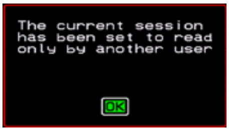
Connect read write

Connects the new user in read-write mode and sends this notice to the current user.



Another user connecting on this station

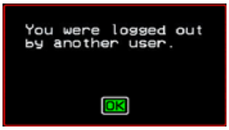
If the previous user is in read-write mode, that user’s mode is changed to read-only and the user sees the following notice:



The current session has been set to read only by another user

Kill other session

Kills the existing session and connects the new user in read-write mode. Sends the following notice to the current user and disconnects that user:



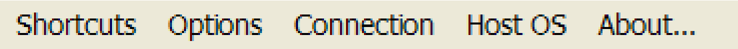
You were logged out by another user.

When the current user is in read only mode, the connecting user is always granted the highest level of access for which the connecting user is authorized.

If two users are connected to a KVM port, either user may choose at any time to change the access mode or disconnect from the session by issuing a hot key or Esc.

AlterPath Viewer Settings

You can configure the AlterPath Viewer settings from the top menu.



For a definition of the menu settings, refer to the tables below. A T1 connection is recommended for best performance when using the AlterPath Viewer.

Recommended Settings

The recommended AlterPath Viewer settings are listed in the following table. The connection you set must reflect your actual Internet connection method.

Menu	**Select the following option(s):**
Options	Auto Sync Mouse
Connection	T1 (preferred), No Encryption, High Color
Host OS	Auto/Other

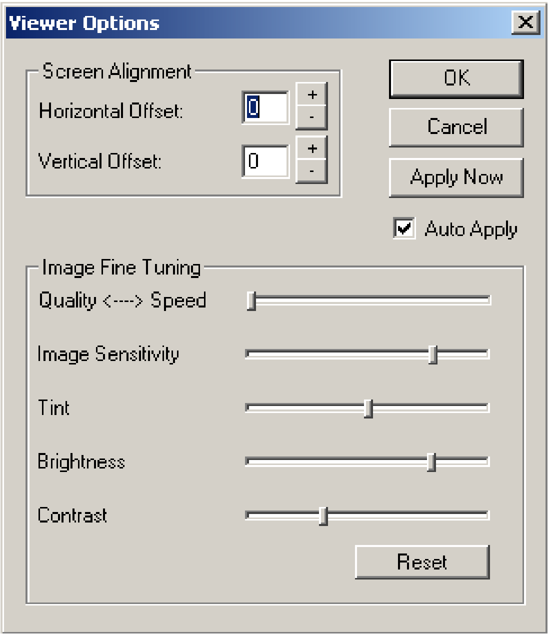
Options Menu

The following table describes the items in the AlterPath Viewer’s Options menu, which you can change as needed for your own requirements.

Menu Selection	Description
Force Screen Refresh	Refreshes the viewer.
Force Screen Auto Alignment	Switches to Auto Alignment mode, which may change the position of the viewer. (You can manually configure Screen Alignment by going to Options>Viewer Options>Screen Alignment.)
Toggle Full Screen	Switches the viewer’s display from window to full-screen mode or from full-screen to window mode.
Viewer Options	See Setting the Viewer Options
Show Frames/sec and Network bits/sec	Specify as needed.
Auto Sync Mouse	Make sure this is selected for KVM/net compatibility
Show Startup Dialog	Causes a menu to appear when the viewer is launched.

Setting the Viewer Options

The Viewer Options window allows you to align or position the viewer window and to fine tune the image. The configuration for these settings may vary from one system to another.



Horizontal Offset: 0

Vertical Offset: 0

☑ Auto Apply

Figure 6-3: AlterPath Viewer Options Screen

The following table defines the fields and menu items.

Table 6-6: AlterPath Viewer>Options>Viewer Options Menu

Field or Menu Item	Function
Horizontal Offset	The horizontal coordinate for positioning the AlterPath Viewer on the screen (default = 0).
Vertical Offset	The vertical coordinate for positioning the AlterPath Viewer on the screen (default = 0).
Quality <---->Speed	Move slider to the left to increase image quality; move slider to the right to increase the performance of the viewer.

Table 6-6: AlterPath Viewer>Options>Viewer Options Menu (Continued)

Field or Menu Item	Function
Image Sensitivity	Move slider to the right to increase the image sensitivity.
Tint	Move the slider in either direction to achieve the desired color. For a neutral (white) color, keep the slider in the middle.
Brightness	Move the slider to the right to increase screen brightness.
Cable Length Adjustment	Move the slider to the right to adjust cable length.

Connection Menu

The following table describes the Connection menu options.

Menu Selection	Function
56K	For when your network connection method is a 56K modem
DSL	For when your network connection method is a DSL line
T1	Recommended connection type. For when your network connection method is a dedicated T1 line
Low BW LAN	For when you are connecting through a low bandwidth local area network
LAN	For when you are connecting through a standard speed local area network.
Auto	For setting the connection mode automatically
Encrypt Everything	For encrypting everything
Encrypt Keyboard and Mouse	For encrypting only keyboard and mouse input

Menu Selection	Function
Encryption Type	For either RC4 or Triple DES encryption
No Encryption	For no encryption
High Color	For high color resolution screens
Low Color	For low color resolution screens
Grey Scale	For grey scale screens
Low Grey Scale	For low resolution grey scale screens

Power Management

Administrators and authorized users can access Power Management windows, which allow you to check the status of the master IPDU connected to the AUX port in addition to all cascaded IPDUs, from the Web Manager and the OSD. Any authorized user can turn on, turn off, cycle (reboot), lock, and unlock the outlets. See “Options for Managing Power” on page 40 for a detailed description of how authorized users can manage power. See “Setting Up and Configuring Power Management” on page 42 for a list of the administrative tasks involved in setting up power management.

The following section gives instructions on managing power through the OSD while connected locally to the KVM/net.

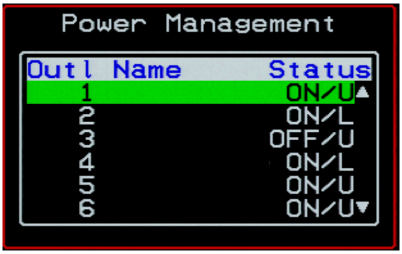
For instructions on how to manage power remotely through the Web Manager, see Table 5-1 on page 305 for a list the power management tasks available to regular users through the Web Manager and links to the associated procedures.

For instructions on managing power servers while connected to them through KVM ports, see “To Power On, Power Off, or Reboot the Connected Server” on page 335.

▼ To Power On, Power Off, Lock, Unlock, or Cycle Devices Plugged into PM Outlets

1. Go to: Configure > Power Management.

   The Outlet Status page appears with a list of all configured IPDUs. The status column displays whether the outlet is on or off, locked, or unlocked.

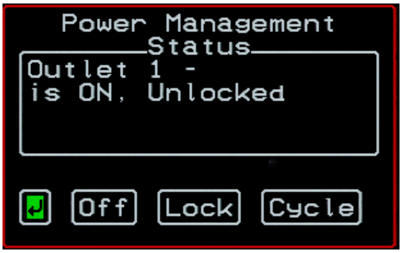


Outl	Name	Status
1		ON/U
2		ON/L
3		OFF/U
4		ON/L
5		ON/U
6		ON/U

   The letter U displayed in the status window indicates that the outlet is unlocked; the letter L indicates that the outlet is locked.

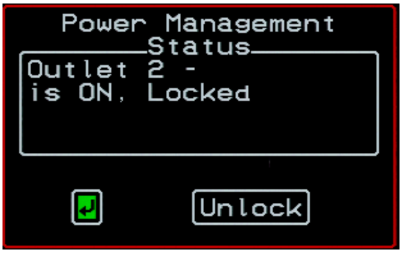
2. Use the up or down arrow keys to select the outlet you want to edit and press <Enter>.

   The Outlet Status window for the selected outlet appears with the current status listed in the Status box and the available action items listed at the bottom.



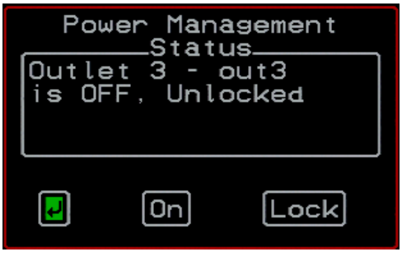
Outlet 1 -
is ON, Unlocked

   The available action options at the bottom of the window change depending on the status of the outlet. For example, an outlet that is locked displays only the Unlock option as in the following figure.



Outlet 2 -
is ON, Locked

An outlet that is turned off and unlocked displays the On, Lock, and Cycle options as in the following figure.



Outlet 3 - out3
is OFF, Unlocked

3. Use the arrow keys to select On, Off, Lock, Unlock, or Cycle and press <Enter>.
4. Select the arrow button and press <Enter> to return to the Power Management menu.
5. To change the status of other outlets, repeat steps 2 and 3.

Modem Connections

In addition to connecting to the KVM/net through a regular Ethernet connection, you can also access the KVM/net by dialing in through an installed external modem.Use PPP when dialing into any of the supported modems. Once the connection is made, all connections to the specified IP address are made through the PPP connection. For example, if you enter the specified IP address in a browser after making the PPP connection, the browser connects to the KVM/net through the dialup connection. This way you can access the Web Manager through PPP even if the IP connection to the KVM/net is not available.

The KVM/net administrator performs the procedures to install and configure the modems. Contact your KVM/net administrator for the phone numbers, usernames, and passwords to use, and for questions about how the modems are configured.

Before anyone can use PPP to access the KVM/net, the PPP connection must be configured by the user on the remote computer so the connection can be used for dialing in. Before configuring PPP, you need the following:

- A modem connected to the remote computer.
- The phone number of the line that is dedicated to the KVM/net modem you want to access.
- If authentication is required for the modem, you need a username and password for a user account on the KVM/net.

The following table lists the related procedures and where they are documented.

Table 6-7: Tasks for Configuring and Making Dial Up Connections (User)

Configure a PPP Connection	“To Configure a PPP Connection on a Remote Computer” on page 347
Connect Using PPP	“To Make a PPP Connection From a Remote Computer” on page 348

▼ *To Configure a PPP Connection on a Remote Computer*

Perform this procedure on a remote computer with a modem to do the following:

- Create a PPP connection that anyone can use for dialing up the KVM/net
- Optionally configure call back.

See the prerequisites listed in “Modem Connections” on page 346, if needed.

Note: The following steps work for a computer running Windows XP. The steps are different on computers running other Windows versions or other operating systems. You can use this procedure as an example.

1. From “My Computer,” go to “My Network Places.”
2. Under “Network Tasks,” click “View network connections.”
3. Under “Network Tasks,” select “Create a new connection.”

   The “New Connection Wizard” appears.
4. Click the “Next” button.
5. Click “Connect to the Internet” and click “Next>.”

   The “Getting Ready” form appears.
6. Click “Set up my connection manually” and click “Next>.”

   The “Internet Connection” form appears.
7. Click “Connect using a dial-up modem” and click “Next>.”

   The “Connection Name” form appears.

   Type a name for the connection to the KVM/net in the “ISP Name” field and click “Next>.”

   The “Phone Number to Dial” form appears.
8. Type the phone number for the KVM/net’s modem in the “Phone number” field and click “Next>.”

   The “Internet Account Information” form appears.

9. Type the username for accessing the KVM/net in the “Username” field.
10. Type the password for accessing the KVM/net in the “Password” and “Confirm Password” field and click “Next>.”
11. Click the “Finish” button.

    The “`Connect` *`connection_name”`* dialog appears.
12. Click the “Cancel” button.

    The name of the connection appears on the Network Connections” list.
13. To configure call back, do the following steps.
    a. Select the name of the connection from the Network Connections dialog box.
    b. Select “Dial Up Preferences” from the “Advanced” menu.

       The “Dial-up Preferences” dialog box appears.
    c. Click the “Callback” tab.
    d. Click “Always call me back at the number(s) below.”
    e. Highlight the name of the modem and click “Edit.”

       The “Call Me Back At” dialog box appears.
    f. Enter the phone number of your local modem in the “Phone number:” field, and click OK.

▼ *To Make a PPP Connection From a Remote Computer*

Perform this procedure on a remote computer that has a modem to initialize a dial up and optional call back session on the KVM/net. This procedure assumes a PPP connection for dial up or call back has previously been created as described in “To Configure a PPP Connection on a Remote Computer” on page 347.

Note: The following steps work if you are on a computer running Windows XP. The steps are different on computers running other Windows versions or other operating systems, but you can use these steps as an example.

1. From the Start menu, go to My Computer>My Network Places.
2. Under “Network Tasks,” click “View network connections.”
3. Double-click the name of the connection in the list.

   The “`Connect` *`connection_name”`* dialog appears.
4. Type the username and password in the “Username” and “Password” fields.
5. Click the “Dial” button.
6.

Chapter 7
On Screen Display

Administrators and regular users can use the OSD for troubleshooting when a direct connection method is required. However, most configuration and operations tasks are performed through the Web Manager.

Access to the OSD requires a local keyboard, monitor, and mouse connected to the KVM management ports, User 1 or User 2, on the back of the KVM/net. See “To Connect to the User 1 Management Port” on page 83 for instructions on connecting to the User 1 port, or see “To Connect the KVM RP to the KVM/net” on page 131 for instructions on connecting to the User 2 port.

Once the connected monitor is turned on, the OSD login window appears.

See the following sections for more information on the OSD screens:

Navigating the OSD

In the OSD you can use keyboard sequences to navigate the windows and make menu selections. The following sections describe:

- Basic Navigation Keys
- Common Navigation Actions

Basic Navigation Keys

The following table displays a short list of keyboard controls to help you navigate the KVM/net on screen display. The OSD window must be selected and in an *active* state for these keys to work.

Table 7-1: Basic Navigation Keys

Key	Action
Tab	Changes between fields on the window
Up / Down	Scrolls within a menu
Left / Right	Selects a button in a button field
Backspace	Deletes the character left to the cursor
Page Up / Page Down	Pages within a menu
End	Moves to the end of a menu
Home	Moves to the top of a menu
Enter	Selects highlighted item / Commits changes
Esc	Returns to the previous main menu
PrintScreen	Brings up an OSD menu overlay

Common Navigation Actions

Table 7-2 shows how to perform common actions used to go to windows, select items, and commit changes in the OSD.

Table 7-2: OSD Equivalents for Common Actions

Action	OSD Equivalent
Select OK	Tab to the OK button and press the Enter key on your keyboard.
Save changes	Tab to the Save button and press the Enter key.
Select an option	Tab to the option and press the Enter key.
Go to a specific window, as in: Go to Configure>Users and Groups."	Select the first option from the Main menu. On the next window that comes up select the next option from that menu. Do this until you get to the last option in the menu path.

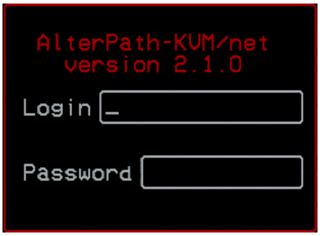
Logging In Through the OSD

In order to log in to the KVM/net through the OSD, you need to connect a keyboard, monitor, and mouse to the monitor, keyboard, mouse connectors, labelled User 1, on the KVM/net. See “To Connect to the User 1 Management Port” on page 83 for more information.

Optionally, you can connect to the OSD using an AlterPath KVM RP, which you buy separately. See “Installing the AlterPath KVM RP” on page 129 for instructions on installing the KVM RP. See “Controlling the OSD Through the AlterPath KVM RP” on page 428 for instructions on using the KVM RP.

▼ *To Log into the KVM/net Through the OSD*

Type your username followed by your password.



1. Press <Enter>.

   The main menu of the KVM/net OSD appears. See the following section, “OSD Main Menu” on page 354 for a description of the OSD Main Menu items.

OSD Main Menu

The OSD Main Menu provides six menu selections as depicted in the following figure.

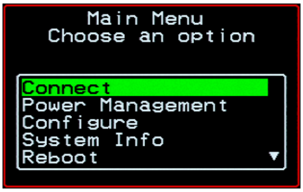


Figure 7-1:OSD Main Menu

Table 7-3 gives a brief description of each menu item and lists where you can find more information.

Table 7-3: OSD Main Menu Items

Menu Selection	Select the menu item to:	Where Documented
Connect	View the Server Connection Menu and select the port to which you want to connect.	Page 356
Power Management	View status of all outlets on connected IPDUs and power on, power off, and cycle connected devices.	Page 357
Configure	View the Configuration Menu and perform KVM/net configuration.	Page 358
System Info	View the system information pertaining to the KVM version that you are using.	Page 424
Reboot	Reboot the KVM/net.	Page 426
Exit	Exit from the OSD and close the session.	

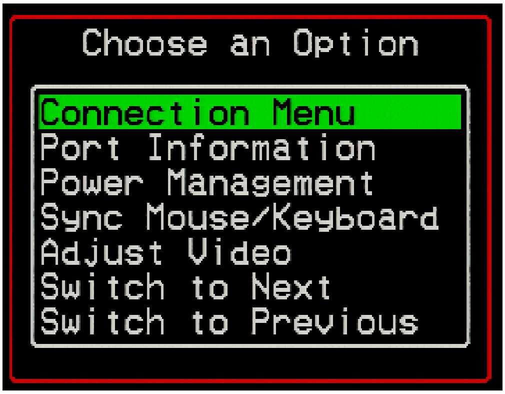
Invoking OSD Using [PrintScreen] Key

The [PrintScreen] keyboard button can be used instead of the escape sequences [^K-n] to invoke an OSD menu overlay when a local KVM connection or a KVM-over-IP connection is established with a server.

▼ *To Invoke OSD Using Print Screen Button*

1. Make a local KVM or an IP connection to a server.
2. Press the [PrintScreen] button on the keyboard.

   The following OSD menu overlay displays.



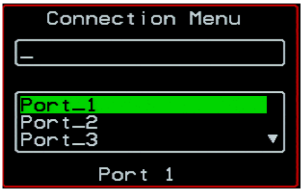
3. Select from the available options and press [Enter].

4. To close the menu press the [Esc] or [PrintScreen] button on the keyboard.

Note: If you are an administrator and are connected locally through one of the user ports on the KVM/net, the "Main Menu" option closes the connection and returns to the OSD main menu.

Connection Menu

Administrators and authorized regular users can use the Connection Menu, as displayed in the following figure, to connect to and control servers that are physically connected to KVM ports on the master KVM/net or on any cascaded KVM device.



See "To Connect to Servers Through the OSD Connection Menu" on page 326 for instructions on connecting to servers through the OSD.

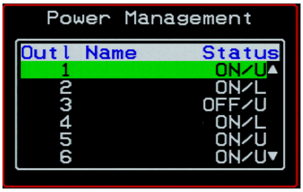
Power Management Menu

The Power Management windows allow you to check the status of the master AlterPath PM connected to the AUX port in addition to all cascaded PMs. Any user who has administration privileges can turn on, turn off, cycle (reboot), lock, and unlock the outlets. See “Connecting AlterPath PMs to the KVM/net” on page 117 for instructions on connecting PMs to the KVM/net.

▼ *To Power On, Power Off, Lock, Unlock, or Cycle Devices Plugged into PM Outlets*

1. Go to: Configure > Power Management.

   The Outlet Status page appears with a list of all configured PMs. The status column displays whether the outlet is on or off, locked, or unlocked.

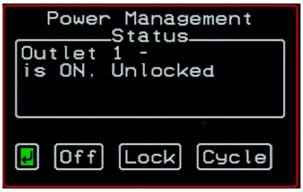


```
       Power Management
Outl Name           Status
   1                  ON/U
   2                  ON/L
   3                 OFF/U
   4                  ON/L
   5                  ON/U
   6                  ON/U
```

   The letter U displayed in the status window indicates that the outlet is unlocked; the letter L indicates that the outlet is locked.

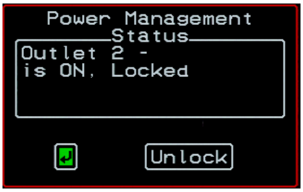
2. Use the up or down arrow keys to select the outlet you want to edit and press <Enter>.

   The Outlet Status window for the selected outlet appears with the current status listed in the Status box and the available action items listed at the bottom.



```
       Power Management
            Status
Outlet 1 -
is ON, Unlocked
```

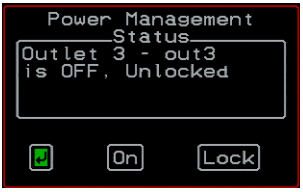
The available action options at the bottom of the window change depending on the status of the outlet. For example, an outlet that is locked displays only the Unlock option as in the following figure.


Power Management

Status

Outlet 2 -
is ON, Locked

An outlet that is turned off and unlocked displays the On, Lock, and Cycle options as in the following figure.


Power Management

Status

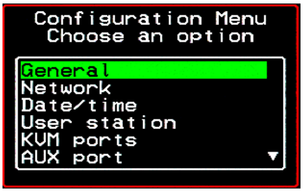
Outlet 3 - out3
is OFF, Unlocked

3. Use the arrow keys to select On, Off, Lock, Unlock, or Cycle and press <Enter>.
4. Select the arrow button and press <Enter> to return to the Power Management menu.
5. To change the status of other outlets, repeat steps 2 and 3.

Configure Menu Overview

Selecting “Configure” from the OSD Main Menu brings up the Configuration Menu. The Configuration Menu provides a number of options, as shown in the following screen.

Note: Extended ASCII character codes are not supported in the OSD, therefore, keys available on some foreign keyboards are not recognized by the OSD interface. Use standard ASCII characters where user input is required for configuration.



Not all the options are visible. Table 7-4 gives a brief description of all the menu options and lists where you can find more information

Table 7-4: Configuration Menu Items

Menu Selection	Select the menu item to:	Where Documented
General	Configure authentication type for direct logins to KVM ports; syslog facility number; KVM connection hot key escape sequence, and Sun Keyboard emulation hot key escape sequence. **Note:** syslogging also requires configuration of the syslog server using the Syslog option, described later in this table.	“General Configuration Screens [OSD]” on page 362
Network	Configure DHCP or assign an IP address and configure other basic network parameters; configure SNMP, VPN, IP filtering, hosts, and static routes	“Network Configuration Menu Options [OSD]” on page 365
Date/Time	Enable/disable NTP or manually configure the system date and time.	“Date/time Configuration Screens” on page 389
User Station	Configure the Local User station’s idle timeout, screen saver time, cycle time, keyboard type, and the various escape sequences for the current work station.	“User Station Screens” on page 390
KVM Ports	Activate KVM ports, assign aliases, and enable power management.	“KVM Ports Screens” on page 394

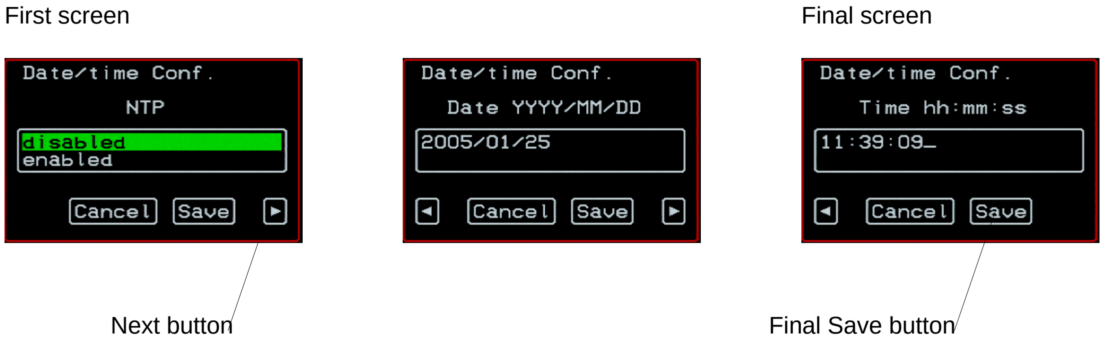
Table 7-4: Configuration Menu Items (Continued)

Menu Selection	Select the menu item to:	Where Documented
AUX Port	Configure the AUX port for PPP or power management.	"AUX Port Screens" on page 396
Users and Groups	Configure users and groups, user passwords, and KVM port access permissions.	"Users and Groups Screens" on page 403
Cascade Devices	Add, edit, or delete configurations of cascaded (slave) KVM units.	"Cascade Devices" on page 399
Syslog	Configure the IP address of the syslog server. **Note:** syslogging also requires assignment of a facility number using the General option, described earlier in this table.	"Syslog Screens" on page 410
Notifications	Configure notifications of system events by the way of SNMP traps.	"Notification Screens" on page 411
Authentication	Configure an authentication method for logins to the KVM/net and authentication servers for KVM/net and KVM port logins.	"Notification Screens" on page 411
Save/Load Config	Permanently save configuration changes, load a stored configuration or restore the configuration to factory default values.	"System Info Menu" on page 424
Exit	Exit from the menu.	N/A

Understanding OSD Configuration Screen Series

Selecting an option from the “Configure” menu usually brings you through a series of related screens, which you navigate through one at a time until you reach the final screen.

For example, if you select Date/Time, you are presented with a series of “Date/time Config.” screens starting with “NTP” and ending with “Time,” as shown in the following figure.



Date/time Conf.
NTP
disabled
enabled

Date/time Conf.
Date YYYY/MM/DD
2005/01/25

Date/time Conf.
Time hh:mm:ss
11:39:09_

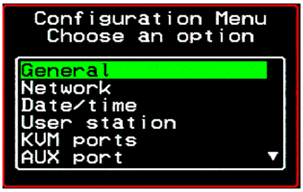
Figure 7-2:OSD Configuration Series Screens

As illustrated, all the configuration screens except the final screen have a right arrow at the bottom right that you can select to go to the next screen. Clicking “Save” on any one of the screens saves the changes made to that point. You can wait until you get to the final screen in a series before saving changes. Clicking “Save” on the final screen saves any change you have made and takes you back to the Configuration menu.

See “Navigating the OSD” on page 352, if needed, for instructions on how to use the Tab key and other keys to move around the screens in the OSD.

General Configuration Screens [OSD]

You can select the General option on the OSD Configuration Menu to configure several general features of the KVM/net, which are introduced under “General” on page 359.



Selecting Configure>General from the OSD Main Menu brings up the Authentication type screen, which is the first in a series of configuration screens that appear in the sequence shown in the following table.

Table 7-5 gives a brief description of the sequence of General configuration screens.

Table 7-5: General Configuration Screens [OSD]

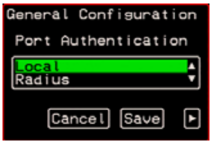
Screen	Description
Port Authentication  General Configuration Port Authentication Local Radius Cancel Save	The Port Authentication applies to direct KVM port logins from the KVM/net login screen: None, Local, Radius, TacacsPlus, Kerberos, LDAP, RadiusDownLocal, TacacsPlusDownLocal, KerberosDownLocal, LDAPDownLocal, NTLM(Win NT/2k/2k3), and NTLMDownLocal. Direct logins to KVM ports must also be enabled. (See “Direct Access” on page 364.) You also must ensure that an authentication server is specified for the type of method you select. See “Notification Screens” on page 411.

Table 7-5: General Configuration Screens [OSD] (Continued)

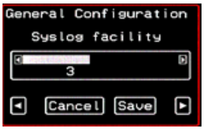
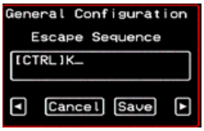
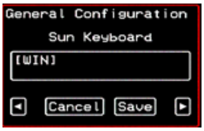
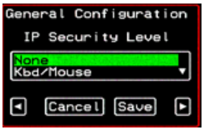
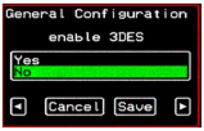
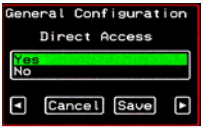
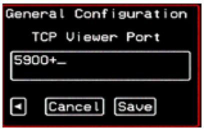
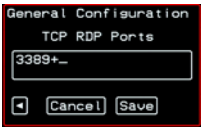
Screen	Description
Syslog Facility  General Configuration Syslog facility 3 	The syslog facility number that is used by the administrator of the syslog server to identify messages generated by devices connected to the KVM ports. Obtain the facility number to use for the KVM/net from the syslog server's administrator. Values are from 0 through 7. See "Syslog Servers" on page 54 for examples of using facility numbers as needed. In addition, the IP address of the syslog server must be configured, as described under "Syslog Screens" on page 410.
Escape Sequence  General Configuration Escape Sequence [CTRL]K_ 	The escape sequence or keyboard shortcuts configuration. [Default: `Ctrl+k`, shown as `[CTRL]K` in the screen]. See "Redefining KVM Connection Keyboard Shortcuts (Hot Keys)" on page 173 for more details.
Sun Keyboard  General Configuration Sun Keyboard [WIN] 	The escape key for Sun hot keys. Default = the Windows [WIN] key, which is the key with the Windows logo on it. Other options are: [CTRL], [SHIFT], and [ALT]. See "Redefining Sun Keyboard Modifier Keys" on page 175 for more details.
IP Security Level  General Configuration IP Security Level None Kbd/Mouse 	The level of encryption: "None," "encrypt keyboard and mouse data," or "encrypt data from the keyboard, video, and mouse."
3DES  General Configuration enable 3DES Yes No 	Disables or enables 3DES encryption.

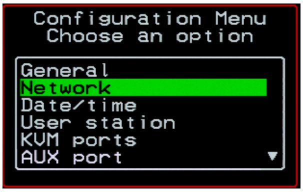
Table 7-5: General Configuration Screens [OSD] (Continued)

Screen	Description
Direct Access  General Configuration Direct Access Yes No 	Enables or disables direct access to KVM ports from the Web Manager login screen.
TCP Port Viewer  General Configuration TCP Viewer Port 5900+_ 	Allows you to assign an alternate TCP Port number or numbers for the AlterPath Viewer to use [Default, 5900+]. Use the plus sign (+) to increment the port number by 1 for each additional AlterPath Viewer. For example: 5903+ means that the first AlterPath Viewer uses port 5903 and the second uses port 5904. Use the hyphen (-) to indicate a range of addresses, for example, 5903-5907. Use the comma (,) to separate two TCP port addresses, for example, 5901,5903. Combine commas and hyphens, as desired, for example: 1901,5903-5905,5907. **Note:** Do not use reserved port numbers 1 through 1024.
TCP RDP Ports  General Configuration TCP RDP Ports 3389+_ 	Specify the TCP ports or a range of TCP ports to be used for RDP (in-band) server connections. You must have at least eight valid TCP ports specified in order to have up to eight simultaneous in-band connections through the KVM/net. For example, if you want ports 3389 to ports 10000 to be used, type "3389 - 10000". If you want to use ports 3389 and higher, type "3389+". If you want to use ports 3389 and below, type "3389-". You can request valid TCP ports from your network administrator.

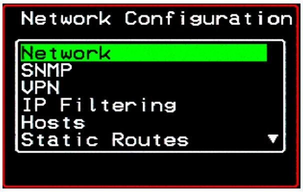
Note: The Save button on every screen saves configuration changes into the configuration files. To permanently save the configuration changes, you must select Save/Load Conf. from the Configuration Menu.

Network Configuration Menu Options [OSD]

You can select the Network option on the OSD Main Menu to configure network-related services for the KVM/net.



Selecting Network under Configuration brings up the Network Configuration Menu. The Network Configuration Menu provides a number of options, as shown in the following screen.



Not all the options are visible. The following diagram lists the names of all the configuration options accessed from the Configure>Network menu.

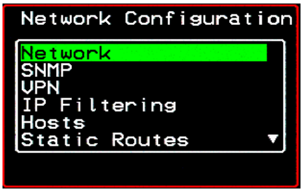
Configure

- Network
  - Network
  - SNMP
  - VPN
  - IP Filtering
  - Hosts
  - Static Routes
  - Exit

The configuration screen series for each of the options under Configure>Network are listed and described in the following sections:

Network Configuration Screens [OSD]

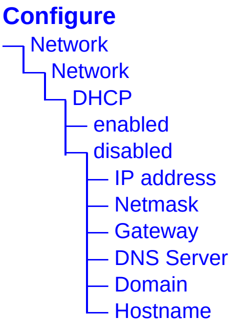
You can select the Network option from the Network Configuration menu to configure DHCP or configure a fixed IP address and other basic network parameters.



Network Configuration

Network
SNMP
VPN
IP Filtering
Hosts
Static Routes ▼

The following diagram lists the names of the configuration screens accessed under Configure>Network>Network.



Configure
- Network
  - Network
    - DHCP
      - enabled
      - disabled
        - IP address
        - Netmask
        - Gateway
        - DNS Server
        - Domain
        - Hostname

Selecting Configure>Network>Network from the OSD Main Menu brings up the DHCP screen, which is the first in a series of configuration screens that appear in the sequence shown in the following table.

The following table provides a description of all the related configuration screens.

Table 7-6: Network Configuration Screens [OSD]

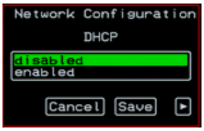
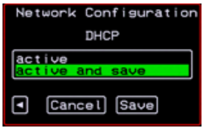
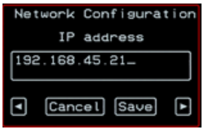
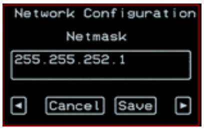
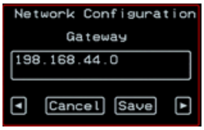
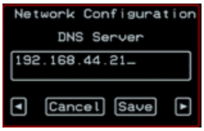
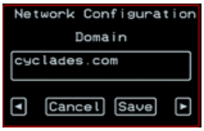
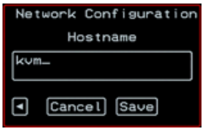
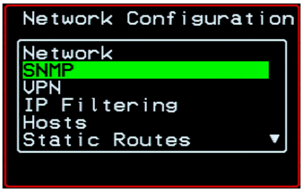
Screen	Description
DHCP  Network Configuration DHCP disabled enabled Cancel Save ▶	Enable or disable DHCP. When you select “enabled,” the screen shown in the following figure appears.  Network Configuration DHCP active active and save ◀ Cancel Save “active” saves the changes to the configuration files. “active and save” overwrites the backup configuration files and makes the changes permanent. Either choice brings you back to the Network Configuration menu. When “disabled” is selected, the IP address, Netmask, Gateway, DNS Server, Domain, and Hostname forms appear in the sequence shown in the following rows.
IP Address  Network Configuration IP address ◀ Cancel Save ▶ 192.168.45.21_	The IP address of the KVM/net.
Netmask  Network Configuration Netmask ◀ Cancel Save ▶ 255.255.252.1	The netmask for the subnet (if applicable) in the form *NNN.NNN.NNN.N* (for example: `255.255.252.0`).

Table 7-6: Network Configuration Screens [OSD] (Continued)

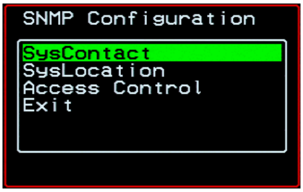
Screen	Description
Gateway  Network Configuration Gateway 198.168.44.0 	The IP address for the gateway (if applicable).
DNS Server  Network Configuration DNS Server 192.168.44.21_ 	The IP address for the DNS server.
Domain  Network Configuration Domain cyclades.com 	The domain name.
Hostname  Network Configuration Hostname kvm_ 	The hostname for the KVM/net.

SNMP Configuration Screens [OSD]

You can select the SNMP option from the Network Configuration menu to configure SNMP.



Selecting SNMP under Configuration>Network brings up the SNMP Configuration Menu. The SNMP Configuration Menu provides a number of options, as shown in the following screen.



The following diagram lists the names of all the configuration screen series accessed from the Configuure>Network>SNMP Configuration menu.

The following diagram lists the names of the configuration screens accessed under Configure>Network>SNMP.

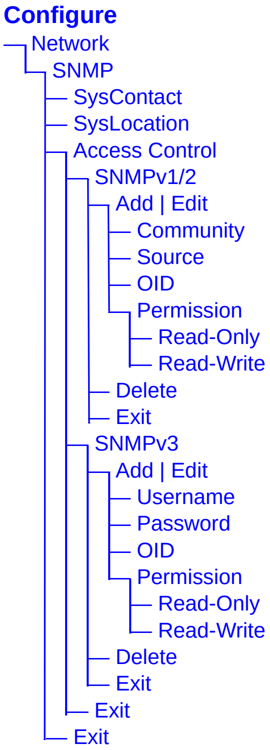

Configure
Network
SNMP
SysContact
SysLocation
Access Control
SNMPv1/2
Add | Edit
Community
Source
OID
Permission
Read-Only
Read-Write
Delete
Exit
SNMPv3
Add | Edit
Username
Password
OID
Permission
Read-Only
Read-Write
Delete
Exit
Exit
Exit

Table 7-7 gives a brief description of all the SNMP configuration screens.

Table 7-7: SNMP Configuration Screens [OSD]

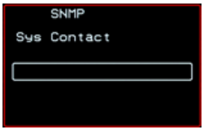
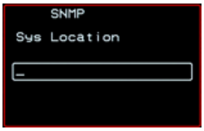
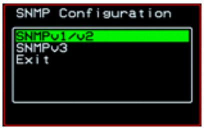
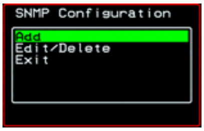
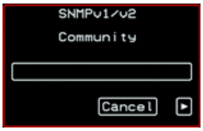
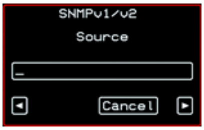
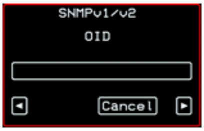
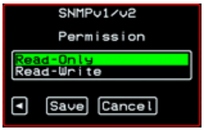
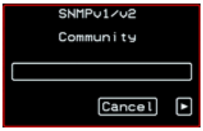
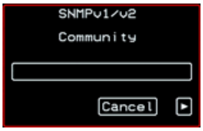
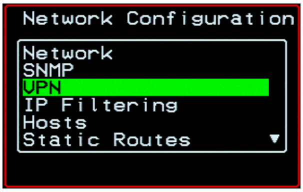
Screen	Description
SysContact  SNMP Sys Contact	The email address for the KVM/net administrator, for example: `kvm_admin@cyclades.com`.
SysLocation  SNMP Sys Location	The physical location of the KVM/net.
Access Control  SNMP Configuration SNMPv1/v2 SNMPv3 Exit	Choices are SNMP v1/2 or SNMP v3.
SNMP Configuration  SNMP Configuration Add Edit/Delete Exit	Appears when either SNMP v1/2 or SNMP v3 is selected. Choices are "Add," "Edit/Delete," or "Exit."
SNMPv1/v2 Community  SNMPv1/v2 Community Cancel ▶	The community name is sent in every SNMP communication between the client and the server, and the community name must be correct before requests are allowed. Communities are further defined by the type of access specified under "Permission": either read only or read write. The most common community is "public" and it should not be used because it is so commonly known. By default, the public community cannot access SNMP information on the KVM/net.

Table 7-7: SNMP Configuration Screens [OSD] (Continued)

Screen	Description
SNMPv1/v2 Source 	The source IP address or range of IP addresses.
SNMPv1/v2 or v3 OID 	Object Identifier. Each managed object has a unique identifier.
SNMPv1/v2 or v3 Permission  SNMPv1/v2 Permission Read-Only Read-Write Save Cancel	Choices are "Read-Only" and "Read-Write." Read Only - Read-only access to the entire MIB (Management Information Base) except for SNMP configuration objects. Read/Write - Read-write access to the entire MIB except for SNMP configuration objects.
SNMPv3 Username 	Username.
SNMPv3 Password 	Password.

VPN Configuration Screens [OSD]

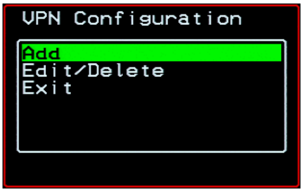
You can select the VPN option from the Network Configuration menu to configure VPN.



Network Configuration

Network
SNMP
VPN
IP Filtering
Hosts
Static Routes ▼

Selecting VPN under Configuration>Network brings up the VPN Configuration Menu. The VPN Configuration Menu provides the options shown in the following screen.

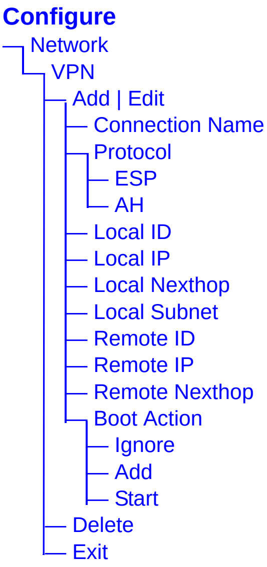


VPN Configuration

Add
Edit/Delete
Exit

You can use these options to add a VPN connection or to edit or delete a previously configured VPN connection. See “VPN” on page 250 for details.

The following diagram lists the names of the configuration screens accessed from the Add and Edit/Delete options on the Configuure>Network>VPN Configuration menu.



- **Configure**
  - Network
    - VPN
      - Add | Edit
        - Connection Name
        - Protocol
          - ESP
          - AH
        - Local ID
        - Local IP
        - Local Nexthop
        - Local Subnet
        - Remote ID
        - Remote IP
        - Remote Nexthop
        - Boot Action
          - Ignore
          - Add
          - Start
      - Delete
      - Exit

Table 7-8 gives a brief description of the VPN configuration screens series under Add and Edit.

Table 7-8: VPN Configuration Screens [OSD]

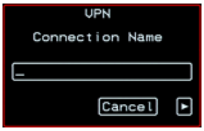
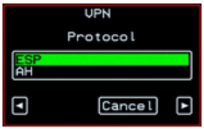
Screen	Description
Connection Name 	Any descriptive name you want to use to identify this connection such as “MYCOMPANYDOMAIN-VPN”
Protocol 	The authentication protocol used, either “ESP” (Encapsulating Security Payload) or “AH” (Authentication Header)

Table 7-8: VPN Configuration Screens [OSD] (Continued)

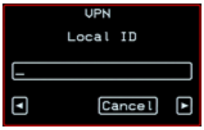
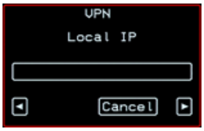
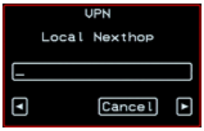
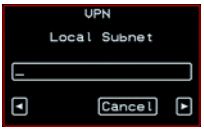
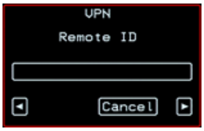
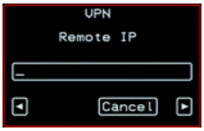
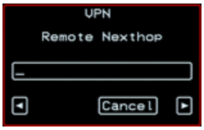
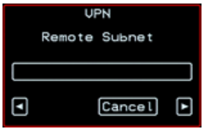
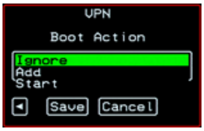
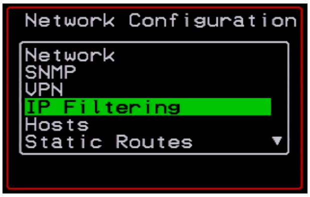
Screen	Description
Local ID  	The hostname of the KVM/net, referred to as the “local” host. This is the hostname that a local system use for IPSec negotiation and authentication. It can be a Fully Qualified Domain Name preceded by @. For example, hostname@xyz.com.
Local IP  	The IP address of the KVM/net.
Local NextHop  	The router through which the KVM/net sends packets to the host on the other side.
Local Subnet  	The netmask of the subnetwork where the KVM/net resides, if applicable.
Remote ID  	The hostname of the remote host or security gateway. This is the hostname that a remote system use for IPSec negotiation and authentication. It can be a Fully Qualified Domain Name preceded by @. For example, hostname@xyz.com.
Remote IP  	The IP address of the remote host or security gateway.

Table 7-8: VPN Configuration Screens [OSD] (Continued)

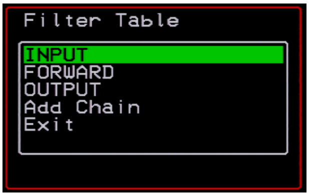
Screen	Description
Remote Nexthop  	The IP address of the router through which the host on the other side sends packets to the KVM/net.
Remote Subnet  	The netmask of the subnetwork where the remote host or security gateway resides, if applicable.
Boot Action  VPN Boot Action Ignore Add Start Save Cancel	Choices are “Ignore,” “Add,” and “Start.” “Ignore” means that VPN connection is ignored. “Add” means to wait for connections at startup. “Start” means to make the connection

IP Filtering Configuration Screens

You can select the IP Filtering option from the Network Configuration menu to configure the KVM/net to filter packets like a firewall.



Selecting IP Filtering under Configuration>Network brings up the “Filter Table.” The “Filter Table” lists the default chains along with any administratively configured chains, the “Add Chain,” and the “Exit” options, as shown in the following screen.



You can use this menu to create chains and set up rules for the new chains or you can edit or delete a previously configured chain. The following diagram lists the names of the configuration screens accessed under Configure> Network>IP Filtering.

Configure

- Network
  - IP Filtering
    - Filter Table
      - Add Chain
        - Chain Name
      - [Choose a chain]
        - Edit [default chain only]
          - Accept
          - Drop
        - Delete Chain *chain_name*? [user-added chain only]
        - Rules
          - Add/Edit
            - Target
              - ACCEPT
              - DROP
              - RETURN
              - LOG
              - REJECT
            - Source IP
            - Source Mask
            - Destination IP
            - Destination Mask
            - Protocol
              - All
              - Numeric
              - TCP
                - SYN | RST | ACK | URG | FIN | PSH Flag
                  - Any
                  - Set
                  - Unset
              - UDP
              - ICMP
            - Source Port [TCP and UDP only]
            - Destination Port [TCP and UDP only]
            - Input Interface
            - Output Interface
            - Fragments
              - All packets
              - 2nd, ... frag.
              - Non-frag. and 1st fr
          - Exit
        - Exit
      - Exit

The following table shows the IP filtering screens.

Table 7-9: IP Filtering Configuration Screens [OSD]

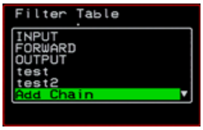
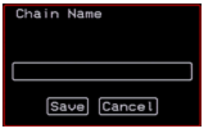
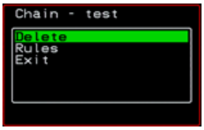
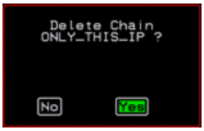
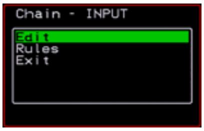
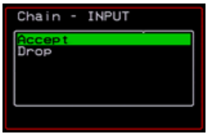
Screen	Description
Filter Table  Filter Table INPUT FORWARD OUTPUT test test2 Add Chain	Lists the default chains along with any administratively configured chains, the “Add Chain,” and the “Exit” options.
Chain Name  	Only appears when “Add Chain” is selected. Entering the name of the chain adds the new chain’s name to the “Filter Table,” where you need to select the name of the new chain and define rules for the chain.
Chain - *chain_name*  	Appears when a user-added chain is selected from the “Filter Table.” The choices are “Delete,” “Rules,” “Exit.”
Delete Chain *chain_name?*  	Appears when a user-added chain is selected and the Delete option is chosen from the “Chain - *chain_name*” menu.A
Chain - *CHAIN_NAME*  	Appears when a default chain is selected from the “Filter Table.” The choices are “Edit,” “Rules,” and “Exit.”

Table 7-9: IP Filtering Configuration Screens [OSD] (Continued)

Screen	Description
Edit  	Appears when a default chain is selected and the Edit option is chosen from the Chain - *Chain_name* menu. Choices are "Accept" or "Drop."

The following screens define the rules for packet filtering. The packet is filtered for the characteristics defined in the rule, for example, a specific IP header, input and output interfaces, TCP flags or protocol. The target action is performed on all packets that have the characteristic. If "Inverted" is selected for a characteristic, the target action is performed on all packets that do not have the characteristic.

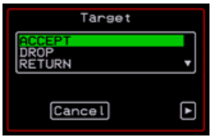
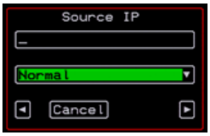
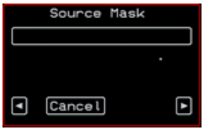
Target  	Appears when a user-added chain is selected. Choices specify the target action to take when a packet's characteristics match the rule, or, if "Inverted" is selected, if the packets do not match the rule. Choices are: "ACCEPT," "DROP," "RETURN," "LOG," and "REJECT."
Source IP  	The IP address of the source of an input packet.
Source Mask  	The netmask of the subnetwork where an input packet originates.

Table 7-9: IP Filtering Configuration Screens [OSD] (Continued)

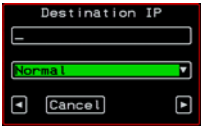
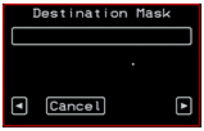
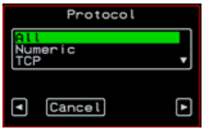
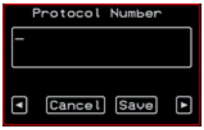
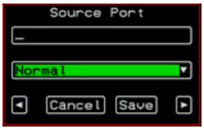
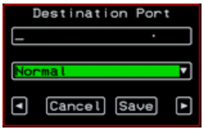
Screen	Description
Destination IP 	The IP address of an output packet's destination.
Destination Mask 	The netmask of the subnet to which an output packet is going.
Protocol 	Choices are "All," "Numeric," "TCP," "UDP," "ICMP."
Protocol Number 	Appears only if "Numeric" is selected from the "Protocol" menu.
Source Port 	Appears only if "TCP" or "UDP are selected from the "Protocol" menu. The source port number.
Destination Port 	Appears only if "TCP" or "UDP are selected from the "Protocol" menu. The destination port number.

Table 7-9: IP Filtering Configuration Screens [OSD] (Continued)

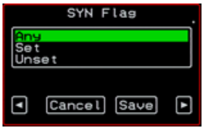
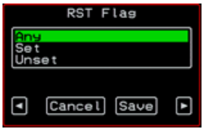
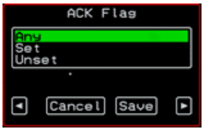
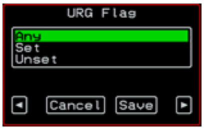
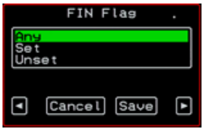
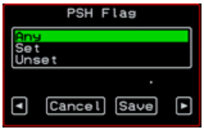
Screen	Description
SYN Flag  	Appears only if “TCP” is selected from the “Protocol” menu. Options are “Any,” “Set,” “Unset.”
RST Flag  	Appears only if “TCP” is selected from the “Protocol” menu. Options are “Any,” “Set,” “Unset.”
ACK Flag  	Appears only if “TCP” is selected from the “Protocol” menu. Options are “Any,” “Set,” “Unset.”
URG Flag  	Appears only if “TCP” is selected from the “Protocol” menu. Options are “Any,” “Set,” “Unset.”
FIN Flag  	Appears only if “TCP” is selected from the “Protocol” menu. Options are “Any,” “Set,” “Unset.”
PSH Flag  	Appears only if “TCP” is selected from the “Protocol” menu. Options are “Any,” “Set,” “Unset.”

Table 7-9: IP Filtering Configuration Screens [OSD] (Continued)

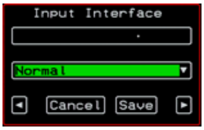
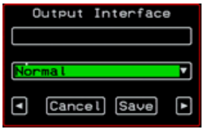
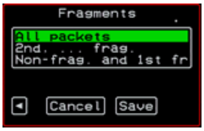
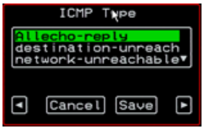
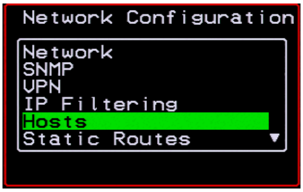
Screen	Description
Input Interface 	Appears only if “All,” “Numeric,” “TCP,” “UDP,” or “ICMP are selected from the “Protocol” menu.
Output Interface 	Appears only if “All,” “Numeric,” “TCP,” “UDP,” or “ICMP are selected from the “Protocol” menu.
Fragments  Fragments All packets 2nd. .... frag. Non-frag. and 1st fr Cancel Save	Appears only if “All,” “Numeric,” “TCP,” “UDP,” or “ICMP are selected from the “Protocol” menu.

Table 7-9: IP Filtering Configuration Screens [OSD] (Continued)

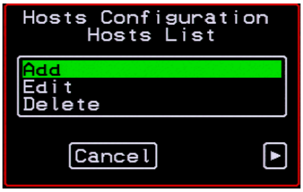
Screen	Description
ICMP Type  ICMP Type Allecho-reply destination-unreach network-unreachable Cancel Save	Appears only if ICMP is selected from the “Protocol” menu. Choices are: • all • echo-reply • destination-unreachable • network-unreachable • host-unreachable • port-unreachable • fragmentation needed • source-route-failed • network-unknown • host-unknown • network-prohibited • host-prohibited

Hosts Configuration Screens [OSD]

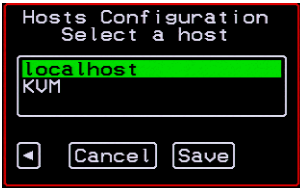
You can select the Hosts option from the Network Configuration menu to configure hosts.



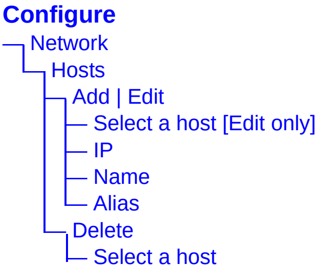
Selecting Hosts under Configuration>Network brings up the “Hosts List” action menu, as shown in the following screen.



You can select the options on this menu to add, edit, or delete host entries. Selecting “Edit” or “Delete Entry” brings up the following “Select a host” screen.



The following diagram lists the names of the configuration screens accessed under Configure>Network>Hosts.



The following table shows the screens for the Add and Edit options.

Table 7-10: Hosts Configuration Screens [OSD]

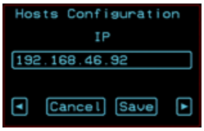
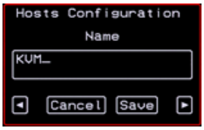
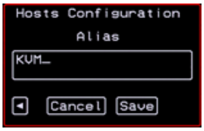
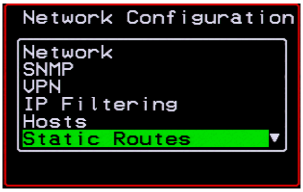
Screen	Description
IP  192.168.46.92	IP address of the host

Table 7-10: Hosts Configuration Screens [OSD]

Screen	Description
Name 	Hostname of the host
Alias 	Optional alias of the host

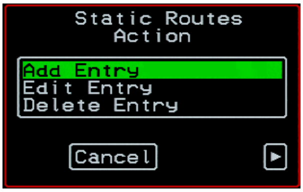
Static Routes Configuration Screens

You can select the Static Routes option from the Network Configuration menu to configure static routes.



If judiciously used, static routes can sometimes reduce routing problems and routing traffic overhead. If injudiciously used, when a network fails, static routes can block packets that would otherwise be able to find alternate routes around the point of failure if dynamic-routing were in effect.

Selecting Static Routes under Configuration>Network brings up the Static Routes Action Menu, as shown in the following screen.



The following diagram lists the names of the configuration screens accessed under Configure>Network>Static Routes.

Configure
- Network
  - Static Routes
    - Add | Edit Entry
      - Select a route [Edit option only]
      - Host or Net Route [Select host | net | default]
        - Target [host and net options only]
        - Netmask [net option only]
        - Gateway or Device
          - Gateway (gw)
            - Gateway
            - Metric
          - Network Device (dev)
            - Device
            - Metric
    - Delete Entry
      - Select a route

The following table shows the static routes screens that appear when you select one of the menu options.

Table 7-11: Static Routes Screens [OSD]

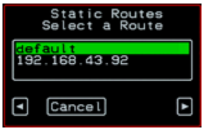
Screen	Description
Select a route  Static Routes Select a Route default 192.168.43.92 ◀ Cancel ▶	Appears only when the Edit and Delete options are selected. Choices are “default” and any previously configured static routes.

Table 7-11: Static Routes Screens [OSD] (Continued)

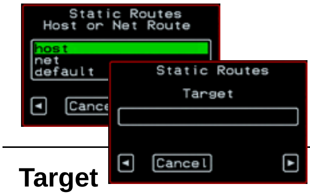
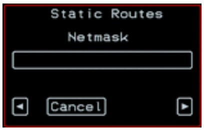
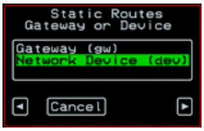
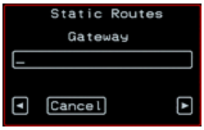
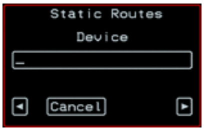
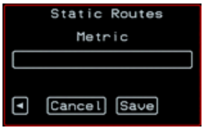
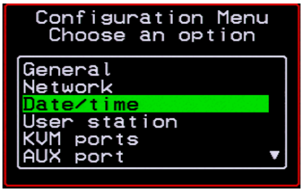
Screen	Description
Host or Net Route  Static Routes Host or Net Route host net default Cance Static Routes Target Cancel	Types of routes: “host,” “net,” or “default.” **Note:** A default route is used to direct packets that are addressed to networks not listed in the routing table.
Target	IP address for the target host or network.
Netmask  	Appears only when “net” is selected from the “Host or Net Route” screen. Netmask for the destination.
Gateway or Device  Static Routes Gateway or Device Gateway (gw) Network Device (dev) Cancel	Two options are: “Gateway (gw)” or “Network Device (dev).”
Gateway  	Appears only when “Gateway (gw)” is selected from the “Gateway or Device” menu. Gateway IP address.
Device  	Appears only when “Network Device” is selected from the “Gateway or Device” menu. Device address (such as `eth0`).

Table 7-11: Static Routes Screens [OSD] (Continued)

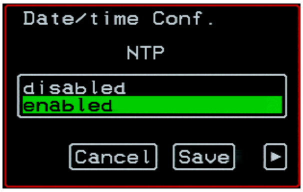
Screen	Description
Metric  	The number of hops to the destination.

Date/time Configuration Screens

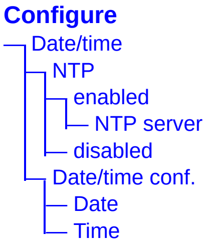
You can select the Date/time option from the OSD Configuration menu to either configure an NTP server or manually set the date and time.



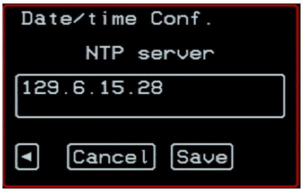
Selecting Date/time under Configuration>Network brings up the NTP menu, as shown in the following screen.



The following diagram lists the names of the configuration options accessed from the Configure>Date/time menu.



If NTP is enabled, the following screen appears for entering the IP address of the NTP server.

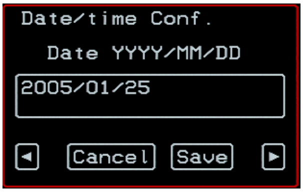


Date/time Conf.

NTP server

129.6.15.28

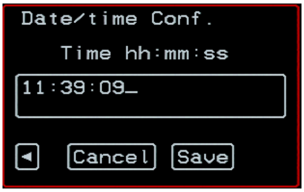
If NTP is disabled, the following series of two screens appears to allow you to enter the date and time manually.



Date/time Conf.

Date YYYY/MM/DD

2005/01/25



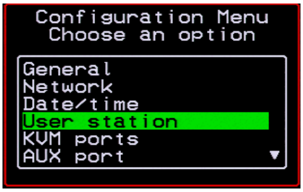
Date/time Conf.

Time hh:mm:ss

11:39:09_

User Station Screens

You can select the User Station option from the OSD Configuration menu to redefine the parameters that apply to a local user session (when a user is accessing the OSD through the User 1 or User 2 port).



The changes apply only to the currently accessed local station. For example, if an administrator configures these settings while connected to the User 2 port, these settings will be changed for all users who log in to the User 2 port, but the User 1 port setting will remain unchanged.

The following diagram lists the configuration screens accessed through the Configure>User station option. All the screens that appear after the “Keyboard type” screen are for optionally redefining the command key portion of the KVM connection hot keys: “Quit,” “Power Management,” “Mouse/Keyboard Reset,” “Video Configuration,” “Switch Next,” “Switch Previous,” and “Port Info.” See “Redefining Keyboard Shortcuts (Hot Keys)” on page 35 for details, if needed.

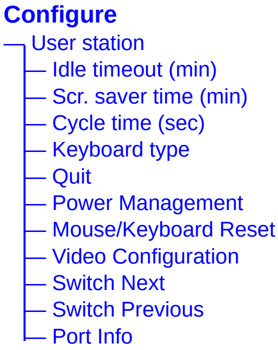


Figure 7-3: User Station Configuration Screens

The following table shows the user station configuration screens.

Table 7-12: User Station Configuration Screens

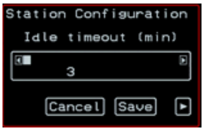
Screen	Description
Idle timeout  Station Configuration Idle timeout (min) 3 	The period of inactivity before the user is logged out from the OSD. The default is 3 minutes.

Table 7-12: User Station Configuration Screens (Continued)

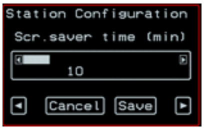
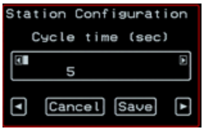
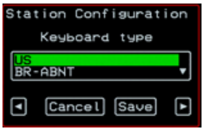
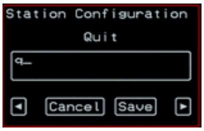
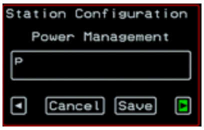
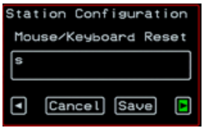
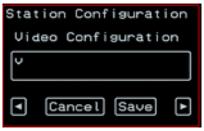
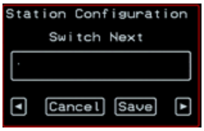
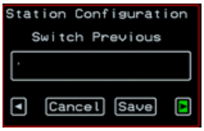
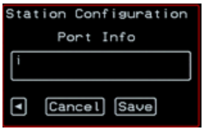
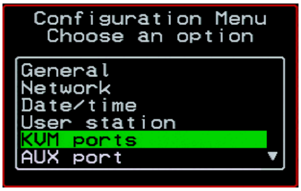
Screen	Description
Scr. saver timeout  Station Configuration Scr.saver time (min) 10 	The period of inactivity before the screen saver starts. The default is 10 minutes.
Cycling  Station Configuration Cycle time (sec) 5 	The number of seconds each server is viewed while the user is cycling from one port to another. Default = 5 seconds. See "To Initiate Cycle by Server" on page 332 for instructions on how to cycle through the servers.
Keyboard Type  Station Configuration Keyboard type US BR-ABNT 	The type of keyboard connected to the User 1 or User 2 management port of the KVM/net. • US [Default] • BR-ABNT • BR-ABNT2 • Japanese • German • Italian • French • Spanish
Quit  Station Configuration Quit q 	Redefine the command key for the KVM connection quit hot key.
Power Management  Station Configuration Power Management P 	Redefine the command key portion of the KVM connection power management hot key.

Table 7-12: User Station Configuration Screens (Continued)

Screen	Description
Mouse/Keyboard  Station Configuration Mouse/Keyboard Reset s 	Redefine the command key portion of the KVM connection mouse/keyboard reset hot key.
Video  Station Configuration Video Configuration v 	Redefine the command key portion of the KVM connection video brightness and cable length adjustment hot key.
Switch Next  Station Configuration Switch Next . 	Redefine the command key portion of the KVM connection switch next hot key.
Switch Previous  Station Configuration Switch Previous , 	Redefine the command key portion of the KVM connection switch previous hot key.
Port Info  Station Configuration Port Info i 	Redefine the command key portion of the KVM connection port info hot key.

KVM Ports Screens

You can select the KVM Ports option on the OSD Configuration Menu to configure KVM ports.



The following diagram lists the configuration screens accessed through the Configure>KVM ports option.

Configure

- KVM ports [Select a port]
  - Active
  - Server name
  - Lockout Macro
  - Power out

Figure 7-4:KVM Ports Configuration Screens

The following table shows the KVM port configuration screens.

Table 7-13:KVM Port Configuration Screens

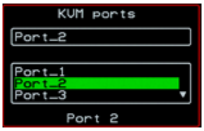
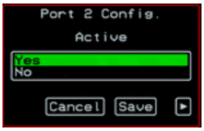
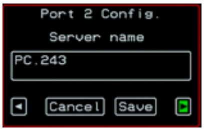
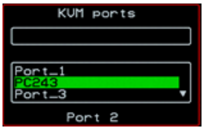
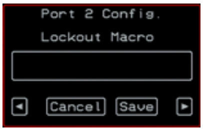
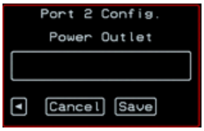
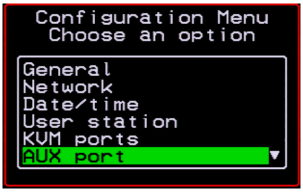
Screen	Description
KVM ports  	Lists all KVM ports by their default names or administratively defined aliases.
Active  	Choices are “Yes” and “No” to activate or deactivate the selected KVM port.

Table 7-13:KVM Port Configuration Screens (Continued)

Screen	Description
Server name  	Allows you to assign a descriptive alias, such as the name of the server to which the selected KVM port is connected. Only alpha-numeric characters, hyphens (-), and underscores (_) are accepted. The new alias replaces the default port name in the list of ports as shown here: 
Lockout Macro  	Allows you to enter the key sequence to lock the server's display. It allows the KVM connected servers to automatically switch to locked state when the AlterPath Viewer is closed or an idle time-out occurs. In addition, when a user tries to access a KVM connected server with a full or read-write permission, the lockout macro command is sent to the server to lock the current user and display the new login window. See "Lockout Macro Key Sequences" on page 48.
Power Outlet  	Allows you to enter one or more numbers that identify power outlet or outlets into which the server that is connected to this KVM port is plugged. When PMs are daisy-chained, the outlets on the second and subsequent PMs are numbered sequentially. For example, if two eight-outlet AlterPath PMs are daisy-chained, you would use the number 12 to specify the fourth outlet on the second PM in the chain. You can enter up to twenty characters, so you can specify up to four outlets. See "Controlling Power While Connected to KVM Ports" on page 41 for details. Also see "To Power On, Power Off, or Reboot the Connected Server" on page 335, if needed.

AUX Port Screens

You can select the AUX Port option on the OSD Configuration Menu to configure the AUX port.



The following diagram lists the configuration screens accessed through the Configure>AUX port option.

Configure
- AUX port
  - Disable
  - Power Management
  - PPP
  - Exit

Figure 7-5:AUX Port Configuration Screens

The following table shows the AUX port configuration screens.

Table 7-14:KVM Port Configuration Screens

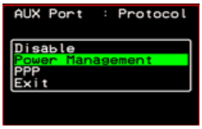
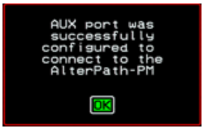
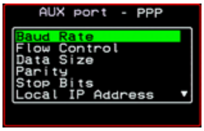
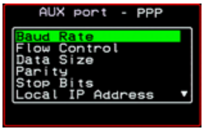
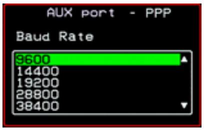
Screen	Description
AUX port - Protocol  AUX Port : Protocol Disable Power Management PPP Exit	Choices are "Disable," "Power Management," and "PPP." The Aux port are enabled by default. If you need to disable a port, select "Disable" and save your changes. To enable a port select the desired protocol "Power Management" or "PPP." If you select Power Management, the following confirmation screen displays:  AUX port was successfully configured to connect to the AlterPath-PM If you select PPP, the following connection configuration menu displays:  AUX port - PPP Baud Rate Flow Control Data Size Parity Stop Bits Local IP Address
AUX port - PPP  AUX port - PPP Baud Rate Flow Control Data Size Parity Stop Bits Local IP Address	Appears when PPP is selected from the AUX port - Protocol screen. Allows you to configure the connection settings for any PPP connection being made through an external modem connected to the AUX port.
AUX port - PPP Baud Rate  AUX port - PPP Baud Rate 9600 14400 19200 28800 38400	The port speed.

Table 7-14:KVM Port Configuration Screens (Continued)

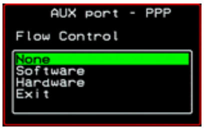
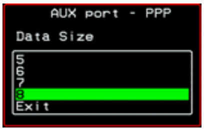
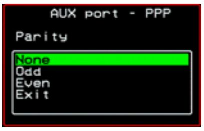
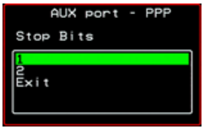
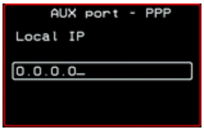
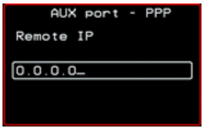
Screen	Description
AUX port - PPP Flow Control  AUX port - PPP Flow Control None Software Hardware Exit	Gateway or interface address used for the route.
AUX port - PPP Data Size  AUX port - PPP Data Size 5 6 7 8 Exit	The number of data bits.
AUX port - PPP Parity  AUX port - PPP Parity None Odd Even Exit	None, even, or odd.
AUX port - PPP Stop Bits  AUX port - PPP Stop Bits 1 2 Exit	The number of stop bits.
AUX port - PPP Local IP  AUX port - PPP Local IP 0.0.0.0_	Local IP address

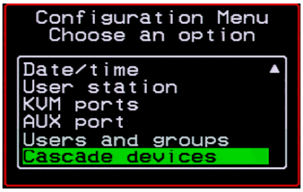
Table 7-14:KVM Port Configuration Screens (Continued)

Screen	**Description**
AUX port - PPP Remote IP  AUX port - PPP Remote IP 0.0.0.0_	Remote IP address

Cascade Devices

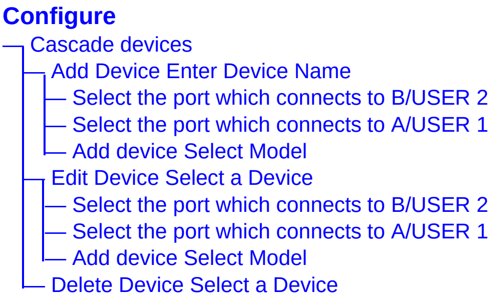
You can select the Cascade Devices option on the OSD Configuration Menu to perform the following tasks:

- Add a secondary KVM unit to be cascaded from the master KVM/net.
- Edit the configuration of a cascaded device.
- Delete the configuration of a cascaded device.



The Cascade Devices option of the Configuration Menu allows you to configure a secondary KVM unit to be cascaded to the KVM/net to increase the number of supportable ports. The secondary device may be a KVM/

netPlus, a KVM/net, a KVM, or a KVM Expander. The following diagram lists the configuration screens accessed through the Cascades devices option.



- Configure
  - Cascade devices
    - Add Device Enter Device Name
      - Select the port which connects to B/USER 2
      - Select the port which connects to A/USER 1
      - Add device Select Model
    - Edit Device Select a Device
      - Select the port which connects to B/USER 2
      - Select the port which connects to A/USER 1
      - Add device Select Model
    - Delete Device Select a Device

Figure 7-6: Cascade Devices Configuration Screens

The following table shows the Cascade Devices configuration screens.

Table 7-15: Cascade Devices Configuration Screens

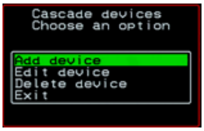
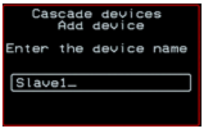
Screen	Description
Cascade device Choose an option  Cascade devices Choose an option Add device Edit device Delete device Exit	Options include Add device, Edit device, and Delete device.
Cascade Device Add DeviceEnter the device name  Cascade devices Add device Enter the device name Slave1_	Appears when Add device is selected from the “Cascade device Choose an option” screen. Enter the name of the new cascaded KVM unit.

Table 7-15: Cascade Devices Configuration Screens (Continued)

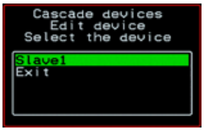
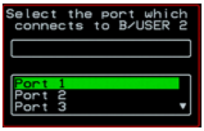
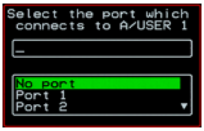
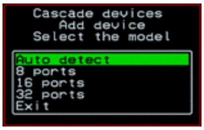
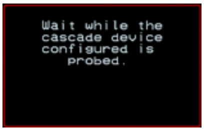
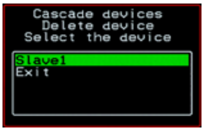
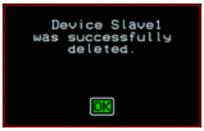
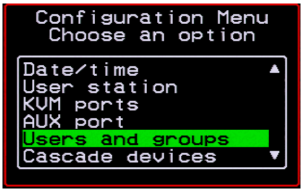
Screen	Description
Cascade Device **Edit Device** **Select the device**  Cascade devices Edit device Select the device Slave1 Exit	Appears when Edit device is selected from the “Cascade device Choose an option” screen. Select the name of a previously added cascaded KVM unit.
Select the port which connects to B/USER 2  Select the port which connects to B/USER 2 Port 1 Port 2 Port 3	Enter the port number of the masterKVM/net that is connected to the User 2 port of the secondary KVM device or the B port on the Expander. **Note:** See “Connecting Cascaded KVM Units to the Primary KVM/net” on page 126 for a background on the possible devices that can be cascaded and for instructions on connecting these devices to the master KVM/net.
Select the port which connects to A/USER 1  Select the port which connects to A/USER 1 _ No port Port 1 Port 2	Enter the secondary KVM port that is connected to the User 1 port of the primary KVM/net or the User A port on the Expander.
Cascade device **Add device** **Select Model**  Cascade devices Add device Select the model Auto detect 8 ports 16 ports 32 ports Exit	Select the number of ports on the cascaded KVM unit or select Auto detect and press <Enter>. Selecting Auto detect automatically detects the number of ports on the cascaded KVM unit. The unit must be already connected in order for the auto detect option to work. During auto detection, the following message appears.  Wait while the cascade device configured is probed.

Table 7-15: Cascade Devices Configuration Screens (Continued)

Screen	Description
Cascade Device Delete DeviceSelect the device  Cascade devices Delete device Select the device Slave1 Exit	Appears when Delete device is selected from the “Cascade device Choose an option” screen. The following confirmation screen appears once a cascaded device is selected.  Device Slave1 was successfully deleted. OK

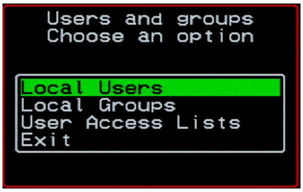
Users and Groups Screens

You can choose the “Users and groups” option from the OSD Configuration menu to configure users, groups, and KVM port permissions.



```
Configuration Menu
Choose an option

Date/time            ▲
User station
KVM ports
AUX port
Users and groups
Cascade devices      ▼
```

When you select “Users and Groups,” the “Choose an option” screen appears, as shown in the following screen example. The “Local Users” option is for configuring users; the “Local Groups’ option is for configuring groups, and the “User Access Lists” option is for configuring users’ and groups’ access to KVM ports.



```
Users and groups
Choose an option

Local Users
Local Groups
User Access Lists
Exit
```

The following diagram lists the configuration screens accessed through the Configure>Users and Groups options:

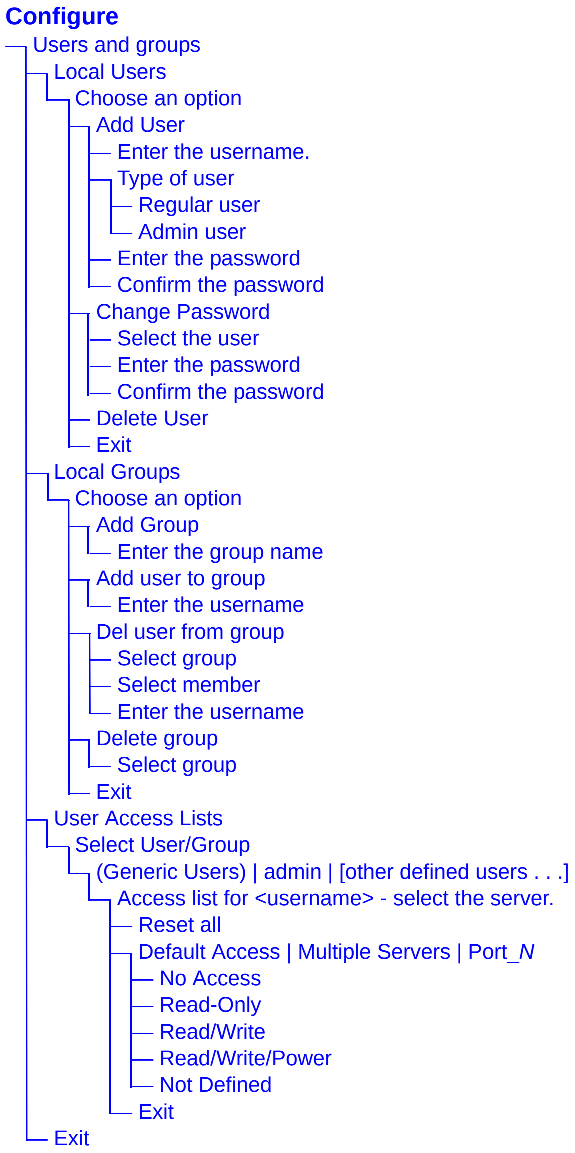


Figure 7-7: Users and Groups Configuration Screens

The following table shows the configuration screens that appear when the “Local Users” option is selected from the Users and Groups menu under Configure in the OSD.

Table 7-16: Local Users Configuration Screens

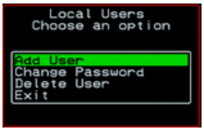
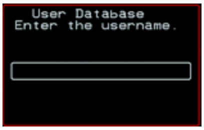
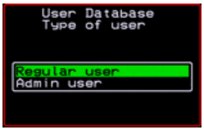
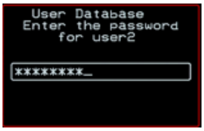
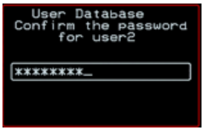
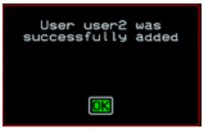
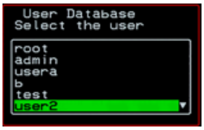
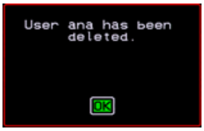
Screen	Description
Choose an option  Local Users Choose an option Add User Change Password Delete User Exit	Options are: “Add User,” “Change Password,” “Delete User,” or “Exit.”
User Database Enter the username  User Database Enter the username.	Appears only when “Add User” is selected.
Type of user  User Database Type of user Regular user Admin user	Appears only when “Add User” is selected.
Enter the password  User Database Enter the password for user2 ********_ **Confirm the password**  User Database Confirm the password for user2 ********_	Appears only when “Add User” or “Change Password” are selected. **Note:** Passwords are case sensitive. When the password is successfully confirmed, the following dialog box appears.  User user2 was successfully added OK

Table 7-16: Local Users Configuration Screens (Continued)

Screen	Description
Select the user  User Database Select the user root admin usera b test user2	Appears only when “Change Password” or “Delete User” are selected. When “Delete User” and then a username are selected, a confirmation screen like the following appears:  User ana has been deleted. OK

The following table shows the configuration screens that appear when the “Local Groups” option is selected from the Users and Groups menu under Configure in the OSD.

Table 7-17: Local Groups Configuration Screens

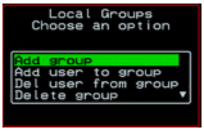
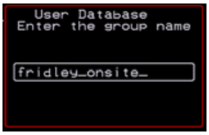
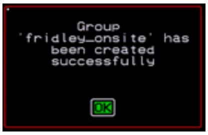
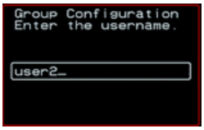
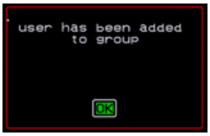
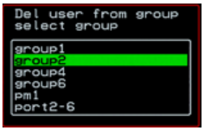
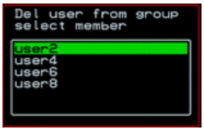
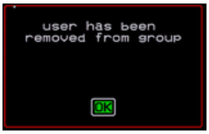
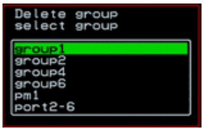
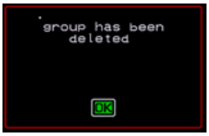
Screen	Description
Choose an option  Local Groups Choose an option Add group Add user to group Del user from group Delete group	Options are “Add group,” “Add user to group,” “Del. user from group,” “Delete group,” and Exit
Enter the group name  User Database Enter the group name fridley_onsite_	When “Add group” is selected. After the group name is entered, a confirmation screen like the following appears.  Group 'fridley_onsite' has been created successfully OK

Table 7-17: Local Groups Configuration Screens (Continued)

Screen	Description
Enter the username  Group Configuration Enter the username. user2_	When “Add user” or “Add user to group” are selected. To add multiple users, use a comma to separate each username. When the user is successfully added, the following confirmation screen appears.  user has been added to group
Delete user from group select group  Del user from group select group group1 group2 group4 group6 pm1 port2-6	When “Del user from group” is selected.
Select member  Del user from group select member user2 user4 user6 user8	When “Del user from group” and a username are selected, the user is removed from the group, and the following confirmation screen appears:  user has been removed from group
Delete group select group  Delete group select group group1 group2 group4 group6 pm1 port2-6	When “Delete group” and a group name are selected, the following confirmation screen appears.  group has been deleted

You can use the User Access Lists menu to view and change KVM port access permissions for the Default User and all administratively configured users and groups. See “Prerequisites for Accessing Servers With KVM Connections” on page 314 for details.

The following table shows the configuration screens related to setting KVM port access permissions when the “User Access List” option is selected from the Users and Groups menu under Configure in the OSD.

Table 7-18: User Access List KVM Port Permissions Configuration Screens

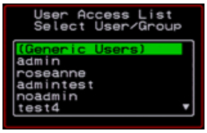
Screen	Description
Select User/Group  User Access List Select User/Group (Generic Users) admin roseanne admintest noadmin test4 ▼	“[Generic Users],” “admin,” and any administratively defined users and groups are listed, along with the “Exit” option. The Generic Users’ permissions apply to all users except for “admin” and any users in the “admin” group. By default, the Generic Users’ default permission is “No Access,” and no KVM port permissions are defined. Therefore, by default, any regular users that may be added cannot access any KVM ports. The KVM/net administrator can configure access to KVM ports for added regular users by: • By selecting “[Generic Users]” and modifying the permissions - OR - • By configuring specific permissions for one or more individual users or groups (by selecting a single port or the “Multiple servers” option)

Table 7-18: User Access List KVM Port Permissions Configuration Screens

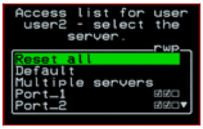
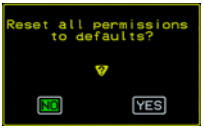
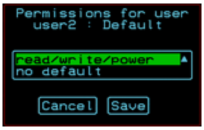
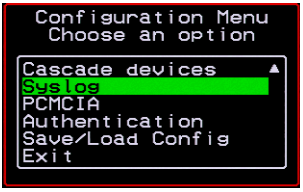
Screen	Description
Access list for username - select the server  Access list for user user2 - select the server. rwp Reset all Default Multiple servers Port_1 ☑☑□ Port_2 ☑☑□▼	The access list includes the “Reset all,” “Default,” “Multiple servers,” and “Exit” options along with each individual KVM ports. The “Default” option defines access permissions for all KVM ports, which apply unless the user has specific access permissions for any KVM ports. For a new user, because “Default Access,” is not defined, and also because no permissions are specified for that user’s access to any specific port, the Generic Users’ permissions apply. A series of three checkboxes appear to the right of each entry that has specific permissions (as defined in the following row). If a3 port has “No Access” defined, the checkboxes are empty. The headings for the checkboxes are: `rwp` for read, write, and power, and the boxes are checked appropriately when any of these permissions are defined. For example, in the screen to the left, the `r` and `w` boxes are checked next to “Port_1” and “Port_2,” which indicates that the user has read-write access to these ports. If “Reset all” is selected, the following confirmation screen appears.  Reset all permissions to defaults? NO YES

Table 7-18: User Access List KVM Port Permissions Configuration Screens

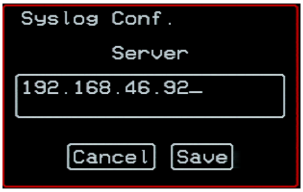
Screen	Description
Permissions for *`username`*: *`port_number`* **or for** *`username`*: **followed by another Access list option, such as "Default" or "Multiple Servers"**  Permissions for user user2 : Default read/write/power no default Cancel Save	The permissions from this menu can be configured to be "Default" permissions for all ports, applied to Multiple Servers, or applied to a selected port. Permissions menu options are "No Access," Read-Only," "Read Write," "Read/Write/Power." When "Default" is selected from the previous menu, the "Not Defined" menu option also appears. When any of the other options

Syslog Screens

You can select the Syslog option on the OSD Configuration Menu to specify the IP address for a syslog server.



Selecting the Configure>Syslog option brings up a Server screen for entering the IP address of a syslog server.



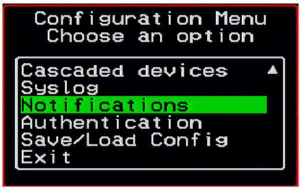
```
192.168.46.92_
```

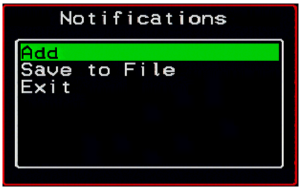
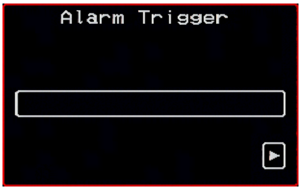
Figure 7-8: Syslog Configuration Server Screen

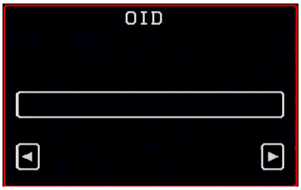
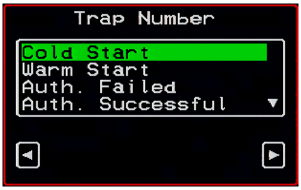
To complete the configuration of system logging, you must specify a facility number as shown in “Syslog Facility” on page 363.

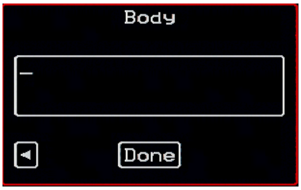
Notification Screens

You can select the Notifications option on the OSD Configuration Menu to configure the KVM/net to monitor and send notifications by the way of SNMP traps.



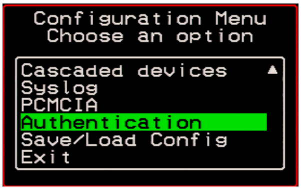
Screen	Description
Choose an option  	The initial step is to select Add to configure a SNMP trap.
Alarm Trigger  	Define the event you want to trigger a notification for.

Screen	Description
OID  	Object Identifier. Each managed object has a unique identifier.
Trap Number  Trap Number Cold Start Warm Start Auth. Failed Auth. Successful	The trap types listed in the drop-down menu translates to a trap number in the system logs.
Community 	A Community defines an access environment. The type of access is classified under “Permission”: either read only or read write. The most common community is “public”. Take caution in using a “public” community name as it is commonly known.
Server IP 	The SNMP server’s IP address or DNS name.

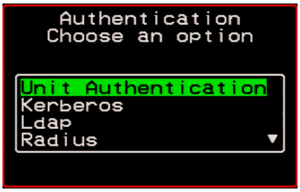
Screen	Description
Body  	The text you want sent in the trap message.

Authentication Screens

You can select the Authentication option on the OSD Configuration Menu to configure an authentication type (AuthType) for logins to the KVM/net and to configure authentication servers for any type of logins: to the KVM/net or to KVM ports. See “Authentication” on page 45 for details about authentication on the KVM/net.



The Authentication menu appears as shown in the following figure.



Not all options are visible.

The following diagram lists the Authentication screens.

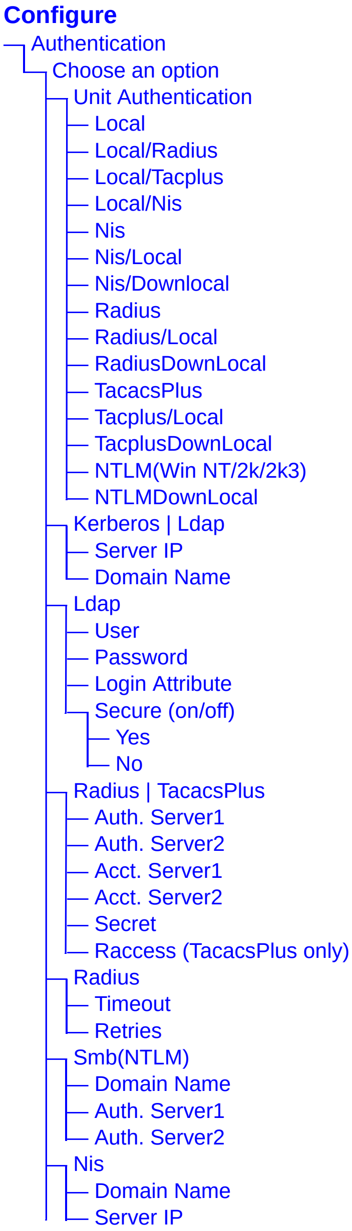
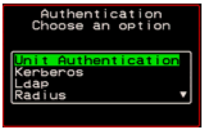
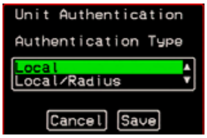


Figure 7-9: Authentication Options and Screens

The following tables show the screens that appear when the “Authentication” option is selected from the Configure menu in the OSD. The first table shows the screen for choosing a KVM/net login authentication method.

Table 7-19: Authentication Configuration Screens for KVM/net Logins

Screen	Description
Choose an option  Authentication Choose an option Unit Authentication Kerberos Ldap Radius	Choose either “Unit authentication” to select an Authentication method for KVM/net logins, or choose one of the Authentication methods listed on this screen to configure an authentication server: Kerberos, Ldap, Radius, TacacsPlus, Smb(NTLM), or Nis.
Unit Authentication  Unit Authentication Authentication Type Local Local/Radius Cancel Save	Authentication method options for KVM/net logins. Default = “Local.” Other authorization type options are: Kerberos, Kerberos/Local, KerberosDownLocal, LDAP, LDAP/Local, LDAPDownLocal, Local/Radius, Local/Tacplus, Local/NIS, NIS, NIS/Local, NIS/Downlocal, Radius, Radius/Local, RadiusDownLocal, TacacsPlus, Tacplus/Local, TacplusDownLocal, NTLM(Win NT/2k/2k3), and NTLMDownLocal

The following table shows the common screens that appear when Kerberos or LDAP are selected to configure an authentication server.

Table 7-20: Common Configuration Screens for Kerberos and LDAP Authentication

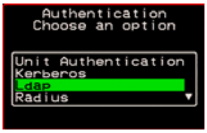
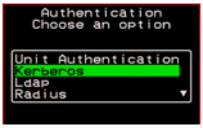
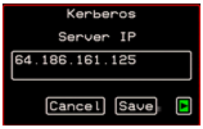
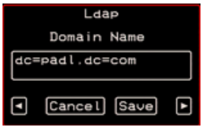
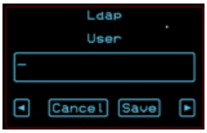
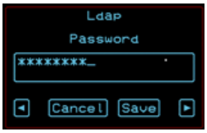
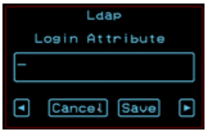
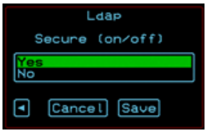
Screen	Description
Ldap  Authentication Choose an option Unit Authentication Kerberos Ldap Radius	Choose Ldap to configure an LDAP authentication server.

Table 7-20: Common Configuration Screens for Kerberos and LDAP Authentication

Screen	Description
Kerberos  Authentication Choose an option Unit Authentication Kerberos Ldap Radius	Choose Kerberos to configure a Kerberos authentication server.
Server IP  Server IP 64.186.161.125	IP address of the Kerberos or LDAP server.
Domain Name  Domain Name dc=padl.dc=com	Domain name.

The following table shows the unique screens for configuring an LDAP server that appear in addition to the screens shown in Table 7-20, “Common Configuration Screens for Kerberos and LDAP Authentication,” on page 7-415.The following table shows the configuration screens for the Radius and

Table 7-21: Unique LDAP Authentication Server Configuration Screens

Screen	Description
User  	The LDAP user name.
Password  	The LDAP password.
Login Attribute  	The login attribute.
Secure (on/off)  	Choices are “Yes” or “No.”

TACACS+ authentication servers.The following table shows the Screens for

Table 7-22: Configuration Screens for the Radius or TACACS+ Authentication Servers

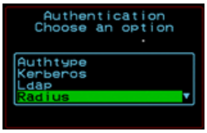
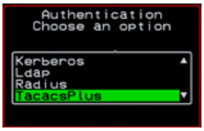
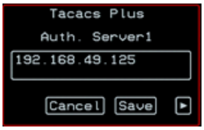
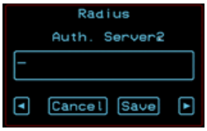
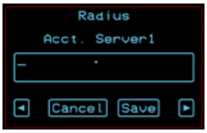
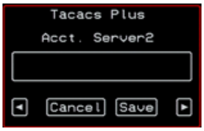
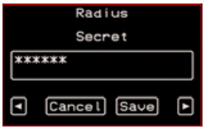
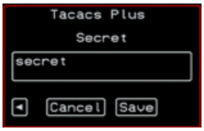
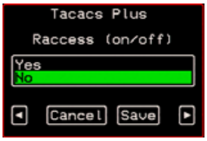
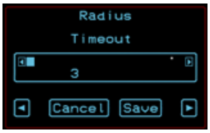
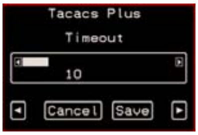
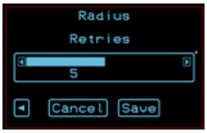
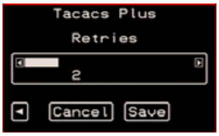
Screen	Description
Radius **TacacsPlus**  Authentication Choose an option Authtype Kerberos Ldap Radius  Authentication Choose an option Kerberos Ldap Radius TacacsPlus	Choose Radius or TacacsPlus to configure a Radius or TACACS+ authentication server.
Auth. Server1 **Auth. Server2**  Tacacs Plus Auth. Server1 192.168.49.125 Cancel Save  Radius Auth. Server2 Cancel Save	IP addresses of one or two authentication servers. The second server is optional.
Acct. Server1 and Acct. Server2  Radius Acct. Server1 Cancel Save  Tacacs Plus Acct. Server2 Cancel Save	IP addresses of one or two optional accounting servers.
Secret  Radius Secret ****** Cancel Save  Tacacs Plus Secret secret Cancel Save	Shared secret.
 Tacacs Plus Raccess (on/off) Yes No Cancel Save	Enable or disable TacacsPlus authorization. See “Group Authorization” on page 209.

Table 7-22: Configuration Screens for the Radius or TACACS+ Authentication Servers (Continued)

Screen	Description
Timeout  Radius Timeout 3  Tacacs Plus Timeout 10 	Timeout in seconds. The default is 3 seconds for Radius and 10 seconds for TacacsPlus.
Retries  Radius Retries 5  Tacacs Plus Retries 2 	Number of retries. The default is 5 for Radius and 2 for TacacsPlus.

configuring a Smb (NTLM) authentication server.

Table 7-23: Smb (NTLM) Configuration Screens

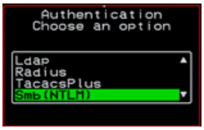
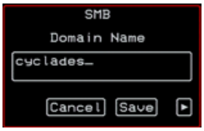
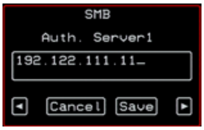
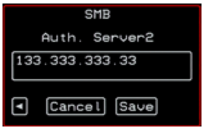
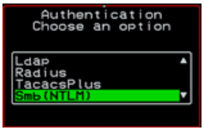
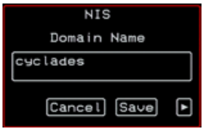
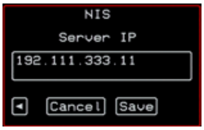
Screen	Description
Smb(NTLM)  Authentication Choose an option 	Choose Smb(NTLM) to configure an SMB (NTLM) authentication server.
Domain Name  SMB Domain Name cyclades_ 	The domain name.

Table 7-23: Smb (NTLM) Configuration Screens (Continued)

Screen	Description
Auth. Server1 and Auth. Server2  192.122.111.11_  133.333.333.33	IP addresses for one or two SMB (NTLM) authentication servers. The second server IP is optional.

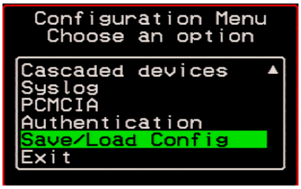
The following table shows the screens for configuring a NIS authentication server.

Table 7-24:NIS Configuration Screens

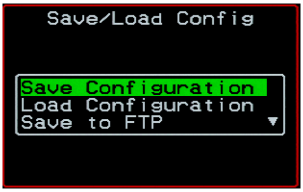
NIS  Authentication Choose an option Ldap Radius TacacsPlus Smb(NTLM)	Choose the NIS authentication server
Domain Name  cyclades	Enter the Domain Name
Server IP  192.111.333.11	IP address of the NIS server.

Save/Load Configuration Screens

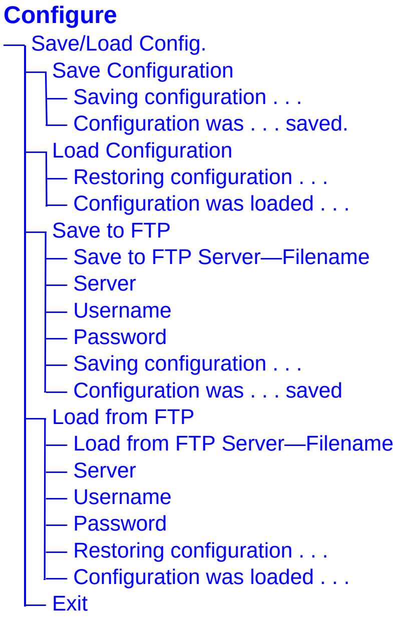
You can use the Save/Load Config option on the OSD Configuration Menu to save any configuration changes you have made since the last save into a backup directory or onto an FTP server. You can also restore configuration file changes from a backup directory or FTP server to overwrite any configuration changes that were made since the last save.



The Save/Load Config screen appears as shown in the following figure. Not all options are visible.



The following diagram lists the Save/Load Configuration screens.



Configure

- Save/Load Config.
  - Save Configuration
    - Saving configuration . . .
    - Configuration was . . . saved.
  - Load Configuration
    - Restoring configuration . . .
    - Configuration was loaded . . .
  - Save to FTP
    - Save to FTP Server—Filename
    - Server
    - Username
    - Password
    - Saving configuration . . .
    - Configuration was . . . saved
  - Load from FTP
    - Load from FTP Server—Filename
    - Server
    - Username
    - Password
    - Restoring configuration . . .
    - Configuration was loaded . . .
  - Exit

Figure 7-10: Save/Load Config Configuration Screens

The following table shows the screens that appear when the “Save/Load Configuration” option is selected from the Configure menu in the OSD.

Table 7-25: Save/Load Configuration Screens

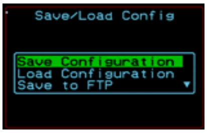
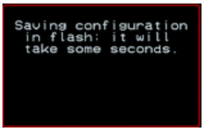
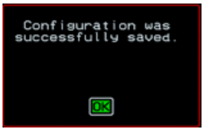
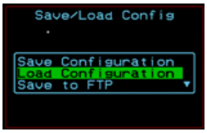
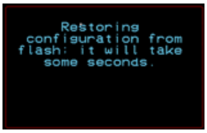
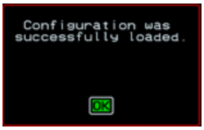
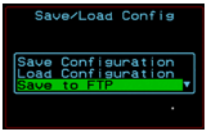
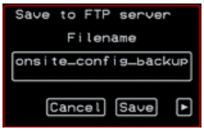
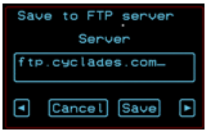
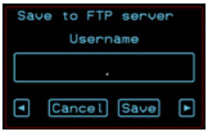
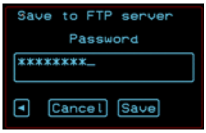
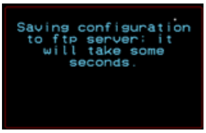
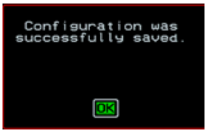
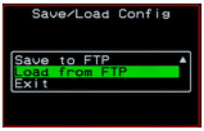
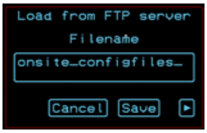
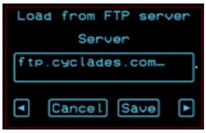
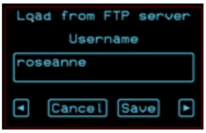
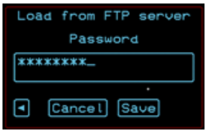
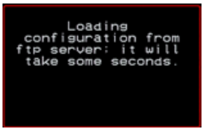
Screen	Description
Save Configuration  Save/Load Config Save Configuration Load Configuration Save to FTP	When “Save Configuration” is selected, the following two screens appear.  Saving configuration in flash: it will take some seconds.  Configuration was successfully saved.

Table 7-25: Save/Load Configuration Screens (Continued)

Screen	Description
Load Configuration  Save/Load Config 	When "Load Configuration" is selected, the following two screens appear.  Restoring configuration from flash: it will take some seconds.  Configuration was successfully loaded.
Save to FTP  Save/Load Config 	When "Save to FTP" is selected, the following five screens appear for you to enter the "Filename," FTP "Server" name, FTP Login "Username" and "Password." The last screens confirm the save to FTP succeeded.  Save to FTP server Filename: onsite_config_backup  Save to FTP server Server: ftp.cyclades.com_  Save to FTP server Username  Save to FTP server Password: ********_  Saving configuration to ftp server: it will take some seconds.  Configuration was successfully saved.
Load from FTP  Save/Load Config 	When "Load from FTP" is selected, the following four screens appear for you to enter the "Filename," FTP "Server" name, FTP Login "Username" and "Password."  Load from FTP server Filename: onsite_configfiles_  Load from FTP server Server: ftp.cyclades.com_  Lqad from FTP server Username: roseanne  Load from FTP server Password: ********_  Loading configuration from ftp server: it will take some seconds.

System Info Menu

System Information window provides administrators detailed system information. The following table offers an example of the type of information you may see on the System Info window.

Table 7-26: System Information Example

Information Type	Example
Board	KVM/net Server ports: 32 User stations: 2 ID: B7DA3C0A000011
Version	Firmware: 2.0 Orig. Boot: 2.0.7 Alt. Boot: no code SYS FPGA: 0x43 MUX FPGA: 0x5b
Memory	RAM: 128 Mbytes Flash: 16 Mbytes RAM usage: 17% RAMDISK usage: 100%
CPU	Clock: 48 MHz
Time	Mon Jul 19 2005 12:35:12 PDT up 10 min
User1 connection	Int. uC, V1.0.4

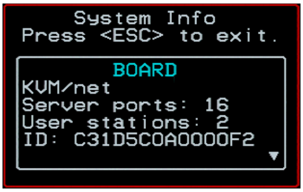
Table 7-26: System Information Example (Continued)

Information Type	Example
User2 connection	RP main, V1.0.4 RP local, V1.0.4

▼ To Access System Information

1. On the Main Menu, select System Info.

   The System Info window appears.



```
System Info
Press <ESC> to exit.
BOARD
KVM/net
Server ports: 16
User stations: 2
ID: C31D5C0A0000F2
```

2. Use the up and down arrow keys to view the information.

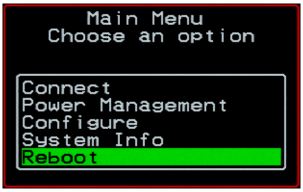
3. To exit, press the escape key.

Reboot

You can reboot the KVM/net from the Main Menu of the OSD. This is particularly useful when operating through the KVM RP.

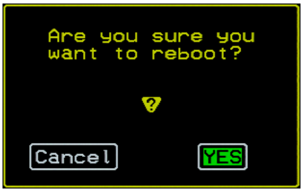
▼ To reboot the KVM/net

1. Select Reboot from the Main Menu.



Main Menu
Choose an option

The following message appears.



Are you sure you want to reboot?

2. Select Yes to reboot the KVM/net.

Controlling the OSD Through the AlterPath KVM RP

While using the AlterPath KVM RP, an administrator has full access to the OSD menus, so all local administration tasks can be performed in an office or at any other location up to 500 feet away from the KVM/net. In addition, you do not need a dedicated monitor, keyboard, and mouse to use the KVM RP; the KVM RP box allows you to use the monitor, keyboard, and mouse of your regular work station and use keyboard shortcuts to toggle between the view at your local work station and the view of the KVM/net.

See “Installing the AlterPath KVM RP” on page 129 for details on how to install an KVM RP. No configuration is required to begin using the KVM RP.

▼ *To Use to the KVM RP to Access the KVM/net*

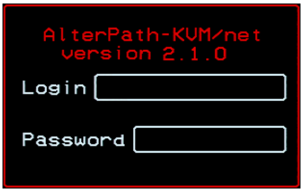
1. Connect the KVM RP to the KVM/net using a CAT5 cable up to 500 feet long.

   See “Installing the AlterPath KVM RP” on page 129 for detailed instructions and diagrams on how to connect the KVM RP to the KVM/net and to your local work station.

2. Power on the KVM RP.

3. Press the Select Local-Remote button on the front of the KVM RP unit to switch the local video display from your local work station to the KVM/net OSD.

   The OSD login screen appears.



AlterPath-KVM/net
version 2.1.0

4. Type your username followed by your password and press Enter.

   The main menu of the KVM/net OSD appears. See “OSD Main Menu” on page 354 for a description of the OSD Main Menu items.

5. Depending on your access privilege, perform one or more of the following actions:

   - If logged in as administrator, perform configuration tasks as described in “Configure Menu Overview” on page 358, “System Info Menu” on page 424, and “Reboot” on page 426.
   - If desired, connect to devices that are physically connected to the KVM/net.

     See “Invoking OSD Using [PrintScreen] Key” on page 355 for instructions.
   - If desired, power manage devices that are plugged into a configured AlterPath PM.

     See “Power Management Menu” on page 357 for instructions.

▼ *To Switch the KVM RP Video Display from the OSD to the Local Computer*

Do one of the following:

- Press the following keyboard shortcut:

  Scroll Lock Scroll Lock L
- Press the Select Local-Remote button on the KVM RP front.

  The green LED labelled Remote turns off, and the green LED labelled Local lights on.

  By default the KVM RP is set to beep when the monitor display switches from local to remote. See “To Turn the Beeper On or Off When Switching Between the Local and the Remote Work Stations” on page 430 for instructions on turning the beep on or off.

▼ *To Switch the KVM RP Video Display from the Local Computer to the OSD*

Do one of the following:

- Press the following keyboard shortcut:

  Scroll Lock Scroll Lock R
- Press the Select Local-Remote button on the KVM RP front.

The green LED labelled Local turns off, and the green LED labelled Remote lights on.

By default the KVM RP is set to beep when the monitor display switches from local to remote. See “To Turn the Beeper On or Off When Switching Between the Local and the Remote Work Stations” on page 430 for instructions on turning the beep on or off.

▼ *To Turn the Beeper On or Off When Switching Between the Local and the Remote Work Stations*

- Press the following keyboard shortcut:

  Scroll Lock Scroll Lock B

Appendix A
Troubleshooting

How to Replace the KVM/net's Boot Image

If the KVM/net does not boot, you may need to replace the boot image. This process requires boot from a TFTP server and an FTP server to download and store the "zImage" in the KVM/net flash memory.

Follow the below procedure to download the latest firmware from the Cyclades FTP server at ftp://ftp.cyclades.com/ and install it onto the KVM/net.

Note: Please read the following procedure thoroughly before proceeding with the upgrade. See the boot message in Figure A-1.

▼ *To Boot From TFTP*

1. Download the latest firmware from the Cyclades FTP server at ftp://ftp.cyclades.com/ and save it on your TFTP Server.
2. Connect a terminal to the KVM/net Console Port with the following parameters:

   Baud Rate: 9600, Data: 8 bit, Parity: none, Stop: 1 bit, Flow control: none
3. Power-cycle the KVM/net and let the unit boot normally.

4. If the memory test (RAM) is being performed, press <ESC> to bypass it. By default the “Testing RAM” is set to skip.

```
Testing RAM .............................. FULL TEST
    This test takes a few seconds.
    Press <ESC> if you want to cancel it.
    Memory detected: 131072 Kbytes
    WARNING! Memory not checked.
```

5. If the storage device test is being performed, press <ESC> to bypass it. By default the “Testing Storage Device” is set to skip.

```
Testing Storage Device [Op Code] ......... SKIPPED
```

6. Press <ESC> when the “Testing Ethernet” prompt appears.

```
Testing Ethernet ......................... OK
```

7. Complete the following system parameters.

   a. At the following prompt press [Enter] to accept the default value (Active), or “I” to inactivate watchdog timer.

```
Watchdog timer ((A)ctive or (I)nactive) [A] :
```

   b. Enter “N” to boot from the network. By default the firmware is set to boot from flash.

```
Firmware boot from ((F)lash or (N)etwork) [F] :
```

   c. Select the boot type at the following prompt.

```
Boot type ((B)ootp,(T)ftp or Bot(H)) [T] :
```

   d. Enter the boot file name. This is the image you downloaded from the Cyclades FTP server. For example, zImage_kvm_200.bin

```
Boot File Name [zvmppckvm.bin] :
```

e. Enter the IP address to be assigned to the KVM/net unit. KVM/net must be in the same subnet as the TFTP server.

```
IP address assigned to Ethernet interface
[192.168.51.243]
```

f. Enter the IP address of TFTP server where you downloaded and stored the latest firmware.

```
Server's IP address [192.168.51.222] :
```

g. Accept the MAC address value that is assigned to the KVM/net unit’s Ethernet card.

```
MAC address assigned to Ethernet [00:60:2E:01:61:0C] :
```

h. Accept the default “Auto Negotiate” value for the Ethernet configuration.

```
Fast Ethernet ((A)uto Neg, 100 (B)tH, 100 Bt(F), 10
B(t)F, 10 Bt(H)) [A] :
```

i. The system starts sending a TFTP request to the server to load the specified firmware.

```
Sending a tftp request.
Trying file : zImage_kvm_200.bin
```

8. Access to the KVM/net is enabled once the boot is completed.

Note: If you are unable to access the unit or the boot is not successful, then the zImage may be corrupted or damaged. You should download the firmware again from the Cyclades FTP server and restart the TFTP procedure described above.

The unit is now operating from the system RAM. The zImage is required to be saved in the flash memory.

9. Log in to the unit and proceed with the following steps to save the zImage in flash memory.

Note: If you are not seeing the initial boot messages (memory tests) but only the Linux boot, then check the cable you are using. The cable may not be properly wired or the terminal port is not providing the correct RS-232 signal. Check the terminal emulator application for speed/parity/length configured in the COM port to access to unit.

Table A-1: Boot Message

```
Booting from Original Boot 2.0.7 (Apr/21/04)
Cyclades Corporation
Testing RAM .............................. SKIPPED
    Memory detected: 131072 Kbytes
Testing FLASH ............................ OK
    Flash detected: 256 Kbytes
Testing Flash [Configuration] ............ OK
Storage Device Detected .................. OK
    Compact Flash SMC128AFA5
    Size: 130 Mbytes
Testing Storage Device [Op Code] ......... SKIPPED
Interface Cards Detected ................. OK
    1-UART port detected in AUX
    16-KVM ports detected
    1-local KVM user station port in USER1
    1-remote KVM user station port in USER2
Testing Ethernet ......................... OK  <--- Press [ESC]
Testing Real Time Clock .................. OK
Testing Serial Number..................... OK
    ID is 24939C0B000064
IP Daughter Board #1 Detected ............ OK
IP Daughter Board #2 Detected ............ OK

Watchdog timer ((A)ctive or (I)nactive) [A] : A
Firmware boot from ((F)lash or (N)etwork) [F] : N
Boot type ((B)ootp,(T)ftp or Bot(H)) [T] : T
Boot File Name [zvmppckvm.bin] : zImage_kvm_200.bin
IP address assigned to Ethernet interface [192.168.51.243] :
Server's IP address [192.168.160.1] : 192.168.51.222
MAC address assigned to Ethernet [00:60:2E:01:61:0C] :
Fast Ethernet ((A)uto Neg, 100 (B)tH, 100 Bt(F), 10 B(t)F, 10 Bt(H)) [A] :
Network boot.
Sending a tftp request.
Trying file : zImage_kvm_200.bin
```

▼ *To Save the zImage into the KVM/net's Flash Memory.*

1. Download the latest firmware from the Cyclades FTP server at ftp://ftp.cyclades.com/ and save it on your FTP Server.

Note: Make sure to set the transfer mode to binary (bin).

2. Save the file onto your FTP server. In the following example the filename is zImage_kvm_200.bin
3. Connect a terminal to the console port on your KVM/net, login as "root", and go to the following directory.

```
[root@)KVM/net root]# cd /proc/flash
[root@KVM/net flash]#
```

4. From this directory, ftp to your FTP server.

Note: Be sure to set the transfer mode to binary (bin).

```
[root@KVMNet flash]# ftp <my_ftp_server>
ftp> bin [enter]
ftp> get zImage_kvm_200.bin [enter]
```

5. Exit ftp when the download is completed.
6. Reboot the KVM/net.

```
[root@KVM/net flash]# reboot
```

Note: If the unit does not reboot properly, there may have been a file corruption. Repeat the steps described in section "To Boot From TFTP"

How to Upgrade the Firmware on KVM/net

1. Download the firmware bin file (*.bin) and the md5 checksum (*.md5) from Cyclades download site at http://www.cyclades.com/support/downloads.php or from Cyclades FTP server at ftp://ftp.cyclades.com and place it on your local FTP or SSH/SCP server.
2. Use FTP or SSH/SCP to copy the downloaded files to the flash memory of your KVM/net unit by overwriting the existing firmware.

FTP Method

Follow the below procedure if you use FTP. In the following example the assumption is that your local FTP server is 192.168.51.242, and the firmware is saved at /pub/cyclades/zImage_kvm_200.bin

1. Connect a terminal to the console port of your KVM/net, login as “root”, and execute the following commands.

```
[root@KVM/net flash]# ftp 192.168.51.242
hash
bin
lcd /proc/flash
cd /pub/cyclades
get zImage_kvm_200.bin
get zImage_kvm_200.md5
quit
```

SSH/SCP Method

Follow the below procedure if you use SSH/SCP. In the following case the assumption is that your local SSH/SCP server is 192.168.51.242, your username is paul and the firmware is saved at /home/paul/cyclades/zImage_kvm_200.bin.

1. Login as root to your KVM/net and execute the following commands.

```
[root@KVMNet root]#scp paul@192.168.51.242:/home/
paul/cyclades/zImage_kvm_200.bin /proc/flash/
zImage_kvm_200.bin

[root@KVMNet root]#scp paul@192.168.51.242:/home/
paul/cyclades/zImage_kvm_200.md5 /proc/flash/
zImage_kvm_200.md5
```

2. Execute the following command as “root” to generate the md5 checksum of the upgraded firmware file.

```
[root@KVMNet root]# md5sum /proc/flash/
zImage_kvm_200.bin
```

3. The following md5 file is generated and displayed.

```
77d44763e549064f42f7103768c5cad9 zImage_kvm_200.bin
```

4. Use the `cat` command to compare the displayed checksum with the checksum provided with the firmware.

```
[root@KVM/net flash]# cat zImage_kvm_200.md5
```

Note: The displayed checksum must be identical with the checksum provided with the firmware (*.md5 file). If the checksum is different, it means that a problem occurred during the download process, and the firmware may be damaged. In this case please check the steps you took during the upgrade process and try again.

Warning! Do not reboot the KVM/net until you have upgraded the firmware successfully.

5. If you would like to set the unit back to factory default, enter the following command. Assumption is that you are logged in as “root”.

Warning! All configuration settings will be lost!

```
#echo > /proc/flash/script
```

6. Reboot your unit by executing the following command.

```
#reboot
```

How to Boot the KVM/net Over the Network.

Follow the steps described in section "To Boot From TFTP" to boot the KVM over the network. If you would like the KVM/net to boot always from the network follow the below procedure to configure the unit.

1. Connect a terminal to the console port of your KVM/net with the following parameters: Baud Rate: 9600, Data: 8 bit, Parity: none, Stop: 1 bit, Flow control: none.

2. Login as “root”, and execute the following command.

```
[root@KVMNet root]# bootconf
```

3. At the following prompt enter “N” to modify the default parameters.

```
Set to defaults (y/n) [N] : n

Current configuration

MAC address assigned to Ethernet [00:60:2e:01:61:0c]
IP address assigned to Ethernet interface
[192.168.51.243]
Watchdog timer ((A)ctive or (I)nactive) [A]
Firmware boot from ((F)lash or (N)etwork) [F]
Boot type ((B)ootp,(T)ftp or Bot(H)) [T]
Boot File Name [zvmppckvm.bin]
Server's IP address [192.168.160.1]
Console speed [9600]
(P)erform or (S)kip Flash test [S]
(S)kip, (Q)uick or (F)ull RAM test [S]
Fast Ethernet ((A)uto Neg, (1)00 BtH, 100 Bt(F), 10
B(t)F, 10 Bt(H)) [A]
Fast Ethernet Maximum Interrupt Events [0]
Maximum rate of incoming bytes per second [0]:

MAC address assigned to Ethernet [00:60:2e:01:61:0c]:
```

4. Press [Enter] to accept the default parameters, but change the following parameter to enable boot from the network.

```
Firmware boot from ((F)lash or (N)etwork) [F] : N
```

5. The following prompt appears for you to review the changes before saving to flash memory.

```
New configuration to be saved as

MAC address assigned to Ethernet [00:60:2e:01:61:0c]
IP address assigned to Ethernet interface
[192.168.51.243]
Watchdog timer ((A)ctive or (I)nactive) [A]
Firmware boot from ((F)lash or (N)etwork) [N]
Boot type ((B)ootp,(T)ftp or Bot(H)) [T]
Boot File Name [zvmppckvm.bin]
Server's IP address [192.168.160.1]
Console speed [9600]
(P)erform or (S)kip Flash test [S]
(S)kip, (Q)uick or (F)ull RAM test [S]
Fast Ethernet ((A)uto Neg, (1)00 BtH, 100 Bt(F), 10
B(t)F, 10 Bt(H)) [A]
Fast Ethernet Maximum Interrupt Events [0]
Maximum rate of incoming bytes per second [0]:
```

6. At the following prompt save the configuration changes to flash memory.

```
Do you confirm these changes in flash ( (Y)es, (N)o
(Q)uit ) [N] : Y
```

How to Boot the KVM/net in Single User Mode

The KVM/net has a single user mode that is used when:

1. The name or password of the user with root privileges is lost or forgotten.
2. When an upgrade or downgrade process does not work properly and the system turns unstable.
3. When a configuration change leaves the KVM/net inoperative or unstable.

Note: You cannot perform this process using Telnet or other remote connection protocols.

▼ *To Boot the KVM/net in Single User Mode*

1. Connect a terminal to the console port of your KVM/net, login as “root”, and reboot the unit.

The initial output of the hardware boot process is shown below.

```
Hardware boot.

Entry Point = 0x00002120
loaded at:     00002120 00E433D4
relocated to:  00800020 016412D4
board data at: 0163E024 0163E244
relocated to:  0080579C 008059BC
zimage at:     008060F0 008AEBA0
initrd at:     008AF000 0163E000
avail ram:     01642000 08000000
Linux/PPC load: root=/dev/ram ramdisk=0x0000F000
```

2. After the line **“`Linux/PPC load: root=/dev/ram`”** is displayed, the system waits approximately 3 seconds for user input.

3. Type “<sp>single” (spacebar, then the word “single”).

```
Linux/PPC load: root=/dev/ram ramdisk=0x0000F000 single
```

4. When the boot process is completed, the following prompt appears.

```
[root@(none) /]#
```

5. If the password is forgotten execute the following command.

```
[root@(none) /]# passwd
New password: *******
Re-enter new password: *******
Password changed
```

6. Save the new configuration and reboot the unit.

```
[root@(none) /]# saveconf
Checking the configuration file list...
Compressing configuration files into /tmp/
saving_config.tar.gz ... done.
Saving configuration files to flash ... done.
[root@(none) /]# reboot
```

7. If there are configuration problems execute the following commands to reset the configuration to factory default.

```
[root@(none)]# echo 0> /proc/flash/script
```

```
[root@(none)]# reboot
```

8. The system reboots and displays the following message.

```
[root@(none)]# Restarting system
```

9. If the problem is due to an upgrade or a downgrade, the process needs to be repeated to reverse the problem.

   a. The network must be initialized in order to reach an FTP server.

Execute the following script, replacing the parameters with values appropriate for your system. The gw and mask parameters are optional.

```
[root@(none)]# config_eth0 ip 192.168.51.242 mask
255.255.255.0 gw 192.168.51.1
```

b. Using the “vi editor”, edit the file(s) causing the problem and then reboot the unit.

```
[root@(none) root]# saveconf
[root@(none) root]# reboot
```

c. Check your DNS configuration in the file /etc/resolv.conf, and download the zImage using the ftp command. See "To Save the zImage into the KVM/net’s Flash Memory."

How to Restore the KVM/net’s Configuration to Factory Default

This procedure assumes that the saveconf command has been previously run to save the configuration.

While logged in as root through the console, via Telnet, or via any SSH session, enter the following command.

```
[root@KVM/net root]# echo 0>/proc/flash/script
[root@KVM/net root]# reboot
```

How to Disable Mouse Acceleration Using Windows Registry

In order to disable the mouse acceleration and synchronize it on your PC or laptop with the remote server attached to KVM/net, run `regedit` on the remote server, and disable the mouse acceleration by setting the mouse speed to “0”.

The following registry entries shows the path where the “MouseSpeed” setting is located.

```
HKEY_USERS\\.Default\\Control Panel\\Mouse\\MouseSpeed = 0
HKEY_CURRENT_USER\\Control Panel\\Mouse\\MouseSpeed = 0
```

This key is listed twice in the registry file and is usually set to 1 (enabled) by default. After changing the value of this key, log off and on to the server or reboot the server to get the registry changes to take effect.

Note: The above procedure is for a Windows server. Also, See “Disabling Mouse Acceleration” on page 106 for configuration procedures using the Windows Control Panel.

Appendix B
Technical Specifications

The following table provides the technical specifications for the KVM/net.

Table B-1: Technical Specifications

CPU	MPC855T (PowerPC) @ 48 Mhz
Memory	128 MB DIMM SDRAM/128 MB Compact Flash
Interfaces	• 1 Ethernet 10/100BT on RJ-45 • 1 RS-232 console port on RJ-45 • 1 RS-232 auxiliary port on RJ-45 • 16 or 32 KVM ports on RJ-45 (CAT5 based) • 1 VGA HD15 female and 2 Mini-DIN6 (PS/2) user interface • 1 RJ45 user interface (CAT5 based) •
Power	Internal 100-240 VAC, 50/60 Hz
Form Factor	1U rack mountable
Operating Temperature	32°F to 122°F (0°C to 50°C)
Storage Temperature	-40°F to 185°F (-40°C to 85°C)
Humidity	5% to 90% non-condensing

Table B-1: Technical Specifications (Continued)

Dimensions (WxDxH)	• KVM/net - 17 x 9.5 x 1.75 in (43.18 x 24.13 x 4.45 cm) • KVM Expander – 12 x 2.5 x 1.53 in (30.48 x 6.35 x 3.87 cm) • KVM Terminator 1.24 x 2.60 x 0.85 in (3.15 x 6.60 x 2.16 cm) • KVM RP 9 x 9 x 1.75 in (22.86 x 22.86 x 4.45 cm)
Certifications	• FCC Part 15, A • EN55022, A (CE)

Appendix C
Safety Guidelines

Follow the precautions in this appendix when installing Cyclades products. Failure to observe the listed precautions may result in personal injury or damage to equipment. Failing to observe compliance requirements makes the equipment no longer compliant. See Appendix B, “Technical Specifications” on page 447 for specific standards and compliance information for the AlterPath KVM/net.

General Safety Precautions

Observe the following general precautions when setting up and using Cyclades equipment.

- Follow all cautions and instructions marked on the equipment.
- Follow all cautions and instructions in the installation documentation or on any cautionary cards shipped with the product.
- Do not push objects through the openings in the equipment. Dangerous voltages may be present. Objects with conductive properties can cause fire, electric shock, or damage to the equipment.
- Do not make mechanical or electrical modifications to the equipment.
- Do not block or cover openings on the equipment.
- Chose a location that avoids excessive heat, direct sunlight, dust, or chemical exposure, all of which can cause the product to fail. For example, do not place a Cyclades product near a radiator or heat register. which can cause overheating.

- Connect products that have dual power supplies to two separate power sources, for example, one commercial circuit and one uninterruptible power supply (UPS). The power sources must be independent of each other and must be controlled by a separate circuit breaker.
- For products that have AC power supplies, ensure that the voltage and frequency of the power source match the voltage and frequency on the label on the equipment.
- Products with AC power supplies have grounding-type three-wire power cords. Make sure the power cords are plugged into single-phase power systems that have a neutral ground.
- Do not use household extension power cords with Cyclades equipment because household extension cords are not designed for use with computer systems and do not have overload protection.
- Make sure to connect DC power supplies to a grounded return.
- Ensure that air flow is sufficient to prevent extreme operating temperatures. Provide a minimum space of 6 inches (15 cm) in front and back for adequate airflow.
- Keep power and interface cables clear of foot traffic. Route cables inside walls, under the floor, through the ceiling, or in protective channels or raceways.
- Route interface cables away from motors and other sources of magnetic or radio frequency interference.
- Stay within specified cable length limitations.
- Leave enough space in front and back of the equipment to allow access for servicing.

Rack or Cabinet Placement

When installing Cyclades equipment in a rack or cabinet, observe the following precautions:

- Ensure that the floor’s surface is level.
- Load equipment starting at the bottom first and filling the rack or cabinet from the bottom to the top.
- Exercise caution to ensure that the rack or cabinet does not tip during installation and use an anti-tilt bar.

Table Placement

- Choose a desk or table sturdy enough to hold the equipment.
- Place the equipment so that at least 50% of the equipment is inside the table or desk’s leg support area to avoid tipping of the table or desk.

Safety Guidelines for Rack-Mounting the KVM/net

Note: Each heading and its contents in this section is also provided in German (*Deutsch*) in italics immediately following the English.

The following considerations should be taken into account when rack-mounting the AlterPath KVM/net.

Folgendes sollte beim Rack-Einbau des AlterPath KVM/net berücksichtigt werden.

Temperature

The manufacturer's maximum recommended ambient temperature for the AlterPath KVM/net is 122 ºF (50 ºC).

Temperatur

Die maximal empfohlene Umgebungstemperatur des AlterPath KVM/net beträgt 50 ºC (122 ºF).

Elevated Operating Ambient Temperature

If the AlterPath KVM/net is installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer’s maximum rated ambient temperature. See above.

Erhöhte Umgebungstemperatur im Betrieb

Bitte treffen Sie entsprechende Vorkehrungen um die Herstellerangaben zur maximalen Umgebungstemperatur einzuhalten. Bitte beachten Sie, dass bei einer Installation des AlterPath KVM/net in einem geschlossenen oder mehrfach bestücktem Rack die Umgebungstemperatur im Betrieb höher sein kann als die Raumtemperatur.

Reduced Air Flow

Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

Luftdurchsatz

Für einen sicheren Betrieb bitte auf ausreichenden Luftdurchsatz im Rack achten.

Mechanical Loading

Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

Sicherer mechanischer Aufbau

Bitte vermeiden Sie beim Einbau der Geräte ungleichmäßige mechanische Belastung.

Circuit Overloading

Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Elektrische Überlastung

Bitte beachten Sie beim elektrischen Anschluss der Geräte, dass diese zum Schutz vor Überlastung mit entsprechenden Schutzvorkehrungen ausgestattet sein können. Bitte sorgen Sie gegebenenfalls für Klarheit durch entsprechende Beschriftung:

Reliable Earthing

Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit, such as power strips or extension cords.

Zuverlässige Erdung

Eine ausreichende Erdung der im Rack montierten Geräte muss sichergestellt sein. Insbesondere sollte indirekten Verbindungen zur Stromversorgung über Powerleisten oder Verlängerungen besondere Aufmerksamkeit gewidmet werden.

Safety Precautions for Operating the AlterPath KVM/net

Please read all the following safety guidelines to protect yourself and your AlterPath KVM/net.

Sicherheitsvorkehrungen beim Betrieb des AlterPath KVM/net

Bitte lesen Sie alle folgenden Sicherheitsrichtlinien um sich und Ihren AlterPath KVM/net vor Schäden zu bewahren.

Caution: Do not operate your AlterPath KVM/net with the cover removed.

Vorsicht: *Bitte betreiben Sie den* AlterPath KVM/net *nicht mit geöffnetem Gehäuse.*

Caution! To avoid shorting out your AlterPath KVM/net when disconnecting the network cable, first unplug the cable from the Host Server, unplug external power (if applicable) from the equipment, and then unplug the cable from the network jack. When reconnecting a network cable to the back of the equipment, first plug the cable into the network jack, and then into the Host Server equipment.

Vorsicht: *Um Schäden beim Entfernen des Netzwerkkabels zu vermeiden bitte immer zuerst das Kabel vom Host Server entfernen, anschließend die externe Stromzufuhr abklemmen und danach das Kabel aus der Netzwerkbuchse ausstecken. Beim Wiederherstellen der Verbindung immer zuerst das Kabel in die Netzwerkbuchse des KVM/net zuerst einstecken und danach das Kabel in den Host Server einstecken.*

Caution: To help prevent electric shock, plug the AlterPath KVM/net into a properly grounded power source. The cable is equipped with a three-prong plug to help ensure proper grounding. Do not use adapter plugs or remove the grounding prong from the cable. If you have to use an extension cable, use a three-wire cable with properly grounded plugs.

Vorsicht: *Um Stromschläge zu vermeiden den AlterPath KVM/net bitte mit einer ausreichend geerdeten Stromquelle verbinden. Zu diesem Zweck ist das Eingangskabel ist mit einem dreipoligen Stecker ausgestattet. Bitte keinesfalls dazwischen liegende Adapter einsetzen oder den Erdungsstift entfernen. Falls eine Verlängerung eingesetzt werden muss bitte ausschließlich dreipolige Kabel mit ausreichender Erdung verwenden.*

Caution: To help protect the AlterPath KVM/net from electrical power fluctuations, use a surge suppressor, line conditioner, or uninterruptible power supply. Be sure that nothing rests on the cables of the KVM/net and that they are not located where they can be stepped on or tripped over. Do not spill food or liquids on KVM/net.

Vorsicht: *Um den AlterPath KVM/net vor elektrischen Netzschwankungen zu bewahren bitte Überspannungsfilter, Entstörfilter oder eine UVS einsetzen. Stellen Sie bitte sicher dass sich keine Gegenstände auf den Kabeln des KVM/net befinden und dass die Kabel tritt- und stolpersicher geführt sind. Bitte keine Lebensmittel oder Flüssigkeiten über den KVM/net schütten.*

Caution: Do not push any objects through the openings of the AlterPath KVM/net. Doing so can cause fire or electric shock by shorting out interior components.

Vorsicht: *Zur Vermeidung von Brandgefahr oder elektrischen Schlägen bitte keine Gegenstände durch die Öffnungen des AlterPath KVM/net stecken.*

Caution: Keep your AlterPath KVM/net away from heat sources and do not block host’s cooling vents.

Vorsicht: *Der AlterPath KVM/net muss vor Hitzequellen geschützt werden und die Lüfterausgänge dürfen nicht blockiert sein.*

Glossary

3DES

Tripple Data Encryption Standard, an encrypting algorithm (cipher) that processes each data block three times, using a unique key each time. 3DES is much more difficult to break than straight DES. Because it is the most secure of the DES combinations, 3DES is also slower in performance.

Authentication

The process by which a user’s identity is checked within the network to ensure that the user has access to the requested resources.

Basic In/Out System (BIOS)

Chips on the motherboard of a computer contain read only memory instructions that are used to start up a computer. The operating system of a PC also makes use of BIOS instructions and settings to access hardware components such as a disk drive. Some BIOS/CMOS settings can be set to scan for viruses, causing problems for some installation programs.

Baud Rate

The baud rate is a measure of the number of symbols (characters) transmitted per unit of time. Each symbol will normally consist of a number of bits, so the baud rate will only be the same as the bit rate when there is one bit per symbol. The term originated as a measure for the transmission of telegraph characters. It has little application today except in terms of modem operation. It is recommended that all data rates are referred to in bps, rather than baud (which is easy to misunderstand). Additionally, baud rate cannot be equated to bandwidth unless the number of bits per symbol is known.

BogoMips A measurement of processor speed made by the Linux kernel when it boots, to calibrate an internal busy-loop.

Bonding (Linux) Ability to detect communication failure transparently, and switch from one LAN connection to another. The Linux bonding driver has the ability to detect link failure and reroute network traffic around a failed link in a manner transparent to the application. It also has the ability (with certain network switches) to aggregate network traffic in all working links to achieve higher throughput. The bonding driver accomplishes this by enslaving all of the Ethernet ports in the bond to the same Ethernet MAC address, which ensures the proper routing of packets across the links.

Boot To start a computer so that it is ready to run programs for the user. A PC can be booted either by turning its power on, (Cold Boot) or by pressing Ctrl+Alt+Del (Warm Boot).

Bootp Bootstrap Protocol. A TCP/IP protocol allowing a BOOTP server node to allocate IP addresses to diskless work stations at startup.

CAT5 Category 5. A cabling standard for use on networks at speeds up to 100 Mbits including FDDI and 100base-T. The 5 refers to the number of turns per inch with which the cable is constructed.

Console Terminal used to configure network devices at boot (start-up) time. Also used to refer to the keyboard, video and mouse user interface to a server.

Checksum A computed value which depends on the contents of a block of data and which is transmitted or stored along with the data in order to detect corruption of the data. The receiving system recomputes the checksum based upon the received data and compares this value with the one sent with the data. If the two values are the same, the receiver has some confidence that the data was received correctly.

CIDR Notation

Classless Inter Domain Routing (CIDR) is a method for assigning IP addresses without using the standard IP address classes like Class A, Class B or Class C. In CIDR notation, an IP address is represented as A.B.C.D /n, where "/n" is called the IP prefix or network prefix. The IP prefix identifies the number of significant bits used to identify a network. For example, 192.9.205.22 /18 means, the first 18 bits are used to represent the network and the remaining 14 bits are used to identify hosts. Common prefixes are 8, 16, 24, and 32.

Cluster

A cluster is a group of one or more computers working as a group to execute a certain task. From the user standpoint, a cluster acts as a large computer system.

Community

The community name acts as a password and is used to authenticate messages sent between an SNMP client and a router containing an SNMP server. The community name is sent in every packet between the client and the server.

DHCP

Dynamic Host Configuration Protocol. A protocol for automatic TCP/IP configuration that provides static and dynamic address allocation and management.

DHCP enables individual computers on an IP network to extract their configurations from a server (the 'DHCP server') or servers, in particular, servers that have no exact information about the individual computers until they request the information. The overall purpose of this is to reduce the work necessary to administer a large IP network. The most significant piece of information distributed in this manner is the IP address.

DNS Server

Domain Name Server. The computer you use to access the DNS to allow you to contact other computers on the Internet. The server keeps a database of host computers and their IP addresses.

Domain Name

The unique name that identifies an Internet site. Domain Names always have 2 or more parts, separated by dots. The part on the left is the most specific, and the part on the right is the most general. A given machine may have more than one Domain Name but a given Domain Name points to only one machine. For example, the domain names: matisse.net, mail.matisse.net, workshop.matisse.net can all refer to the same machine, but each domain name can refer to no more than one machine. Usually, all of the machines on a given Network will have the same thing as the right-hand portion of their Domain Names (matisse.net in the examples above). It is also possible for a Domain Name to exist but not be connected to an actual machine. This is often done so that a group or business can have an Internet email address without having to establish a real Internet site. In these cases, some real Internet machine must handle the mail on behalf of the listed Domain Name.

Escape Sequence

A sequence of special characters that sends a command to a device or program. Typically, an escape sequence begins with an escape character, but this is not universally true.

An escape sequence is commonly used when the computer and the peripheral have only a single channel in which to send information back and forth. If the device in question is "dumb" and can only do one thing with the information being sent to it (for instance, print it) then there is no need for an escape sequence. However most devices have more than one capability, and thus need some way to tell data from commands.

Ethernet

A LAN cable-and-access protocol that uses twisted-pair or coaxial cables and CSMA/CD (Carrier Sense Multiple Access with Collision Detection), a method for sharing devices over a common medium. Ethernet runs at 10 Mbps; Fast Ethernet runs at 100 Mbps. Ethernet is the most common type of LAN.

Flash

Flash refers to a type of memory that can be erased and reprogrammed in units of memory known as blocks rather than one byte at a time; thus, making updating to memory easier.

flow control

A method of controlling the amount of data that two devices exchange. In data communications, flow control prevents one modem from "flooding" the other with data. If data comes in faster than it can be processed, the receiving side stores the data in a buffer. When the buffer is nearly full, the receiving side signals the sending side to stop until the buffer has space again. Between hardware (such as your modem and your computer), hardware flow control is used; between modems, software flow control is used.

FTP

Short for *File Transfer Protocol*. The protocol for exchanging files over the Internet. FTP works in the same way as HTTP for transferring web pages from a server to a user's browser. FTP uses the Internet's TCP/IP protocols to enable data transfer.

Hot-Swap

Ability to remove and add hardware to a computer system without powering off the system.

ICMP

Internet Control Message Protocol is an Internet protocol sent in response to errors in TCP/IP messages. It is an error reporting protocol between a host and a gateway. ICMP uses Internet Protocol (IP) datagrams (or *packets*), but the messages are processed by the IP software and are not directly apparent to the application user.

In-band

In a computer network, when the management data is accessed using the same network that carries the data is called “in-band management.”

IP address

A 32-bit address assigned to hosts using TCP/IP. It belongs to one of five classes (A-E) and is expressed as 4 octets separated by periods formatted as dotted decimals. Each address has a network number, an optional sub network number and a host number. The first two numbers are used for routing, while the host number addresses an individual host within the network or sub network. A subnet mask is used to extract network and sub network information from the IP address.

IP packet filtering

This is a set of facilities in network equipment that allows the filtering of data packets based on source/destination addresses, protocol, TCP port number and other parameters. Packet filtering is one of the main functions of a firewall.

IPsec

Short for *IP Security Protocol*, IPsec is an extended IP protocol that provides encrypted security services. These services enable authentication, as well as access and trustworthiness control. IPsec provides similar services as SSL, but it works on a network layer. Through IPsec you can create encrypted tunnels (VPN) or encrypt traffic between two hosts.

Kerberos

Kerberos was created by MIT as a solution to network security problems. The Kerberos protocol uses strong cryptography so that a client can prove its identity to a server (and vice versa) across an insecure network connection. After a client and server has used Kerberos to prove their identity, they can also encrypt all of their communications to assure privacy and data integrity as they go about their business.

KVM

Keyboard, video and mouse interface to a server.

LDAP

Lightweight Directory Access Protocol. A software protocol for enabling anyone to locate organizations, individuals, and other resources such as files and devices in a network, whether on the Internet or on a corporate intranet. LDAP is a "light weight" (smaller amount of code) version of DAP (Directory Access Protocol), which is part of X.500, a standard for directory services in a network.

MAC

Medium Access Control. Internationally unique hardware identification address that is assigned to the NIC (Network Interface Card) which interfaces the node to the LAN.

MD5

MD5 (Message-Digest algorithm 5) is a cryptographic hash function with a 128-bit hash value. MD5 has been employed in a wide variety of security applications and is commonly used to check the integrity of files.

MTU

Short for *Maximum Transmission Unit*, the largest physical packet size, measured in bytes, that a network can transmit. Any messages larger than the MTU are divided into smaller packets before being sent.

Every network has a different MTU, which is set by the network administrator. On Windows, you can set the MTU of your machine. This defines the maximum size of the packets sent from your computer onto the network. Ideally, you want the MTU to be the same as the smallest MTU of all the networks between your machine and a message's final destination. Otherwise, if your messages are larger than one of the intervening MTUs, they will get broken up (fragmented), which slows down transmission speeds. Trial and error is the only sure way of finding the optimal MTU, but there are some guidelines that can help. For example, the MTU of many PPP connections is 576, so if you connect to the Internet via PPP, you might want to set your machine's MTU to 576 too. Most Ethernet networks, on the other hand, have an MTU of 1500

Network Mask

A number used by software to separate the local subnet address from the rest of a given Internet protocol address

Network masks divide IP addresses into two parts (network address and address of a particular host within the network). Mask have the same form as IP addresses (for example, 255.255.255.0), however, its value is needed to be understood as a 32-bit number with certain number of ones on the left end and zeros as the rest. The mask cannot have an arbitrary value. The primary function of a subnet mask is to define the number of IP hosts that participate in an IP subnet. Computers in the same IP subnet should not require a router for network communication.

NFS

Network File System is a protocol suite developed and licensed by Sun Microsystems that allows different makes of computers running different operating systems to share files and disk storage. NFS is implemented using a connectionless protocol (UDP) in order to make it stateless.

NTP

Network Time Protocol. A standard for synchronizing your system clock with the ``true time", defined as the average of many high-accuracy clocks around the world.

Object Identifiers (OID) The SNMP manager or the management application uses a well-defined naming syntax to specify the variables to the SNMP agent. Object names in this syntax are called Object Identifiers (Object IDs or OIDs). OIDs are series of numbers that uniquely identify an object to an SNMP agent. OIDs are arranged in a hierarchical, inverted tree structure.

The OID tree begins with the root and expands into branches. Each point in the OID tree is called a node and each node will have one or more branches, or will terminate with a leaf node. The format of OID is a sequence of numbers with dots in between.

There are two roots for Object Identifiers, namely iso and ccit. iso starts with.1 and ccit starts with.0. Most Object Identifiers start with.1.3.6.1, where 1=iso, 3=org, 6= dod,

1 = internet. The Internet sub-tree branches into mgmt and private.

To understand the concept of relative and absolute Object Identifiers, let us consider the AdventNet Object Identifier.1.3.6.1.4.1.2162. It specifies the path from the root of the tree. The root does not have a name or a number but the initial 1 in this OID is directly below root. This is called an absolute OID. However, a path to the variable may be specified relative to some node in the OID tree. For example, 2.1.1.7 specifies the sysContact object in the system group, relative to the Internet (.1.3.6.1) node in the OID tree. This is called a relative OID.

OID See Object Identifier

OOBI Out-of-Band Infrastructure, an integrated systems approach to remote administration. Consists of components that provide secure, alternate path to connect to and manage an organization’s production network remotely.

OSD On-Screen Display.

Packet A packet is a basic communication data unit used when transmitting information from one computer to another. The maximum length of a packet depends on the communication medium. As an example, in Ethernet networks the maximum length is1500 bytes. A data packet can be divided into two parts: the header part and the data part. The header contains information needed for communication between nodes; the data is the body of the packet that is ultimately received by the application.

Parity

In serial communications, the parity bit is used in a simple error detection algorithm. As a stream of data bits is formed, an extra bit, called the parity bit, is added. This bit is set on (1) or off (0), depending on the serial communications parameters set in the UART chip.

The following lists the available parity parameters and their meanings:

Odd – Parity bit set so that there is an odd number of 1 bits

Even – Parity bit set so that there is an even number of 1 bits

None – Parity bit is ignored, value is indeterminate

PCMCIA

Personal **C**omputer **M**emory **C**ard **I**nternational **A**ssociation – An organization that supports standards for a compact hardware interface that accepts a variety of devices such as modems, storage, and other devices.

Port

A port is a 16-bit number (the allowed range being 1 through 65535) used by the TCP and UDP protocols at the transport layer. Ports are used to address applications (services) that run on a computer. If there was only a single network application running on the computer, there would be no need for port numbers and the IP address only would suffice for addressing services. However, several applications may run at once on a particular computer and we need to differentiate among them. This is what port numbers are used for. Thus, a port number may be seen as an address of an application within the computer.

PPP

Point-to-Point Protocol. This protocol is a way to connect your computer to the Internet over telephone lines. PPP is replacing an older protocol, SLIP, as it is more stable and has more error-checking features.

PPP has been a widely used Internet standard for sending datagrams over a communications link. The PPP standard is described in RFC 1661 by the Point-to-Point Working Group of the Internet Engineering Task Force (IETF). PPP is commonly used when remote computers call an Internet service provider (ISP) or a corporate server that is configured to receive incoming calls.

RADIUS

Remote Authentication Dial-In User Service) is a client/server protocol and software that enables remote access servers to communicate with a central server to authenticate dial-in users and authorize their access to the requested system or service. RADIUS allows a company to maintain user profiles in a central database that all remote servers can share.

RC4

Rivest Cipher four, an encryption method using variable length secret key streams. RC4 is an alternate to DES and is approximately ten times as fast as DES; however, it is less secure.

Root Access

Root is the term for a very highly privileged administrative user (particularly in Unix environments). When an ISP grants you root access, it means you will have full control of the server. With full control, you will be able to install any software and access any file on that server.

Routing Table

The Routing Table defines which interface should transmit an IP packet based on destination IP information.

RPC

Short for *Remote Procedure Call.* A type of protocol that allows a program on one computer to execute a program on a server. Using RPC, a system developer do not need to develop specific procedures for the server. The client program sends a message to the server with appropriate arguments and the server returns a message containing the results of the program executed.

Secure Shell (SSH)

See SSH

Server Farm

A collection of servers running in the same location (see **Cluster**).

SMTP

Simple Mail Transfer Protocol. Specifies the format of messages that an SMTP client on one computer can use to send electronic mail to an SMTP server on another computer.

SNMP

Short for *Simple Network Management Protocol*, a set of protocols for managing complex networks. The first versions of SNMP were developed in the early 80s. SNMP works by sending messages, called protocol data units (PDUs), to different parts of a network.

SNMP-compliant devices, called agents, store data about themselves in Management Information Bases (MIBs) and return this data to the SNMP requesters.

(Source: Webopedia)

SNMP Traps

Notifications or Event Reports are occurrences of Events in a Managed system, sent to a list of managers configured to receive Events for that managed system. These Event Reports are called Traps in SNMP. The Traps provide the value of one or more instances of management information.

Any SNMP enabled Device generates Fault Reports (Traps) that are defined in the MIB (which the SNMP Agent has implemented).

The Trap Definition vary with the SNMP Version (which defines the messaging format), but the information contained in these are essentially identical. The major difference between the two message formats is in identifying the events.

SSH

Secure Shell. A protocol which permits secure remote access over a network from one computer to another. SSH negotiates and establishes an encrypted connection between an SSH client and an SSH server.

Stop Bit

A bit which signals the end of a unit of transmission on a serial line.A stop bit may be transmitted after the end of each byte or character.

Subnet Mask

A bit mask used to select bits from an Internet address for subnet addressing. Also known as Address Mask.

Sudo

Sudo (superuser do) is a utility for Unix and Linux based systems that provides an efficient way to give specific users permission to use specific system commands at the root level of the system. Sudo also logs all commands and arguments. Using sudo, a system administrator can give some users or groups of users the ability to run some or all commands at the root level of system operation. It can control which commands a user can use on each host and see clearly from a log which users used which commands. Using timestamp files a system administrator can control the amount of time a user has to enter commands after they have entered their password and been granted appropriate privileges.

TACACS

Terminal Access Controller Access Control System.

Authentication protocol, developed by the DDN community, that provides remote access authentication and related services, such as event logging. User passwords are administered in a central database rather than in individual routers, providing an easily scalable network security solution.

TACACS+

Terminal Access Controller Access Control System Plus. A protocol that provides remote access authentication, authorization, and related accounting and logging services, used by Cisco Systems.

TCP Keep-Alive Interval

The time interval between the periodic polling of all inactive TCP/IP connections, checking that the client processes really are still there. After a certain period of inactivity on an established connection, the server's TCP/IP software will begin to send test packets to the client, which must be acknowledged. After a preset number of 'probe' packets has been ignored by the client, the server assumes the worst and the connection is closed.

The keep-alive timer provides the capability to know if the client's host has either crashed and is down or crashed and rebooted.

Telnet

A terminal emulation program for TCP/IP networks such as the Internet. The Telnet program runs on your computer and connects your PC to a server on the network. You can then enter commands through the Telnet program and they will be executed as if you were entering them directly on the server console.

TFTP

Trivial File Transfer Protocol. A simple network application based on User Datagram Protocol (UDP). It is used to transfer files from one computer to another.

TTY

1. In Unix, refers to any terminal; sometimes used to refer to the particular terminal controlling a given job (it is also the name of a Unix command which outputs the name of the current controlling terminal). 2. Also in Unix, any serial port, whether or not the device connected to it is a terminal; so called because under Unix such devices have names of the form **tty**.

UDP

User Datagram Protocol uses a special type of packet called a datagram. Datagrams do not require a response; they are one way only (connectionless). Datagrams are usually used for streaming media because an occasional packet loss will not affect the final product of the transmission.

U Rack Height Unit

A standard computer rack has an internal width of 17 inches. Rack space on a standard rack is measured in units of height (U). One U is 1.75 inches. A device that has a height of 3.5 inches takes 2U of rack space.

VPN

Virtual Private Networking allows local area networks to communicate across wide area networks, typically over an encrypted channel. See also: **IPsec**.

Watchdog timer

A watchdog timer (WDT) is a device or electronic card that performs a specific operation after a certain period of time if something goes wrong with an electronic system and the system does not recover on its own.

A common problem is for a machine or operating system to lock up if two parts or programs conflict, or, in an operating system, if memory management trouble occurs. In some cases, the system will eventually recover on its own, but this may take an unknown and perhaps extended length of time.

A watchdog timer can be programmed to perform a warm boot (restarting the system) after a certain number of seconds during which a program or computer fails to respond following the most recent mouse click or keyboard action.

The timer can also be used for other purposes, for example, to actuate the refresh (or reload) button in a Web browser if a Web site does not fully load after a certain length of time following the entry of a Uniform Resource Locator (URL).

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