

AlterPath KVM Installation, Administration, and User's Guide

Software Version 2.1



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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
- 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 and for users who may be authorized to connect to devices and to manage power through the AlterPath KVM.

This document describes configuration, administration, and use of the AlterPath KVM only. It does not describe how to set up and administer other external services or servers that the AlterPath KVM 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 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.
Chapter 2: Installation	Explains the procedures for installing the AlterPath KVM 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.
Chapter 4: Web Manager for Administrators	Explains how to use the Web Manager, highlighting such procedures as how to configure the AlterPath KVM, add or delete users, define user access, add or delete server connections, and other topics pertaining to AlterPath KVM 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 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 common AlterPath KVM issues.
Appendix B: Technical Specifications	List the technical specifications for the KVM
Appendix C: Safety Guidelines	List the general safety guidelines for Cyclades products.

Related Documents

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

- *AlterPath KVM 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” section when Cyclades releases new versions of the software.

A printed version of this document can be ordered under part number PAC0369 through 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
<i>Emphasis</i>	Titles or emphasized or new words or terms	See the <i>AlterPath KVM Quick Start</i>

Table P-1: Typographic Conventions

Typeface	Meaning	Example
Filename or Command	Names of commands, files, and directories; onscreen computer output.	Edit the <code>pslave.conf</code> 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.	<code>Ctrl+k p</code> entered while the user is connected to a KVM port brings up an IPDU power management screen. <code>Ctrl</code> and <code>k</code> must be pressed at the same time followed by <code>p</code> .
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. This chapter describes how administrators and operators can use the KVM 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.

Description	Page 2
Connectors on the KVM	Page 4
Cyclades Web Manager	Page 18
Prerequisites for Using the Web Manager	Page 18
Cyclades Web Manager	Page 18
Accessing Ports on Cascaded KVM Devices	Page 22
Cascaded Devices	Page 19
AlterPath KVM Ordering Options	Page 13
Administering Users of Connected Servers	Page 28
Power Management	Page 34
Notifications, Alarms, and Data Buffering	Page 43
Considerations When Choosing Whether to Enable DHCP	Page 46

Description

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

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



Figure 1-1: KVM Front and Back

You use the KVM ports on the left and middle back of the KVM 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 and to its connected devices.

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

The KVM 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.

KVM 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 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 and the distance of the most remote system connected to a KVM port.

Secondary KVM units such as the Cyclades AlterPath KVM Expander or another AlterPath KVM can be cascaded for extended KVM server connections. A maximum of 32 secondary KVM devices can be cascaded from the primary KVM 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 units are installed in multiple remote locations, a Cyclades AlterPath Manager (purchased separately) can manage all the KVM units together with other Cyclades products and their connected devices through a single IP address.

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

Both KVM 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 screens for configuring users or ports.

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

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

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

Guidelines for Using the KVM

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 271 for instructions on how users without KVM administration privileges can access AlterPath PMs that are connected to the KVM.

Connectors on the KVM

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

Types of Ports

The KVMs 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 PC with a USB or a PS/2 connector or a Sun server with a USB connector.	<ul style="list-style-type: none">• “KVM Ports” on page 7• “To Connect Computers to KVM Ports” on page 68

Table 1-1: Port Types (Continued)

Port Type	Connection Information	Where Documented
AUX	Connect an RJ-45 cable to an: <ul style="list-style-type: none"> • AlterPath PM intelligent power distribution unit (IPDU) or <ul style="list-style-type: none"> • external modem. 	<ul style="list-style-type: none"> • “AUX Ports” on page 10 • “To Connect an AlterPath PM to the AUX Port” on page 97 • “To Connect an External Modem to the AUX Port” on page 96
Console	Connect a CAT5 to DB-9 cable to a COM port on a computer.	<ul style="list-style-type: none"> • “Management Ports (Console, Ethernet, User 1, User 2)” on page 8 • “To Connect to the Console Port” on page 70
Ethernet	Connect an Ethernet cable to the local area network (LAN).	<ul style="list-style-type: none"> • “Management Ports (Console, Ethernet, User 1, User 2)” on page 8 • “To Make an Ethernet Connection” on page 65
User 1 [PS/2 and VGA]	Connect a keyboard, video, mouse cable to a local station’s keyboard, monitor, and mouse.	<ul style="list-style-type: none"> • “Management Ports (Console, Ethernet, User 1, User 2)” on page 8 • “To Connect to the User 1 Management Port” on page 71
User 2	Connect an RJ-45 cable of up to 500 feet to an AlterPath KVM RP. The KVM RP can be ordered separately. <p>Note: The 500-foot limit includes the distance of the User 2 from the KVM and the distance of the most remote system connected to a KVM port.</p>	<ul style="list-style-type: none"> • “Management Ports (Console, Ethernet, User 1, User 2)” on page 8 • “AlterPath KVM RP” on page 56 • “To Connect the KVM RP to the KVM” on page 111

Connectors on the Back

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

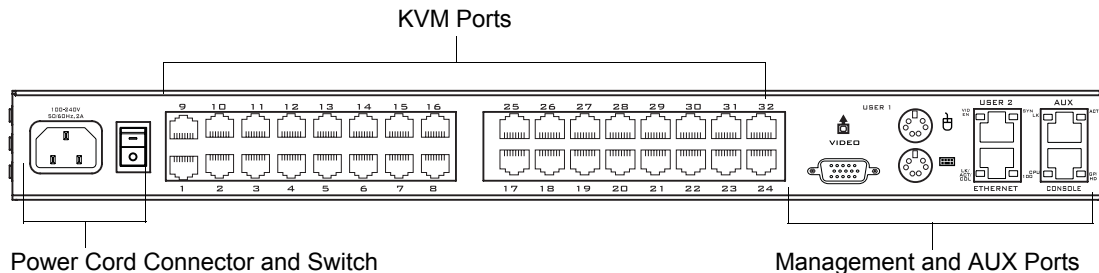


Figure 1-2: KVM Back Panel

- 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.
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.

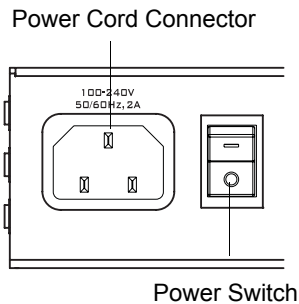


Figure 1-3: Power Connector on the Left Rear

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

See “To Power On the KVM” on page 71 for instructions on supplying power to the KVM.

KVM Ports

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

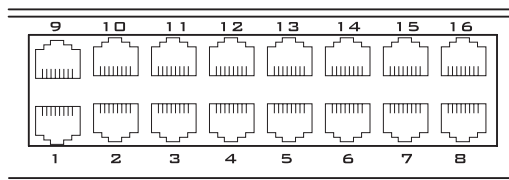


Figure 1-4: KVM Ports on the Center Rear

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 47 for more details.

See "To Connect Computers to KVM Ports" on page 68 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.

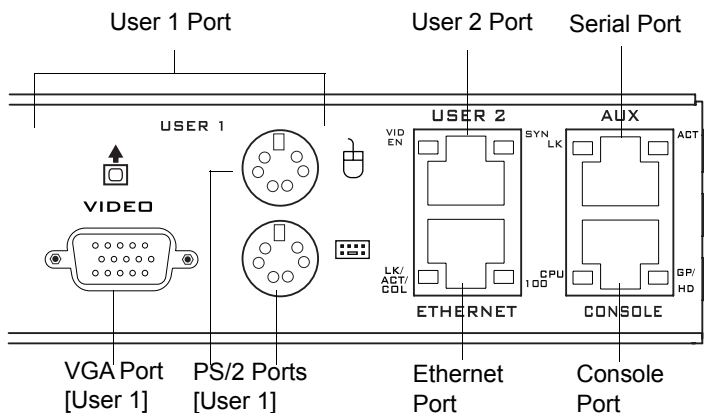


Figure 1-5: Management Ports

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

- **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. See “To Connect to the Console Port” on page 70 and “Configuring Basic Networking Using the wiz Command” on page 73 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 65 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. See “To Connect to the User 1 Management Port” on page 71 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 without being in the same room as the KVM. See “Installing the AlterPath KVM RP” on page 109 and “Controlling the OSD Through the AlterPath KVM RP” on page 369 for more details.

AUX Ports

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

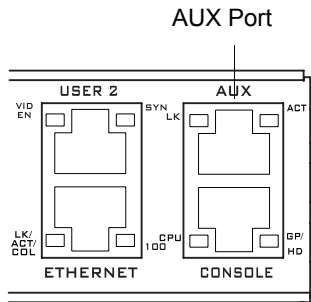


Figure 1-6: AUX Ports

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 34 for background information of power management and see “Connecting AlterPath PMs to the KVM” on page 97 for installation instructions.
- Connecting to an optional external modem
See “Connecting an External Modem” on page 96

Activity LEDs on the Back of the KVM

The KVM 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. 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. The LEDs monitor the AUX ports, ETHERNET, and CONSOLE ports as described in Table 1-2.

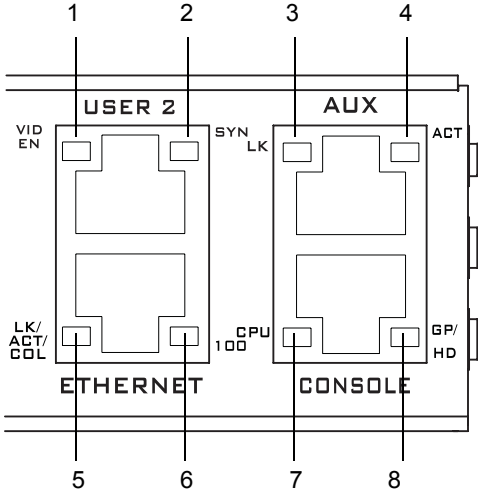


Figure 1-7: LEDs on the KVM Management Ports

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	<p>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.</p> <p>Green - Lights when the server's video signal is used; this happens when the server is presenting a valid signal.</p>
2	SYN	Monitor KVM CAT5 video interface	<p>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.</p> <p>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.</p>
5, 3	LK	Monitor RS-232 async port status	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Off – Indicates the link is 10baseT or no link is active. • Green – Steady when 100baseT link is active.
7	CPU	Monitor CPU (software operation)	<ul style="list-style-type: none"> • 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)	<ul style="list-style-type: none"> • Orange - Blinks when KVM is accessing the compact flash after bootup.

AlterPath KVM Ordering Options

Each AlterPath KVM 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 Model Numbers and Port Options

Model Number	Part Numbers	KVM Ports
AlterPath KVM 16	ATP4016	16
AlterPath KVM 32	ATP4032	32

Types of Users

The KVM support three types of users:

- Predefined administrators who can administer the KVM and its connected devices
- Optionally added users who can act as administrators of the KVM 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 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 <code>wiz</code> command to do initial network configuration, as described in “Configuring Basic Networking Using the <code>wiz</code> Command” on page 73. 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	<p>User account configured by the administrator to be able to access devices connected to the ports of the KVM. 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.</p> <p>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.</p>	administratively assigned

Simultaneous KVM Logins

Only one KVM 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.

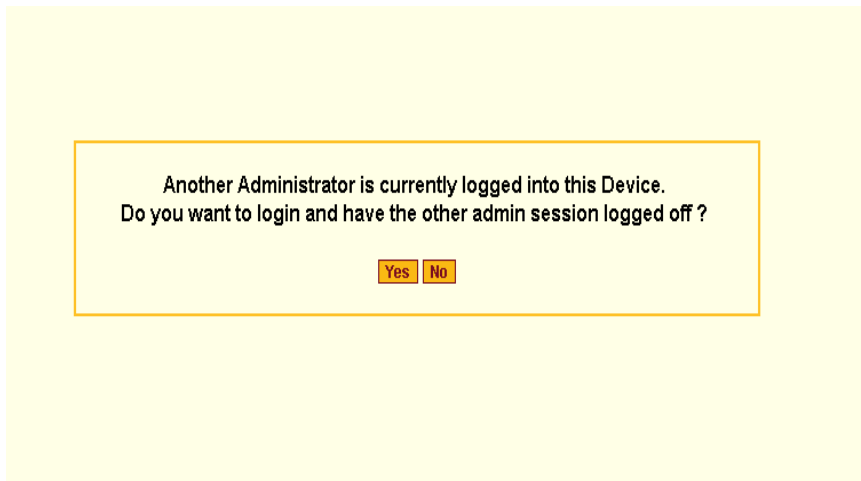


Figure 1-8: Simultaneous Administrator Login Prompt

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

Simultaneous Server Connections

The KVM supports a maximum of 2 local server connections. Local users include:

- One local user at the KVM (User 1).
- One remote user at the AlterPath KVM RP location (User 2).

Administration Options

The following sections summarize the KVM administration options:

- “Cyclades Web Manager” on page 17
- “On-Screen Display” on page 17
- “Guidelines for Using the KVM” 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 1-5: Administration Options

Cyclades Web Manager	<p>The Web Manager is the primary means of configuring the KVM.</p> <ul style="list-style-type: none"> • See “Prerequisites for Using the Web Manager” on page 18 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 113 for more details about how KVM administrators use the Web Manager.
On-Screen Display	<p>The On Screen Display (OSD) can be used locally from a keyboard, monitor and mouse that is directly connected to the KVM. When the monitor and the KVM are on, the OSD login screen appears on the monitor.</p> <ul style="list-style-type: none"> • See “To Connect to the User 1 Management Port” on page 71 for instructions on how to make the hardware connection. • See “On Screen Display” on page 295 for how KVM administrators and regular users can use the OSD.
Linux Commands and KVM-specific Commands	<p>The KVM offers the following types of access allowing administrators to log in and enter Linux commands and KVM-specific commands in a shell running on the KVM.</p> <ul style="list-style-type: none"> • A local administrator who has a direct connection to the console port on the KVM, 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 and log in as root. <p>See “To Connect to the Console Port” on page 70 and “Configuring Basic Networking Using the wiz Command” on page 73.</p>

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. 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.

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 18.

Administrators, see “Web Manager for Administrators” on page 113. Regular users, see “Web Manager for Regular Users” on page 263.

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 so the Web Manager can be launched over the network.

See “Configuring Basic Networking Using the wiz Command” on page 73 for instructions on how to define network parameters on the KVM.

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

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

Entering the IP address of the KVM in the address field of one of the supported browsers listed in Table 1-10 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 is booted up. Anyone wanting to access the KVM 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, contact your system administrator for help. For more information, see "Considerations When Choosing Whether to Enable DHCP" on page 46.

- 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.

Cascaded Devices

The KVM supports cascading, which allows administrators to connect secondary KVM units to a primary KVM. 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 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 with 32 ports and one KVM and one KVM Expander cascaded from it.

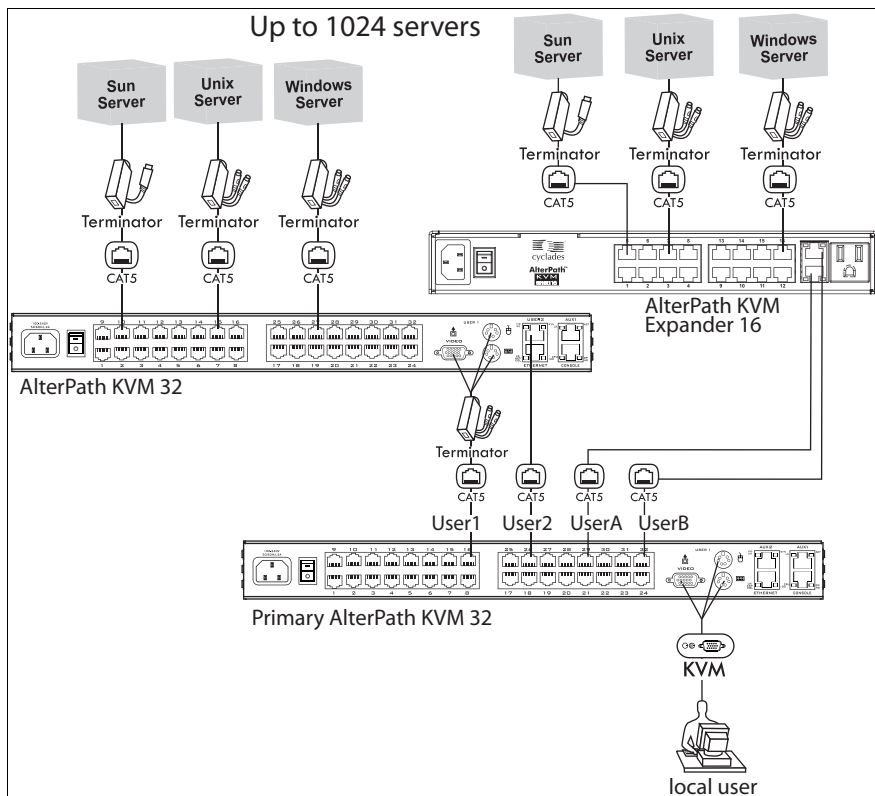


Figure 1-9: Cascaded KVM Devices from a KVM

As depicted in the previous figure, the KVM supports one level of cascading: The primary KVM 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. Each cascaded KVM device has two management ports that can be connected to the primary KVM.

Note: You must connect the master KVM 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 1-6: Connectors and Ports for Cascading KVM Units

KVM Unit	Management Ports	Connectors
KVM Expander	User B primary	CAT5 cable with RJ45 connectors
	User A secondary	
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 users can use the master KVM to access all devices connected to KVM ports on the master and slave KVM units.

Accessing Ports on Cascaded KVM Devices

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.

KVM Port Permissions

In the default configuration, only the “admin” user can access any port. The KVM 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 1-7: 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 23 “To Assign KVM Port Access to a User or Group” on page 171

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 39 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 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 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 administrator can specify different Default Permissions or KVM port permissions for any user or group. “KVM Port Permissions Hierarchy” on page 24 provides information that the KVM administrator needs to understand in order to perform advanced configuration of KVM permissions.

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

Table 1-8: Tools for Setting KVM Port Permissions

Tools	Where Documented
Web Manager	“To Assign KVM Port Access to a User or Group” on page 171
OSD	“KVM Ports Screens” on page 337

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.

Administering Users of Connected Servers

This section reviews the tasks that KVM 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 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

Tasks Related to Access to Connected Devices

Planning should include the following steps:

- Create a list of servers to connect to the KVM.
- 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 users who will connect to these servers.
- Create meaningful aliases to assign to port numbers.
- List all the devices that need to be connected to PMs and the users who can access them.

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

During configuration, the KVM 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 and to all KVM ports.
- Redefines keyboard shortcuts (hot keys) 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 160
Specify an alias for a PM.	• “To Specify or Change the Alias of an IPDU” on page 147
Assign permissions to access ports.	• “To Assign KVM Port Access to a User or Group” on page 171
Assign permissions to PMs and outlets.	• “To Configure Users to Manage Specific Power Outlets” on page 145

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 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 278 for the defaults. Under `Configure>KVM` in the Web Manager, the common escape sequence is defined separately from the command keys. The KVM administrator can redefine command keys for users accessing KVM ports through the OSD (User 1 or User 2).

Redefining Sun Keyboard Equivalent Hot Keys

The KVM 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 152 for more details. The default modifier key is the Windows [WIN] key, which is labeled with the Windows logo. KVM 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 1-9: 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 152	Configure>General	“General Configuration Screens [OSD]” on page 306

Table 1-9: Tasks for Redefining Hot Keys

Part	Web Manager Form	Where Documented	OSD Form	Where Documented
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 152	Configure> User Station	“User Station Screens” on page 333
Sun keyboard emulation escape key	Configuration> KVM>General	“To Redefine KVM Session Keyboard Shortcuts” on page 152	Configure> General	“KVM Ports Screens” on page 337

Screen Resolution and Refresh Rate

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

Table 1-10: Supported Screen Resolutions and Referesh 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

Table 1-10: Supported Screen Resolutions and Referesh Rates

Resolution	Refresh Rates (Hz)
1280 x 1024	60
1600 x 1200 (local KVM connection)	60, 75

Packet Filtering on the KVM

IP filtering refers to the selective blocking of the IP packets based on certain characteristics. The KVM 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 1-11: Levels of IP Filtering

Chain	<p>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:</p> <ul style="list-style-type: none"> • INPUT - For packets coming into the box itself. • FORWARD - For packets being routed through the box. • OUTPUT - For locally generated packets.
--------------	---

Table 1-11: Levels of IP Filtering (Continued)

Rule	<p>Each chain contains a sequence of rules that control filtering. The rules address the following issues:</p> <ul style="list-style-type: none">• How the packet should appear in order to match the rule <p>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.</p> <ul style="list-style-type: none">• What to do when the packet matches the rule <p>The packet can be accepted, blocked, logged, or jumped to a user-defined chain.</p> <p>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.</p>
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Power Management

The KVM enables users who have power management permissions to power off, power on, and reboot 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.

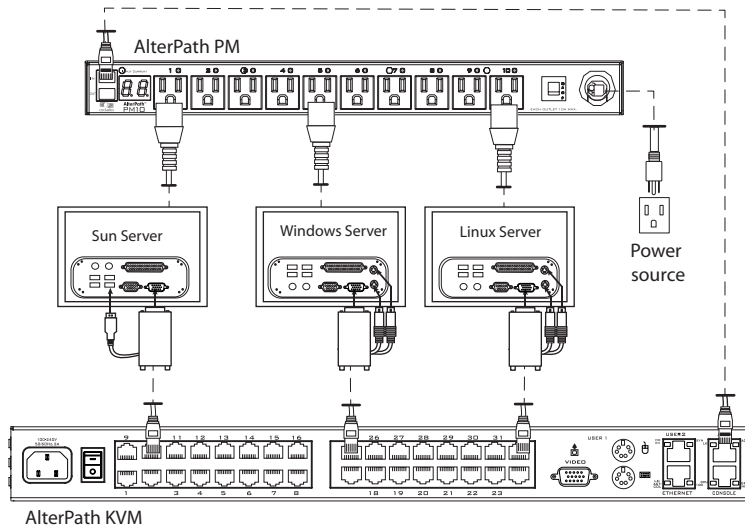


Figure 1-10: Connecting an AlterPath PM to the KVM

See “Setting Up and Configuring Power Management” on page 36 for information about the procedures the KVM administrator must perform before anyone can use the tools to manage power.

KVM users most commonly perform power management through the Web Manager. See “Options for Managing Power” on page 34 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 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 "" on page 266.

Administrators must configure users for IPDU power management. See "To Configure Users to Manage Specific Power Outlets" on page 145. Or see "Setting Up and Configuring Power Management" on page 36 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 on the OSD. The default keyboard shortcut is Ctrl+k p.

Through the On Screen Display (OSD), administrators and users can make a direct local connection and manage power of local devices. KVM users who have power management permissions can do power management while connected by using a keyboard shortcut that brings up a power management screen.

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 36 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:

- 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 35.
- 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 35.

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

Table 1-12: Tasks: General Power Management Set Up

Task	Where Documented/Notes
<p>1 Install PM units.</p>	<ul style="list-style-type: none"> • “To Connect an AlterPath PM to the AUX Port” on page 97 • “To Connect Multiple PMs to the KVM” on page 98 <p>See the section about installing PMs in the <i>AlterPath KVM Installation, Configuration, and User’s Guide</i>.</p>
<p>2 Configure the AUX port for use with power management.</p>	<p>“To Configure the AUX Port for Use With an IPDU or an External Modem” on page 232</p>

Table 1-12: 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 Web Manager Access Page.
4 Configure users to manage power.	“To Configure Users to Manage Specific Power Outlets” on page 145

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 1-13: 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 158
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 171

The following table lists the power management methods and where they are documented.

Task	Where Documented
Manage the power of devices connect to configured PM units	“To Power On, Power Off, Lock, Unlock, or Cycle Devices Plugged into PM Outlets” on page 288

Control the power of a device while connected to it through a KVM port

“To Power On, Power Off, or Reboot the Connected Server” on page 284

Security

The KVM comes with the following configurable security features:

- Security Profiles
- Authentication

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 is to define a Security Profile. One of the following situations is applicable when you boot up the KVM unit.

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

In this situation when you boot KVM 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 restarts.

- 2.** KVM firmware is upgraded and the system is restarting with the new firmware.

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

3. KVM 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 122 for detailed information on security profiles and configuration procedures

Authentication

Anyone accessing the KVM 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) 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 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 KVM. The authentication method selected for the KVM is used for subsequent access through Telnet, SSH, or the Web Manager.

The following table describes the supported authentication methods. All authentication methods except “Local” require an authentication server, which

the administrator specifies while selecting the authentication method. The KVM uses local authentication if any of the authentication servers fails.

Table 1-14: Supported Authentication Types for KVM

Authentication Type	Description
Local [Default]	Uses user/password file for local authentication.
Local/Radius	Authentication is performed locally first, switching to Radius if unsuccessful.
Local/TacacsPlus	Authentication is performed locally first, switching to TacacsPlus if unsuccessful.
Local/NIS	Authentication is performed locally first, switching to NIS if unsuccessful.
Kerberos	Uses Kerberos network authentication protocol
Kerberos/Local	Uses local authentication if Kerberos authentication fails
KerberosDownlocal	Uses local authentication if Kerberos server is down
LDAP	Uses LDAP (Light-weight directory access protocol)
LDAP/Local	Uses local authentication if LDAP authentication fails
LDAPDownlocal	Uses local authentication if LDAP server is down
NIS	Uses NIS authentication
NIS/Local	Uses local authentication if NIS authentication fails
NISDownlocal	Uses local authentication if NIS server is down
RADIUS	Uses RADIUS authentication
RADIUS/Local	Uses local authentication if RADIUS authentication fails
RADIUSDownlocal	Uses local authentication if RADIUS server is down
TACACS+	Uses Terminal Access Controller Access Control System (TACACS+) authentication.

Table 1-14: Supported Authentication Types for KVM (Continued)

Authentication Type	Description
TACACS+/Local	Uses local authentication if TACACS+ authentication fails
TACACS+Downlocal	Uses local authentication if TACACS+ server is down
NTLM	Uses SMB authentication for Microsoft Windows NT/2000/2003
NTLM DownLocal	Uses local authentication if NTLM server is down

Tools for Specifying Authentication Methods

The administrator generally uses the Web Manager for specifying an authentication method for the KVM, as described in “Network” on page 194. 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 1-15: Tasks: Specifying Authentication Methods

Task	Where Documented/Notes
Choosing an authentication method for the KVM	<ul style="list-style-type: none"> • Web Manager – “To Configure an Authentication Method for KVM Logins” on page 175 • OSD – “Authentication Screens” on page 354
Choosing an authentication method for the for all KVM ports	<ul style="list-style-type: none"> • Web Manager – “To Configure an Authentication Method for KVM Logins” on page 175 • OSD – “General Configuration Screens [OSD]” on page 306

Table 1-15: Tasks: Specifying Authentication Methods (Continued)

Task	Where Documented/Notes
Configuring a remote authentication server	If configuring any authentication method other than Local, an authentication server must be set up for that method. <ul style="list-style-type: none"><li>• Web Manager – “Configuring Authentication Servers for Logins to the KVM” on page 176<li>• OSD – “Authentication Screens” on page 354

Notifications, Alarms, and Data Buffering

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

The KVM 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.
- 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 43.

For more background about setting up logging, notifications, alarms, and for links to all related procedures in this manual, see “Configuring Logging and Alarms” on page 44.

Syslog Servers

Messages about the KVM, 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. The KVM 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.

Facility numbers are used on the syslog server for handling messages generated by multiple devices. See “Facility Numbers for Syslog

Messages” on page 44 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 units. One KVM is located in São Paulo, Brazil, and the other KVM is in Fremont, California. The syslog server’s administrator wants to aggregate messages from the São Paulo KVM into the `local1` facility, and to aggregate messages from Fremont KVM 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.

Configuring Logging and Alarms

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

- “To Add a Syslog Server [Wizard]” on page 137
- “To Delete a Syslog Server [Wizard]” on page 138
- “To Configure Syslogging for KVM Ports and Specify Message Filtering [Expert]” on page 200
- “To Configure Creation of Alarms and Syslog Files for IPDUs” on page 147

VPN and the KVM

The KVM administrator can set up VPN (Virtual Private Network) connections to establish encrypted communications between the KVM 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 and decrypts packets received from the KVM. A single host running IPsec can serve as its own security gateway. The KVM takes care of encryption and decryption on its end.

Connections between a machine like the KVM to a host or to a whole network are usually referred to as host-to-network and host-to-host tunnel. KVM 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 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 to create the two following types of connections:

- Create a secure tunnel between the KVM and a gateway at a remote location so every machine on the subnet at the remote location has a secure connection with the KVM.
- Create a secure tunnel between the KVM 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. Because a DHCP server may assign a different IP address every time the KVM 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 resides, using the MAC address (a 12-digit hexadecimal number, which is on a label at the bottom of the KVM).
- Connect to the KVM remotely using `telnet` or `ssh`.
- Connect directly to the KVM to find out the DHCP address using the `ifconfig` command.

KVM Terminator Usage and Types

An AlterPath KVM Terminator is used when connecting a computer or a cascaded KVM device to a KVM port on the AlterPath KVM.

Administrators or operators at remote stations who have access through the KVM 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 1-16: AlterPath KVM Terminators

Server Type	Connection	KVM Terminator Model	Part Number
PC	VGA and PS/2 ports	PS/2	ATP4610
PC	VGA and USB ports	PC USB	ATP4620
Sun USB	VGA and USB ports	Sun USB	ATP4630

Note: This Terminator does not work with all Sun computers. The Sun computer must have a VGA and USB port.

Note: The Terminators include Part No. ADB0135, DB15 HD Gender Adapter

See “To Connect Computers to KVM Ports” on page 68 for instruction on using the KVM Terminators.

When a KVM is ordered, the customer selects a KVM Terminator for each type of computer to be connected to the KVM ports. For example, when ordering a KVM with four KVM ports to be connected to two Windows servers with DIN connectors and two Sun servers with VGA ports and USB connectors, the customer would order two PS/2 Terminators and two Sun USB Terminators.

Activity LEDs on the Terminator

There are two activity LEDs located on the terminator.

1. The “Link” LED displays a solid amber light when the terminator connects to the server. A quick blinking “Link” LED indicates the Terminator microcode failed to boot.
2. The “On” LED displays a blinking green light when the Terminator is on.

KVM Expander

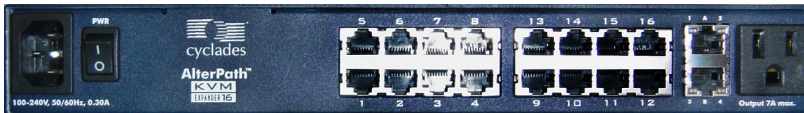
The AlterPath KVM Expander is designed to connect to the primary KVM to increase the number of ports that a primary KVM can manage.

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 49
- “KVM Expander Models and Components” on page 50
- “Adding the KVM Expander to the KVM Unit’s List of Cascaded Devices” on page 55
- “Upgrading the Microcontroller Code” on page 55

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, 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 50 for more details.
- Supports all existing Terminators
See “KVM Terminator Usage and Types” on page 47 for more details.
- Is compatible with the AlterPath KVM, KVM/net, and KVM/netPlus units
See “Cascaded Devices” on page 19 for more details.
- Operates with up to two input ports – User A and User B
See “Ports on the KVM Expander” on page 51 for more details.
- Supports horizontal or vertical rack mounting
See “Setting Up the KVM Expander” on page 101 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 105 for more details.
- Displays port status with LEDs.
See “LEDs on the KVM Expander” on page 52

KVM Expander Models and Components

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

Table 1-17: KVM Expander Model Numbers and Port Options

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

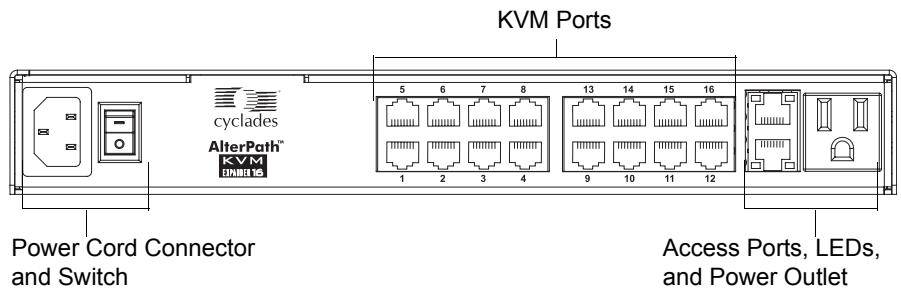


Figure 1-11: KVM Expander Back Panel Components

The following sections explain the components of the KVM Expander:

- “Ports on the KVM Expander” on page 51
- “LEDs on the KVM Expander” on page 52
- “Power Outlets on the KVM Expander” on page 52

Ports on the KVM Expander

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

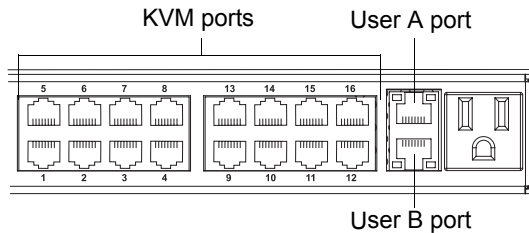


Figure 1-12: Ports on the KVM Expander Back Panel

Table 1-18: KVM Expander Port Types

Port Type	Use and Connection Information
User A and User B	<p>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.</p> <p>See “Installing the AlterPath KVM Expander” on page 99.</p>
KVM ports	<p>KVM ports on the KVM Expander work exactly as the KVM ports on the KVM: They allow the connection of a CAT 5 cable to a Terminator, which is connected to a PC with a USB or a PS/2 connector or a Sun server with a USB connector.</p> <p>See “KVM Ports” on page 7 for more background information on KVM ports.</p> <p>See “Connecting Servers to the KVM Ports” on page 66 for information on connecting servers to the KVM ports.</p>

LEDs on the KVM Expander

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

Table 1-19: LED Activities on the KVM Expander

Number	Label	Function	Color/Status
1, 3	User A & User B	Connection Status	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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.

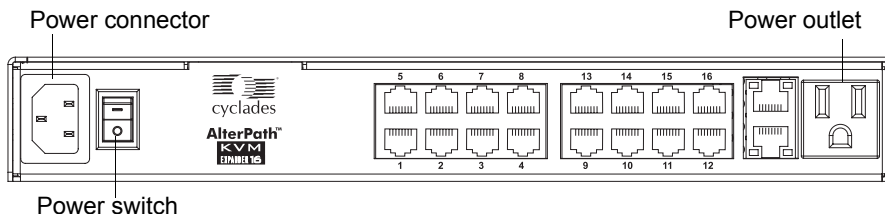


Figure 1-13: Power components on KVM Expander Back Panel

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.

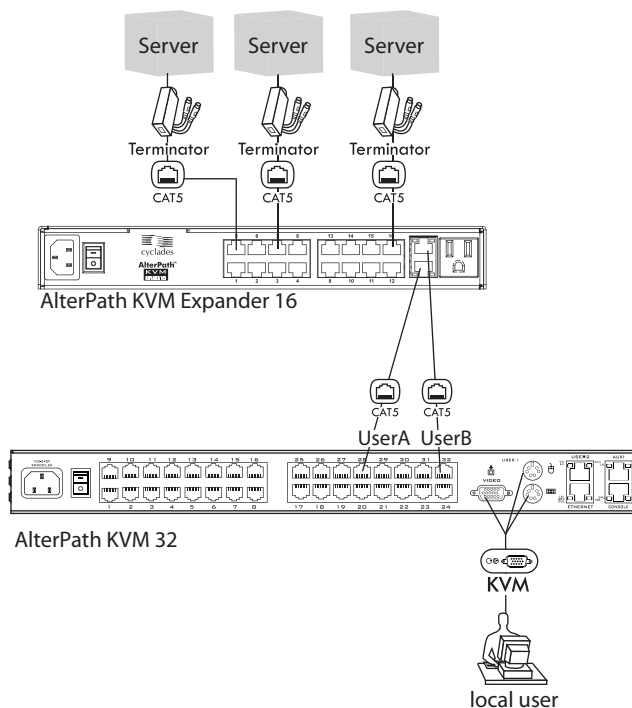


Figure 1-14: Connecting a KVM Expander to the KVM

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 1-20: 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 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 Web Manager in Expert Mode, go to: Configuration>KVM>Devices to see the form displayed in the following figure.

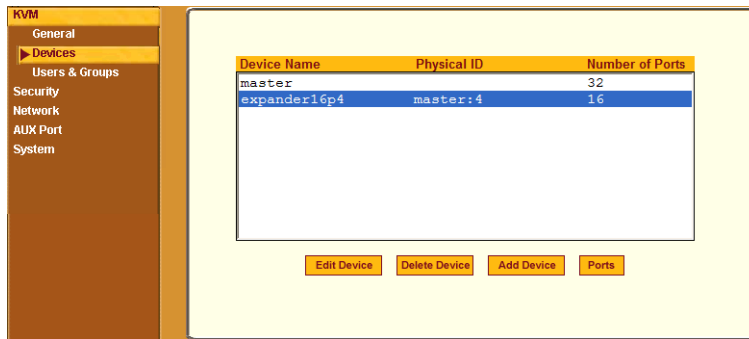


Figure 1-15: Devices Form on KVM Web Manager

See “Configuring Cascaded KVM Units” on page 162 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, or Port Expander. Using the KVM Web Manager in Expert Mode, go to: Management > Microcode Upgrade to see the form displayed in the following figure.

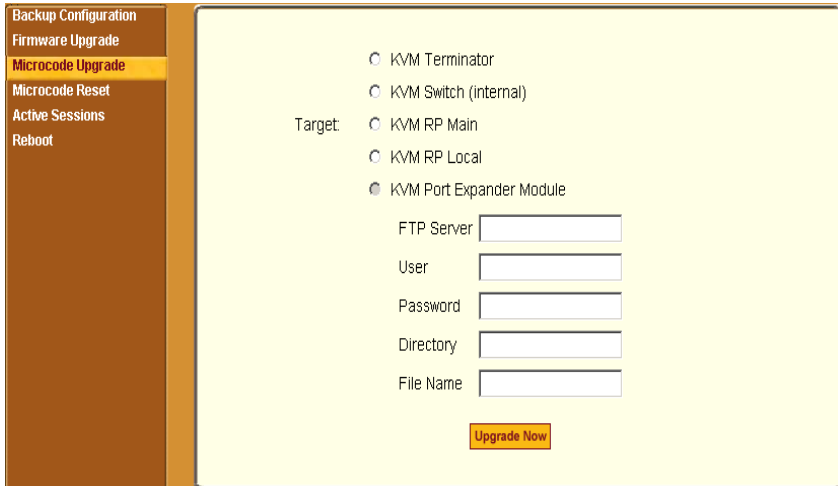


Figure 1-16: Microcode Upgrade Form on KVM Web Manager

See “Microcode Upgrade” on page 254 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. 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. The RP also offers keyboard shortcuts to manage the extended local access to the KVM. The following diagram displays the connections between the RP, the KVM, and the local keyboard,

monitor, and mouse. The AlterPath KVM RP is available in one model whose part number is ATP4710.

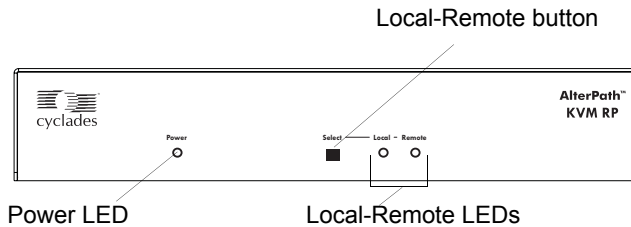


Figure 1-17: KVM RP Front

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.

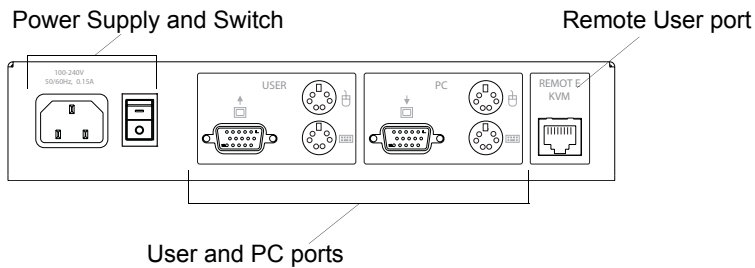


Figure 1-18: KVM RP Back Panel

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

Table 1-21: 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.

Table 1-21: 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 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 61
2	Set up the KVM	Page 63
3	Make an Ethernet connection	Page 65
4	Connect servers to be managed through the KVM	Page 66
5	Make a direct connection (terminal or local monitor, keyboard, and mouse) to the KVM to prepare for basic network configuration	Page 70
6	Power on the KVM and connected devices	Page 71
7	Perform basic network configuration (using the wiz command or OSD network screen)	Page 72
8	Finish configuration and manage the connected devices using the Web Manager	Page 86

Also see the following instructions for setting up the KVM:

Changing Default Passwords	Page 87
Enabling Access to the Web Manager without Making a Direct Connection	Page 89
Preconfiguring the KVM for Remote Installation	Page 92

Perform the optional procedures in “Advanced Installation Procedures” on page 95 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

The shipping box for the KVM contains the KVM 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)


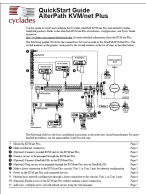

<input checked="" type="checkbox"/>	Item	P/N	Description	Purpose
<input type="checkbox"/>		PAC0226	Documentation CD	PDF copies of this guide and all other Cyclades product documents.
<input type="checkbox"/>		PAC0267	<i>AlterPath KVM Quick Start Guide</i>	Basic installation guide for experienced users in printed format.
<input type="checkbox"/>		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)




<input checked="" type="checkbox"/>	Item	P/N	Description	Purpose
<input type="checkbox"/>		CAB0018	RJ-45 to RJ-45 7ft. CAT5 cable	Use for the following: <ul style="list-style-type: none"> • To connect a server to a KVM port (with the appropriate Terminator from Table 1-16 on page 47). See “Connecting Servers to the KVM Ports” on page 66. • To connect an Ethernet port to the LAN. See “To Make an Ethernet Connection” on page 65. • To connect a terminal to a console port. See “To Connect to the Console Port” on page 70. • To connect an IPDU or external modem to the AUX port. See “Connecting AlterPath PMs to the KVM” on page 97 and “Connecting an External Modem” on page 96.
<input type="checkbox"/>		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)

<input checked="" type="checkbox"/>	Item	P/N	Description	Purpose
<input type="checkbox"/>		HAR0220	2 - Mounting brackets with 8 - screws (2 spares	Use to mount the KVM to a rack or wall. See “To Mount the KVM” on page 64.

When ordering the KVM, 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 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 47.

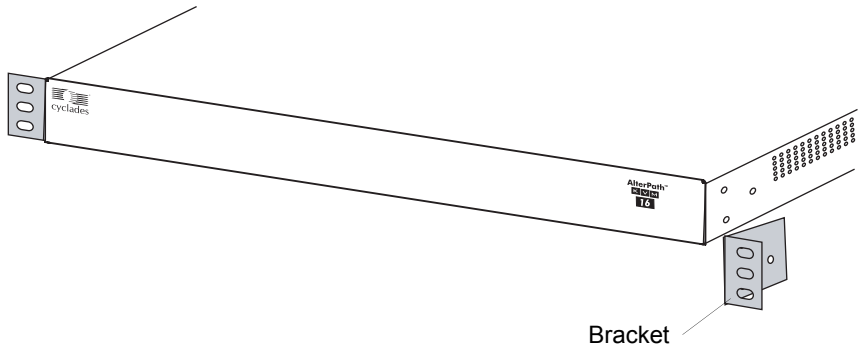
Note: For more information about cabling, see “RS-232 Cabling Tutorial” at <http://www.cyclades.com/resources>. For ordering information, see “Cyclades Product Guide,” available at: <http://www.cyclades.com/common/www/pdf/catalog.en.pdf>.

Setting Up the KVM

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

- If you are not mounting the KVM, place the KVM on a desk or table.
- If you are mounting the KVM, 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.



▼ To Mount the KVM

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

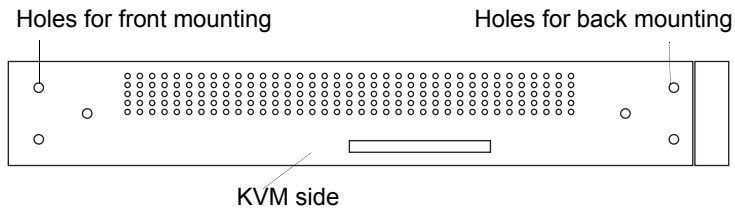


Figure 2-1: Rack Mounting Holes on the KVM

2. Connect the two supplied brackets to the KVM, 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.

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



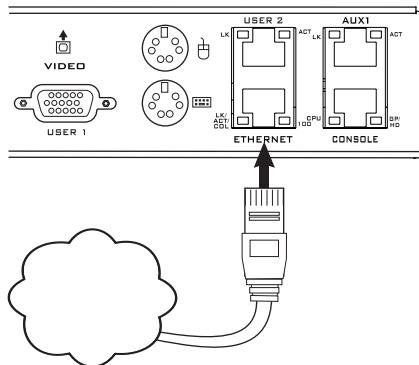
4. Use a Phillips screwdriver to tighten the screws.
5. Use the mounting hardware recommended for your rack to mount the KVM on a rack.

Making an Ethernet Connection

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

▼ *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.

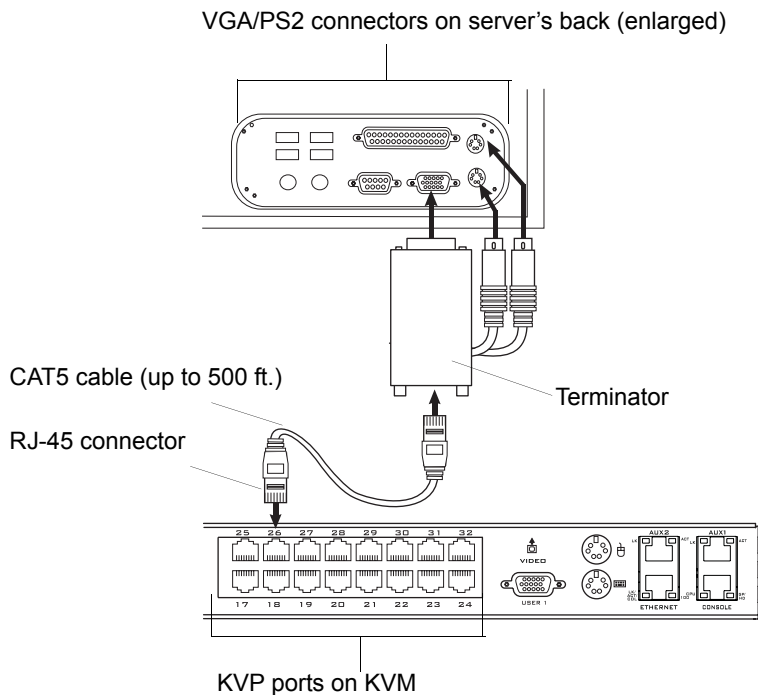


Remote connections can also be made through an external modem connected to the AUX port. See “Modem Connections” on page 291 for background information and instructions.

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: PC PS/2 for servers with VGA and PS/2 connectors, PC USB for servers with VGA and USB connectors, and Sun USB Terminators for Sun servers with USB connectors. See “KVM Terminator Usage and Types” on page 47 for more details about the KVM Terminators, which are ordered and shipped with the KVM.

Figure 2-2:Connecting Servers to KVM Ports



Note: The KVM 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 is powered on.

Follow the procedures below when connecting computers to KVM ports on the KVM 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***

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.

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.

Note: You may want to assign different passwords for a server’s administrator on the KVM 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 from the server’s administrator.

- c. After the KVM is installed, make sure to specify the desired authentication method for the ports that are connected to each server. See “Security” on page 38 for background information and see “Network” on page 194 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**

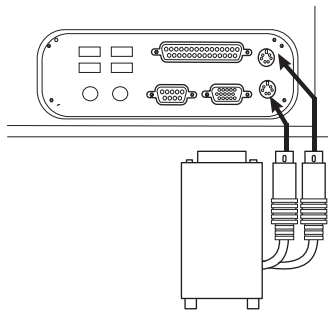
Do these steps after completing “To Prepare to Connect Servers to the KVM” on page 67.

1. Select the appropriate Terminator.

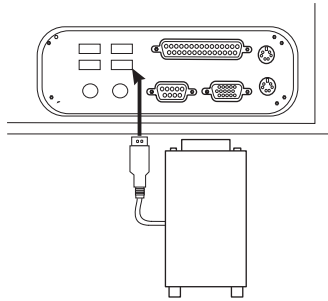
Three Terminator types are available: PS/2 for PCs, USB for PCs, and USB for Sun systems. See “KVM Terminator Usage and Types” on page 47 for more details about the Terminators, which are ordered and shipped with the KVM.

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

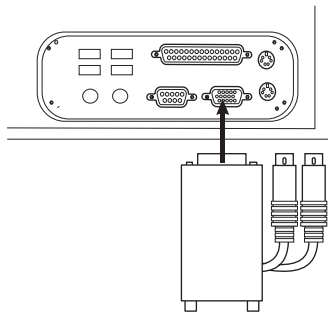
2. Connect the appropriate keyboard and mouse connectors.
 - On a PS/2 Terminator for a PC server, first connect the Terminator’s green connector to the server’s mouse port, and then connect the Terminator’s purple keyboard connector to the server’s keyboard port.



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



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.



4. If the PC's VGA port is recessed too far, for easy access insert a VGA mini extender before attempting to connect the VGA connector.

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.

5. To extend the connection from the computer to the KVM, connect an RJ-45 to RJ-45 CAT5 cable up to 500 feet long to the Terminator.
6. Connect the RJ-45 connector on other end of the cable to a KVM port on the KVM.
7. Repeat Step 1. through Step 6. for all computers to be connected to the KVM ports.

8. If this is a first-time installation, go to “Making a Direct Connection for Network Configuration” on page 70.

Making a Direct Connection for Network Configuration

The system administrator must specify basic network settings on the KVM 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 by doing one of the following:

- Connect a terminal or computer to the CONSOLE port.
See “To Connect to the Console Port” on page 70.
- Connect a keyboard, monitor, and mouse to the keyboard, monitor, and mouse connectors on the KVM.
See “To Connect to the User 1 Management Port” on page 71.

See “Enabling Access to the Web Manager without Making a Direct Connection” on page 89, 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. 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.
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 and Connected Devices” on page 71.

▼ ***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.
2. Go to “Powering On the KVM and Connected Devices” on page 71.

Powering On the KVM and Connected Devices

The KVM 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 is powered on.

▼ ***To Power On the KVM***

1. Make sure the KVM'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's power switch on.
The KVM beeps once.

▼ **To Power On Connected Devices**

Do this after “Connecting Servers to the KVM Ports” on page 66.

- 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 and the connected devices through a browser. Do one of the following to assign a fixed IP address to the KVM, 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 73.
- 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 77.

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

<input type="checkbox"/> Hostname:	
<input type="checkbox"/> KVM’s public IP address:	
<input type="checkbox"/> Domain name:	
<input type="checkbox"/> DNS server’s IP address:	
<input type="checkbox"/> Gateway IP address:	
<input type="checkbox"/> Network mask:	
<input type="checkbox"/> KVM’s MAC address (from the label on the bottom):	

-
- | | |
|---|--|
| <input type="checkbox"/> 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 46 for more details and see “To Use a Dynamic IP Address to Access the Web Manager” on page 90 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's console port and the COM or USB port of a computer, as described under “To Connect to the Console Port” on page 70.

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

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

```
KVM 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 /]# 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 /]# 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]: 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.

```
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 75.

▼ **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 74

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 86.

Configuring Basic Networking Using the OSD

This procedure requires a hardware connection already made between the KVM's KVM management port and a local monitor, keyboard, and mouse, as described under "To Connect to the User 1 Management Port" on page 71. After the KVM and monitor are powered on, the OSD login screen appears.



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**

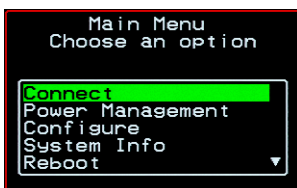
1. On the OSD login screen, enter “admin” as the Login name.
2. Enter the password.

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



3. Press Enter.

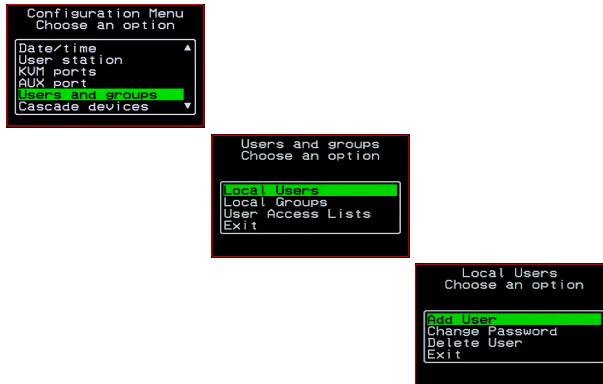
The OSD Main Menu appears.



4. If you are performing an initial configuration of basic networking parameters, go to “To Change a Password Using the OSD” on page 79; otherwise, go to “To Configure Network Parameters Using the OSD” on page 80.

▼ To Change a Password Using the OSD

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

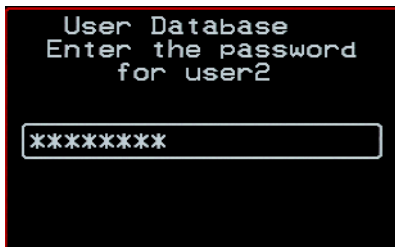


Warning! If the “admin” password has not been changed, change it now. Changing the default password closes a security hole that could be easily exploited.

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



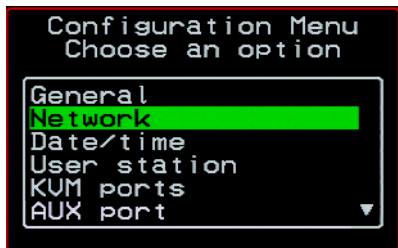
3. Enter a new password.



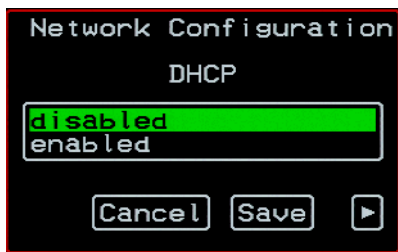
4. Re-enter the new password.
The password confirmation dialog box appears.
5. Press Enter.
The Local Users menu appears.
6. Select Exit or press the Esc key to exit the Local Users menu.
You can use the Exit or Cancel option or the Esc key to exit any window on the OSD.
7. If you are performing an initial configuration of basic networking parameters, see “To Configure Network Parameters Using the OSD” on page 80.
8. Otherwise, go to the appropriate menu option for your next task.

▼ **To Configure Network Parameters Using the OSD**

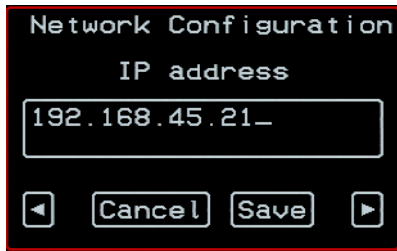
1. From the OSD Main Menu, go to Configure > Network.



The DHCP form appears.



2. Select the “disabled” option and press Enter.
The IP address form appears.



Network Configuration

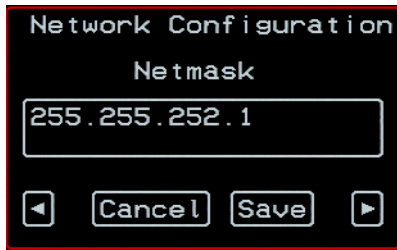
IP address

192.168.45.21_

◀ Cancel Save ▶

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

The Netmask form appears.



Network Configuration

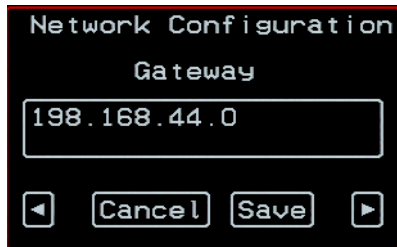
Netmask

255.255.252.1

◀ Cancel Save ▶

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

The Gateway form appears.



Network Configuration

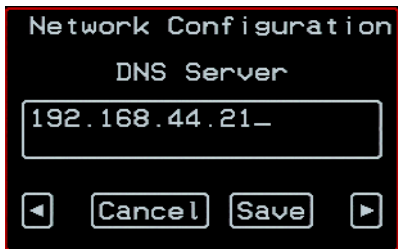
Gateway

198.168.44.0

◀ Cancel Save ▶

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

The DNS Server form appears.



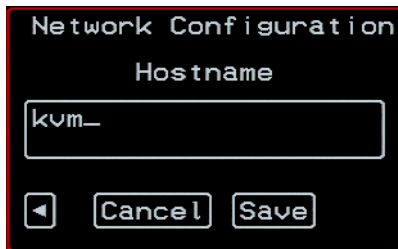
6. Enter the IP address for the DNS server and press Enter.

The Domain form appears.



7. Enter the domain name and press Enter.

The Hostname form appears.



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

The Configuration menu appears.

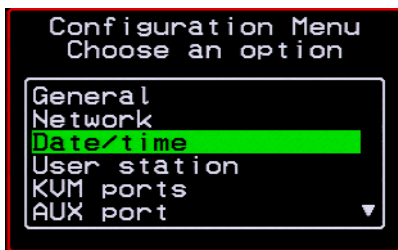
- To configure an NTP (network time protocol) server or to enter the date and time manually, go to “To Set the Time and Date Using the OSD” on page 84.

- 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 86.
- 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**

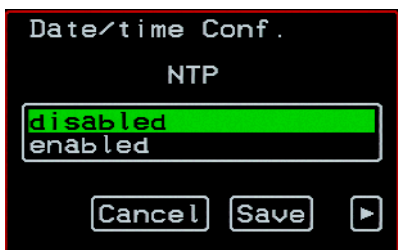
1. From the Main menu of the OSD, go to Configure.

The Configuration menu appears.



2. Select Date/time.

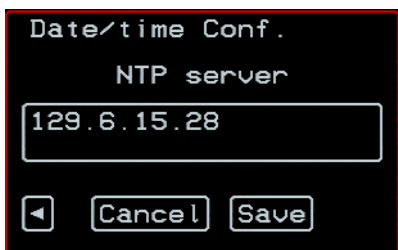
The Date/time conf. form appears.



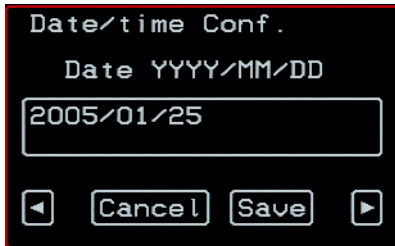
3. To enable the NTP time and date server, do the following.

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

The NTP server screen appears

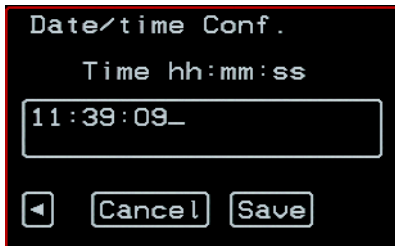


- b. Enter the IP address of the NTP server.
 - c. Save the changes.
4. To enter the date and time manually, do the following.
- a. On the Date/time conf. form, select disabled.
The Date entry screen appears.



The screenshot shows a terminal window titled "Date/time Conf.". Below the title, it says "Date YYYY/MM/DD". A text input field contains the date "2005/01/25". At the bottom of the screen, there are four buttons: a left arrow, "Cancel", "Save", and a right arrow.

- b. Enter the date in the format shown and press Enter.
The Time entry screen appears.



The screenshot shows a terminal window titled "Date/time Conf.". Below the title, it says "Time hh:mm:ss". A text input field contains the time "11:39:09_". At the bottom of the screen, there are four buttons: a left arrow, "Cancel", "Save", and a right arrow.

- 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 86.
- Otherwise, go to the appropriate menu option for your next task.

Completing Configuration Using the Web Manager

The “admin” user can administer the KVM 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 113 for procedures for performing the common KVM 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 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

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.
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's KVM management port and a local monitor, keyboard, and mouse, as described in "To Connect to the User 1 Management Port" on page 71. 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 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 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 89.”
- DHCP is enabled on the KVM by default. If you have network access to the DHCP server for the KVM, and if you are able to discover the KVM’s dynamically assigned IP address, you do not need to make a direct connection. Discovering the current IP address requires entering the KVM’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 90.”

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

The default IP address for the KVM 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.

1. Set up the AlterPath KVM.
See “To Mount the KVM” on page 64.
2. Connect computers and other devices to be managed through the KVM.
See “Connecting Servers to the KVM Ports” on page 66.
3. Power on the KVM and connected devices.
See “Powering On the KVM and Connected Devices” on page 71.

4. On a computer that resides on the same subnet with the KVM, 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'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 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.

1. Set up the AlterPath KVM.
See "To Mount the KVM" on page 64.
2. Connect computers and other devices to be managed through the KVM.
See "Connecting Servers to the KVM Ports" on page 66.
3. Power on the KVM and connected devices.
See "Powering On the KVM and Connected Devices" on page 71.
4. To obtain the KVM'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 70 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:

```
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’s current IP address from the DHCP server, supply the MAC address from the bottom side of the KVM’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 users and ports using the Web Manager.

Preconfiguring the KVM for Remote Installation

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

If you would prefer to have Cyclades pre-configure the KVM 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 with parameters you supply.

▼ *To Preconfigure the KVM*

1. Perform the tasks listed in the following table to preconfigure the KVM 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 70
Power on the KVM and connected devices.	“Powering On the KVM and Connected Devices” on page 71
Perform basic network configuration.	“Performing Basic Network Configuration” on page 72

2. If you ship the KVM to a remote location for installation, also send the following:
 - A record of the KVM’s fixed IP address and other network parameters.
 - A copy of the instructions under “To Set Up a Preconfigured KVM” on page 92.

▼ *To Set Up a Preconfigured KVM*

Perform the tasks shown in the following table with a KVM that has been preconfigured as described in “To Preconfigure the KVM” on page 92. After

the tasks are completed in the order shown, a remote administrator can bring up the Web Manager by entering the KVM's fixed IP address in a browser.

Task	Where Documented
1 Set up the AlterPath KVM.	“Setting Up the KVM” on page 63
2 Make an Ethernet connection.	“Making an Ethernet Connection” on page 65
3 Connect computers and other devices.	“Connecting Servers to the KVM Ports” on page 66
4 Power on the KVM and connected devices.	“Powering On the KVM and Connected Devices” on page 71

Chapter 3

Advanced Installation Procedures

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

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

External modems	Page 96
AlterPath PM	Page 97
AlterPath KVM Expander	Page 99
Cascaded KVM units	Page 106
AlterPath KVM RP	Page 109

Connecting an External Modem

You can connect a modem to the AUX port on the KVM. After the modem is connected and properly configured, you can use it to dial in to the KVM 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.
 - 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 231 and “To Configure the AUX Port for Use With an IPDU or an External Modem” on page 232.

Connecting AlterPath PMs to the KVM

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

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

1. Use an RJ-45 CAT5 cable to connect the AUX port on the KVM 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 232.

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” on page 98
Manage the power of devices connected to configured PM units.	<ul style="list-style-type: none"> • Web Manager – “IPDU Power Management” on page 140 • OSD – “Power Management Menu” on page 301
Control the power of a device while connected to it through a KVM port.	<ul style="list-style-type: none"> • Web Manager – “To Power On, Power Off, or Reboot the Connected Server” on page 284 • OSD – “To Power On, Power Off, Lock, Unlock, or Cycle Devices Plugged into PM Outlets” on page 288

▼ **To Connect Multiple PMs to the KVM**

This procedure assumes that you have one AlterPath PM connected to the AUX port of the KVM. See “To Connect an AlterPath PM to the AUX Port” on page 97 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.
- 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 140 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 100
2	Set up the KVM Expander	Page 101
3	Connect computers to the KVM ports on the KVM Expander	Page 66
4	Connect the KVM Expander to the KVM	Page 108
5	Power on the KVM Expander and connected devices	Page 104
6	Add the KVM Expander to the primary KVM unit's list of cascaded devices	Page 162

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





<input checked="" type="checkbox"/>	Item	P/N	Description	Purpose
<input type="checkbox"/>		PAC0226	Documentation CD	PDF copies of this guide and all other Cyclades product documents.
<input type="checkbox"/>		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.
<input type="checkbox"/>		CAB0018	RJ-45 to RJ-45 7ft. CAT5 cable	Use for the following: <ul style="list-style-type: none"> To connect a server to a KVM port (with the appropriate Terminator from Table 1-16 on page 47). See “Connecting Servers to the KVM Ports” on page 66. To connect the KVM Expander User A or User B ports to a KVM port on the KVM. See “To Connect a KVM Expander to the Primary KVM” on page 108.

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

<input checked="" type="checkbox"/>	Item	P/N	Description	Purpose
<input type="checkbox"/>		HAR0453	2 - Mounting brackets with 8 - screws (2 spares)	Use to mount the KVM to a rack or wall. See “To Mount the KVM Expander” on page 102.

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 47.

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.

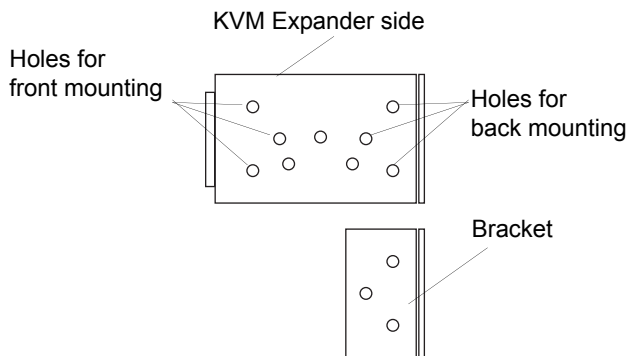
- If you are not mounting the KVM Expander, place the KVM Expander on a desk or table.
- If you are mounting the KVM Expander, obtain a Phillips screwdriver and the appropriate nuts and bolts before starting the following procedure.

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

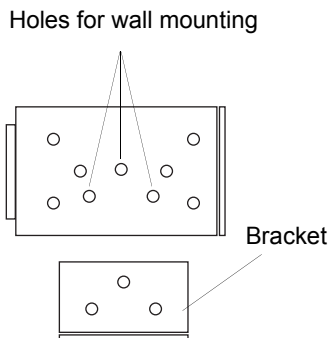
▼ To Mount the KVM Expander

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.

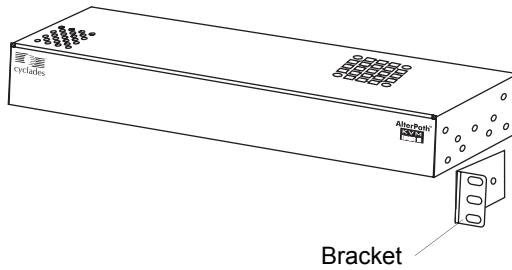


The following figure shows the angle of a bracket being installed for wall mounting.

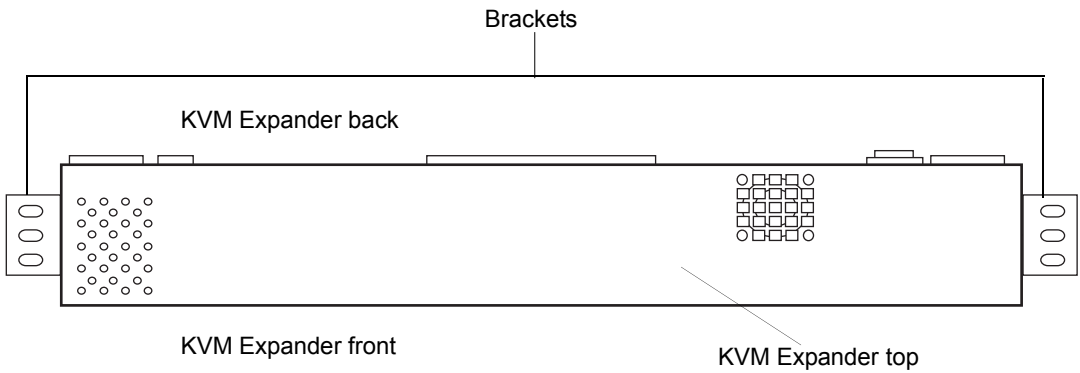


- b. For each bracket, insert a screw through each of the three holes on the bracket into the appropriate holes at either the front or back of the KVM Expander.

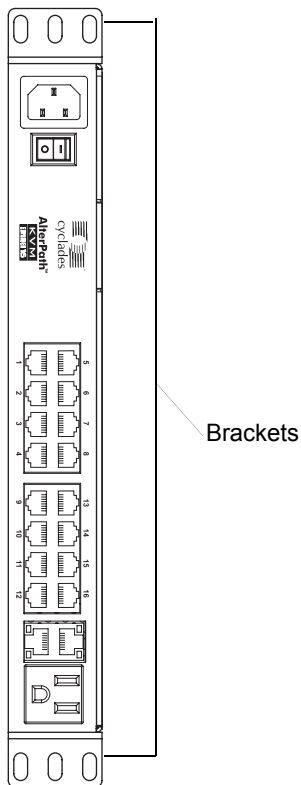
The following figure shows the brackets as they appear from the side and front of the KVM Expander after the brackets are installed for rack mounting.



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.

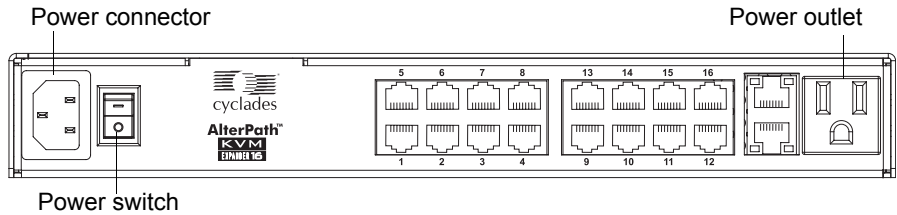


- c. Use a Phillips screwdriver to tighten the screws.
2. Use screws or nuts and bolts as appropriate to mount the KVM Expander on the wall, on a rack, or in a cabinet.
3. Use screws or nuts and bolts as appropriate to mount the KVM Expander on a rack.

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 66.

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

Connecting Cascaded KVM Units to the Primary KVM

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

- “To Connect a Secondary KVM Unit to the Primary KVM” on page 107
- “To Connect a KVM Expander to the Primary KVM” on page 108

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

- 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 99 for installation instructions.
- KVM – See Chapter 2, “Installation” on page 2-59 for installation instructions.

For background information on cascading, see “Cascaded Devices” on page 19.

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

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.
 - 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.
 - 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 66 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.

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

See “Installing the AlterPath KVM Expander” on page 99 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.
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. 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.

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 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.

Tasks	Where Documented/Notes
1 Place the KVM RP on a desk or table up to 500 feet away from the KVM.	You can use a CAT5 cable of up to 500 feet long to extend the local administration of the KVM.
2 Connect the KVM RP to the KVM.	“To Connect the KVM RP to the KVM” on page 111.
3 Connect a keyboard, monitor, and mouse to the KVM RP.	“Options for Accessing the KVM RP” on page 111
4 Supply power to and turn on the KVM RP.	“Supplying Power to the KVM RP” on page 112
5 Use the KVM RP to control the KVM.	“Controlling the OSD Through the AlterPath KVM RP” on page 369

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

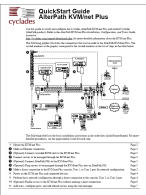


<input checked="" type="checkbox"/>	Item	P/N	Description	Purpose
<input type="checkbox"/>		PAC0267	<i>AlterPath KVM Quick Start Guide</i>	Basic installation guide for experienced users in printed format.
<input type="checkbox"/>		CAB0010	3-pin power cord	Use to plug into a grounded AC power outlet. For other types of power sources, contact Cyclades sales for other cord options.
<input type="checkbox"/>		CAB0018	RJ-45 to RJ-45 7ft. CAT5 cable	Use to connect the User 2 port on the KVM to the Remote User port on the KVM RP. See “To Connect the KVM RP to the KVM” on page 111.

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

<input checked="" type="checkbox"/>	Item	P/N	Description	Purpose
<input type="checkbox"/>		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 112 more information.

▼ **To Connect the KVM RP to the KVM**

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.

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 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 dedicated keyboard, monitor, and mouse connected to its USER port, do the following:
 - a. Make sure the KVM's power switch is off.
 - b. Plug in the power cable.
 - c. Turn the KVM's power switch on.
2. If the KVM RP is connected to the local PC, turn the KVM's power switch on.

The power is supplied by the PC. See "To Connect the KVM RP to the Local Work Station" on page 112 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. 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 166 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 263. 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 18, 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 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 Features of Administrators’ Windows	Page 116
Logging In to the Web Manager and Saving Changes	Page 117

Administrative Modes	Page 120
Wizard Mode	Page 120
Expert Mode	Page 138

Common Tasks

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

Task	Where Documented/Notes
Select a pre-defined security profile, or configure a custom security profile.	<ul style="list-style-type: none"> • “Security Profiles” on page 190
Set up other users to access connected devices without being able to make changes to the KVM configuration	<ul style="list-style-type: none"> • “To Add a User [Wizard]” on page 132 • “To Add a User [Expert]” on page 167
Assign users or groups to specific ports, restricting access to a limited set of devices	<ul style="list-style-type: none"> • “To Assign KVM Port Access to a User or Group” on page 171
Set up other users to share all administration of the KVM	<ul style="list-style-type: none"> • “To Add a User [Wizard]” on page 132 • “To Add a User [Expert]” on page 167
Set up logging of system messages to a syslog server	<ul style="list-style-type: none"> • “To Add a Syslog Server [Wizard]” on page 137 • 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)	<ul style="list-style-type: none"> • “To Configure the AUX Port for Use With an IPDU or an External Modem” on page 232 • “To Configure a KVM Port for Power Management” on page 158
Manage power on an optional AlterPath PM)	<ul style="list-style-type: none"> • “To View Status, Lock, Unlock, Rename, or Cycle Power Outlets” on page 142 • “To View and Reset IPDU Information” on page 144 • “To Configure Users to Manage Specific Power Outlets” on page 145 • “To Specify or Change the Alias of an IPDU” on page 147 • “To Configure Creation of Alarms and Syslog Files for IPDUs” on page 147 • “To Upgrade Firmware on an AlterPath PM” on page 148
Choose among authentication methods and specify authentication servers for logins to the KVM and for logins to devices connected to the KVM’s ports	<ul style="list-style-type: none"> • “To Configure an Authentication Method for KVM Logins” on page 175
Configure rules for the KVM to filter packets like a firewall	<ul style="list-style-type: none"> • “To Add a Chain for IP Filtering” on page 211 • “To Edit A Chain for IP Filtering” on page 212 • “To Add a Rule for IP Filtering” on page 212 • “To Edit a Rule for IP Filtering” on page 209

Common Features of Administrators' Windows

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


- Control and logout buttons and KVM Information
See “Administrators’ Control Buttons, Logout Button, and KVM Information.”
- Getting more information
See “Obtaining More Information” on page 117


Administrators’ Control Buttons, Logout Button, and KVM 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.
	Displays the hostname and IP address assigned during initial configuration (see “Performing Basic Network Configuration” on page 72). Also displays the model name of the KVM.

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 118
To Save Configuration Changes	Page 118

For procedures specific to each mode, see “Administrative Modes” on page 120.

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

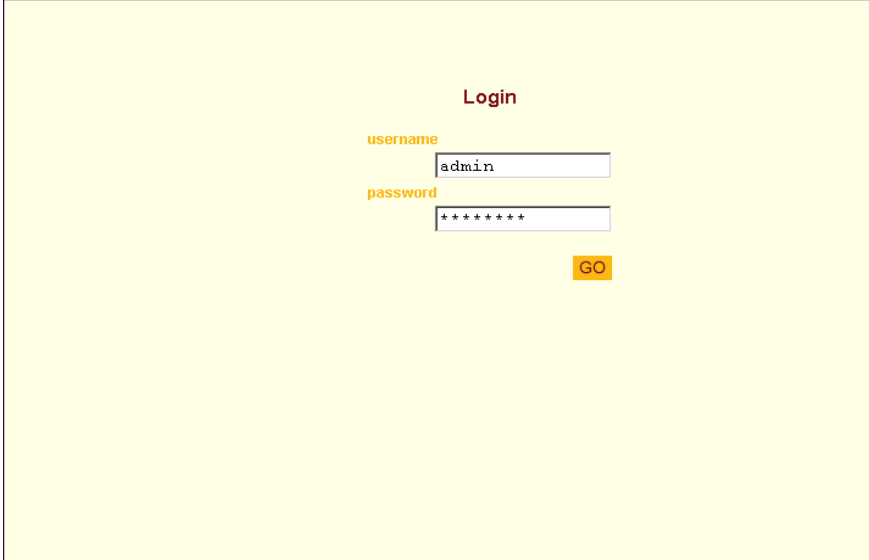
This procedure assumes that the prerequisites described under “Prerequisites for Using the Web Manager” on page 18 are done and that you can connect to the Web Manager.

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

Note: Devices like the AlterPath KVM 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, for help finding the IP address, if needed. Or see “Considerations When Choosing Whether to Enable DHCP” on page 46 for a list of ways to find out the KVM 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.

The Login page appears.

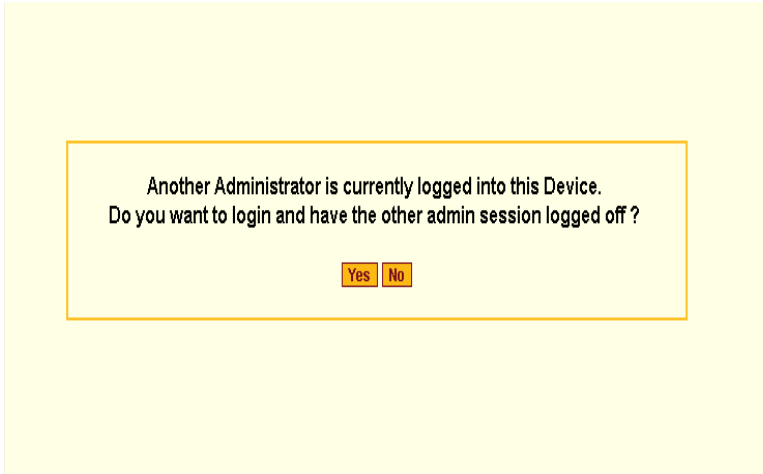


The image shows a login form titled "Login" centered on a light yellow background. Below the title, there are two input fields. The first is labeled "username" and contains the text "admin". The second is labeled "password" and contains seven asterisks. To the right of the password field is a yellow button with the text "GO" in black.

Figure 4-1:KVM Login Form

2. 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.



The image shows a dialog box with a yellow border and a light yellow background. The text inside reads: "Another Administrator is currently logged into this Device. Do you want to login and have the other admin session logged off?". At the bottom of the dialog box, there are two yellow buttons: "Yes" and "No".

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

If the previous dialog box appears, go to Step 3.

3. 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 120
- “Expert Mode” on page 138



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.

Left menu

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 118, 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 125
To Change Network Settings [Wizard]	Page 129
To Add a User [Wizard]	Page 132
To Delete a User [Wizard]	Page 134
To Change a Password [Wizard]	Page 134

To Add a Syslog Server [Wizard]	Page 137
To Delete a Syslog Server [Wizard]	Page 138

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]	Page 122
Step 2: Network Settings [Wizard]	Page 128
Step 3: Access [Wizard] [Wizard]	Page 130
Step 4: System Log [Wizard] [Wizard]	Page 136

Step 1: Security Profile [Wizard]

The first step in configuring your AlterPath KVM 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.
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.
3. **Open** - The Open profile enables all services such as Telnet, SSHv1, SSHv2, HTTP, HTTPS, SNMP, RPC, ICMP, and Telnet.

Default Security Profile

The *Default* Security Profile sets the parameters to same as *Moderate* profile. See the following tables for the list of enabled services when the *Default* security profile is used.

Custom Security Profile

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

Note: By default, a number of protocols and services are enabled in the *Custom* profile, however, they are user configurable to for specific requirements.

The following tables illustrate the properties for each of the Security Profiles. The enabled services in each profile is designated with a check mark.

Table 4-1: Enabled services to access the KVM under each security profile.

Access to KVM	Secured	Moderate	Open	Default¹	Custom
Telnet			✓		User Configurable
SSHv1		✓	✓	✓	
SSHv2	✓	✓	✓	✓	
HTTP		✓	✓	✓	
HTTPS	✓	✓	✓	✓	
HTTP redirection to HTTPS		✓		✓	

1-The *Default* security profile parameters are the same as Moderate profile.

Table 4-2: Enabled protocols for each security profile shown with a check mark.

Other Services	Secured	Moderate	Open	Default¹	Custom
SSH root access		✓	✓	✓	User Configurable
FTP					
SNMP			✓		
RPC			✓		
ICMP		✓	✓	✓	
IPSec					

1-The *Default* security profile parameters are the same as Moderate profile

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

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

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

The following security warning dialog box appears.

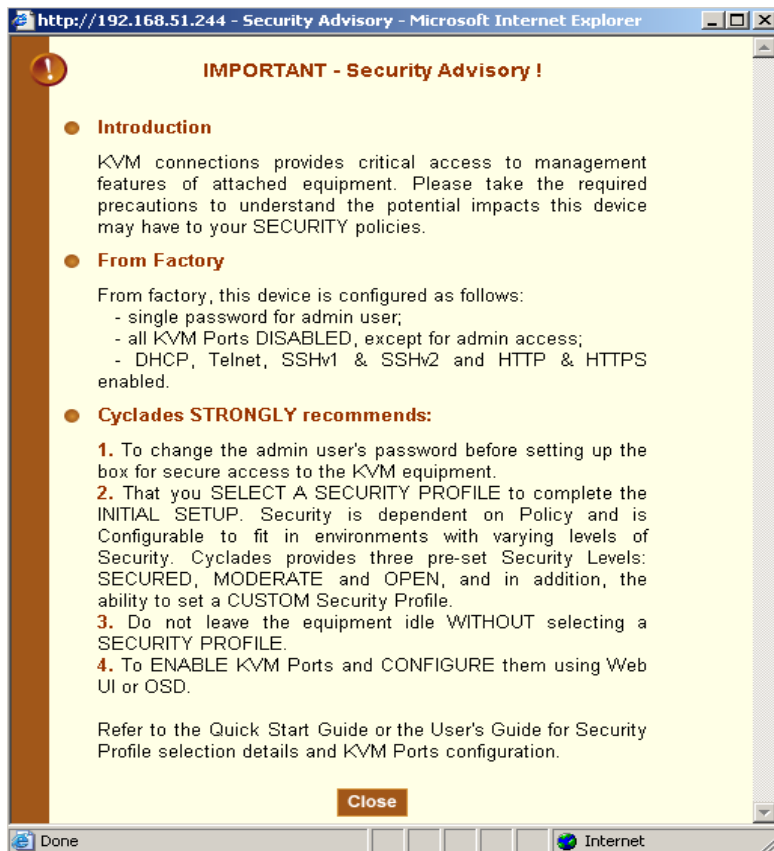


Figure 4-3: Security Advisory Dialog Box

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.



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.

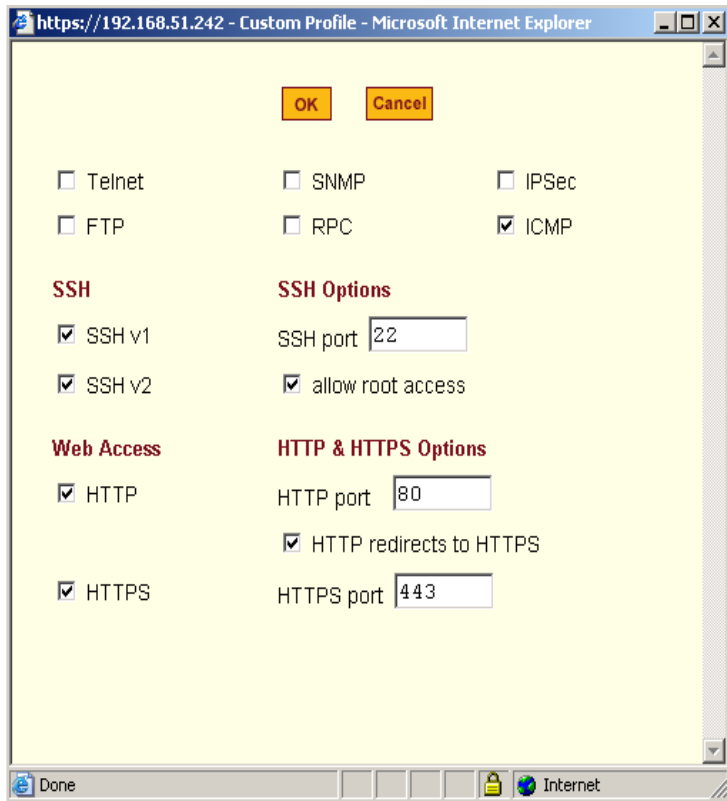


Figure 4-5: Custom Security Profile Dialog Box

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 124 and the subsequent table for a comparison of the available services in each security profile. Refer to the Glossary for a definition on the available services.

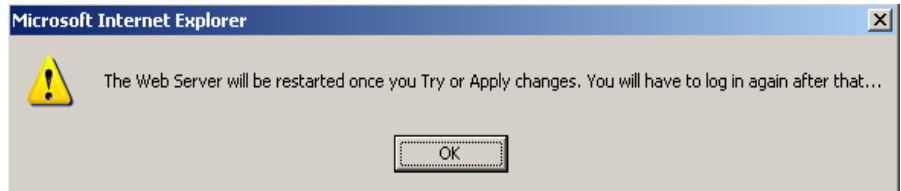
Note: It is not possible to continue working in the Web Manager without selecting a Security Profile. The following dialog box appears if you try to navigate to

other sections of the Web Manager.



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

The following dialog box appears.



6. Select “apply changes” to save the configuration to Flash.
KVM 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 in Expert Mode

Configure Users and Groups	“Users & Groups” on page 166
Configure Network Settings	“Host Settings” on page 196
Configure IPDU Power Management	“IPDU Power Management” on page 140

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, 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 72, 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 72, 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 196. 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 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 72, 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 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.

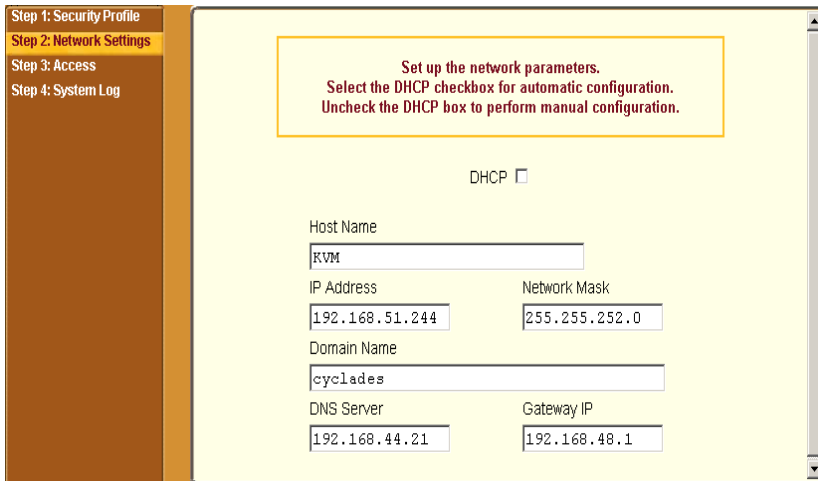


Figure 4-6:Network Settings in Wizard Mode

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’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. The administrator can configure added users to administer the KVM by assigning them to the “admin” group.

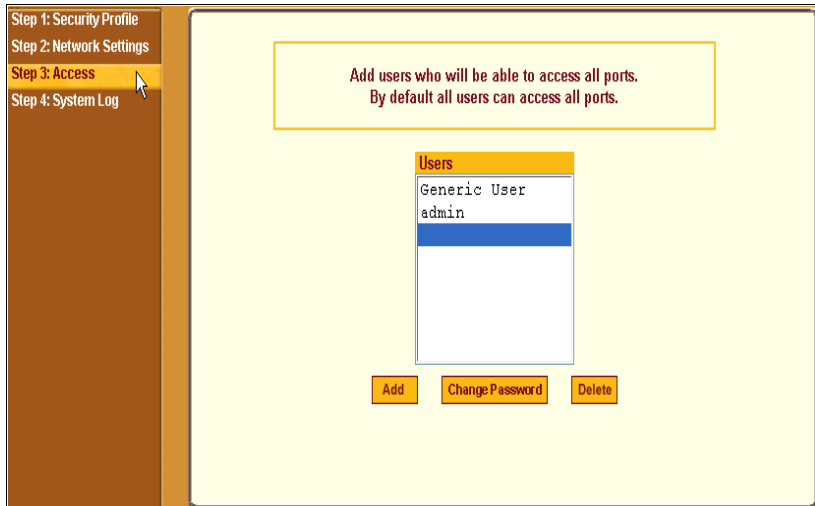


Figure 4-7:User Access in Wizard Mode

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.

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.

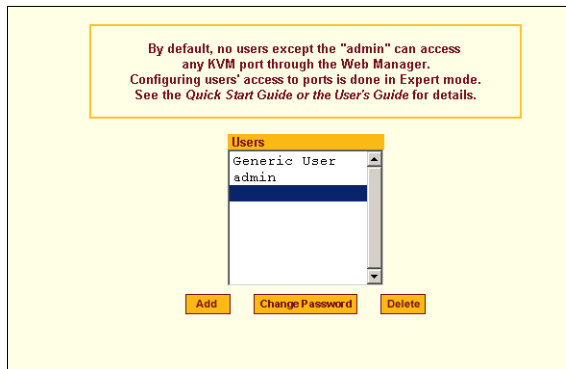
To Add a User [Wizard]	Page 132
To Delete a User [Wizard]	Page 134
To Change a Password [Wizard]	Page 134

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]**

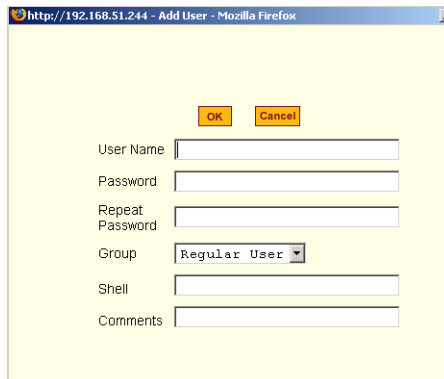
1. In Wizard mode, go to Step 3: Access.

The Access form appears.



2. Click Add.

The "Add User" dialog box appears.



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

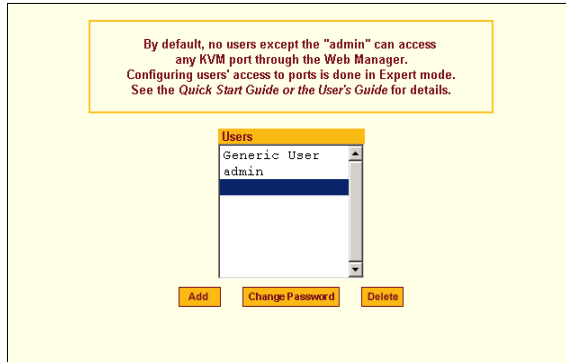
Field Name	Definition
Username	The username for the account being added.
Password	The password for the account.
Group	On the drop-down list, Select Regular User [Default] or Admin. Note: To configure a user to be able to perform all KVM administration functions, select the “Admin” group. See “Types of 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 <code>sh</code> or <code>bash</code> . The default is <code>sh</code> .
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.



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

The username disappears from the Users list.

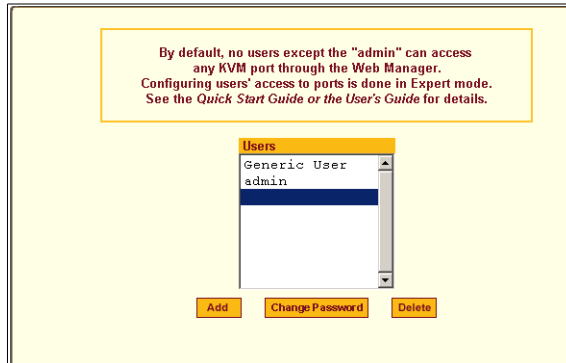
3. Click the “apply changes” button.

▼ **To Change a Password [Wizard]**

Note: Leaving the default admin or root passwords unchanged would leave the KVM and connected devices open to anyone who knows the default passwords and the KVM’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.



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.

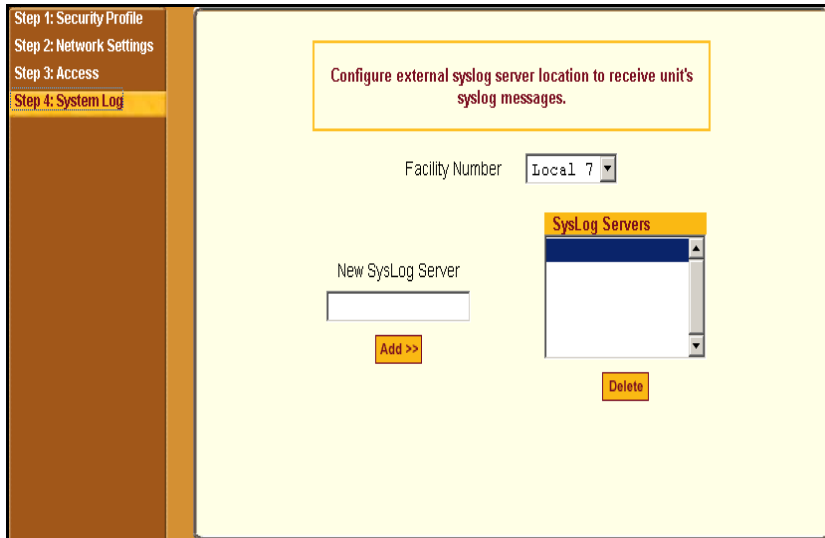


Figure 4-8:System Log in Wizard Mode

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

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

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 43, 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 137
To Delete a Syslog Server [Wizard]	Page 138

Use this form to configure system logging for the KVM. 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 200.

▼ **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

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

The System Log form appears.

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.



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 section for details about the tasks performed using the form under Access in Expert mode.

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			0.50
2	out2			0.50
3	out3			0.50
4	out4			0.50
5	out5			0.50
6	out6			0.50
7	out7			0.50
8	out8			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. The AlterPath PM can be daisy chained to allow you to manage power for up to 128 devices from the KVM.

See “To Connect an AlterPath PM to the AUX Port” on page 97 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 232.

See the following sections for details about the tasks performed using the forms under IPDUPower Management.

- “Outlets Manager” on page 141
- “View IPDUs Info” on page 143
- “Users Manager” on page 144

- “Configuration” on page 146
- “Software Upgrade” on page 147

See the following sections for related procedures:

- “To View Status, Lock, Unlock, Rename, or Cycle Power Outlets” on page 142
- “To View and Reset IPDU Information” on page 144
- “To Configure Users to Manage Specific Power Outlets” on page 145
- “To Configure Creation of Alarms and Syslog Files for IPDUs” on page 147
- “To Upgrade Firmware on an AlterPath PM” on page 148

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.





























Outlets Manager		View IPDUs Info	Users Manager	Configuration	Software Upgrade
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.

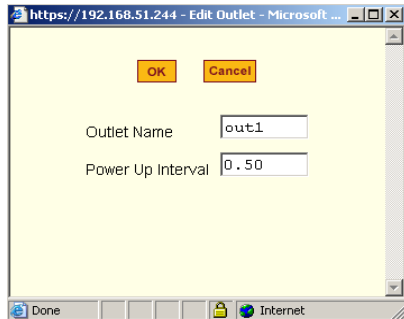
2. To switch an outlet on or off, click the adjacent light bulb.
3. To lock or unlock an outlet, click the adjacent padlock.

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	Edit
2	out2	 	Cycle	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.



- 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		
<input type="button" value="Clear Max Detected Current"/>		
<input type="button" value="Clear Max Detected Temperature"/>		
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:	

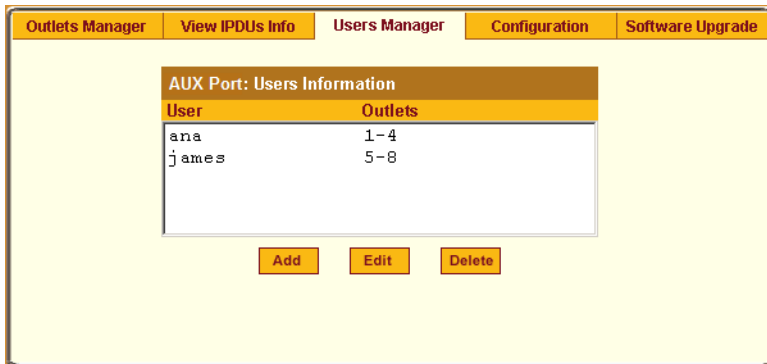
▼ **To View and Reset IPDU Information**

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

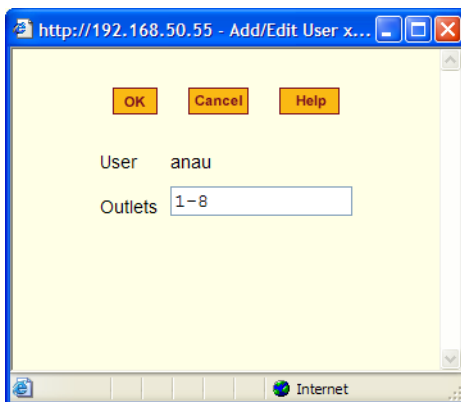
On the “Users Manager” form under Access>IPDUPower Management in Expert mode, you can assign users to outlets.

Figure 4-14:Power Management - Users Manager Form



▼ To Configure Users to Manage Specific Power Outlets

1. In Expert mode, go to Access>IPDU Power 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.



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 with an AlterPath PM connected to AUX port.

The screenshot shows a web-based configuration interface. At the top, there is a horizontal navigation bar with five tabs: 'Outlets Manager', 'View IPDUs Info', 'Users Manager', 'Configuration', and 'Software Upgrade'. The 'Configuration' tab is currently selected. Below the navigation bar, the main content area is titled 'Configuration'. It contains a form with the following elements: a text input field for 'Name' containing 'PowerMgm-1'; three checkboxes: 'Enable Over Current Protection' (unchecked), 'Enable Syslog' (checked), and 'Enable Buzzer' (checked); and a label 'Alarm Threshold: Master Unit:' followed by a dropdown menu showing the value '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.
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.

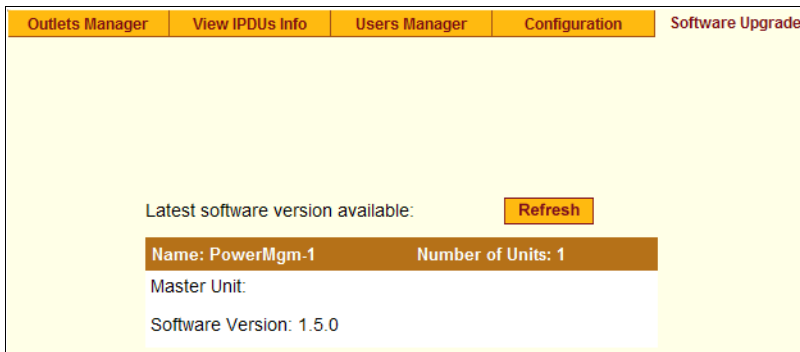


Figure 4-16:Power Management - Software Upgrade Form

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.
2. Copy the firmware file to the KVM 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.



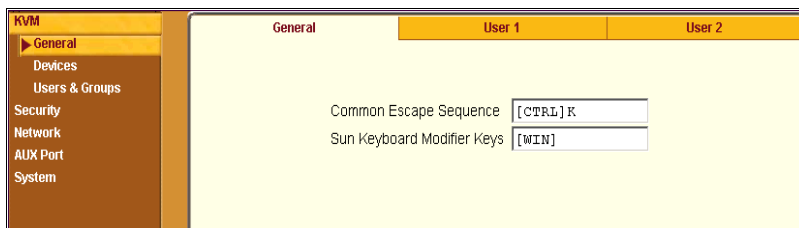
Figure 4-17:KVM Configuration General Form

See the following sections for details about the tasks performed using the forms under Configuration in Expert mode:

- “KVM” on page 149
-
- “Security” on page 174
- “Network” on page 194
- “AUX Port” on page 231
- “System” on page 233

KVM

Selecting Configuration>KVM in Expert mode brings up KVM options in the left menu as shown in the following figure.

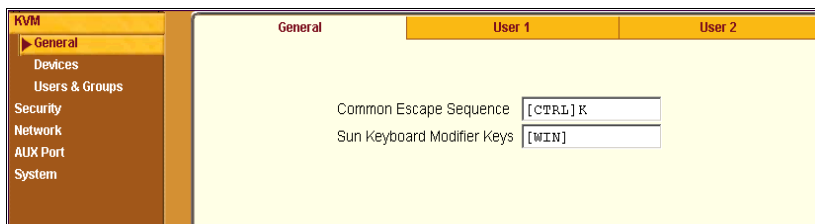


You can use the KVM menu options for custom configuration of KVM ports. The following table provides links to the sections where the options are described.

Web Manager Form	Where Documented
General	“General” on page 150
Devices	<ul style="list-style-type: none"> • “Configuring Individual KVM Ports” on page 158 • “Configuring Cascaded KVM Units” on page 162
Users & Groups	“Users & Groups” on page 166

General

Selecting Configuration>KVM>General in Expert mode brings up the form shown in the following figure.



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 151.
User 1 and User 2	“Local Users” on page 153

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
Common Escape Sequence	Redefines keyboard shortcuts used during localKVM connections	<ul style="list-style-type: none"> “Redefining KVM Connection Keyboard Shortcuts (Hot Keys)” on page 151
Sun Keyboard Modifier Keys	Redefines the modifier key to emulate a Sun keyboard. The default is [WIN].	<ul style="list-style-type: none"> “Redefining Sun Keyboard Modifier Keys” on page 152

Redefining KVM Connection Keyboard Shortcuts (Hot Keys)

You can use the General, User 1, and User 2 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”	<ul style="list-style-type: none"> Configuration>KVM>General>General

	Common Escape Sequence	Command Key	Where Defined
Defaults	Ctrl+k	“p” to bring up the “power management” window, “q” to quit. See Table 6-3, “Default KVM Connection Keyboard Shortcuts,” on page 278 for all the default command keys.	<ul style="list-style-type: none"> • Configuration>KVM>General>User 1 • Configuration>KVM>General>User 2

▼ **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.
4. On the “User 1” or “User 2” 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 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 279.

The hot keys are made up of a modifier key followed by a function key. The default modifier key in KVM is the Windows key, which is labeled with the Windows logo, and is located between the `Ctrl` and `Alt` keys on a PC keyboard.

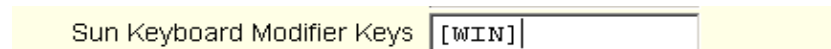
▼ **To Redefine the Sun Keyboard Modifier Keys**

You can redefine the default `[WIN]` modifier key to `[Ctrl]`, `[Shift]`, or `[Alt]` using the KVM 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

3. Click “apply changes.”

Local Users

Selecting Configuration>KVM>General>User 1 brings up a form with the fields shown in the following figure.

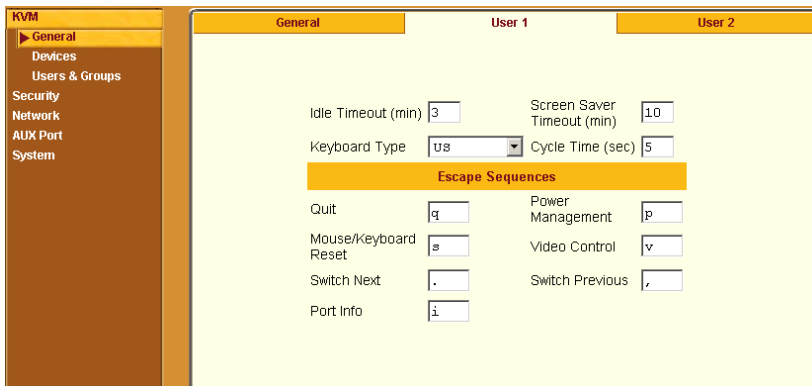


Figure 4-18:KVM Configuration User 1/User 2 Form

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.

In addition, on the “User 1” and “User 2” 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 29 and “To Redefine KVM Session Keyboard Shortcuts” on page 152 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.

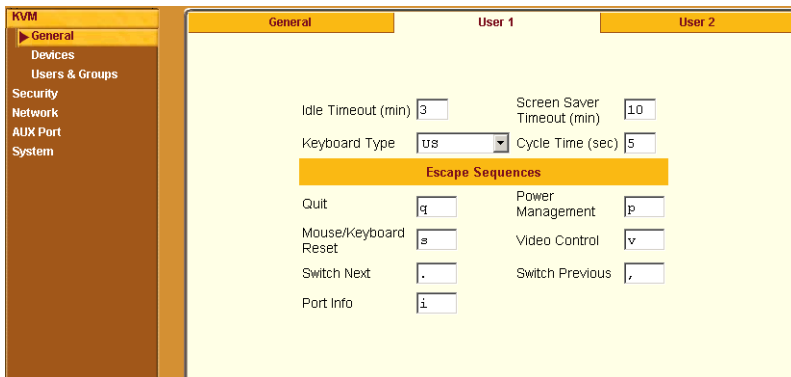
Table 4-4: User 1 and User 2 forms parameters

Field Name	Definition
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. The options from the drop-down list are shown in the figure. <div> </div>
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.

▼ *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.

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.”

Devices

Selecting Configuration>KVM>Devices in Expert mode brings up the form shown in the following figure.

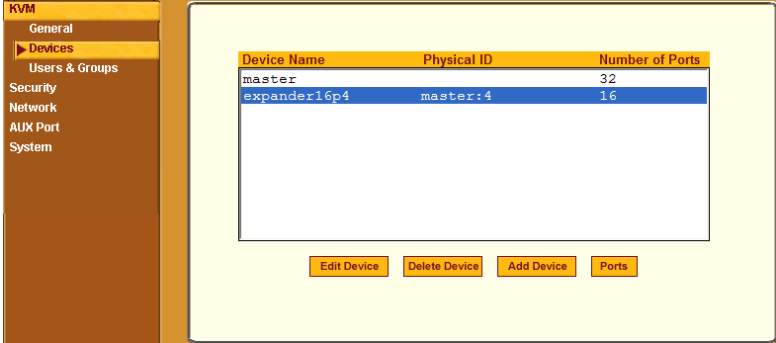
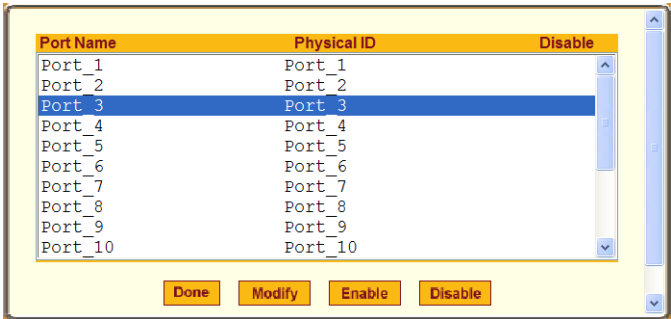


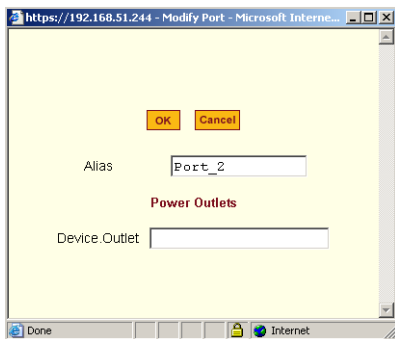
Figure 4-19:KVM Device Configuration Form

The device name “master” stands for the KVM, 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, as shown in the following figure.



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.



Configuring Individual KVM Ports

On the Modify Port dialog box, you can do the following:

- Configure an alias for a single KVM port
- 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

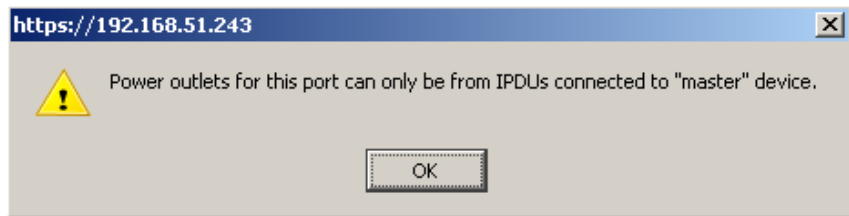
The following table lists the related procedures with links to where they are described.

To Configure a KVM Port for Power Management	Page 158
To Specify or Change the Alias for a KVM Port	Page 160
To Enable or Disable a KVM Port	Page 161

▼ 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 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. The following error message appears if you try to configure a master KVM port with the slave connected IPDU.



- 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 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'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.

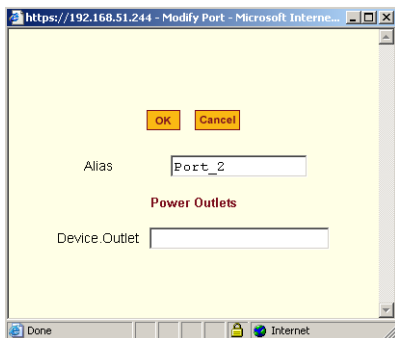
The Port Name list appears.

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	

Buttons: Done, Modify, Enable, Disable

3. Select the port you want to modify and click the Modify button.

The Modify Port dialog box appears.



4. In the Alias field, type an alias for the port
5. 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.
6. Click the OK button.
7. 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.”

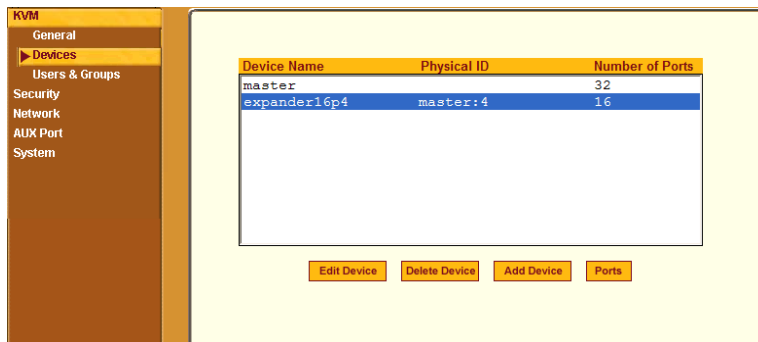
▼ **To Enable or Disable a KVM Port**

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 19 for background information.

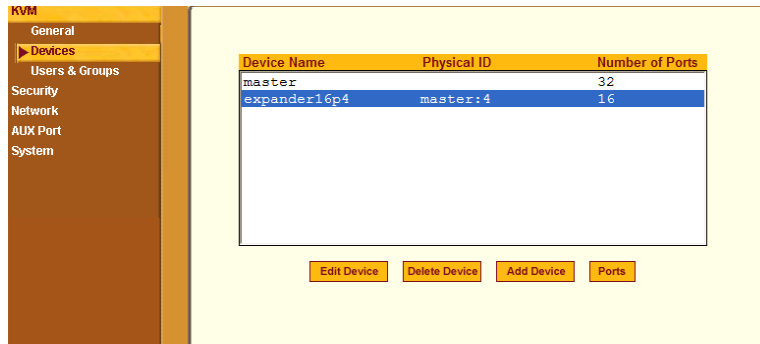
Selecting Configuration>KVM>Devices in Expert mode brings up the Devices form on which you can perform the following tasks.



- Add a secondary KVM unit to be cascaded from the master KVM.
See “To Add a Secondary KVM Unit to be Cascaded from the Master KVM” on page 162
- Edit the configuration of a cascaded device.
See “To Edit the Configuration of a Cascaded KVM Unit” on page 164
- Delete the configuration of a cascaded device.
See “To Delete the Configuration of a Cascaded KVM Unit” on page 166

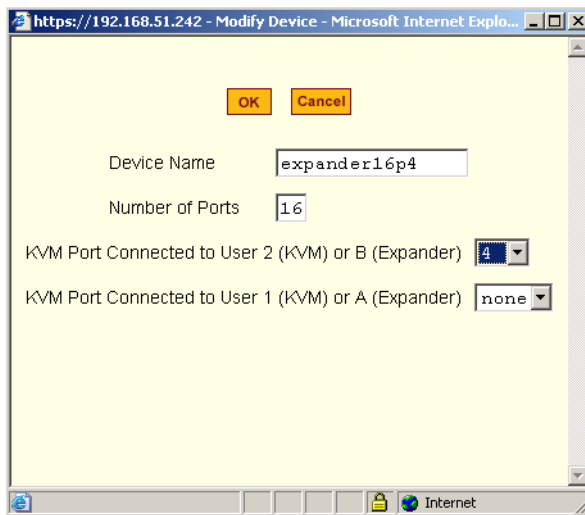
▼ To Add a Secondary KVM Unit to be Cascaded from the Master KVM

1. In Expert mode, go to: Configuration>KVM>Devices.
The Devices configuration form appears.



2. Click the Add Device button.

The Modify Device dialog box appears.



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 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” on page 106 for a background on the possible devices that can be cascaded and for instructions on connecting these devices to the master KVM.

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 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**

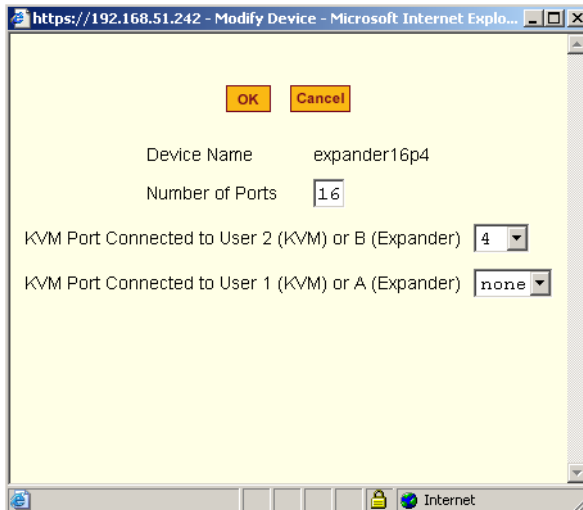
1. In Expert mode, go to: Configuration>KVM>Devices.

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.



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 that is connected to the User 2 port on the secondary KVM device or the B port on the Expander.

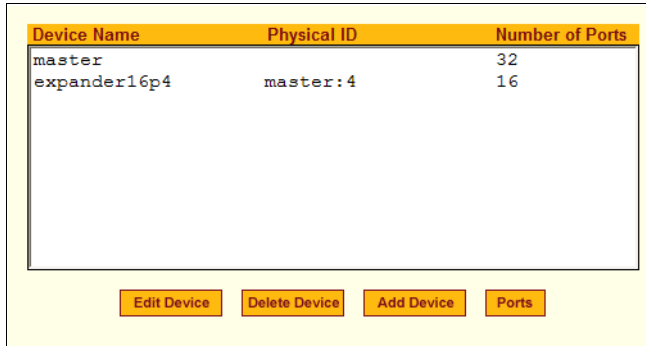
Note: See “Connecting Cascaded KVM Units to the Primary KVM” on page 106 for a background on the possible devices that can be cascaded and for instructions on connecting these devices to the master KVM.

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 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.

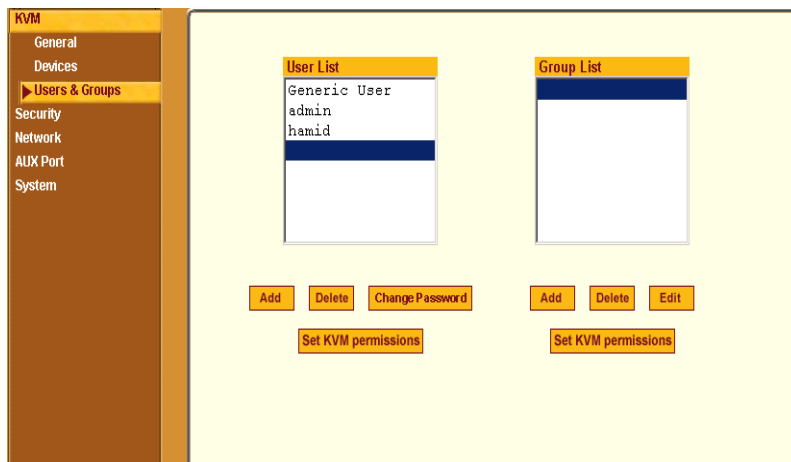


Figure 4-20:KVM Users & Groups Configuration Form

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.

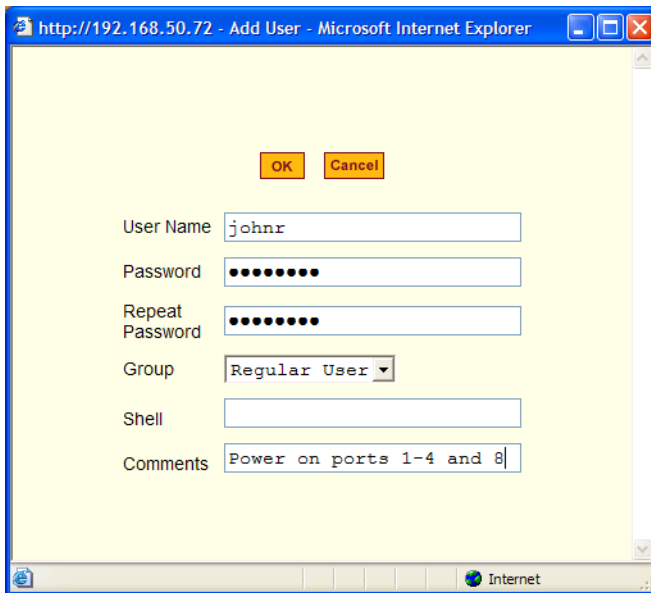
▼ **To Add a User [Expert]**

1. In Expert mode, go to Configuration>Users & Groups.

The Users & Groups form appears.

2. Click “Add.”

The “Add User” dialog box appears.



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 <code>ssh</code> or <code>telnet</code> connection with the switch. Choices are: <code>sh</code> or <code>bash</code> . The default is <code>sh</code> .
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” field 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.”

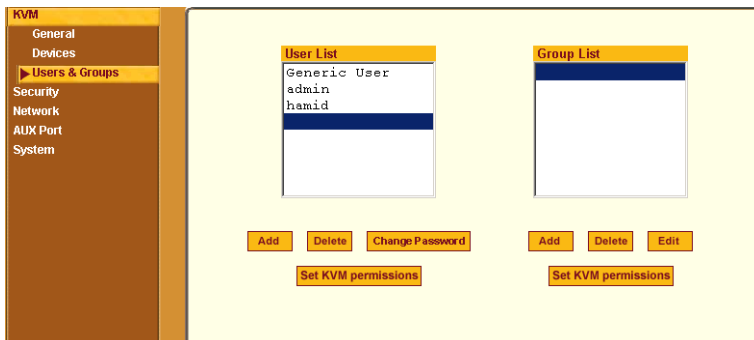
▼ **To Modify a Group**

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.

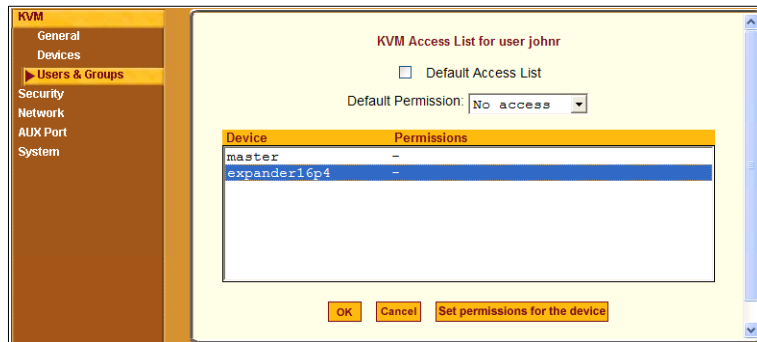
1. Go to Expert>Configuration>Users & Groups.
The Users & Groups form appears.
2. To set KVM port access for a regular user, select the name of the user or of multiple users from User List.



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.



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 171.

▼ 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’s KVM ports.

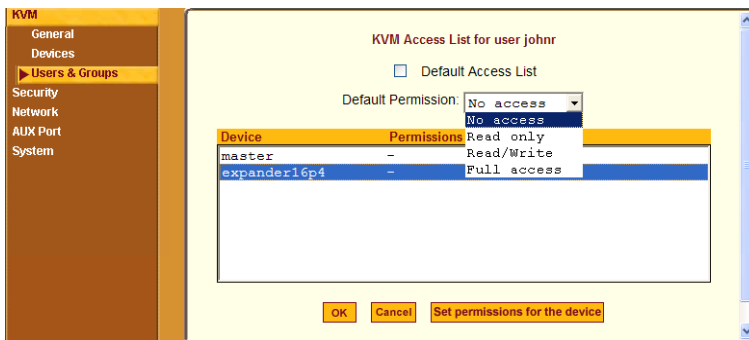
1. Go to Expert>Configuration>Users & Groups, and select a user or group.

If needed see “To Select Users and Groups for Assigning KVM Port Access” on page 170.

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.

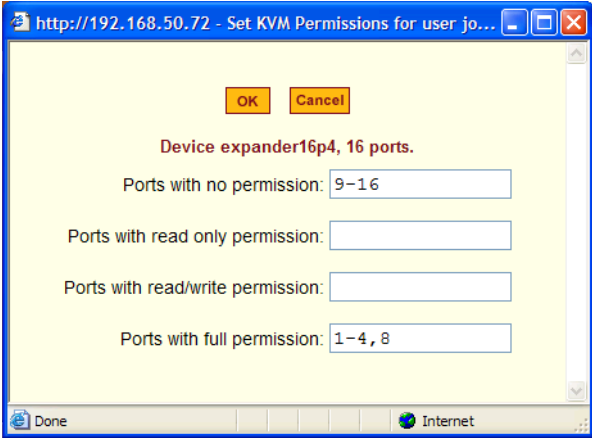
4. Select the desired access option from the “Default Permission:” drop-down list.



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.

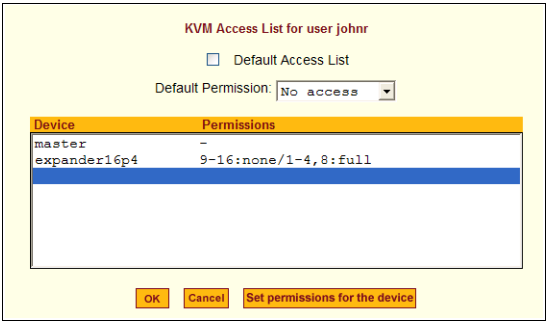
The “Set KVM Permissions for the device” dialog box displays as shown in the following screen example. (The example shows the dialog box when the “master” device is selected.)



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.”



8. Click OK.

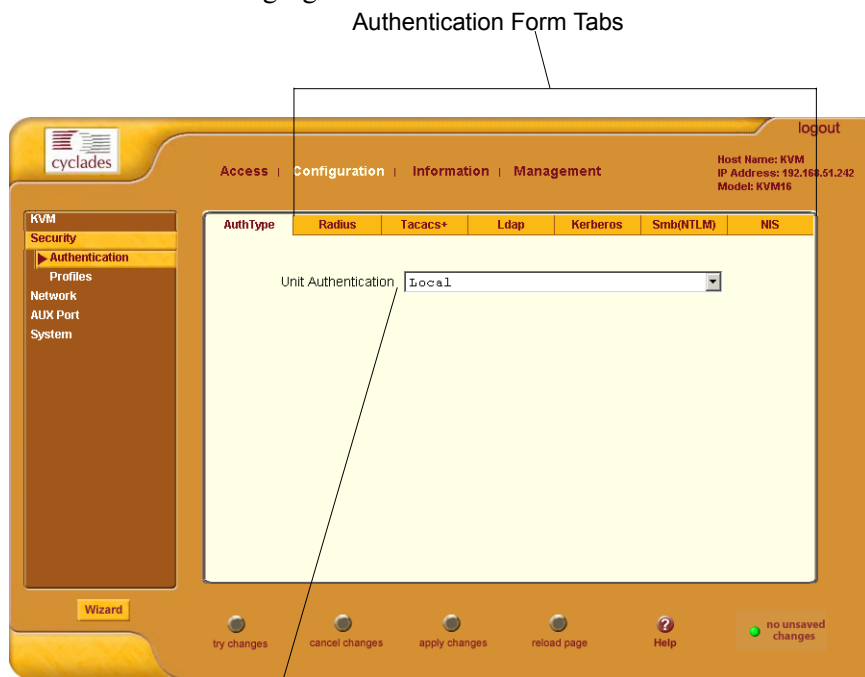
9. Click “apply changes.”

Security

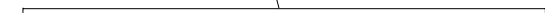
Selecting Configuration > Security provide options to configure the KVM and server authentication, and selecting a pre-defined security profile or define a custom security profile for access to KVM.

Configuring an Authentication Method

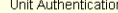
Configuration>Security>Authentication in Expert mode brings up the form shown in the following figure.



Authentication Form Tabs



Unit Authentication



Pull-down Menu of Authentication Methods

Figure 4-21:Authentication Configuration Form

The administrator uses the Authentication forms for two main purposes:

- To select an authentication method for the KVM *only*.

The default authentication method for the KVM 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 Logins” on page 175 for the procedure.

Any authentication method chosen for the KVM is used for authentication of any users attempting access through `telnet`, `ssh`, or the Web Manager.

See “Authentication” on page 39 for more details.

- To configure all authentication servers for the KVM 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 and by any of its ports: RADIUS, TACACS+, LDAP, Kerberos, SMB (ports only), NIS. See “Configuring Authentication Servers for Logins to the KVM” on page 176.

See “To Configure an Authentication Method for KVM Logins” on page 175 for instruction on how to specify an authentication method for ports.

▼ **To Configure an Authentication Method for KVM Logins**

See “Network” on page 194, if needed, for background information.

1. Go to Configuration>KVM>Authentication in Expert mode.

The AuthType form displays, as shown in the following figure.

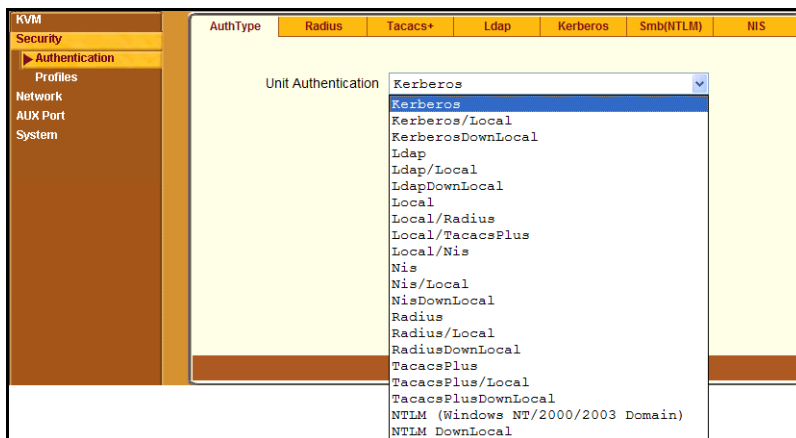


Figure 4-22:KVM Unit Authentication Configuration Form

2. To specify an authentication method for logins to the KVM, 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” on page 176.

Configuring Authentication Servers for Logins to the KVM

The administrator fills out the appropriate form to set up an authentication server for every authentication method to be used by the KVM. 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 185

Method	Variations	Procedures
TACACS+	TACACS+, Local/TACACS+, TACACS+/Local, or TACACS+/DownLocal	“To Identify a TACACS+ Authentication Server” on page 187
LDAP	LDAP, Local/LDAP, LDAP/Local, or LDAP/DownLocal	“To Identify an LDAP Authentication Server” on page 180
Kerberos	Kerberos, Local/Kerberos, Kerberos/Local, or Kerberos/DownLocal	“To Identify a Kerberos Authentication Server” on page 178
SMB (NTLM)	NTLM (Windows NT/2000/2003 Domain), or NTLM/DownLocal	“To Configure an SMB(NTLM) Authentication Server” on page 182
NIS	NIS, Local/NIS, NIS/Local, or NIS/DownLocal	“To Configure an NIS Authentication Server” on page 185

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 182
To Configure Group Authorization on a NTLM Server	Page 183
To Configure Group Authorization on a RADIUS Server	Page 187

▼ **To Identify a Kerberos Authentication Server**

Perform this procedure to identify the authentication server when the KVM 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 and connected devices know the passwords assigned to the accounts:

- An account for "admin"
- If Kerberos authentication is specified for the KVM, accounts for all users who need to log in to the KVM 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 and the Kerberos server exist in the KVM'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 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.

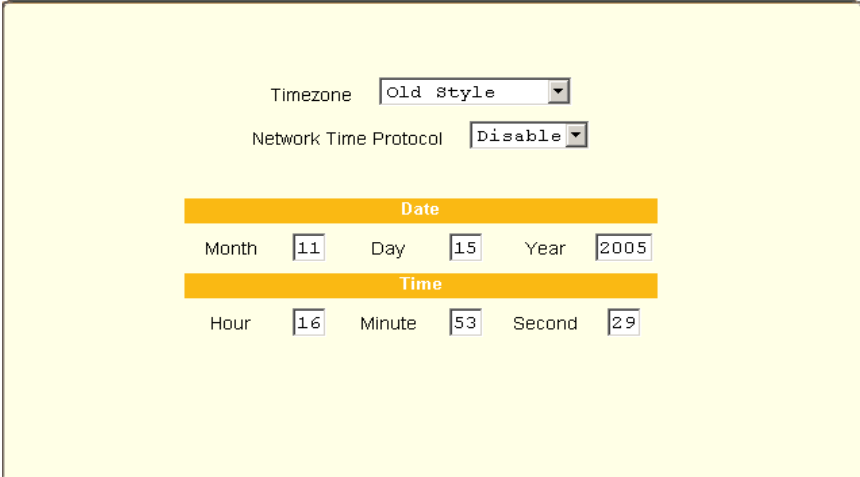
iii. Enter the name in the "Name" field.

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 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 236.
 - b. To manually set the time and date on the KVM, follow “To Set the KVM’s Date and Time Manually” on page 235.
 - c. Work with the authentication server’s administrator to synchronize the time and date between the KVM 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

Network Time Protocol

Date

Month Day Year

Time

Hour Minute Second

4. Go to Security > Authentication > Kerberos in Expert mode.
The Kerberos form displays as shown in the following figure.

AuthType	Radius	Tacacs+	Ldap	Kerberos	Smb(NTLM)	NIS
<p>Kerberos Server (Realm) <input type="text"/></p> <p>Kerberos Realm Domain Name <input type="text" value="cyclades.com"/></p>						

Figure 4-23: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 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 and connected devices know the passwords assigned to the accounts:

- An account for “admin”
- If LDAP authentication is specified for the KVM, accounts for all users who need to log in to the KVM 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.

AuthType	Radius	Tacacs+	Ldap	Kerberos	Smb(NTLM)	NIS
			Ldap Server	<input type="text" value="127.0.0.1"/>		
			Ldap Base	<input type="text" value="dc=pad1, dc=com"/>		
			<input type="checkbox"/> Secure Ldap			
			Ldap User Name	<input type="text"/>		
			Ldap Password	<input type="text"/>		
			Ldap Login Attribute	<input type="text"/>		

Figure 4-24: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.

▼ **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.

AuthType	Radius	Tacacs+	Ldap	Kerberos	Smb(NTLM)	NIS
Domain			<input type="text"/>			
Primary Domain Controller			<input type="text"/>			
Secondary Domain Controller			<input type="text"/>			

Figure 4-25: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].

▼ **Close or save the remaining windows.**

▼ **To Configure an NIS Authentication Server**

Perform this procedure to identify the authentication server when the KVM 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.

AuthType	Radius	Tacacs+	Ldap	Kerberos	Smb(NTLM)	NIS
<p>NIS Domain Name <input type="text"/></p> <p>NIS Server IP <input type="text"/></p>						

Figure 4-26: 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 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(NLTM)	NIS
	First Authentication Server					
	Second Authentication Server					
	First Accounting Server					
	Second Accounting Server					
	Secret			*		
	Timeout			3		
	Retries			5		

Figure 4-27: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.

▼ **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 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.

AuthType	Radius	Tacacs+	Ldap	Kerberos	Smb(NTLM)	NIS
		First Authentication Server	192.168.160.121			
		Second Authentication Server				
		First Accounting Server	192.168.160.121			
		Second Accounting Server				
		Secret	••••••			
		Enable Raccess Authorization	<input type="checkbox"/>			
		Timeout	10			
		Retries	2			

Figure 4-28: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 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.

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 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 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.
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.
3. Open - The Open profile enables all services such as Telnet, SSHv1, SSHv2, HTTP, HTTPS, SNMP, RPC, ICMP, and Telnet.

Default Security Profile

The *Default* Security Profile sets the parameters to same as *Moderate* profile. See the following tables for the list of enabled services when the *Default* security profile is used.

Custom Security Profile

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

Note: By default, a number of protocols and services are enabled in the *Custom* profile, however, they are configurable to user's custom requirements.

The following tables illustrate the properties for each of the Security Profiles. The enabled services in each profile is designated with a check mark.

Table 4-5: Enabled services to access the KVM under each security profile.

Access to KVM	Secured	Moderate	Open	Default¹	Custom
Telnet			✓		User Configurable
SSHv1		✓	✓	✓	
SSHv2	✓	✓	✓	✓	
HTTP		✓	✓	✓	
HTTPS	✓	✓	✓	✓	
HTTP redirection to HTTPS		✓		✓	

1-The *Default* security profile parameters are the same as Moderate profile.

Table 4-6: Enabled protocols for each security profile shown with a check mark.

Other Services	Secured	Moderate	Open	Default¹	Custom
SSH root access		✓	✓	✓	User Configurable
FTP					
SNMP			✓		
RPC			✓		
ICMP		✓	✓	✓	
IPSec					

1-The *Default* security profile parameters are the same as Moderate profile

▼ To Select or Configure a Security Profile [Expert]

Selecting Configuration>Security>Profiles brings up the form shown in the following figure.



Figure 4-29: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.

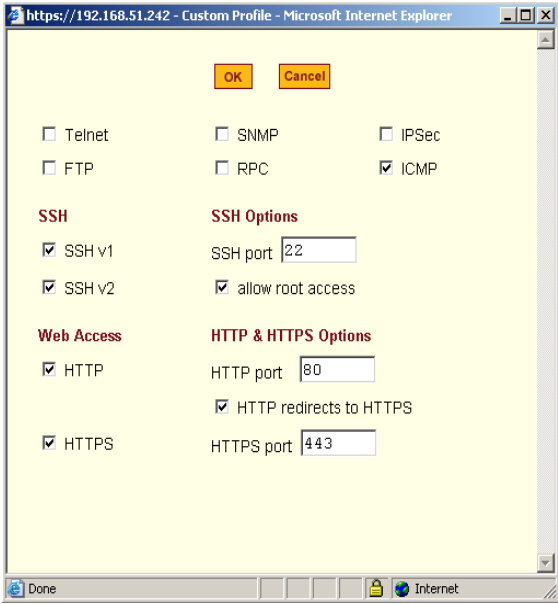


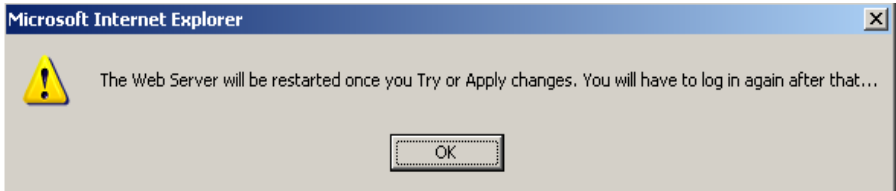
Figure 4-30: Custom Security Profile Dialog Box

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 124 and the subsequent table 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 Web Manager restarts in order for the changes to take effect.

The following dialog box appears.



3. Select “apply changes” to save the configuration to Flash.
KVM 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 4-7: Configuring KVM in Expert Mode Security

Configure Users and Groups	“Users & Groups” on page 166
Configure Network Settings	“Host Settings” on page 196
Configure IPDU Power Management	“IPDU Power Management” on page 140

Network

Selecting Configuration>Network in Expert mode brings up the following form.



Figure 4-31: Host Settings Configuration Form

Network configuration comprises eight forms:

Table 4-8: 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 196
Syslog	Define the Syslog Servers to enable system logging.	“Syslog” on page 199
IP Filtering	Configure the selective filtering of packets that may potentially crack your network system or generate unnecessary traffic.	“IP Filtering” on page 201
VPN	Configure IPsec tunnels to establish a secure connection between KVM and a security gateway machine.	“VPN” on page 218
SNMP	Configure the SNMP server to manage complex networks.	“SNMP” on page 221
Host Table	View hosts list and add, edit, and delete hosts.	“Host Tables” on page 226
Static Routes	View, create, and delete routes from the table.	“Static Routes” on page 228

Host Settings

When Configuration>Network>Host Settings is selected in Expert mode, the form shown in the following figure appears.



▼ To Configure Host Settings [Expert]

The Host Settings form allows you to configure the network settings for the KVM.

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 4-9: 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 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 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 4-9: 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.

Figure 4-32:Syslog Configuration Form

You can use the Syslog form to configure how the KVM 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 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 137 for how syslogging is configured for the KVM 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	41.7K	63M
FORWARD	ACCEPT	0	0
OUTPUT	ACCEPT	10222	3242K

Figure 4-33: IP Filtering Configuration Form

You can use the IP Filtering form to filter traffic to and from the KVM and block traffic according to rules you define.

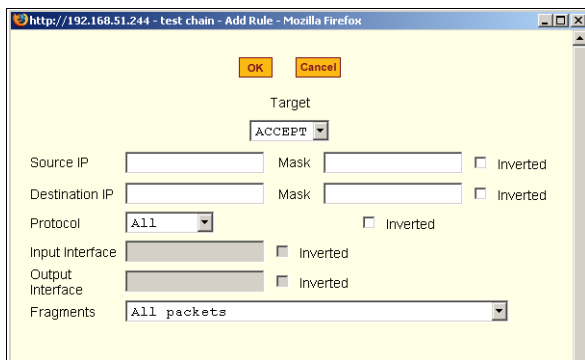
The KVM uses chains and rules for filtering packets like a firewall. Each entry in the list represents a chain with a set of rules.

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.



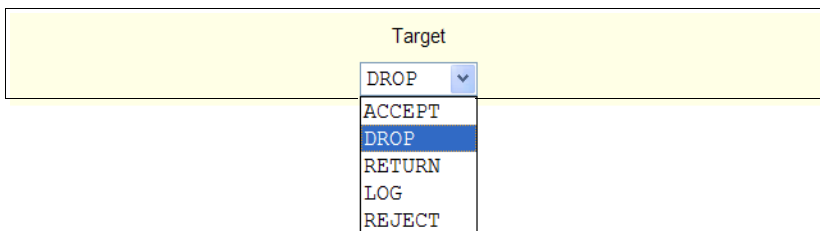
Inverted Check Boxes

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.



If the “LOG” and “REJECT” targets are selected, additional fields appear as described under “LOG Target” on page 206 and “REJECT Target” on page 207.

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	<input type="text"/>	Mask	<input type="text"/>	<input type="checkbox"/> Inverted
Destination IP	<input type="text"/>	Mask	<input type="text"/>	<input type="checkbox"/> Inverted

Protocol

You can select a protocol for filtering from the “Protocol” drop-down list, which is shown in the following figure.

ICMP	▼
Numeric	
All	
TCP	
UDP	
ICMP	

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 ▼	<input type="text" value="0"/>	<input type="checkbox"/> 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
 ACK
 FIN

RST
 URG
 PSH

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

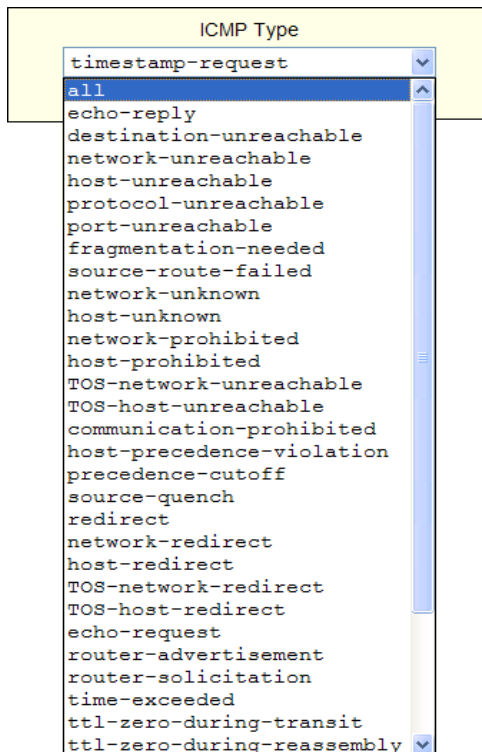
Destination Port to Inverted

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.

The screenshot shows a configuration form with three main sections. The first section has an 'Input Interface' text box and an 'Inverted' checkbox. The second section has an 'Output Interface' text box and an 'Inverted' checkbox. The third section has a 'Fragments' dropdown menu that is currently open, displaying three options: 'All packets', '2nd, 3rd... fragmented packets', and 'Non-fragmented and 1st fragmented packets'. The 'All packets' option is highlighted in blue.

The following table defines the fields in the previous figure.

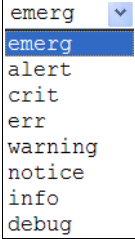
Field	Definition
Input Interface	The input interface (ethN) for the packet
Output Interface	The output interface (ethN) for the packet
Fragments	The types of packets to be filtered: All packets 2nd, 3rd... fragmented packets Non-fragmented and 1st fragmented packets

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.

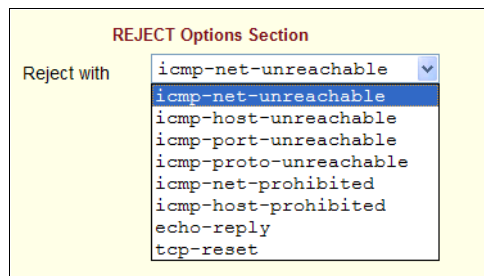
The screenshot shows the 'LOG Options Section' of a configuration form. It features a 'Log Level' dropdown menu with 'emerg' selected. To its right is a 'Log Prefix' text box. Below these are three checkboxes: 'TCP sequence', 'TCP options', and 'IP options', all of which are currently unchecked.

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: 
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	Page 208
To Edit a Chain	Page 208
To Edit a Rule for IP Filtering	Page 209
To Add a Packet Filtering Rule	Page 210

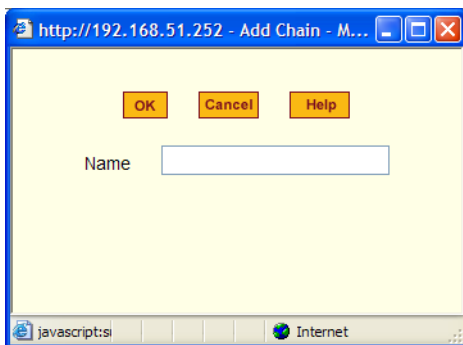
▼ **To Add a Chain**

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 212.

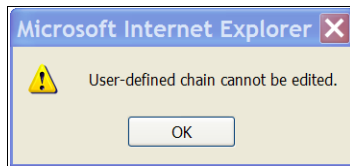
▼ **To Edit a Chain**

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.



If you select one of the default chains, the “Edit Chain” dialog box appears.



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 212 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 201 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.”

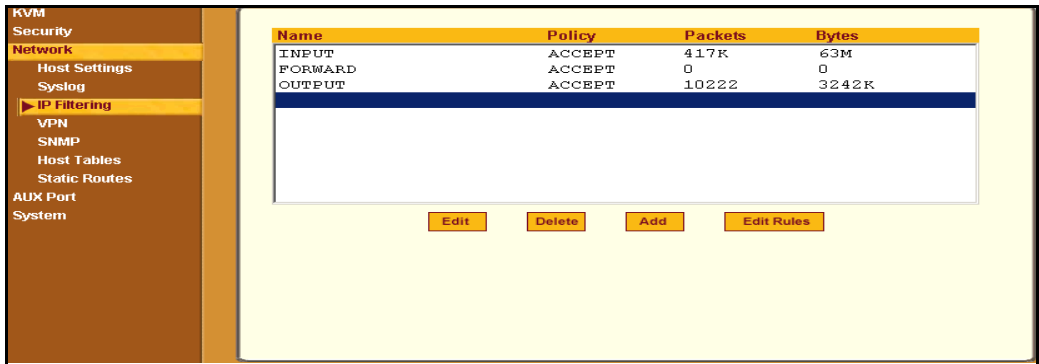
You can perform the following task from the IP Filtering Form:

- “To Add a Chain for IP Filtering” on page 211
- “To Edit A Chain for IP Filtering” on page 212
- “To Add a Rule for IP Filtering” on page 212
- “To Edit a Rule for IP Filtering” on page 209

▼ To Add a Chain for IP Filtering

1. In Expert mode go to: Configuration>Network>IP Filtering.

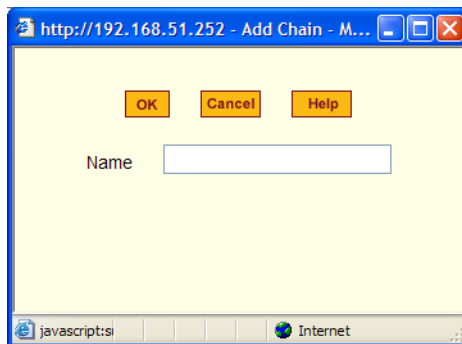
The IP Filtering configuration form appears.



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 212.

▼ **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.

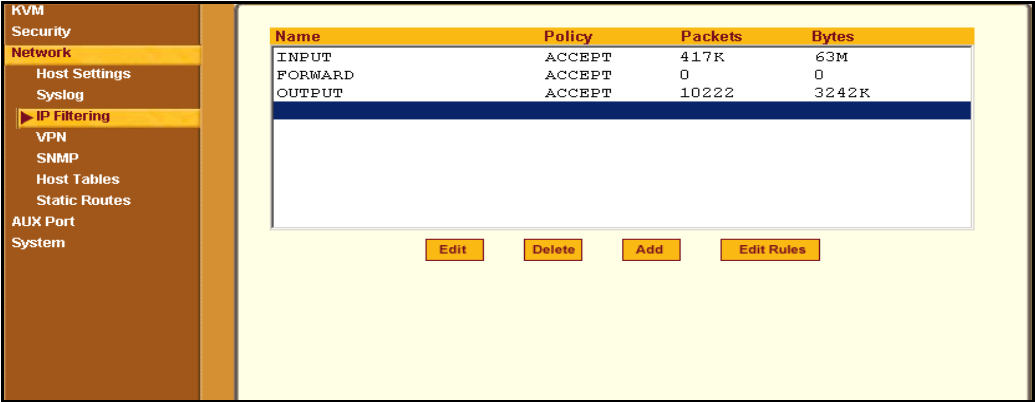
The Edit Chain dialog box appears.



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 212.

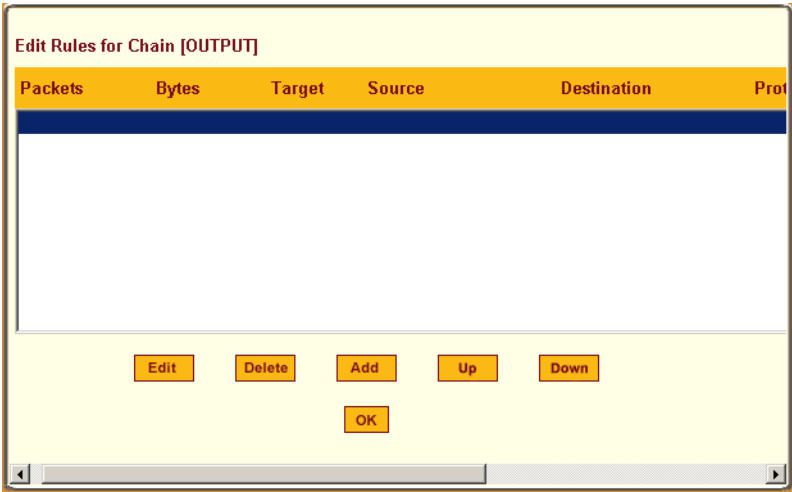
▼ **To Add a Rule for IP Filtering**

1. In Expert mode go to: Configuration>Network>IP Filtering.
The IP Filtering configuration form appears.



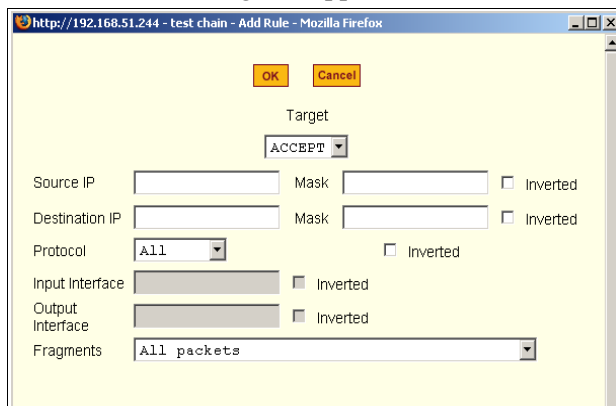
2. Click the Edit Rule button.

The Edit Rules for Chain configuration form appears.



3. Click the Add button.

The Add Rule dialog box appears.



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: <ul style="list-style-type: none"> • 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 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:

The screenshot shows a window titled "REJECT Options Section". Inside, there is a label "Reject with" followed by a dropdown menu. The dropdown menu is open, showing a list of options: icmp-net-unreachable, icmp-host-unreachable, icmp-port-unreachable, icmp-proto-unreachable, icmp-net-prohibited, icmp-host-prohibited, echo-reply, and tcp-reset. The first option, "icmp-net-unreachable", is currently selected and highlighted in blue.

“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 and a remote network by utilizing a gateway, and creating a secured tunnel between KVM 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” on page 45 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 125 for instructions on configuring IPsec.

1. In Expert mode, go to: Configuration>Network>VPN.

The VPN form appears.

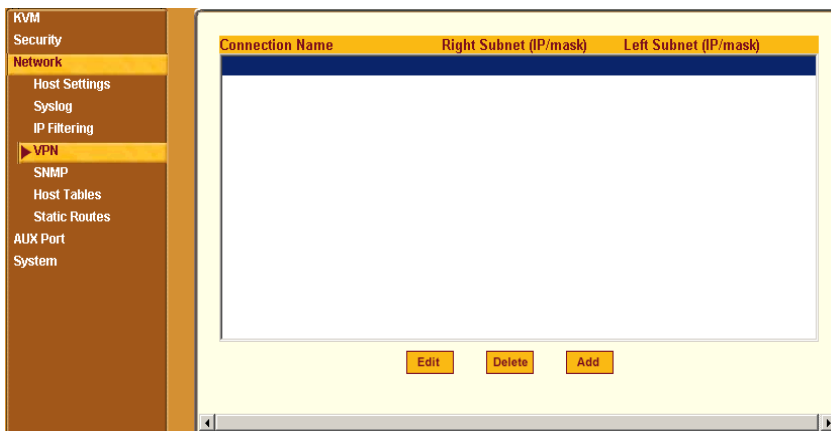


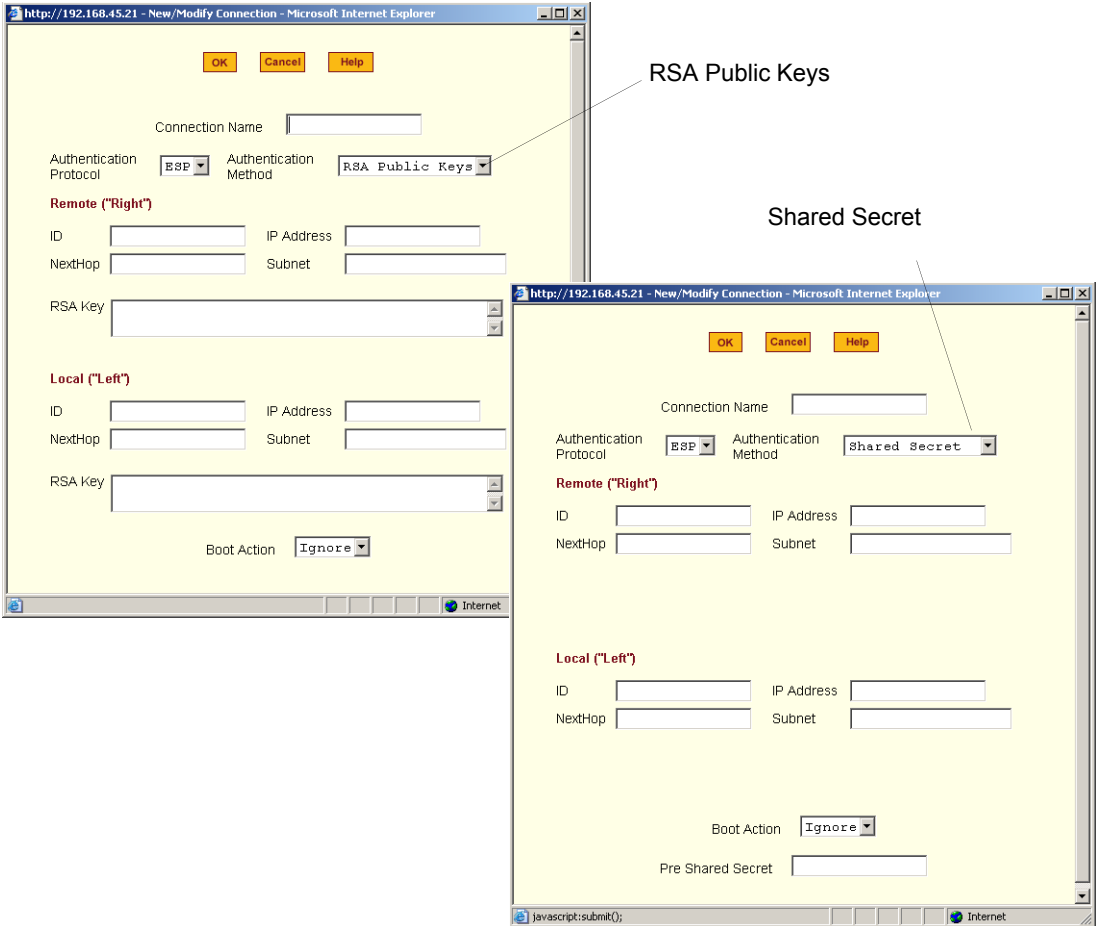
Figure 4-34:VPN Configuration Form

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.



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 (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	<p>The netmask of the subnetwork where the host resides.</p> <p>Note: Use CIDR notation, <code>nnn.nnn.nnn.nnn/nn</code>. The IP number followed by a slash and the number of ‘one’ bits in the binary notation of the netmask. For example, <code>192.168.0.0/24</code> indicates an IP address where the first 24 bits are used as the network address. This is the same as <code>255.255.255.0</code>.</p>
RSA Key (If RSA Public Keys is selected)	You need to generate a public key for the KVM 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 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 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 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 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.

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.

Field Name	Definition
SysContact	The email of the person to contact regarding the host on which the agent is running (for example, me@mymachine.mydomain)
SysLocation	The physical location of the system (for example, mydomain).

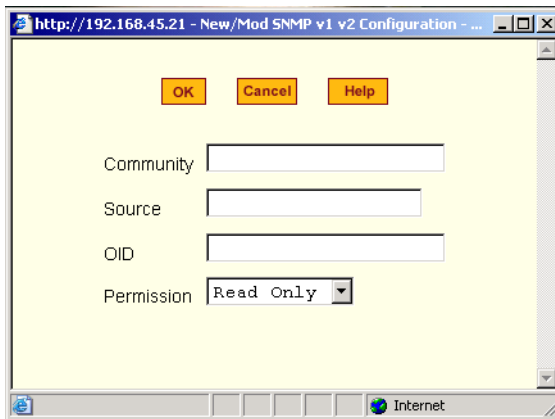
If you are using SNMPv3, skip to Step 6.

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.



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.
OID	Object Identifier.
Permission	Select the permission type: <ul style="list-style-type: none"> • 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

The screenshot shows a dialog box titled "SNMPv3 Configuration". Inside, there is a table with the following headers: "User name", "Permission", and "OID". The table body is empty. Below the table, there are three buttons: "Add", "Delete", and "Edit".

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.



8. Complete the form and when done.

Field Name	Definition
Username	Name of user account accessing the KVM.
Source	The source IP address or range of IP address.
OID	Object Identifier.
Permission	Select the permission type: <ul style="list-style-type: none"> • 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.

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	
192.168.51.242	KVM	

Buttons: Edit, Delete, Add, Up, Down

Figure 4-35:Host Tables Configuration Form

2. Do on of the following:

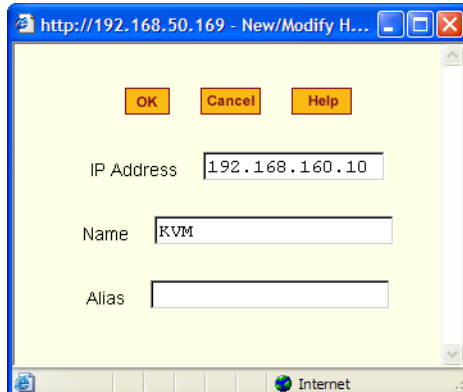
- To edit a host, select the host IP address from the Host Table and then click the Edit button.

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.



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.

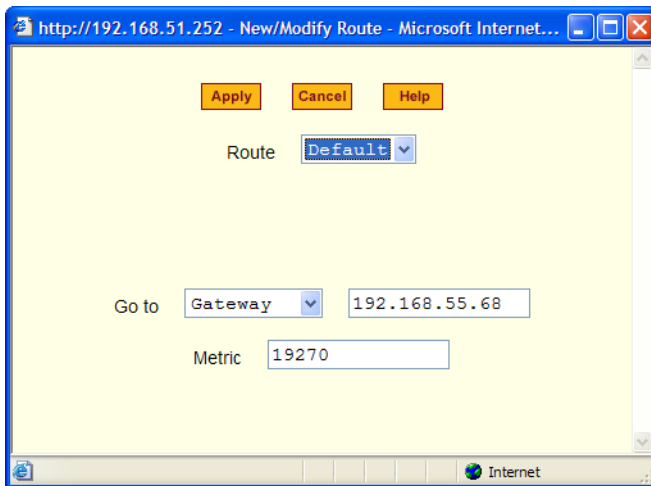
Destination IP	Destination Mask	Gateway	Interface	Metric
default		192.168.48.1		

Figure 4-36: 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.



3. Complete the dialog box as follows:

Table 4-10: 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.
Field Adjacent to Go to	The address of the gateway or interface.

Table 4-10: Add/Modify Static Routes Fields

Field Name	Definition
Metric	The number of hops.

- Click the Apply button to close the dialog box.
The new or modified route appears in the list.
- To delete a static route, select a route from the list and click Delete.
- Click “apply changes.”

AUX Port

Selecting Configuration>AUX Port in Expert mode brings up the following form.

Figure 4-37: 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 Port for Power Management, make sure that Power Management is selected in the Profile drop-down list.

A screenshot of a web form showing a 'Profile:' label followed by a drop-down menu. The menu is open, showing three options: 'Power Management' (highlighted in blue), 'Power Management', and 'PPP'.

3. Click “apply changes.”

See “Power Management” on page 34 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.

A screenshot of a web form showing a 'Profile:' label followed by a drop-down menu. The menu is open, showing three options: 'Power Management', 'Power Management', and 'PPP' (highlighted in blue).

Additional fields appear on the form.

5. Complete the fields as shown below.

Table 4-11: 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 4-11: 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.
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.

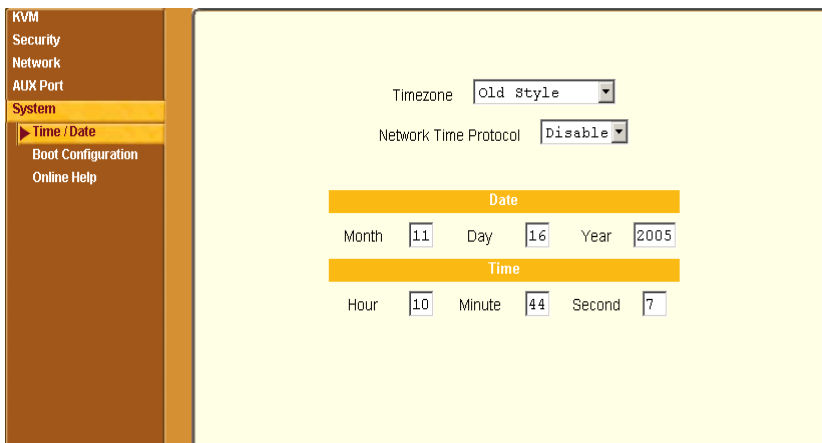


Figure 4-38:System Time and Date Configuration Form

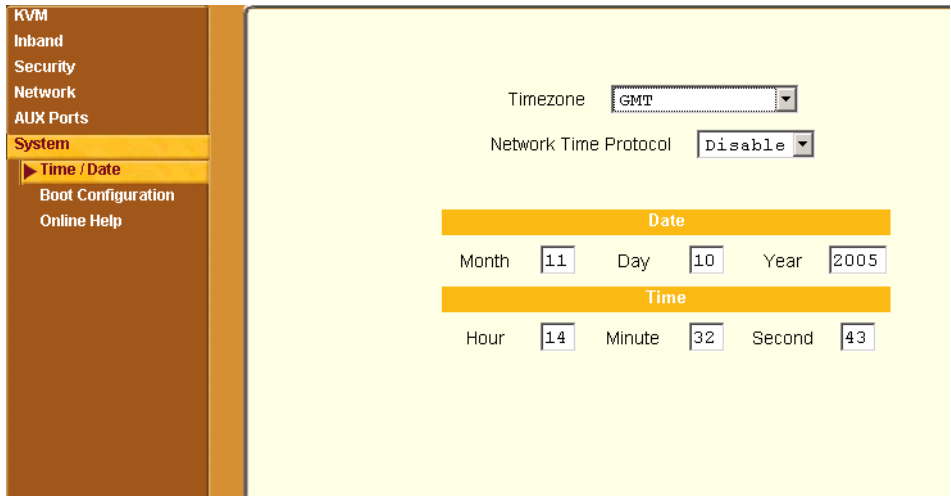
With the System form administrators can set the time and date on the KVM and reboot the KVM if necessary. The following procedures are available on the System form:

- “To Set the KVM’s Date and Time Manually” on page 235
- “To Set The Time and Date With NTP” on page 236
- “To Set the Time and Date to the KVM’s Local GMT” on page 236
- “To Configure KVM Boot” on page 240

Time/Date

With the Time/Date form, you have three options for setting the time and date of your KVM system:

- “To Set the KVM’s Date and Time Manually” on page 235
- “To Set The Time and Date With NTP” on page 236
- “To Set the Time and Date to the KVM’s Local GMT” on page 236



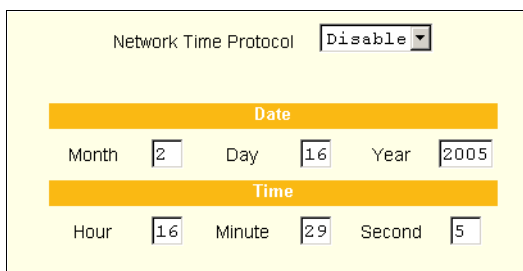
▼ To Set the KVM's Date and Time Manually

1. In Expert Mode, go to: Configuration>System>Time/Date.

The Date/Time form appears.

Note: A pop up dialog box appears indicating that the timezone configuration based on the old method /etc/TIMEZONE will be replaced with the new method /etc/localtime.

2. Make sure that Disabled is selected in the Network Time Protocol drop-down list.



3. Fill in the date and time fields by selecting the appropriate numbers from the drop-down lists.

4. Click “apply changes.”

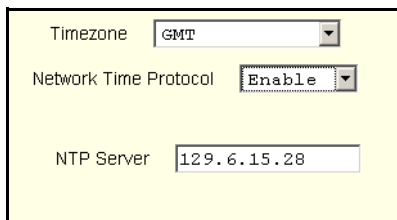
▼ **To Set The Time and Date With NTP**

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.



The screenshot shows a configuration form with three fields: 'Timezone' with a dropdown menu set to 'GMT', 'Network Time Protocol' with a dropdown menu set to 'Enable', and 'NTP Server' with a text input field containing '129.6.15.28'.

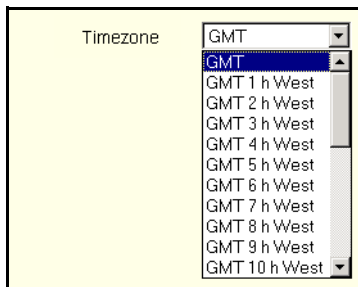
3. Enter the address of the NTP server in the NTP Server field.
4. Click the “apply changes” button.

▼ **To Set the Time and Date to the KVM’s Local GMT**

1. Select Administration from the top menu bar.
2. Select Time/Date from the left menu panel.

The Time/Date form appears.

3. Select the appropriate GMT from the Timezone drop-down list. Only official time zones are available.



The screenshot shows a dropdown menu for 'Timezone'. The menu is open, displaying a list of options: GMT, GMT 1 h West, GMT 2 h West, GMT 3 h West, GMT 4 h West, GMT 5 h West, GMT 6 h West, GMT 7 h West, GMT 8 h West, GMT 9 h West, and GMT 10 h West. The 'GMT' option is currently selected and highlighted in blue.

4. Click “apply changes.”

Boot Configuration

Selecting Configuration>System>Boot Configuration brings up the following form.

IP Address Assigned to Ethernet		
<input type="text" value="192.168.160.10"/>		
Watchdog Timer	Unit Boot from	Boot Type
<input type="text" value="Active"/>	<input type="text" value="Flash"/>	<input type="text" value="Tftp"/>
Boot File Name		Server's IP Address
<input type="text" value="zvmppckvm.bin"/>		<input type="text" value="192.168.160.1"/>
Console Speed	Flash Test	RAM Test
<input type="text" value="9600"/>	<input type="text" value="skip"/>	<input type="text" value="skip"/>
Fast Ethernet	Fast Ethernet Max Interrupt Events	
<input type="text" value="Auto Negotiation"/>	<input type="text" value="0"/>	

Figure 4-39:System Boot Configuration Form

On the Boot Configuration form, you can redefine the location from which the KVM boots.

Boot configuration defines the location from where KVM loads the operating system. The KVM can boot from its internal firmware or from the network. By default, KVM 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 boot image file must be downloaded from Cyclades and available on the TFTP or BOOTP server.
- KVM 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 4-12: Boot Configuration Fields and Options

Field or Value Name	Description
IP Address assigned to Ethernet	A new IP address for the KVM.
Watchdog Timer	Whether the watchdog timer is active. If the watchdog timer is active the KVM 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 4-12: 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 Boot**

For more information about the fields in the “Boot Configuration” form, see Table 4-12 on page 238, if desired.

- 1.** Go to Configuration>System>Boot Configuration in Expert mode.
- 2.** Enter the IP address of the KVM 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.

The screenshot shows the KVM Web Manager interface. On the left is a vertical navigation menu with the following items: KVM, Security, Network, AUX Port, System, Time / Date, Boot Configuration, and Online Help (which is highlighted with a yellow background). The main content area has a light yellow background and contains a yellow-bordered box with the following text:

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`

Below this box is a label 'Online Help Path' and a text input field containing the value `http://www.cyclades.com/online-help/`.

Figure 4-40: 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 administrator can download the online help, and reconfigure the path to a local server where the online help can be stored. The KVM 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 the following site and download the desired version of the online help files.
<http://www.cyclades.com/online-help/kvm/<firmware version>/index.html>
2. In the KVM Web Manager navigate to Configuration>System> Online Help in Expert mode.

3. In the “Online Help Path” field configure the path to the location of the documentation on your local server.

Note: When a directory path is ended with a “/”, the firmware appends the product name and version. For example, <http://www.myserver.com/online-help/> would be <http://www.myserver.com/online-help/kvm/<firmware version>/index.html>

Viewing System Information

The Information menu provides the following forms for viewing information about your KVM:

- General
- Port 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

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 Tue Nov 8 15:26:24 PST 2005 AlterPath-KVM16-Linux_V_2.1.0a (Nov08/05)
Date:	Wed Nov 16 11:33:16
Up Time:	1 day
Power Supply State:	SINGLE
CPU Information	
Cpu:	8xx
Clock:	48MHz
Revision:	0.0 (pwr 0050 0000)
Bogomips:	47.82
Memory Information	
MemTotal:	127120 kB
MemFree:	92608 kB
MemShared:	0 kB
Buffers:	3832 kB

Figure 4-41:General System Information Form

Port Status

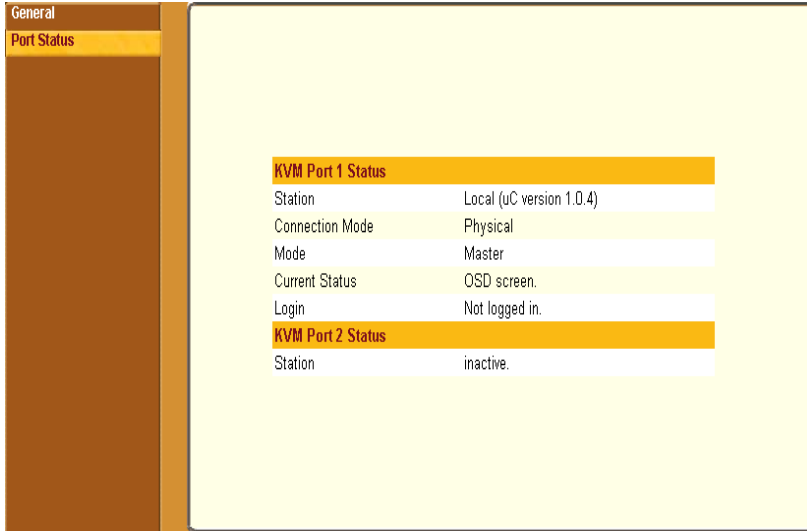
Use the Port Status form to view the system status of each KVM port on the KVM. The Port Status form displays information for two ports—one local and one remote.

Note: Remote port status does not appear on the Port Status form unless one or more remote ports is configured in the system.

▼ To View Port Status

1. In Expert mode, go to: Information>General Status.

The Port Status form appears.



KVM Port 1 Status	
Station	Local (uC version 1.0.4)
Connection Mode	Physical
Mode	Master
Current Status	OSD screen.
Login	Not logged in.
KVM Port 2 Status	
Station	inactive.

Figure 4-42:KVM Ports Status Information Form

The following table describes the information displayed for each port on the Port Status form.

Table 4-13: Port 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 is a Master or Slave and lists the model number of the master KVM.
Connection Mode	Displays whether the connection is Network or Physical or if the system is Trying to connect (if the cable is disconnected).

Table 4-13: Port Status Information

Field	Information
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.
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.

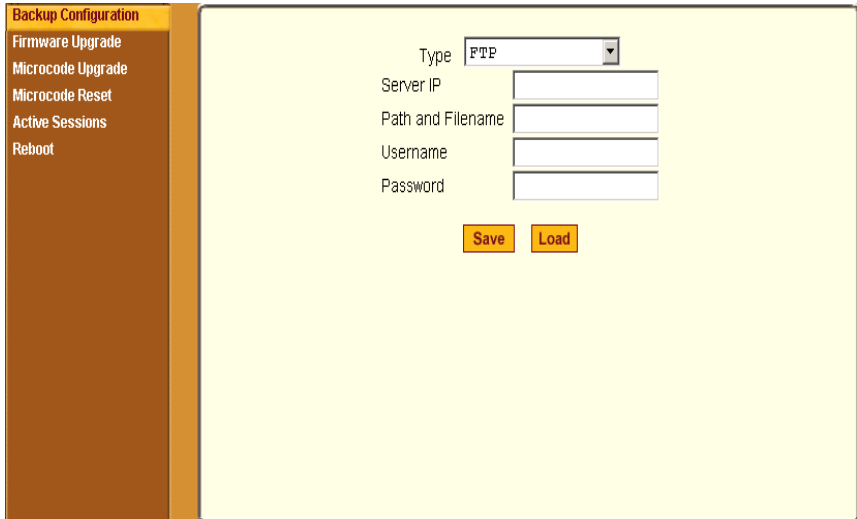


Figure 4-43:KVM Management Form

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 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 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 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. Ping the FTP server, to ensure that it is accessible from the KVM.

Selecting Management>Backup Configuration in Expert mode brings up the form shown in the following figure.

Figure 4-44:KVM Backup Configuration

You can use the form to specify an FTP server for saving the KVM 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 <code>KVM8802config040406</code>) in a directory called “upload” on the FTP server, you would enter the following in the “Path and Filename” field: <code>upload/KVM8802config040406</code> .
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 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.

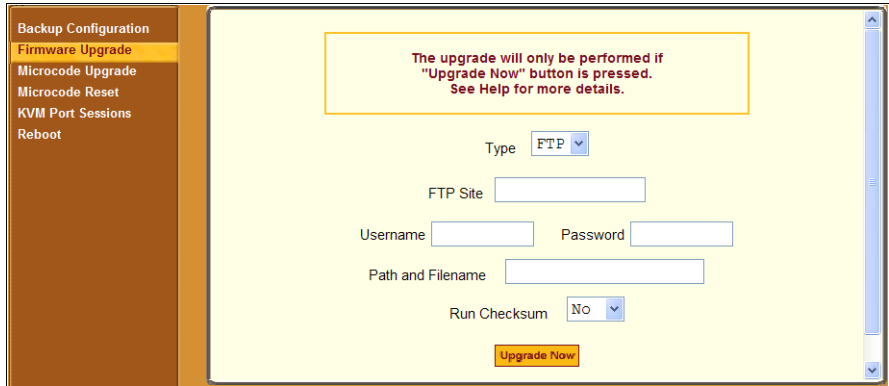
Selecting FTP (default) brings up the fields displayed in the following figure.

- 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.

Firmware Upgrade

Selecting Management>Firmware Upgrade in Expert mode brings up the form shown in the following figure.



The screenshot shows a web interface for the Firmware Upgrade process. On the left is a vertical navigation menu with the following items: Backup Configuration, Firmware Upgrade (highlighted), Microcode Upgrade, Microcode Reset, KVM Port Sessions, and Reboot. The main content area has a yellow background and contains a warning box at the top: "The upgrade will only be performed if 'Upgrade Now' button is pressed. See Help for more details." Below the warning box are several input fields: a "Type" dropdown menu set to "FTP", an "FTP Site" text box, "Username" and "Password" text boxes, a "Path and Filename" text box, and a "Run Checksum" dropdown menu set to "No". At the bottom of the form is an orange "Upgrade Now" button.

Figure 4-45:Firmware Upgrade

You can use the form to set up operating system upgrade on the KVM. The form collects information used to download software from an FTP server and install it on the KVM.

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: <code>ftp.cyclades.com</code> . If desired, see “To Upgrade Firmware” on page 254 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	<p>The pathname of the software on the FTP server.</p> <p>On the Cyclades FTP server, the directory is under <code>pub/cyclades/alterpath/KVM/released/version_number/filename</code>, where <code>version_number</code> is <code>V_N.N.N.</code>, and <code>N.N.N</code> is the most recent version number.</p> <p>For example, 2.1.0. The filename includes the version number in the following format: <code>zImage_kvm_NNN.bin</code>. The pathname for this example would be:</p> <pre>pub/cyclades/alterpath/KVM/released/V_2.1.0/ zImage_kvm_210.bin</pre> <p>Go to <code>ftp://ftp.cyclades.com/pub/cyclades/alterpath/KVM/released</code> in a browser, if needed, to verify the correct pathname and file names for the software (<code>zImage</code>) for the KVM.</p>

The following table has links to the related procedures.

To Find the Cyclades Pathname for Firmware or Microcode Upgrades	Page 253
To Upgrade Firmware	Page 254
To Download Microcode From an FTP Server	Page 257

▼ **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/KVM/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 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 254.
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 257.
5. If upgrading the KVM switch microcode, take a note of the filename that starts with `KVMswitch` and has the `.bin` suffix and go to “To Download Microcode From an FTP Server” on page 257.
6. If upgrading the microcode on KVM 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 257.

▼ **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/KVM/released/version_number/`

See ““To Find the Cyclades Pathname for Firmware or Microcode Upgrades” on page 253, 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.

Figure 4-46: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 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_all_vNNN.bin	KVM Terminator
KVM RP Local		KVM RP Local
KVM Switch (internal)	KVMswitch_all_vNNN.bin	KVM switch (internal)
KVM RP Main		KVM RP Main
KVM Port Expander Module	KVMexpander_vNNN.bin	KVM Port Expander

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 253.

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: <code>ftp.cyclades.com</code> .
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 <code>pub/cyclades/alterpath/KVM/released/version_number/filename</code> . Go to <code>ftp://ftp.cyclades.com/pub/cyclades/alterpath/KVM/released</code> in a browser, if needed, to verify the correct pathname and file names for the microcode for the KVM.
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.

The screenshot shows a form with a 'Target:' label and a list of radio buttons. The 'KVM Terminator' radio button is selected. To the right of the radio buttons is a scrollable list box containing the following items: Port 1, Port 2, Port 3, Port 4, Port 5, and Port 6. The list box has a vertical scrollbar and arrow buttons at the top and bottom.

Note: The KVM Port Expander Module microcode can be upgraded when it is configured as a slave in a cascade configuration.

3. 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/KVM/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 258.

Microcode Reset

Selecting Management>Microcode Reset in Expert mode brings up the form shown in the following figure.

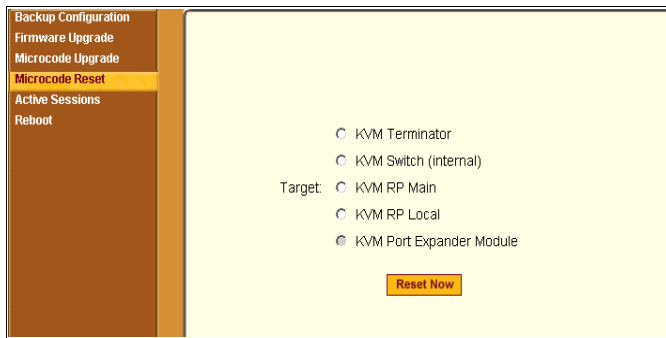


Figure 4-47:Microcode Reset Form

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 254.

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

Port 1
Port 2
Port 3
Port 4
Port 5
Port 6

Reset Now

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.

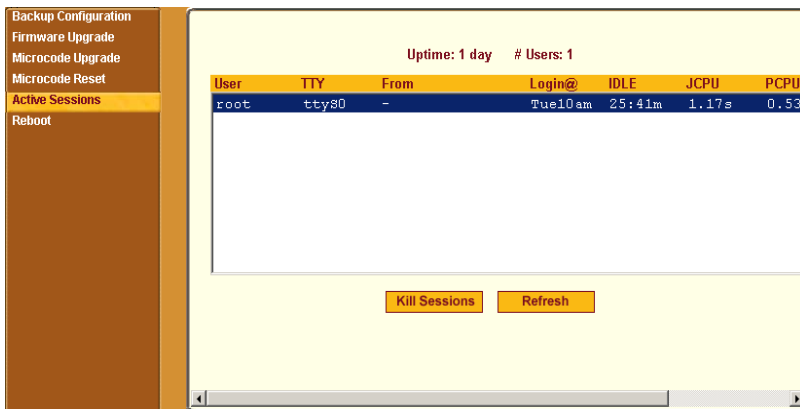


Figure 4-48:Active Sessions Form

2. Review the session information as described in the following table.

Column	Definition
Uptime	Time the KVM 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.

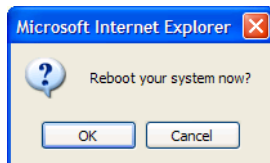


Figure 4-49:Reboot Form

Selecting the Reboot button allows you to reboot the system without physically turning off the hardware.

▼ **To Reboot the KVM From a Remote Location**

1. In Expert mode, go to: Management>Reboot
2. Click the Reboot button.
3. A confirmation page appears.



4. Click OK to reboot the system.

Chapter 5

Web Manager for Regular Users

With the KVM Web Manager, regular users can,

- Manage power of devices connected to AlterPath PMs from anywhere on a network.
- Maintain their user passwords.

For procedures on how to operate the KVM 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, the Web Manager appears with two menu options:

- IPDU Power Management – Form used to control the power of devices plugged in to AlterPath PMs.
See “” on page 266.
- Security – Form used to change your password.
See “Changing Your KVM Password” on page 269.

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.

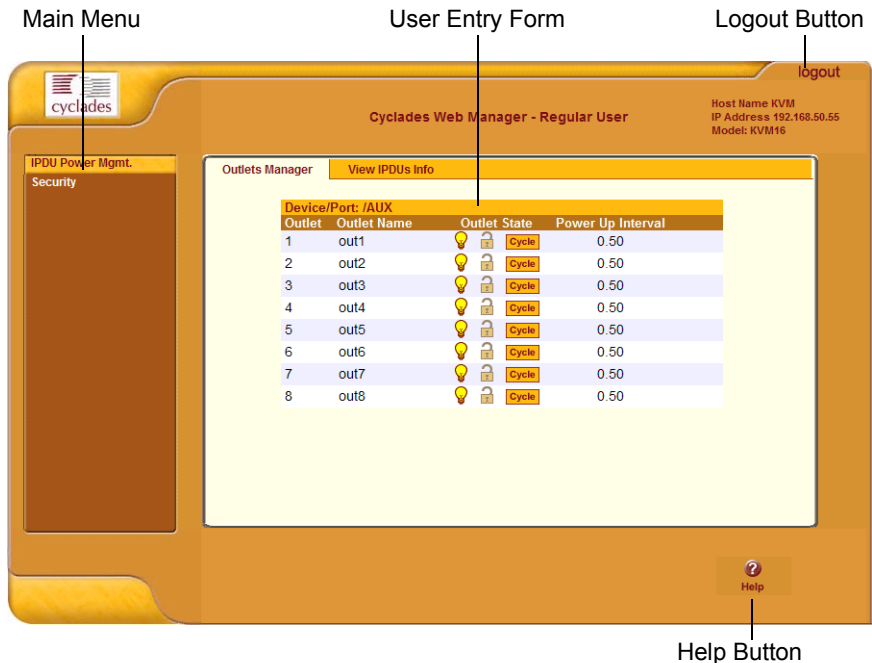


Figure 5-1:Example of Regular User Web Manager Form

Prerequisites for Logging in to the Web Manager

You must collect the following information from your KVM administrator before accessing and logging into the KVM:

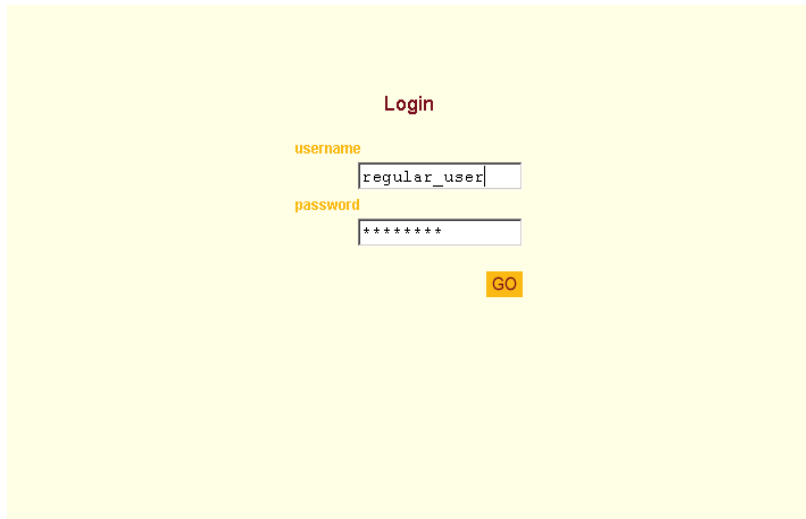
- KVM IP address
- Username
- Password

See the “Prerequisites for Accessing Servers” on page 274.

▼ **To Log Into the KVM Web Manager as a Regular User**

1. Launch a supported browser and type the KVM IP address (for example `http://10.0.0.1/`) into the browser’s URL field.

The AlterPath KVM log in screen appears.



The screenshot shows a login form with the following elements:

- Title: **Login**
- Label: **username**
- Input field: `regular_user`
- Label: **password**
- Input field: `*****`
- Button: **GO**

2. Enter your username and password as provided to you by your KVM administrator
3. Click Go.

The “IPDU Power Management” form appears.

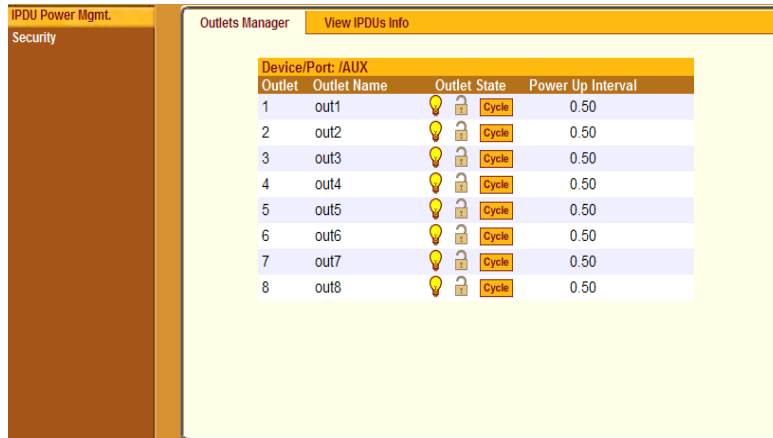


The screenshot shows a web interface for IPDU Power Management. On the left is a sidebar with 'IPDU Power Mgmt.' and 'Security' tabs. The main area has two tabs: 'Outlets Manager' (selected) and 'View IPDUs Info'. Below the tabs is a table with the following data:

Device/Port: /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

IPDU Power Management

IPDU power management allows you to manage the outlets plugged into a PM that is configured on the KVM. 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
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 5-2:Regular User IPDU Power Management Form

The KVM offers two modes of controlling power:

- Power control of any device plugged into a PM that is configured on the KVM.
See “Power Control of Any Device Plugged Into an AlterPath PM on the KVM” on page 267
- Power control of a server while connected to that server through a KVM port.
See “Controlling Power of a KVM-connected Server” on page 284.

Power Control of Any Device Plugged Into an AlterPath PM on the KVM

Depending on your access rights, the KVM allows you to view and manage all PMs connected to the KVM. 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.	<ul style="list-style-type: none"> • “Outlets Manager” on page 141 • “To View Status, Lock, Unlock, Rename, or Cycle Power Outlets” on page 142
View IPDU information by ports on a master and a slave PM unit.	<ul style="list-style-type: none"> • “View IPDUs Info” on page 143 • “To View Status, Lock, Unlock, Rename, or Cycle Power Outlets” on page 142
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 284

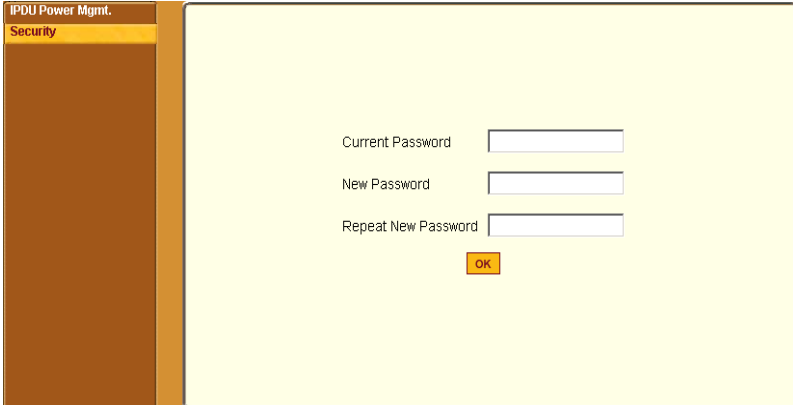
Changing Your KVM Password

On the Security form on the KVM Web Manager, you can change your old password to a new password.

▼ *To Change Your KVM Password*

1. Log in to the Web Manager.
2. Select Security in the Main Menu.

The Security Form appears.



The screenshot shows a web interface with a dark brown sidebar on the left. The sidebar has a menu with 'IPDU Power Mgmt.' and 'Security' (highlighted in yellow). The main content area is light yellow and contains a form with three text input fields labeled 'Current Password', 'New Password', and 'Repeat New Password'. Below the fields is a small orange 'OK' button.

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, users and administrators can manage power of devices connected to AlterPath PMs from anywhere on a network with the Web Manager or locally with the OSD. Through the OSD, users can also access servers connected to KVM ports up to 500 feet away from the KVM.

This chapter discusses the following topics:

Who Can Access Connected Devices	Page 273
Prerequisites for Accessing Servers	Page 274
Connecting to Servers	Page 275
Controlling KVM Port Connections	Page 277
Power Management	Page 288
Modem Connections	Page 291

The following table lists the procedures in this chapter.

To Connect to Servers Through the OSD Connection Menu	Page 275
To Return to the Connection Menu After Connecting to a Port	Page 280
To View Connected Port Information	Page 280
To Initiate Cycle by Server	Page 281
To Connect to the Next Authorized Server from the Current Server	Page 282
To Connect to the Previous Authorized Server from the Current Server	Page 282
To Adjust Screen Brightness and Cable Length	Page 282
To Reset the Keyboard and Mouse	Page 283
To Power On, Power Off, or Reboot the Connected Server	Page 284
To Close a KVM Connection	Page 285
To Power On, Power Off, Lock, Unlock, or Cycle Devices Plugged into PM Outlets	Page 288
To Configure a PPP Connection on a Remote Computer	Page 292
To Make a PPP Connection From a Remote Computer	Page 293

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. 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” on page 4 for more information.

Authorized users and KVM administrators have the following options for accessing connected devices:

- Use the Web Manager for most power management.
See “Cyclades Web Manager” on page 18 and “Prerequisites for Using the Web Manager” on page 18 for background information about the Web Manager, if needed.
- Use the on-screen display (OSD) to access devices that are connected to the KVM’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 through a modem
See “Modem Connections” on page 291.

Prerequisites for Accessing Servers

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
- Have a direct connection made to the User 1 or User 2 ports of the KVM.

Screen Resolution and Refresh Rate

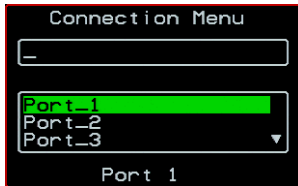
The following table summarizes the supported screen resolutions and refresh rates for IP access and local KVM connections.

Table 6-1: Supported Screen Resolutions and Referesh 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

Connecting to Servers

Administrators and authorized regular users who have local access to the KVM 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 or on any cascaded KVM device.

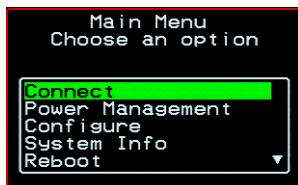


Access to the OSD requires a local keyboard, monitor, and mouse connected to the KVM management ports, User 1 or User 2, on the back of the KVM. See “To Connect to the User 1 Management Port” on page 71 for instructions on connecting to the User 1 port, or see “To Connect the KVM RP to the KVM” on page 111 for instructions on connecting to the User 2 port.

▼ *To Connect to Servers Through the OSD Connection Menu*

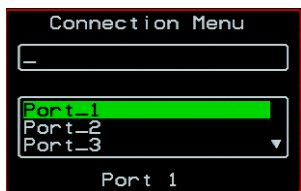
1. On the OSD Login window, enter your username and password as provided to you by the KVM administrator.

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 6-2, “Tasks Available While Connected to KVM Ports,” on page 277 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 6-2: 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 280.
Access a port that is already in use by another user.	“Sharing KVM Port Connections” on page 286
Make direct connections to other servers without returning to the OSD Connection Menu.	<ul style="list-style-type: none"> • “To Initiate Cycle by Server” on page 281 • “To Connect to the Next Authorized Server from the Current Server” on page 282 • “To Connect to the Previous Authorized Server from the Current Server” on page 282
Reset your keyboard and mouse.	“To Reset the Keyboard and Mouse” on page 283
Adjust the color and brightness of the server window.	“To Adjust Screen Brightness and Cable Length” on page 282
Power on, power off, or reboot the connected server.	“To Power On, Power Off, or Reboot the Connected Server” on page 284
View information about the currently selected port.	“To View Connected Port Information” on page 280

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 6-3: 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 length of the cable running from the KVM to the KVM Terminator connected to the server) and “Manual control” for screen brightness and cable length adjustment.
Ctrl+k s	Reset keyboard and mouse. Allows you to reset the keyboard and mouse if either of them stops responding.

The KVM administrator may redefine the keyboard shortcuts, as described in “Redefining KVM Connection Hot Keys” on page 29. If the defaults shown in the previous table do not work, check with your KVM administrator for the site-specified keys to use.

Hot Keys for Emulating Sun Keyboard Keys

The KVM 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 6-4: Default Sun Key Emulation Hot Keys

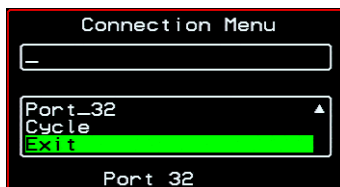
Win Function Key	Sun Key
F1	Stop
F2	Again
F3	Props
F4	Undo
F5	Front
F6	Copy
F7	Open
F8	Paste
F9	Find
F10	Cut
F11	Help
* (Numeric Keypad)	Compose

KVM 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 152 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.

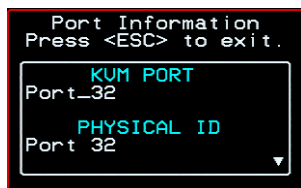
The cycle option does not appear when you are connected through the Web Manager.

▼ **To View Connected Port Information**

1. Use the information keyboard shortcut.

The default is **Ctrl+k i**.

The following window appears.



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.

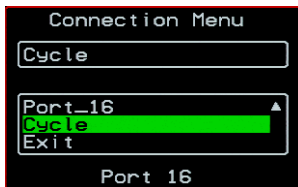
There are two types of cycle commands:

- 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.

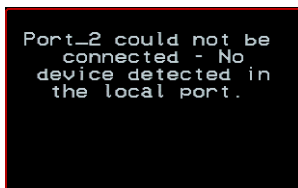
▼ To Initiate Cycle by Server

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.



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



- 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.

For example, if you use a 500-foot cable, the setting might be 10 or 20. If a shorter cable such as 6 or 3 feet is used, a value of 128 or 150 is more appropriate. If this setting is not adjusted properly, the video quality may be poor.

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.

The brightness setting affects screen brightness. The cable length adjustment is used to adjust for different cable lengths. A higher setting is for a longer cable and a lower setting is for a shorter cable length.

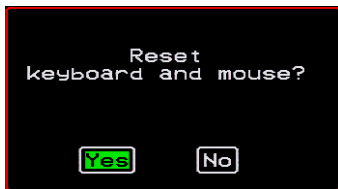
Resetting the Keyboard and Mouse

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.



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:

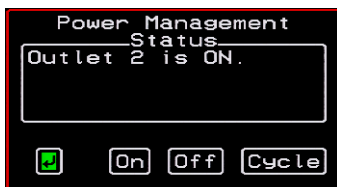
- The server must have at least one power cord plugged into an AlterPath PM that is properly configured and connected to the AUX port.
- The power outlet(s) that the server is connected to must be configured to the port.
- If a regular user is accessing this device, the user must have the following permissions:
 - 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.



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 288 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.

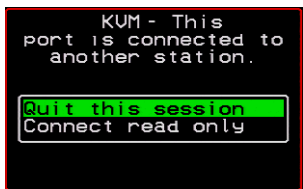
The Connection menu appears.

2. Type “e” in the text field to highlight the Exit option.
3. Click Enter.

Sharing KVM Port Connections

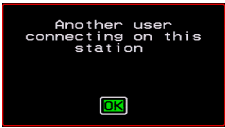
Two authorized users can connect simultaneously to a single KVM port.

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.

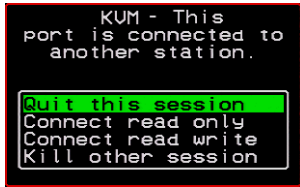


The two menu options are described in the following table.

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:

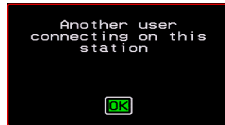


If the connecting user has either read-write, or full access permissions for the KVM port, additional menu options appear, as shown in the following figure.

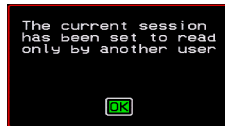


The two menu options are described in the following table.

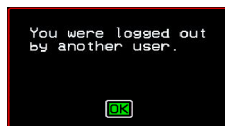
Connect read write	Connects the new user in read-write mode and sends this notice to the current user.
---------------------------	---



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:



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:
---------------------------	--



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.

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 34 for a detailed description of how authorized users can manage power. See “Setting Up and Configuring Power Management” on page 36 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.

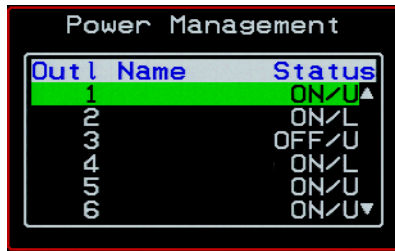
For instructions on how to manage power remotely through the Web Manager, see Table 5-1 on page 268 for a list the power management tasks available to regular users through the Web Manager and links to the associated procedures.

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 284.

▼ **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.

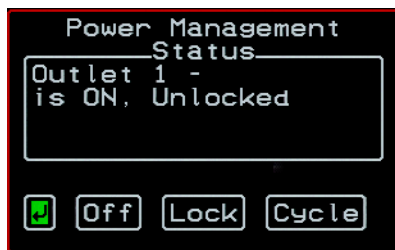


Outl Name	Status
1	ON/U▲
2	ON/L
3	OFF/U
4	ON/L
5	ON/U
6	ON/U▼

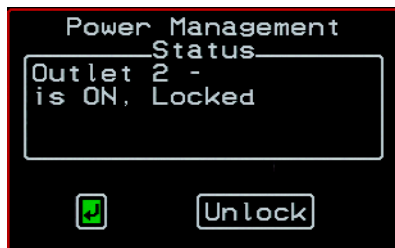
The letter U displayed in the status window indicates that the outlet is unlocked; the letter L indicates that the outlet is locked.

- Use the up or down arrow keys to select the outlet you want to edit and press <Enter>.

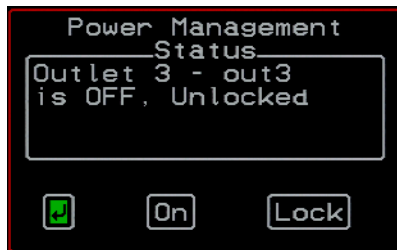
The Outlet Status window for the selected outlet appears with the current status listed in the Status box and the available action items listed at the bottom.



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.



An outlet that is turned off and unlocked displays the On, Lock, and Cycle options as in the following figure.



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 through a regular Ethernet connection, you can also access the KVM 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 through the dialup connection. This way you can access the Web Manager through PPP even if the IP connection to the KVM is not available.

The KVM administrator performs the procedures to install and configure the modems. Contact your KVM 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, 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 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.

The following table lists the related procedures and where they are documented.

Table 6-5: Tasks for Configuring and Making Dial Up Connections (User)

Configure a PPP Connection	“To Configure a PPP Connection on a Remote Computer” on page 292
Connect Using PPP	“To Make a PPP Connection From a Remote Computer” on page 293

▼ **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
- Optionally configure call back.

See the prerequisites listed in “Modem Connections” on page 291, 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 in the “ISP Name” field and click “Next>.”
The “Phone Number to Dial” form appears.
8. Type the phone number for the KVM’s modem in the “Phone number” field and click “Next>.”
The “Internet Account Information” form appears.

9. Type the username for accessing the KVM in the “Username” field.

10. Type the password for accessing the KVM 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. 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 292.

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. See “To Connect to the User 1 Management Port” on page 71 for instructions on connecting to the User 1 port, or see “To Connect the KVM RP to the KVM” on page 111 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	Page 296
Logging In Through the OSD	Page 297
OSD Main Menu	Page 298
Invoking OSD Using [PrintScreen] Key	Page 299
Power Management Menu	Page 301
Configure Menu Overview	Page 302
System Info Menu	Page 365
Reboot	Page 367
Controlling the OSD Through the AlterPath KVM RP	Page 369

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 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 through the OSD, you need to connect a keyboard, monitor, and mouse to the monitor, keyboard, mouse connectors, labelled User 1, on the KVM. See “To Connect to the User 1 Management Port” on page 71 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 109 for instructions on installing the KVM RP. See “Controlling the OSD Through the AlterPath KVM RP” on page 369 for instructions on using the KVM RP.

▼ To Log into the KVM Through the OSD

Type your username followed by your password.



1. Press <Enter>.

The main menu of the KVM OSD appears. See the following section, “OSD Main Menu” on page 298 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.

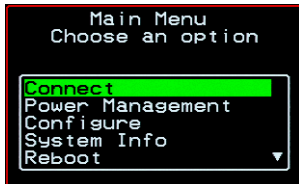


Figure 7-1:OSD Main Menu

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 300
Power Management	View status of all outlets on connected IPDUs and power on, power off, and cycle connected devices.	Page 301
Configure	View the Configuration Menu and perform KVM configuration.	Page 302
System Info	View the system information pertaining to the KVM version that you are using.	Page 365
Reboot	Reboot the KVM.	Page 367
Exit	Exit from the OSD and close the session.	

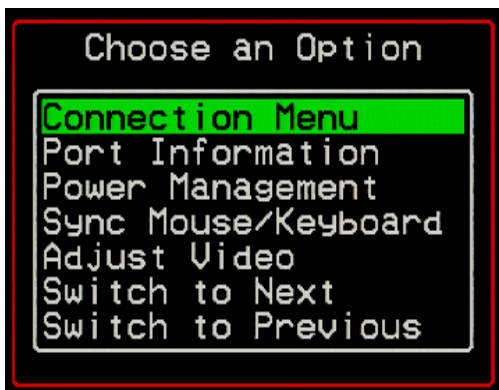
Invoking OSD Using [PrintScreen] Key

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 is established with a server.

▼ *To Invoke OSD Using Print Screen Button*

1. Make a local KVM connection to a server.
2. Press the [PrintScreen] button on the keyboard.

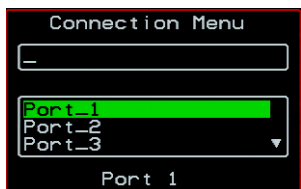
The following OSD menu overlay displays.



3. Select from the available options and press [Enter].
4. To close the menu press the [Esc] or [PrintScreen] button on the keyboard.

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 or on any cascaded KVM device.



See “To Connect to Servers Through the OSD Connection Menu” on page 275 for instructions on connecting to servers through the OSD.

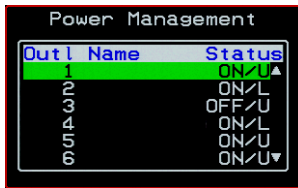
Power Management Menu

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” on page 97 for instructions on connecting PMs to the KVM.

▼ **To Power On, Power Off, Lock, Unlock, or Cycle Devices Plugged into PM Outlets**

1. Go to: Configure > Power Management.

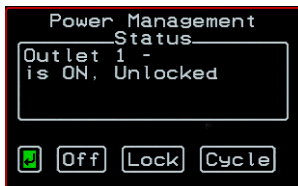
The Outlet Status page appears with a list of all configured PMs. The status column displays whether the outlet is on or off, locked, or unlocked.



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>.

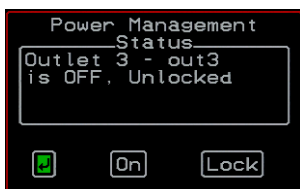
The Outlet Status window for the selected outlet appears with the current status listed in the Status box and the available action items listed at the bottom.



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.



An outlet that is turned off and unlocked displays the On, Lock, and Cycle options as in the following figure.

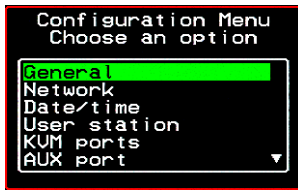


3. Use the arrow keys to select On, Off, Lock, Unlock, or Cycle and press <Enter>.
4. Select the arrow button and press <Enter> to return to the Power Management menu.
5. To change the status of other outlets, repeat steps 2 and 3.

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 306
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 308
Date/Time	Enable/disable NTP or manually configure the system date and time.	“Date/time Configuration Screens” on page 332
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 333
KVM Ports	Activate KVM ports, assign aliases, and enable power management.	“KVM Ports Screens” on page 337

Table 7-4: Configuration Menu Items (Continued)

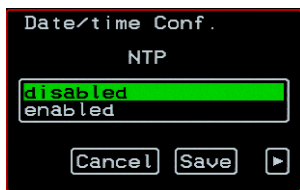
Menu Selection	Select the menu item to:	Where Documented
AUX Port	Configure the AUX port for PPP or power management.	“AUX Port Screens” on page 339
Users and Groups	Configure users and groups, user passwords, and KVM port access permissions.	“Users and Groups Screens” on page 346
Cascade Devices	Add, edit, or delete configurations of cascaded (slave) KVM units.	
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 353
Authentication	Configure an authentication method for logins to the KVM and authentication servers for KVM and KVM port logins.	“Authentication Screens” on page 354
Save/Load Config	Permanently save configuration changes, load a stored configuration or restore the configuration to factory default values.	“System Info Menu” on page 365
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.

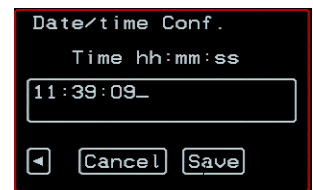
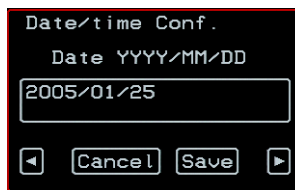
For example, if you select Date/Time, you are presented with a series of “Date/time Config.” screens starting with “NTP” and ending with “Time,” as shown in the following figure.

First screen



Next button

Final screen



Final Save button

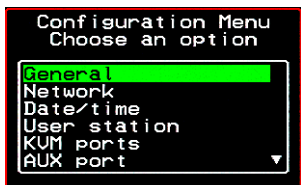
Figure 7-2:OSD Configuration Series Screens

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 296, 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, which are introduced under “General” on page 303.




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
<p>Syslog Facility</p> <p>The screenshot shows a window titled "General Configuration" with the sub-title "Syslog facility". It features a text input field containing the number "3", and "Cancel" and "Save" buttons at the bottom.</p>	<p>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 from the syslog server’s administrator. Values are from 0 through 7. See “Syslog Servers” on page 43 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 353.</p>
<p>Escape Sequence</p> <p>The screenshot shows a window titled "General Configuration" with the sub-title "Escape Sequence". It features a text input field containing the string "[CTRL]K_" and "Cancel" and "Save" buttons at the bottom.</p>	<p>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 151 for more details.</p>

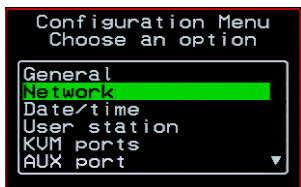
Table 7-5: General Configuration Screens [OSD] (Continued)

Screen	Description
<p>Sun Keyboard</p> 	<p>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 152 for more details.</p>

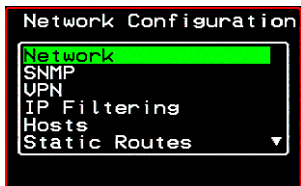
Note: The Save button on every screen saves configuration changes into the configuration files. To permanently save the configuration changes, you must select Save/Load Conf. from the Configuration Menu.

Network Configuration Menu Options [OSD]

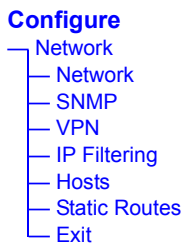
You can select the Network option on the OSD Main Menu to configure network-related services for the KVM.



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.

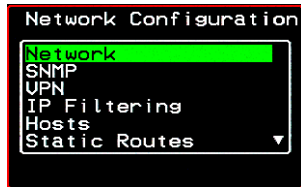


The configuration screen series for each of the options under Configure>Network are listed and described in the following sections:

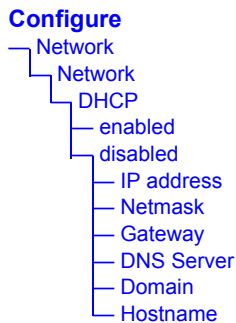
Network Configuration Screens [OSD]	Page 309
SNMP Configuration Screens [OSD]	Page 312
VPN Configuration Screens [OSD]	Page 316
IP Filtering Configuration Screens	Page 320
Hosts Configuration Screens [OSD]	Page 327
Static Routes Configuration Screens	Page 329

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.



The following diagram lists the names of the configuration screens accessed under Configure>Network>Network.



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]

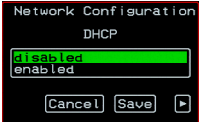
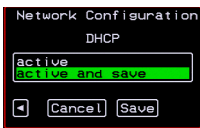
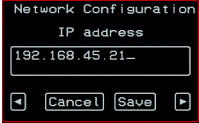
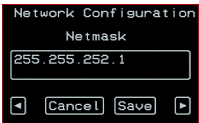
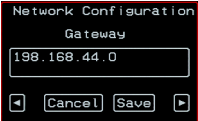
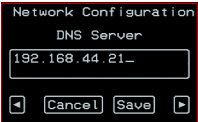

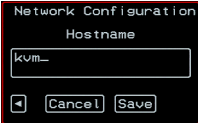
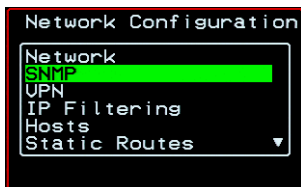
Screen	Description
<p>DHCP</p>  	<p>Enable or disable DHCP. When you select “enabled,” the screen shown in the following figure appears.</p> <p>“active” saves the changes to the configuration files. “active and save” overwrites the backup configuration files and makes the changes permanent. Either choice brings you back to the Network Configuration menu.</p> <p>When “disabled” is selected, the IP address, Netmask, Gateway, DNS Server, Domain, and Hostname forms appear in the sequence shown in the following rows.</p>
<p>IP Address</p> 	<p>The IP address of the KVM.</p>
<p>Netmask</p> 	<p>The netmask for the subnet (if applicable) in the form <i>NNN.NNN.NNN.N</i> (for example: 255 . 255 . 252 . 0).</p>

Table 7-6: Network Configuration Screens [OSD] (Continued)

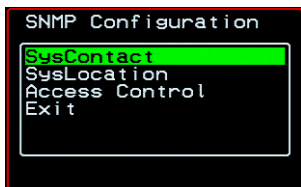
Screen	Description
<p>Gateway</p> 	The IP address for the gateway (if applicable).
<p>DNS Server</p> 	The IP address for the DNS server.
<p>Domain</p> 	The domain name.
<p>Hostname</p> 	The hostname for the KVM.

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 Configure>Network>SNMP Configuration menu.

The following diagram lists the names of the configuration screens accessed under Configure>Network>SNMP.

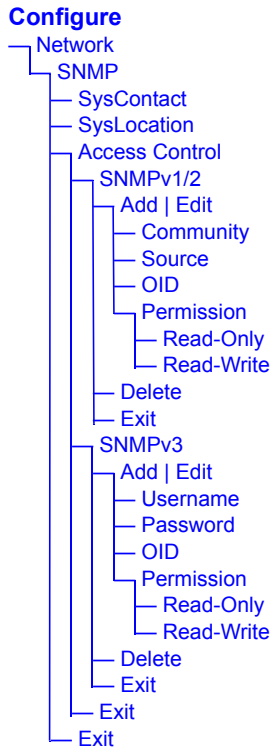


Table 7-7 gives a brief description of all the SNMP configuration screens.

Table 7-7: SNMP Configuration Screens [OSD]

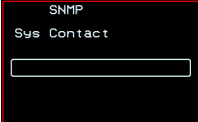
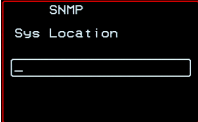
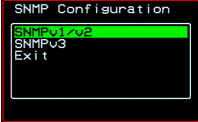
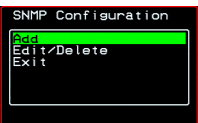
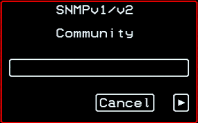
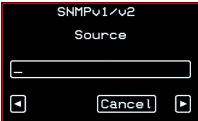
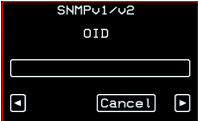
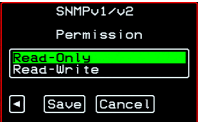


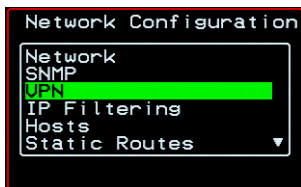
Screen	Description
<p>SysContact</p> 	<p>The email address for the KVM administrator, for example: <code>kvm_admin@cyclades.com</code>.</p>
<p>SysLocation</p> 	<p>The physical location of the KVM.</p>
<p>Access Control</p> 	<p>Choices are SNMP v1/2 or SNMP v3.</p>
<p>SNMP Configuration</p> 	<p>Appears when either SNMP v1/2 or SNMP v3 is selected. Choices are “Add,” “Edit/Delete,” or “Exit.”</p>
<p>SNMPv1/v2 Community</p> 	<p>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.</p>

Table 7-7: SNMP Configuration Screens [OSD] (Continued)

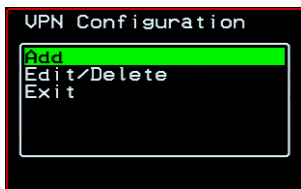
Screen	Description
<p>SNMPv1/v2 Source</p>  <p>The screenshot shows a black OSD window titled 'SNMPv1/v2 Source'. It features a single text input field with a cursor. Below the field are two buttons: a square button with a left-pointing arrow and a 'Cancel' button, followed by a square button with a right-pointing arrow.</p>	<p>The source IP address or range of IP addresses.</p>
<p>SNMPv1/v2 or v3 OID</p>  <p>The screenshot shows a black OSD window titled 'SNMPv1/v2 OID'. It features a single text input field. Below the field are two buttons: a square button with a left-pointing arrow and a 'Cancel' button, followed by a square button with a right-pointing arrow.</p>	<p>Object Identifier. Each managed object has a unique identifier.</p>
<p>SNMPv1/v2 or v3 Permission</p>  <p>The screenshot shows a black OSD window titled 'SNMPv1/v2 Permission'. It features a list with two options: 'Read-Only' (highlighted in green) and 'Read-Write'. Below the list are three buttons: a square button with a left-pointing arrow, a 'Save' button, and a 'Cancel' button, followed by a square button with a right-pointing arrow.</p>	<p>Choices are “Read-Only” and “Read-Write.”</p> <p>Read Only - Read-only access to the entire MIB (Management Information Base) except for SNMP configuration objects.</p> <p>Read/Write - Read-write access to the entire MIB except for SNMP configuration objects.</p>
<p>SNMPv3 Username</p>  <p>The screenshot shows a black OSD window titled 'SNMPv1/v2 Community'. It features a single text input field. Below the field are two buttons: a 'Cancel' button and a square button with a right-pointing arrow.</p>	<p>Username.</p>
<p>SNMPv3 Password</p>  <p>The screenshot shows a black OSD window titled 'SNMPv1/v2 Community'. It features a single text input field. Below the field are two buttons: a 'Cancel' button and a square button with a right-pointing arrow.</p>	<p>Password.</p>

VPN Configuration Screens [OSD]

You can select the VPN option from the Network Configuration menu to configure VPN.



Selecting VPN under Configuration>Network brings up the VPN Configuration Menu. The VPN Configuration Menu provides the options shown in the following screen.



You can use these options to add a VPN connection or to edit or delete a previously configured VPN connection. See “VPN” on page 218 for details.

The following diagram lists the names of the configuration screens accessed from the Add and Edit/Delete options on the Configure>Network>VPN Configuration menu.

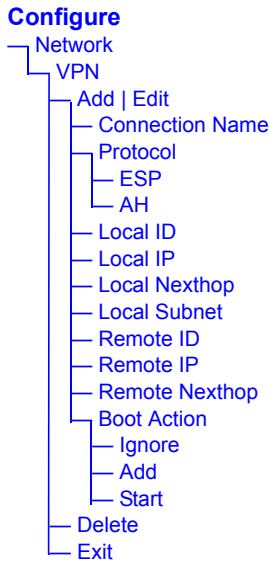


Table 7-8 gives a brief description of the VPN configuration screens series under Add and Edit.

Table 7-8: VPN Configuration Screens [OSD]

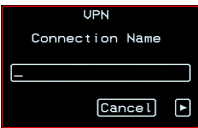
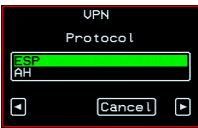
Screen	Description
<p>Connection Name</p> 	<p>Any descriptive name you want to use to identify this connection such as “MYCOMPANYDOMAIN-VPN”</p>
<p>Protocol</p> 	<p>The authentication protocol used, either “ESP” (Encapsulating Security Payload) or “AH” (Authentication Header)</p>

Table 7-8: VPN Configuration Screens [OSD] (Continued)

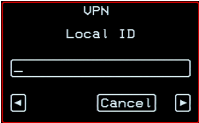
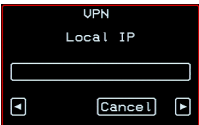
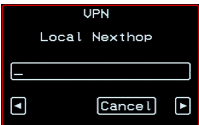
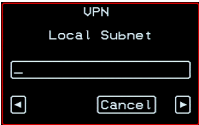
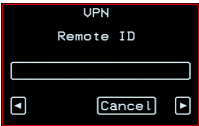
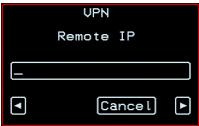
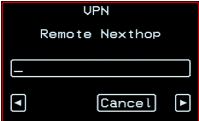
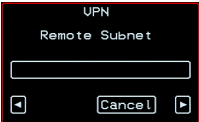
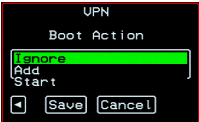
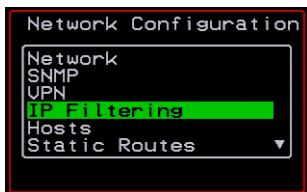
Screen	Description
<p>Local ID</p> 	<p>The hostname of the KVM, referred to as the “local” host. This is the hostname that a local system use for IPSec negotiation and authentication.</p> <p>It can be a Fully Qualified Domain Name preceded by @. For example, hostname@xyz.com.</p>
<p>Local IP</p> 	<p>The IP address of the KVM.</p>
<p>Local NextHop</p> 	<p>The router through which the KVM sends packets to the host on the other side.</p>
<p>Local Subnet</p> 	<p>The netmask of the subnetwork where the KVM resides, if applicable.</p>
<p>Remote ID</p> 	<p>The hostname of the remote host or security gateway. This is the hostname that a remote system use for IPSec negotiation and authentication.</p> <p>It can be a Fully Qualified Domain Name preceded by @. For example, hostname@xyz.com.</p>
<p>Remote IP</p> 	<p>The IP address of the remote host or security gateway.</p>

Table 7-8: VPN Configuration Screens [OSD] (Continued)

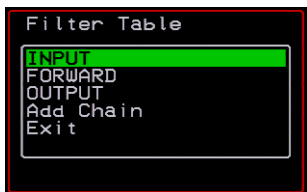
Screen	Description
<p>Remote Nexthop</p> 	<p>The IP address of the router through which the host on the other side sends packets to the KVM.</p>
<p>Remote Subnet</p> 	<p>The netmask of the subnetwork where the remote host or security gateway resides, if applicable.</p>
<p>Boot Action</p> 	<p>Choices 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</p>

IP Filtering Configuration Screens

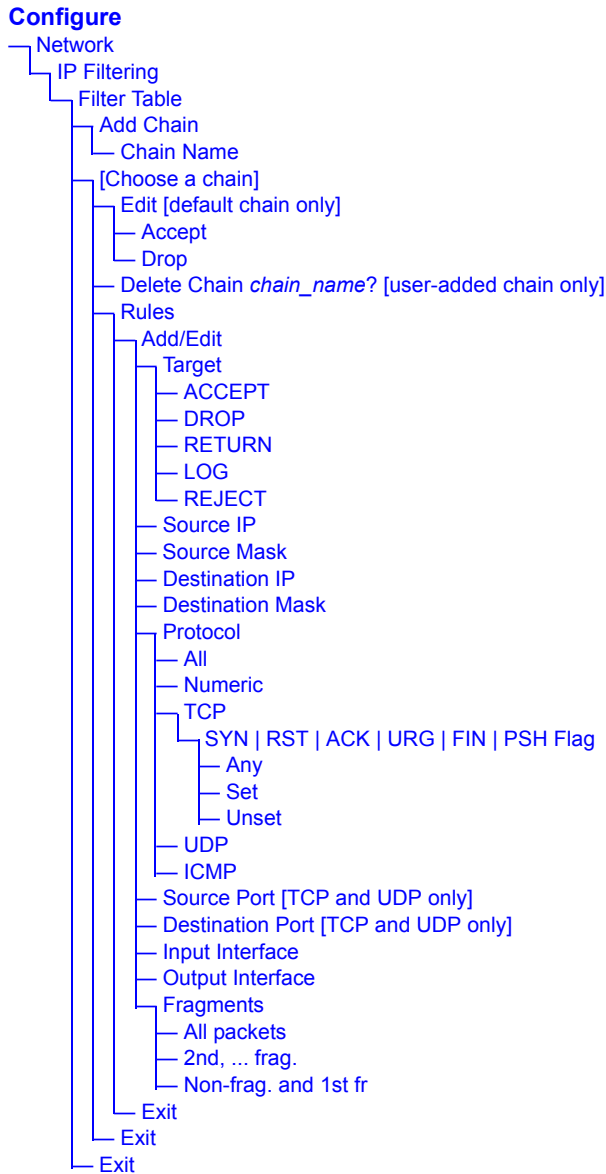
You can select the IP Filtering option from the Network Configuration menu to configure the KVM to filter packets like a firewall.



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.



The following table shows the IP filtering screens.

Table 7-9: IP Filtering Configuration Screens [OSD]

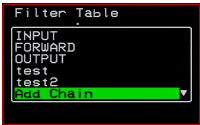
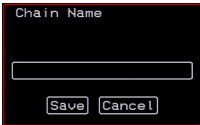
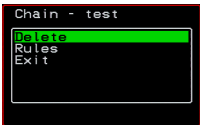

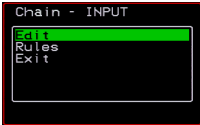
Screen	Description
<p>Filter Table</p> 	<p>Lists the default chains along with any administratively configured chains, the “Add Chain,” and the “Exit” options.</p>
<p>Chain Name</p> 	<p>Only appears when “Add Chain” is selected. Entering the name of the chain adds the new chain’s name to the “Filter Table,” where you need to select the name of the new chain and define rules for the chain.</p>
<p>Chain - chain_name</p> 	<p>Appears when a user-added chain is selected from the “Filter Table.” The choices are “Delete,” “Rules,” “Exit.”</p>
<p>Delete Chain chain_name?</p> 	<p>Appears when a user-added chain is selected and the Delete option is chosen from the “Chain - chain_name” menu.</p>
<p>Chain - CHAIN_NAME</p> 	<p>Appears when a default chain is selected from the “Filter Table.” The choices are “Edit,” “Rules,” and “Exit.”</p>

Table 7-9: IP Filtering Configuration Screens [OSD] (Continued)

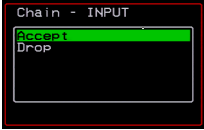

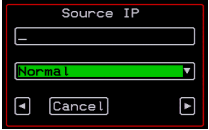

Screen	Description
<p>Edit</p> 	<p>Appears when a default chain is selected and the Edit option is chosen from the Chain - <i>Chain_name</i> menu. Choices are “Accept” or “Drop.”</p>
<p>The following screens define the rules for packet filtering. The packet is filtered for the characteristics defined 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.</p>	
<p>Target</p> 	<p>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.”</p>
<p>Source IP</p> 	<p>The IP address of the source of an input packet.</p>
<p>Source Mask</p> 	<p>The netmask of the subnetwork where an input packet originates.</p>

Table 7-9: IP Filtering Configuration Screens [OSD] (Continued)

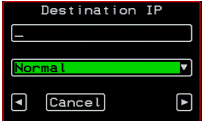
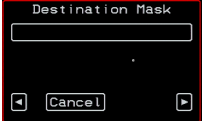
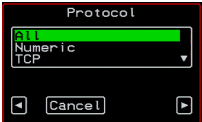
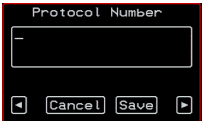
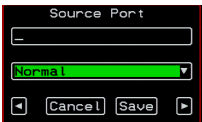
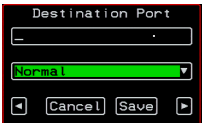
Screen	Description
<p>Destination IP</p> 	<p>The IP address of an output packet’s destination.</p>
<p>Destination Mask</p> 	<p>The netmask of the subnet to which an output packet is going.</p>
<p>Protocol</p> 	<p>Choices are “All,” “Numeric,” “TCP,” “UDP,” “ICMP.”</p>
<p>Protocol Number</p> 	<p>Appears only if “Numeric” is selected from the “Protocol” menu.</p>
<p>Source Port</p> 	<p>Appears only if “TCP” or “UDP are selected from the “Protocol” menu. The source port number.</p>
<p>Destination Port</p> 	<p>Appears only if “TCP” or “UDP are selected from the “Protocol” menu. The destination port number.</p>

Table 7-9: IP Filtering Configuration Screens [OSD] (Continued)


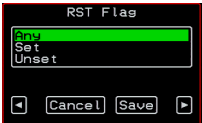
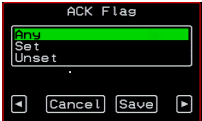
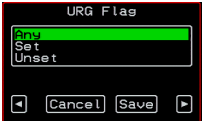


Screen	Description
<p>SYN Flag</p> 	<p>Appears only if “TCP” is selected from the “Protocol” menu. Options are “Any,” “Set,” “Unset.”</p>
<p>RST Flag</p> 	<p>Appears only if “TCP” is selected from the “Protocol” menu. Options are “Any,” “Set,” “Unset.”</p>
<p>ACK Flag</p> 	<p>Appears only if “TCP” is selected from the “Protocol” menu. Options are “Any,” “Set,” “Unset.”</p>
<p>URG Flag</p> 	<p>Appears only if “TCP” is selected from the “Protocol” menu. Options are “Any,” “Set,” “Unset.”</p>
<p>FIN Flag</p> 	<p>Appears only if “TCP” is selected from the “Protocol” menu. Options are “Any,” “Set,” “Unset.”</p>
<p>PSH Flag</p> 	<p>Appears only if “TCP” is selected from the “Protocol” menu. Options are “Any,” “Set,” “Unset.”</p>

Table 7-9: IP Filtering Configuration Screens [OSD] (Continued)

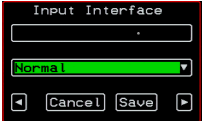
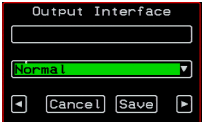

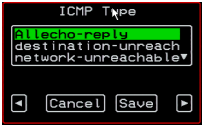
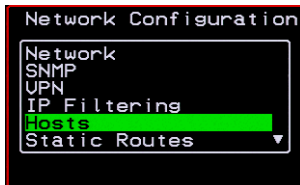
Screen	Description
<p>Input Interface</p> 	<p>Appears only if “All,” “Numeric,” “TCP,” “UDP,” or “ICMP” are selected from the “Protocol” menu.</p>
<p>Output Interface</p> 	<p>Appears only if “All,” “Numeric,” “TCP,” “UDP,” or “ICMP” are selected from the “Protocol” menu.</p>
<p>Fragments</p> 	<p>Appears only if “All,” “Numeric,” “TCP,” “UDP,” or “ICMP” are selected from the “Protocol” menu.</p>

Table 7-9: IP Filtering Configuration Screens [OSD] (Continued)

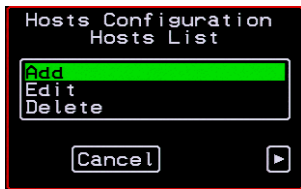
Screen	Description
<p>ICMP Type</p> 	<p>Appears only if ICMP is selected from the “Protocol” menu. Choices are:</p> <ul style="list-style-type: none"> • all • echo-reply • destination-unreachable • network-unreachable • host-unreachable • port-unreachable • fragmentation needed • source-route-failed • network-unknown • host-unknown • network-prohibited • host-prohibited

Hosts Configuration Screens [OSD]

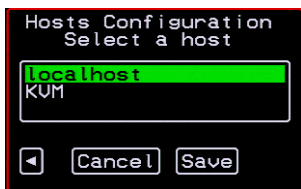
You can select the Hosts option from the Network Configuration menu to configure hosts.



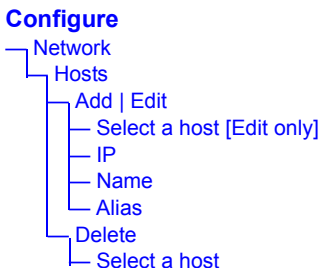
Selecting Hosts under Configuration>Network brings up the “Hosts List” action menu, as shown in the following screen.



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.

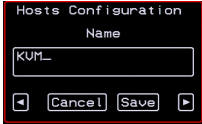
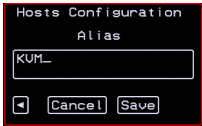


The following table shows the screens for the Add and Edit options.

Table 7-10: Hosts Configuration Screens [OSD]

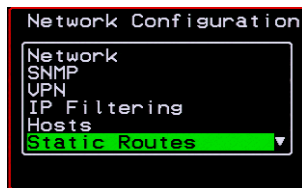
Screen	Description
IP	IP address of the host

Table 7-10: Hosts Configuration Screens [OSD]

Screen	Description
Name 	Hostname of the host
Alias 	Optional alias of the host

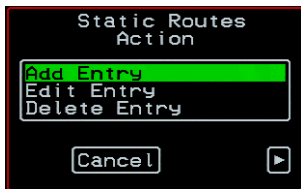
Static Routes Configuration Screens

You can select the Static Routes option from the Network Configuration menu to configure static routes.

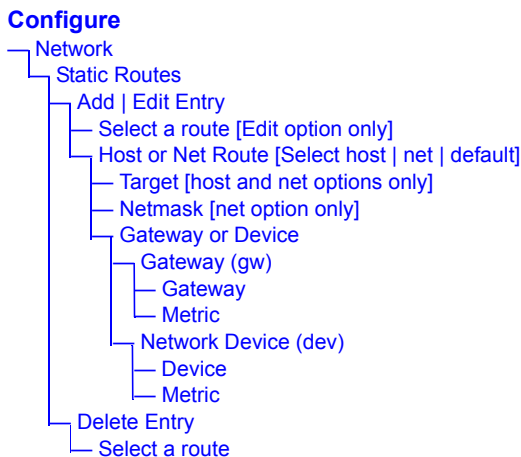


If judiciously used, static routes can sometimes reduce routing problems and routing traffic overhead. If injudiciously used, when a network fails, static routes can block packets that would otherwise be able to find alternate routes around the point of failure if dynamic-routing were in effect.

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.



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]

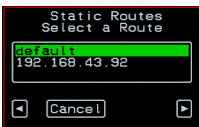
Screen	Description
<p>Select a route</p> 	<p>Appears only when the Edit and Delete options are selected. Choices are “default” and any previously configured static routes.</p>

Table 7-11:Static Routes Screens [OSD] (Continued)

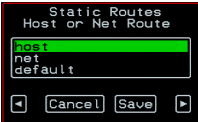
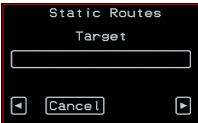
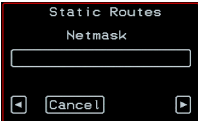
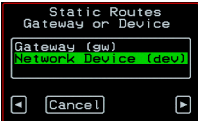


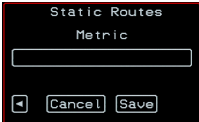
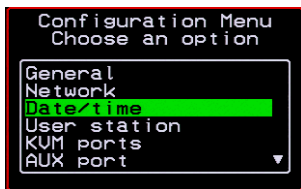
Screen	Description
<p>Host or Net Route</p> 	<p>Types of routes: “host,” “net,” or “default.” Note: A default route is used to direct packets that are addressed to networks not listed in the routing table.</p>
<p>Target</p> 	<p>IP address for the target host or network.</p>
<p>Netmask</p> 	<p>Appears only when “net” is selected from the “Host or Net Route” screen. Netmask for the destination.</p>
<p>Gateway or Device</p> 	<p>Two options are: “Gateway (gw)” or “Network Device (dev).”</p>
<p>Gateway</p> 	<p>Appears only when “Gateway (gw)” is selected from the “Gateway or Device” menu. Gateway IP address.</p>
<p>Device</p> 	<p>Appears only when “Network Device” is selected from the “Gateway or Device” menu. Device address (such as eth0).</p>

Table 7-11:Static Routes Screens [OSD] (Continued)

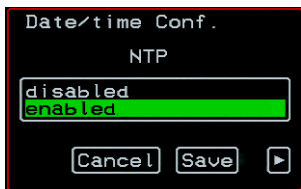
Screen	Description
<p>Metric</p> 	<p>The number of hops to the destination.</p>

Date/time Configuration Screens

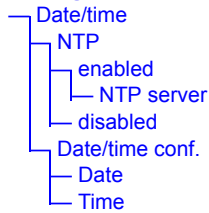
You can select the Date/time option from the OSD Configuration menu to either configure an NTP server or manually set the date and time.



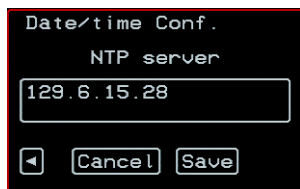
Selecting Date/time under Configuration>Network brings up the NTP menu, as shown in the following screen.



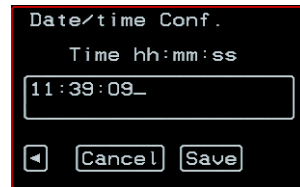
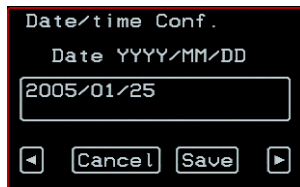
The following diagram lists the names of the configuration options accessed from the Configure>Date/time menu.

Configure

If NTP is enabled, the following screen appears for entering the IP address of the NTP server.

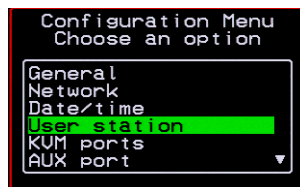


If NTP is disabled, the following series of two screens appears to allow you to enter the date and time manually.



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 29 for details, if needed.

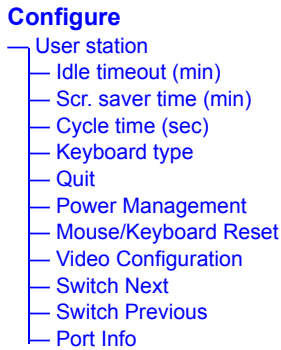


Figure 7-3:User Station Configuration Screens

The following table shows the user station configuration screens.

Table 7-12:User Station Configuration Screens

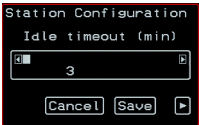
Screen	Description
<p>Idle timeout</p> 	<p>The period of inactivity before the user is logged out from the OSD. The default is 3 minutes.</p>

Table 7-12:User Station Configuration Screens (Continued)

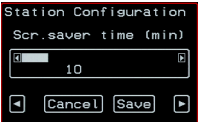
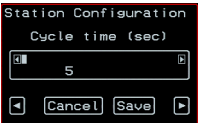
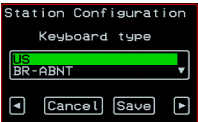
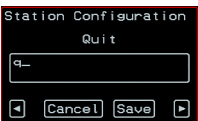
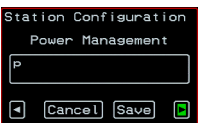
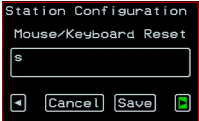
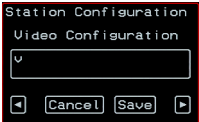
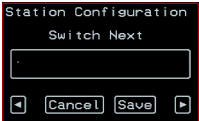
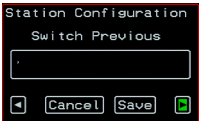

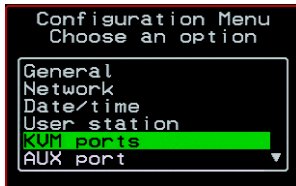
Screen	Description
<p>Scr. saver timeout</p> 	<p>The period of inactivity before the screen saver starts. The default is 10 minutes.</p>
<p>Cycling</p> 	<p>The number of seconds each server is viewed while the user is cycling from one port to another. Default = 5 seconds. See “To Initiate Cycle by Server” on page 281 for instructions on how to cycle through the servers.</p>
<p>Keyboard Type</p> 	<p>The type of keyboard connected to the User 1 or User 2 management port of the KVM.</p> <ul style="list-style-type: none"> • US [Default] • BR-ABNT • BR-ABNT2 • Japanese • German • Italian • French • Spanish
<p>Quit</p> 	<p>Redefine the command key for the KVM connection quit hot key.</p>
<p>Power Management</p> 	<p>Redefine the command key portion of the KVM connection power management hot key.</p>

Table 7-12:User Station Configuration Screens (Continued)

Screen	Description
<p>Mouse/Keyboard</p> 	<p>Redefine the command key portion of the KVM connection mouse/keyboard reset hot key.</p>
<p>Video</p> 	<p>Redefine the command key portion of the KVM connection video brightness and cable length adjustment hot key.</p>
<p>Switch Next</p> 	<p>Redefine the command key portion of the KVM connection switch next hot key.</p>
<p>Switch Previous</p> 	<p>Redefine the command key portion of the KVM connection switch previous hot key.</p>
<p>Port Info</p> 	<p>Redefine the command key portion of the KVM connection port info hot key.</p>

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.

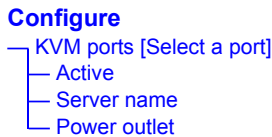



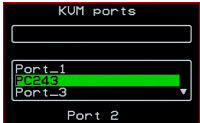
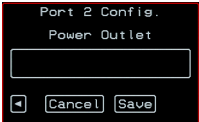
Figure 7-4:KVM Ports Configuration Screens

The following table shows the KVM port configuration screens.

Table 7-13:KVM Port Configuration Screens

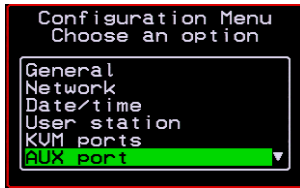
Screen	Description
<p>KVM ports</p> <p>The screenshot shows a window titled "KVM ports". It contains a list of ports: Port_2, Port_1, Port_2 (highlighted in green), and Port_3. Below the list, "Port 2" is displayed.</p>	Lists all KVM ports by their default names or administratively defined aliases.
<p>Active</p> <p>The screenshot shows a window titled "Port 2 Config." with the option "Active". There are two choices: "Yes" (highlighted in green) and "No". At the bottom, there are "Cancel", "Save", and a right arrow button.</p>	Choices are “Yes” and “No” to activate or deactivate the selected KVM port.

Table 7-13:KVM Port Configuration Screens (Continued)

Screen	Description
<p>Server name</p> 	<p>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:</p> 
<p>Power Outlet</p> 	<p>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.</p> <p>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 35 for details. Also see “To Power On, Power Off, or Reboot the Connected Server” on page 284, if needed.</p>

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.



Figure 7-5:AUX Port Configuration Screens

The following table shows the AUX port configuration screens.

Table 7-14:KVM Port Configuration Screens

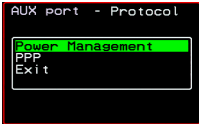

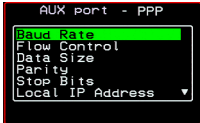
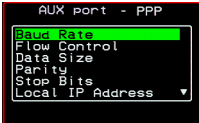
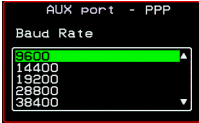
Screen	Description
<p>AUX port - Protocol</p> 	<p>Choices are “Power Management” and “PPP.”</p> <p>If you select Power Management, the following confirmation screen displays:</p>  <p>If you select PPP, the following connection configuration menu displays:</p> 
<p>AUX port - PPP</p> 	<p>Appears when PPP 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.</p>
<p>AUX port - PPP Baud Rate</p> 	<p>The port speed.</p>

Table 7-14:KVM Port Configuration Screens (Continued)

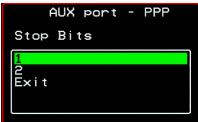
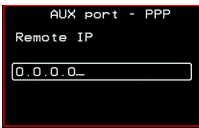
Screen	Description
<p>AUX port - PPP Flow Control</p> 	Gateway or interface address used for the route.
<p>AUX port - PPP Data Size</p> 	The number of data bits.
<p>AUX port - PPP Parity</p> 	None, even, or odd.
<p>AUX port - PPP Stop Bits</p> 	The number of stop bits.
<p>AUX port - PPP Local IP</p> 	Local IP address

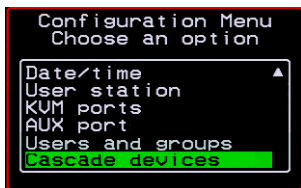
Table 7-14:KVM Port Configuration Screens (Continued)

Screen	Description
<p>AUX port - PPP Remote IP</p> 	<p>Remote IP address</p>

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.
- 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 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 Configure>AUX port option.

Configure

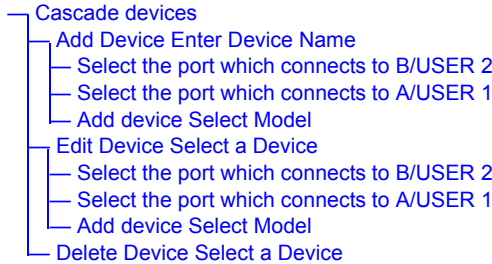


Figure 7-6:Cascade Devices Configuration Screens

The following table shows the Cascade Devices configuration screens.

Table 7-15:Cascade Devices Configuration Screens

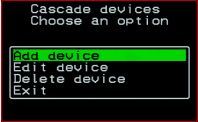
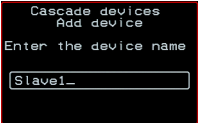
Screen	Description
<p>Cascade device Choose an option</p> 	<p>Options include Add device, Edit device, and Delete device.</p>
<p>Cascade Device Add DeviceEnter the device name</p> 	<p>Appears when Add device is selected from the “Cascade device Choose an option” screen.</p> <p>Enter the name of the new cascaded KVM unit.</p>

Table 7-15: Cascade Devices Configuration Screens (Continued)

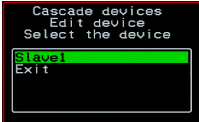
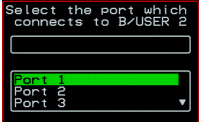
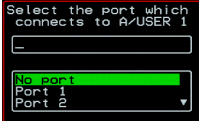
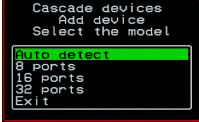
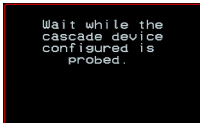
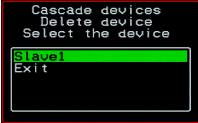

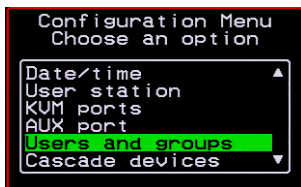
Screen	Description
<p>Cascade Device Edit Device Select the device</p> 	<p>Appears when Edit device is selected from the “Cascade device Choose an option” screen.</p> <p>Select the name of a previously added cascaded KVM unit.</p>
<p>Select the port which connects to B/USER 2</p> 	<p>Enter the port number of the masterKVM that is connected to the User 2 port of the secondary KVM device or the B port on the Expander.</p> <p>Note: See “Connecting Cascaded KVM Units to the Primary KVM” on page 106 for a background on the possible devices that can be cascaded and for instructions on connecting these devices to the master KVM.</p>
<p>Select the port which connects to A/USER 1</p> 	<p>Enter the secondary KVM port that is connected to the User 1 port of the primary KVM or the User A port on the Expander.</p>
<p>Cascade device Add device Select Model</p> 	<p>Select the number of ports on the cascaded KVM unit or select Auto detect and press <Enter>.</p> <p>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.</p> <p>During auto detection, the following message appears.</p> 

Table 7-15: Cascade Devices Configuration Screens (Continued)

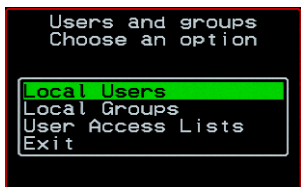
Screen	Description
<p>Cascade Device Delete Device Select the device</p> 	<p>Appears when Delete device is selected from the “Cascade device Choose an option” screen.</p> <p>The following confirmation screen appears once a cascaded device is selected.</p> 

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.



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.



The following diagram lists the configuration screens accessed through the Configure>Users and Groups options:

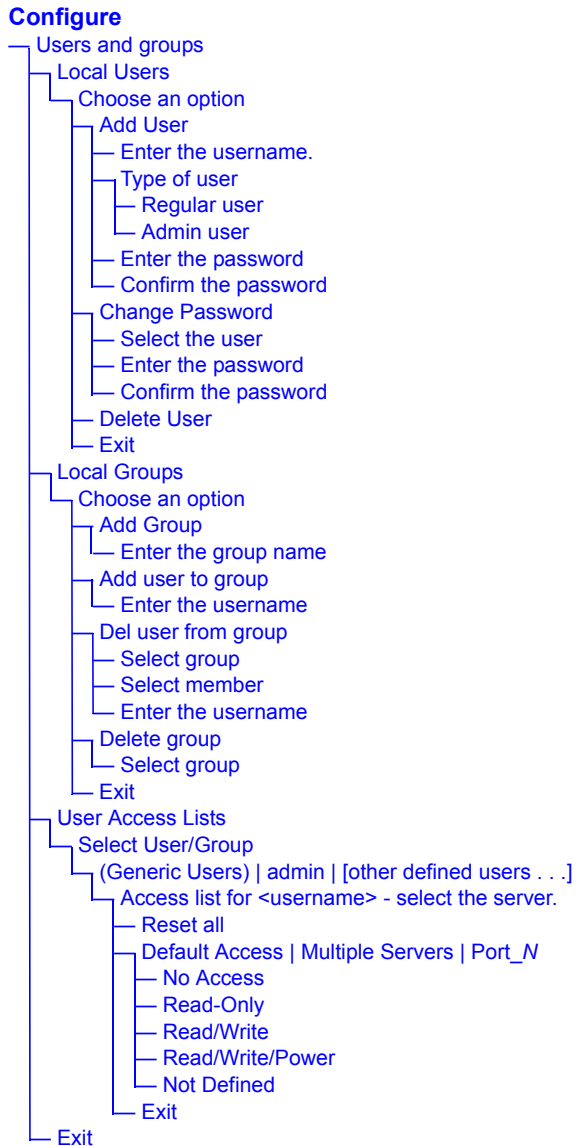


Figure 7-7:Users and Groups Configuration Screens

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

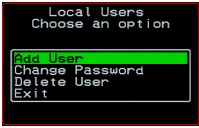

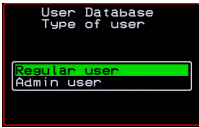
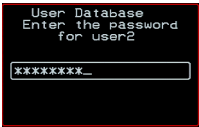
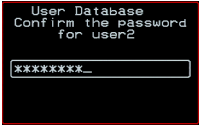
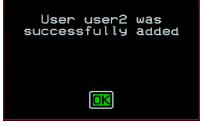
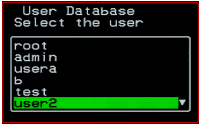

Screen	Description
<p>Choose an option</p> 	<p>Options are: “Add User,” “Change Password,” “Delete User,” or “Exit.”</p>
<p>User Database Enter the username</p> 	<p>Appears only when “Add User” is selected.</p>
<p>Type of user</p> 	<p>Appears only when “Add User” is selected.</p>
<p>Enter the password</p>  <p>Confirm the password</p> 	<p>Appears only when “Add User” or “Change Password” are selected. Note: Passwords are case sensitive.</p> <p>When the password is successfully confirmed, the following dialog box appears.</p> 

Table 7-16:Local Users Configuration Screens (Continued)

Screen	Description
<p>Select the user</p> 	<p>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:</p> 

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

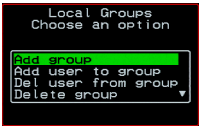
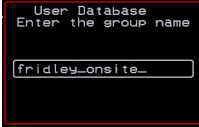

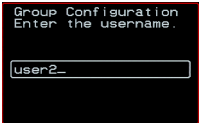
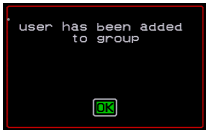
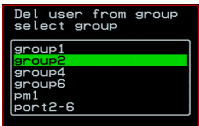

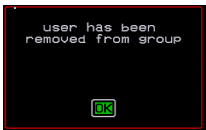
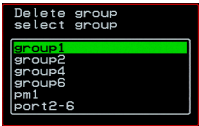

Screen	Description
<p>Choose an option</p> 	<p>Options are “Add group,” “Add user to group,” “Del. user from group,” “Delete group,” and Exit</p>
<p>Enter the group name</p> 	<p>When “Add group” is selected. After the group name is entered, a confirmation screen like the following appears.</p> 

Table 7-17: Local Groups Configuration Screens (Continued)

Screen	Description
<p>Enter the username</p>  <p>The screenshot shows a terminal window titled 'Group Configuration' with the prompt 'Enter the username.' A text input field contains the text 'user2_'. The background is black with white text.</p>	<p>When “Add user” or “Add user to group” are selected. To add multiple users, use a comma to separate each username.</p> <p>When the user is successfully added, the following confirmation screen appears.</p>  <p>The screenshot shows a terminal window with the message 'user has been added to group' and a green 'OK' button at the bottom.</p>
<p>Delete user from group select group</p>  <p>The screenshot shows a terminal window titled 'Del user from group' with the prompt 'select group'. A list of groups is shown: group1, group2, group4, group6, pm1, port2-6. 'group2' is highlighted with a green bar.</p>	<p>When “Del user from group” is selected.</p>
<p>Select member</p>  <p>The screenshot shows a terminal window titled 'Del user from group' with the prompt 'select member'. A list of users is shown: user2, user4, user6, user8. 'user2' is highlighted with a green bar.</p>	<p>When “Del user from group” and a username are selected, the user is removed from the group, and the following confirmation screen appears:</p>  <p>The screenshot shows a terminal window with the message 'user has been removed from group' and a green 'OK' button at the bottom.</p>
<p>Delete group select group</p>  <p>The screenshot shows a terminal window titled 'Delete group' with the prompt 'select group'. A list of groups is shown: group1, group2, group4, group6, pm1, port2-6. 'group1' is highlighted with a green bar.</p>	<p>When “Delete group” and a group name are selected, the following confirmation screen appears.</p>  <p>The screenshot shows a terminal window with the message 'group has been deleted' and a green 'OK' button at the bottom.</p>

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” on page 274 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

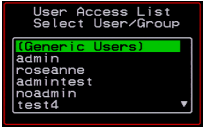
Screen	Description
<p>Select User/Group</p> 	<p>“[Generic Users],” “admin,” and any administratively defined users and groups are listed, along with the “Exit” option.</p> <p>The Generic Users’ permissions apply to all users except for “admin” and any users in the “admin” group. By default, the Generic 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 administrator can configure access to KVM ports for added regular users by:</p> <ul style="list-style-type: none"> • 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

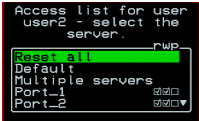

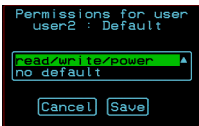
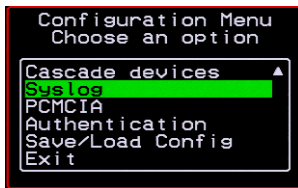
Screen	Description
<p>Access list for username - select the server</p> 	<p>The access list includes the “Reset all,” “Default,” “Multiple servers,” and “Exit” options along with each individual KVM ports.</p> <p>The “Default” option defines access permissions for all KVM ports, which apply unless the user has specific access permissions for any KVM ports.</p> <p>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.</p> <p>A series of three checkboxes appear to the right of each entry that has specific permissions (as defined in the following row). If a 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.</p> <p>If “Reset all” is selected, the following confirmation screen appears.</p> 

Table 7-18:User Access List KVM Port Permissions Configuration Screens

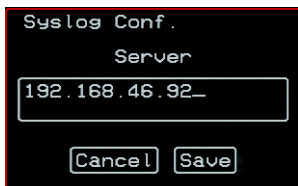
Screen	Description
<p>Permissions for <i>username:</i> <i>port_number</i> or for <i>username:</i> followed by another Access list option, such as “Default” or “Multiple Servers”</p> 	<p>The permissions from this menu can be configured to be “Default” permissions for all ports, applied to Multiple Servers, or applied to a selected port.</p> <p>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</p>

Syslog Screens

You can select the Syslog option on the OSD Configuration Menu to specify the IP address for a syslog server.



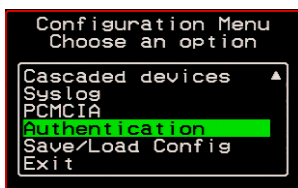
Selecting the Configure>Syslog option brings up a Server screen for entering the IP address of a syslog server.

**Figure 7-8:**Syslog Configuration Server Screen

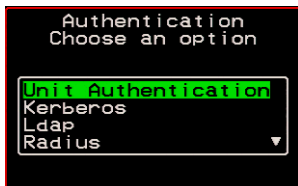
To complete the configuration of system logging, you must specify a facility number as shown in “Syslog Facility” on page 306.

Authentication Screens

You can select the Authentication option on the OSD Configuration Menu to configure an authentication type (AuthType) for logins to the KVM and to configure authentication servers for any type of logins: to the KVM or to KVM ports. See “Authentication” on page 39 for details about authentication on the KVM.



The Authentication menu appears as shown in the following figure.



Not all options are visible.

The following diagram lists the Authentication screens.

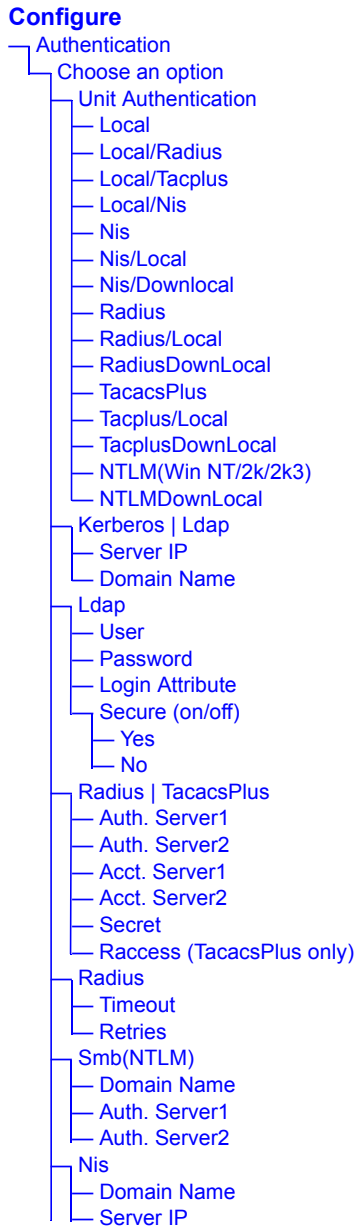
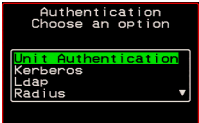
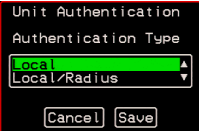


Figure 7-9:Authentication Options and Screens

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 login authentication method.

Table 7-19:Authentication Configuration Screens for KVM Logins

Screen	Description
<p>Choose an option</p> 	<p>Choose either “Unit authentication” to select an Authentication method for KVM 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.</p>
<p>Unit Authentication</p> 	<p>Authentication method options for KVM 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</p>

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

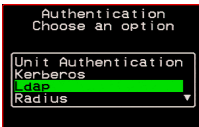
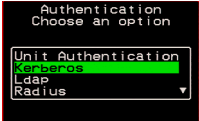


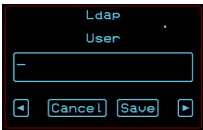
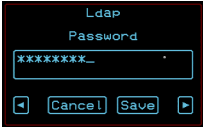


Screen	Description
<p>Ldap</p> 	<p>Choose Ldap to configure an LDAP authentication server.</p>

Table 7-20: Common Configuration Screens for Kerberos and LDAP Authentication

Screen	Description
<p>Kerberos</p>  <p>The screenshot shows a dialog box titled "Authentication" with the instruction "Choose an option". Below this is a dropdown menu labeled "Unit Authentication" with three options: "Kerberos" (highlighted in green), "Ldap", and "Radius".</p>	Choose Kerberos to configure a Kerberos authentication server.
<p>Server IP</p>  <p>The screenshot shows a dialog box titled "Kerberos" with the label "Server IP". A text input field contains the IP address "64.186.161.125". At the bottom, there are "Cancel" and "Save" buttons, and a green checkmark icon.</p>	IP address of the Kerberos or LDAP server.
<p>Domain Name</p>  <p>The screenshot shows a dialog box titled "Ldap" with the label "Domain Name". A text input field contains the domain name "dc=padl.dc=com". At the bottom, there are "Cancel" and "Save" buttons, and left and right arrow icons.</p>	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 7-356. The following table shows the configuration screens for the Radius and

Table 7-21: Unique LDAP Authentication Server Configuration Screens

Screen	Description
<p>User</p> 	<p>The LDAP user name.</p>
<p>Password</p> 	<p>The LDAP password.</p>
<p>Login Attribute</p> 	<p>The login attribute.</p>
<p>Secure (on/off)</p> 	<p>Choices are “Yes” or “No.”</p>

TACACS+ authentication servers. The following table shows the Screens for

Table 7-22: Configuration Screens for the Radius or TACACS+ Authentication Servers

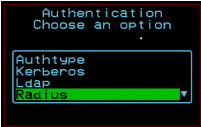
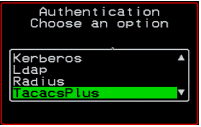
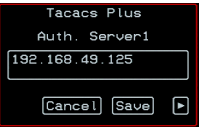



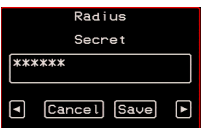

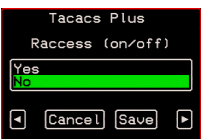
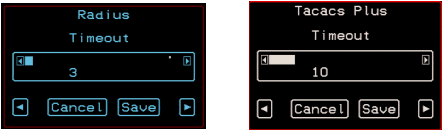
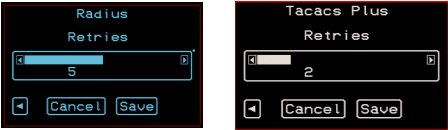
Screen	Description
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Radius</p>  </div> <div style="text-align: center;"> <p>TacacsPlus</p>  </div> </div>	<p>Choose Radius or TacacsPlus to configure a Radius or TACACS+ authentication server.</p>
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Auth. Server1</p>  </div> <div style="text-align: center;"> <p>Auth. Server2</p>  </div> </div>	<p>IP addresses of one or two authentication servers. The second server is optional.</p>
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Acct. Server1 and Acct. Server2</p>  </div> <div style="text-align: center;"> <p>Acct. Server2</p>  </div> </div>	<p>IP addresses of one or two optional accounting servers.</p>
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Secret</p>  </div> <div style="text-align: center;"> <p>Tacacs Plus</p>  </div> </div>	<p>Shared secret.</p>
<div style="text-align: center;"> <p>Tacacs Plus</p>  </div>	<p>Enable or disable TacacsPlus authorization. See “Group Authorization” on page 177.</p>

Table 7-22: Configuration Screens for the Radius or TACACS+ Authentication Servers (Continued)

Screen	Description
<p>Timeout</p> 	<p>Timeout in seconds. The default is 3 seconds for Radius and 10 seconds for TacacsPlus.</p>
<p>Retries</p> 	<p>Number of retries. The default is 5 for Radius and 2 for TacacsPlus.</p>

configuring a Smb (NTLM) authentication server.

Table 7-23: Smb (NTLM) Configuration Screens

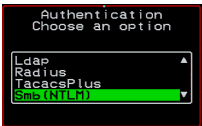
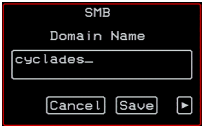
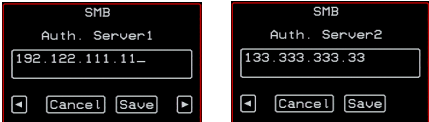
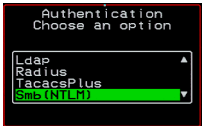

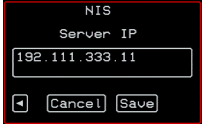
Screen	Description
<p>Smb(NTLM)</p> 	<p>Choose Smb(NTLM) to configure an SMB (NTLM) authentication server.</p>
<p>Domain Name</p> 	<p>The domain name.</p>

Table 7-23:Smb (NTLM) Configuration Screens (Continued)

Screen	Description
<p>Auth. Server1 and Auth. Server2</p> 	IP addresses for one or two SMB (NTLM) authentication servers. The second server IP is optional.

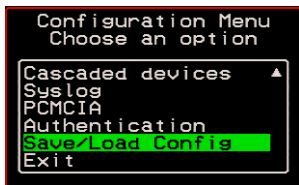
The following table shows the screens for configuring a NIS authentication server.

Table 7-24:NIS Configuration Screens

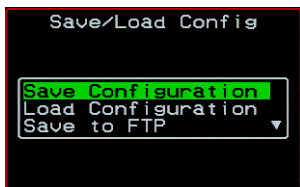
<p>NIS</p> 	Choose the NIS authentication server
<p>Domain Name</p> 	Enter the Domain Name
<p>Server IP</p> 	IP address of the NIS server.

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.

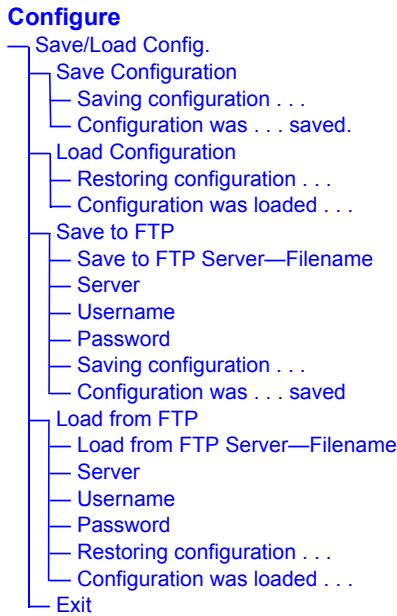


Figure 7-10: Save/Load Config Configuration Screens

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

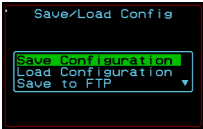
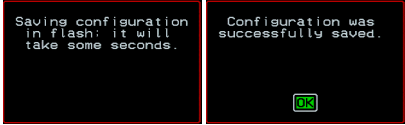
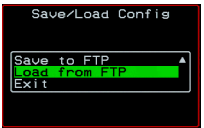
Screen	Description
<p>Save Configuration</p> 	<p>When “Save Configuration” is selected, the following two screens appear.</p> 

Table 7-25: Save/Load Configuration Screens (Continued)

Screen	Description
<p>Load Configuration</p> 	<p>When “Load Configuration” is selected, the following two screens appear.</p> 
<p>Save to FTP</p> 	<p>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.</p> 
<p>Load from FTP</p> 	<p>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.”</p> 

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 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.



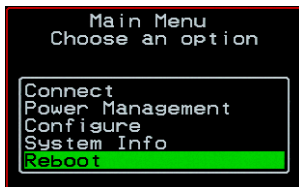
2. Use the up and down arrow keys to view the information.
3. To exit, press the escape key.

Reboot

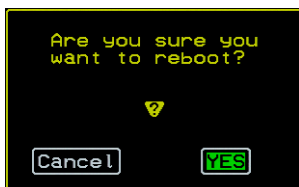
You can reboot the KVM from the Main Menu of the OSD. This is particularly useful when operating through the KVM RP.

▼ *To reboot the KVM*

1. Select Reboot from the Main Menu.



The following message appears.



- 2.** Select Yes to reboot the KVM.

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. 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.

See “Installing the AlterPath KVM RP” on page 109 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*

1. Connect the KVM RP to the KVM using a CAT5 cable up to 500 feet long.

See “Installing the AlterPath KVM RP” on page 109 for detailed instructions and diagrams on how to connect the KVM RP to the KVM 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 OSD.

The OSD login screen appears.



4. Type your username followed by your password and press Enter.

The main menu of the KVM OSD appears. See “OSD Main Menu” on page 298 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 302, “System Info Menu” on page 365, and “Reboot” on page 367.
 - If desired, connect to devices that are physically connected to the KVM.
See “Invoking OSD Using [PrintScreen] Key” on page 299 for instructions.
 - If desired, power manage devices that are plugged into a configured AlterPath PM.
See “Power Management Menu” on page 301 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 371 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 371 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's Boot Image

If the KVM 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 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.

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 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 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 unit. KVM 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 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 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'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, login as “root”, and go to the following directory.

```
[root@KVM root]# cd /proc/flash  
[root@KVM 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.

```
[root@KVM 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

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 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, login as “root”, and execute the following commands.

```
[root@KVM 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 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 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 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 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 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 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 in Single User Mode

The KVM 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 inoperative or unstable.

Note: You cannot perform this process using Telnet or other remote connection protocols.

▼ To Boot the KVM in Single User Mode

1. Connect a terminal to the console port of your KVM, 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's Flash Memory."

How to Restore the KVM'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 root]# echo 0>/proc/flash/script  
[root@KVM root]# reboot
```


Appendix B

Technical Specifications

The following table provides the technical specifications for the KVM.

Table B-1: Technical Specifications

CPU	MPC855T (PowerPC) @ 48 Mhz
Memory	128 MB DIMM SDRAM/128 MB Compact Flash
Interfaces	<ul style="list-style-type: none">• 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)	<ul style="list-style-type: none">• KVM - 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	<ul style="list-style-type: none">• 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 387 for specific standards and compliance information for the AlterPath KVM.

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.
- Choose 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

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.

Folgendes sollte beim Rack-Einbau des AlterPath KVM berücksichtigt werden.

Temperature

The manufacturer's maximum recommended ambient temperature for the AlterPath KVM is 122 °F (50 °C).

Temperatur

Die maximal empfohlene Umgebungstemperatur des AlterPath KVM beträgt 50 °C (122 °F).

Elevated Operating Ambient Temperature

If the AlterPath KVM 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 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

Please read all the following safety guidelines to protect yourself and your AlterPath KVM.

Sicherheitsvorkehrungen beim Betrieb des AlterPath KVM

Bitte lesen Sie alle folgenden Sicherheitsrichtlinien um sich und Ihren AlterPath KVM vor Schäden zu bewahren.

Caution: Do not operate your AlterPath KVM with the cover removed.

Vorsicht: *Bitte betreiben Sie den AlterPath KVM nicht mit geöffnetem Gehäuse.*

Caution! To avoid shorting out your AlterPath KVM 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 Netzkabels zu vermeiden bitte immer zuerst das Kabel vom Host Server entfernen, anschließend die externe Stromzufuhr abklemmen und danach das Kabel aus der Netzbuchse ausstecken. Beim Wiederherstellen der Verbindung immer zuerst das Kabel in die Netzbuchse des KVM zuerst einstecken und danach das Kabel in den Host Server einstecken.*

Caution: To help prevent electric shock, plug the AlterPath KVM 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 bitte mit einer ausreichend geerdeten Stromquelle verbinden. Zu diesem Zweck ist das Eingangskabel mit einem dreipoligen Stecker ausgestattet. Bitte keinesfalls dazwischen liegende Adapter einsetzen oder den Erdungstift entfernen. Falls eine Verlängerung eingesetzt werden muss bitte ausschließlich dreipolige Kabel mit ausreichender Erdung verwenden.*

Caution: To help protect the AlterPath KVM 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 and that they are not located where they can be stepped on or tripped over. Do not spill food or liquids on KVM.

Vorsicht: *Um den AlterPath KVM vor elektrischen Netzschwankungen zu bewahren bitte Überspannungsfiler, Entstörfilter oder eine UVS einsetzen. Stellen Sie bitte sicher dass sich keine Gegenstände auf den Kabeln des KVM befinden und dass die Kabel tritt- und stolpersicher geführt sind. Bitte keine Lebensmittel oder Flüssigkeiten über den KVM schütten.*

Caution: Do not push any objects through the openings of the AlterPath KVM. 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 stecken.*

Caution: Keep your AlterPath KVM away from heat sources and do not block host's cooling vents.

Vorsicht: *Der AlterPath KVM 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 e-mail 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 <i>IP Security Protocol</i> , 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.
MTU	Short for <i>Maximum Transmission Unit</i> , 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 is 1500 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 Computer Memory Card International Association – 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.

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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