AlterPath KVM Installation, Configuration, and Users Guide

Software Version 2.0

cyclades

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Before You Begin

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

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

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

Audience

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

This document describes configuration, administration, and use of the KVM only. It does not describe how to set up and administer other external services or servers that the 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 KVM already know how to use the connected devices.

Document Organization

The document contains the following chapters:

Chapter 1: Introduction

Defines and explains the overall product features and uses of KVM.

Chapter 2: Installing the KVM

Explains the procedures for installing the KVM and setting up its basic configuration.

Chapter 3: Installing KVM-related Products and Components

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 KVM.

Chapter 4: Web Manager for Administrators

Explains how to use the Web Manager, highlighting such procedures as how to configure the KVM, add or delete users, define user access, add or delete server connections, and other topics pertaining to 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

Explains how to use the On Screen display for local connections to the User 1 port, highlighting such procedures as how to configure the KVM, adding or deleting users, defining user access, adding or deleting server connections, and other topics pertaining to KVM administration.

Appendix A: Troubleshooting

Explains how to troubleshoot common KVM issues.

Glossary

Glossary of terms and acronyms used in the manual.

Related Documents

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

- *AlterPath KVM Quick Start Guide* (hard-copy)

The following manuals for Cyclades AlterPath products mentioned in this guide are on the Documentation CD shipped with the product and they are also available at: http://www.cyclades.com/support/downloads.php.

- *AlterPath PM User Guide*
- *AlterPath Manager E2000 Manua*l
- *AlterPath* KVM/net Plus *Installation, Configuration, and Users Guide*

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 OST0000-U00 through your Cyclades sales representative.

Typographic and Other Conventions

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

Table iv-1: Typographic Conventions

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

The following table describes other terms and conventions.

Table iv-2: Other Terms and Conventions

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

Description

The KVM is a 1U rack-mountble 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.

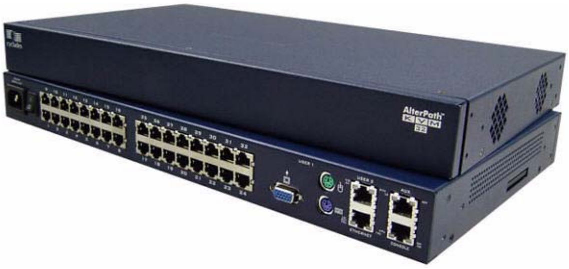


Figure 1-1: KVM Front and Back

You can use the two PCMCIA card slots in the front for optional v.90 modem or secondary Ethernet PCMCIA cards.

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 to connect AlterPath PM IPDUs or an optional external modem. You use the management ports on the right 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-up 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 1024.

If multiple sKVMs 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 into 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.

What’s New in KVM

The KVMsupports the following new features:

- “Color OSD” on page 4

- "Enhanced Power Management for Cascaded Devices" on page 5
- "Enhanced Syslogging" on page 5

Color OSD

In KVM, the OSD uses multiple colors to enhance its usability. A selected option is highlighted in green.

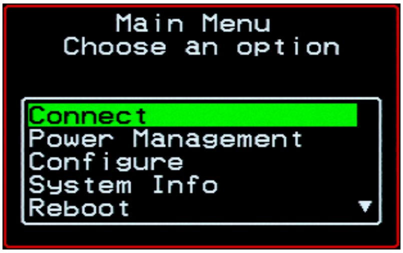


Figure 1-2: OSD Main Menu

Enhanced Power Management for Cascaded Devices

The KVM supports power management on devices connected to the AUX ports of cascaded KVM units. See “Power Management” on page 33 for more details.

Enhanced Syslogging

The KVM supports configuring a syslog server to accept and store syslog messages form the AUX and KVM ports. See “Notifications, Alarms, and Data Buffering” on page 40 for more information.

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 the “Accessing Connected Devices” on page 259 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 of the KVM, including ports and plugs.

Types of Ports

The KVM's ports include KVM ports, which support server connections, an AUX port, 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 Ethernet cable to a Terminator, which is connected to a USB Sun server running Solaris or a PC running a Windows, Linux, or other open source operating system.	• "KVM Ports" on page 9 • "To Connect Computers to KVM Ports" on page 66
AUX	Connect an RJ-45 cable to an: • AlterPath PM intelligent power distribution unit (IPDU) or • external modem.	• "AUX Port" on page 12 • "To Connect a PM to the AUX Port" on page 100 • "To Connect an External Modem to the AUX Port" on page 97
Console	Connect a CAT5 to DB-9 cable to a COM port on a computer.	• "Management Ports (Console, Ethernet, User 1, User 2)" on page 10 • "To Connect to the Console Port" on page 68
Ethernet	Connect an Ethernet cable to the local area network (LAN).	• "Management Ports (Console, Ethernet, User 1, User 2)" on page 10 • "To Make an Ethernet Connection" on page 63

Table 1-1: Port Types (Continued)

Port Type	Connection Information	Where Documented
User 1 [PS/2 and VGA]	Connect a keyboard, video, mouse cable to a local station's mouse, keyboard, and monitor.	• "Management Ports (Console, Ethernet, User 1, User 2)" on page 10 • "To Connect to the User 1 Management Port" on page 69
User 2	Connect an RJ-45 cable of up to 500 feet to an AlterPath Remote Presence (RP). The RP can be ordered separately. **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.	• "Management Ports (Console, Ethernet, User 1, User 2)" on page 10 • "AlterPath KVM RP" on page 54 • "To Connect the RP to the KVM" on page 114

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.

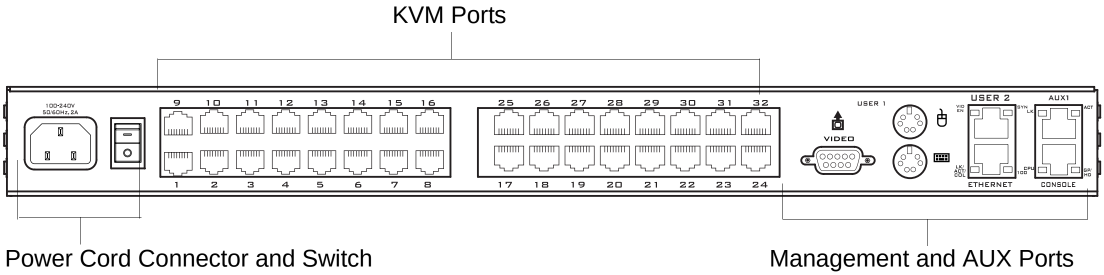


Figure 1-3: KVM Back Panel

- 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 9 and “KVM Ports” on page 9.
- 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 10 and “AUX Port” on page 12.

Power Connector and Power Switch

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

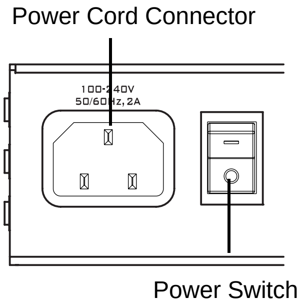


Figure 1-4: Power Connector and KVM Server Ports on the Left Rear

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 69 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.

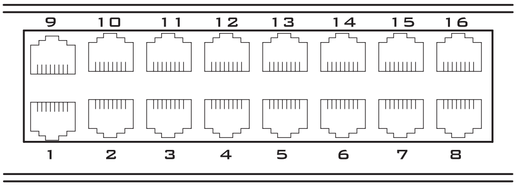


Figure 1-5: KVM Ports on the Center Rear

KVM ports provide remote access to the keyboard, monitor, and mouse of a USB Sun server running Solaris or a PC running a Windows, Linux, or other open source operating system. Connecting a computer to a KVM port allows use of a keyboard, video, and mouse from 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 44 for more details.

See "To Connect Computers to KVM Ports" on page 66 for instructions on connecting devices 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.

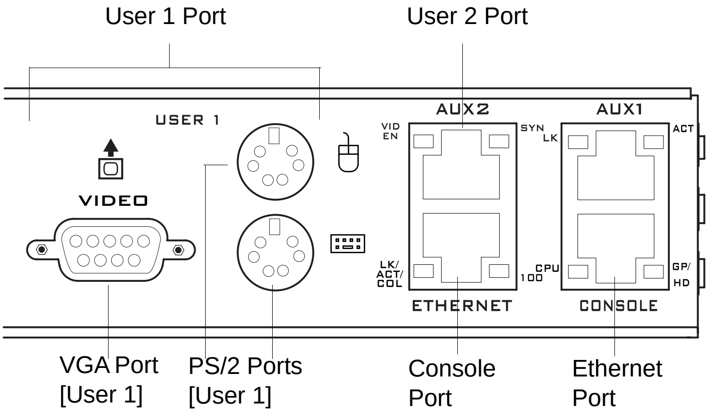


Figure 1-6: Management Ports

The following table 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 68 and “Configuring Basic Networking Using the wiz Command” on page 71 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 63 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. Administrators can use the OSD (On Screen Display) to locally manage and use the KVM. See “To Connect to the User 1 Management Port” on page 69 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 Remote Presence (RP). The 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 Remote Presence” on page 112 and “Controlling the OSD Through the AlterPath Remote Presence” on page 349 for more details.

AUX Port

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

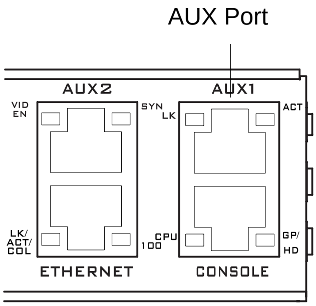


Figure 1-7: Management Ports

AUX – Its RJ45 connector can be used for the following:

- Connecting to an optional AlterPath PM IPDU

  Up to 32 IPDUs can be daisy-chained for a total of 120 outlets. See “Power Management” on page 33 for background information of power management and see “Connecting AlterPath PMs to the KVM” on page 100 for installation instructions.
- Connecting to an optional external modem

  See “Connecting an External Modem” on page 97

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 13.

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.

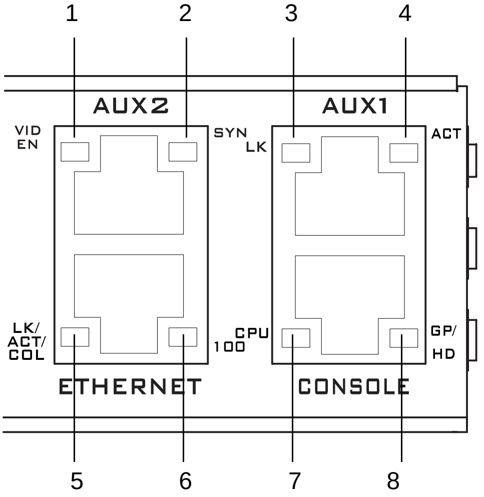


Figure 1-8: LEDs on the KVM Management Ports

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	Orange – Lights when video is enabled
2	SYN	Monitor KVM CAT5 video interface	Yellow – Lights when KVM input is being transmitted through one or more KVM ports.
5, 3	LK	Monitor RS-232 async port status	• OFF – Indicates the port is not open. • Orange – Lights when DTR (data terminal ready) signal is on (when the port is open).

Table 1-2: LED Descriptions (Continued)

Number	Label	Function	Color/Status
4, 5	ACT	Monitor RS-232 async activity	• OFF – Indicates no data activity. • Green – Blinks when data is either being received (RX) or transmitted (TX).
5	LK/ ACT/ COL	Monitor Ethernet line status	• OFF – Indicates either link is not up or cable is not connected. • Green – Lights solid when the link is up and blinks when data activity occurs, with frequency proportional to traffic. • Orange – Blinks when collisions occur
6	100	Monitor Ethernet speed	• Off – Indicates the link is 10baseT or no link is active. • Green – Steady when 100baseT link is active.
7	CPU	Monitor CPU (software operation)	• Off or solid green – During boot and if software crashes. • Green – Blinks when software is operating normally. If software crashes, light stops blinking, and if the Watchdog timer is active, the KVM reboots.
8	GP/ HD	Monitor compact flash (HD) or other (GP)	Not implemented.

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
16	?????	16
32	?????	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.

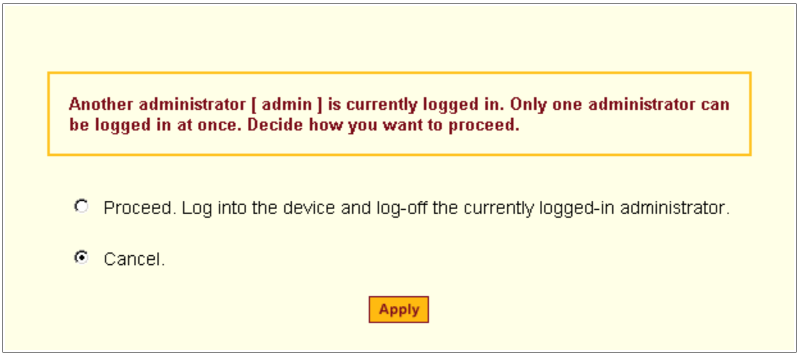
As summarized in the following table, two accounts, root and admin, are configured by default and cannot be deleted. The default “admin” account can add regular user accounts to allow other users to act as administrators of connected devices. An administrator can also choose to add regular users to the “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

User Name	Responsibilities	Default Password
root	Cannot be deleted. Only console logins allowed. Runs the `wiz` command to do initial network configuration, as described in “Configuring Basic Networking Using the wiz Command” on page 71. 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
administratively-assigned	User account configured by the administrator to be able to administer 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. If an administrator assigns a regular user to the “admin” group, that user can also perform the same administrative functions on the Web Manager as the “admin” user, as described above.	*administratively-assigned*

Simultaneous KVM Logins

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



Another administrator [admin] is currently logged in. Only one administrator can be logged in at once. Decide how you want to proceed.

○ Proceed. Log into the device and log-off the currently logged-in administrator.

● Cancel.

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 extended user at the AlterPath KVM RP location (User 2).

Administration Options

The following sections summarize the KVM administration options:

- "Cyclades Web Manager" on page 18
- "On-Screen Display" on page 18
- "Linux Commands and KVM-specific Commands" on page 19

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 "Cyclades Web Manager" on page 19.

Table 1-5: Administration Options

Cyclades Web Manager	The Web Manager is the primary means of configuring the KVM. • See "Prerequisites for Using the Web Manager" on page 20 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 117 for more details about how KVM administrators use the Web Manager.
On-Screen Display	The on-screen display (OSD) can be used locally from a keyboard, monitor and mouse that is directly-connected to the KVM. When the monitor and the KVM are on, the OSD login screen appears on the monitor. • See "To Connect to the User 1 Management Port" on page 69 for how to make the hardware connection. • See "On Screen Display" on page 281 for how KVM administrators and administrators of connected devices use the OSD.

Table 1-5: Administration Options (Continued)

Linux Commands and KVM-specific Commands	The KVM offer 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: • 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. See “To Connect to the Console Port” on page 68 and “Configuring Basic Networking Using the wiz Command” on page 71.

Cyclades Web Manager

Administrators perform most tasks through the KVM’s version of 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 20.

Administrators see “Web Manager for Administrators” on page 117. Operators, see “Web Manager for Regular Users” on page 253.

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 71 for how to define network parameters on the KVM.

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

- A networked Windows computer that has access to the network where the KVM is installed.
- A supported browser (see Table 1-6).

Table 1-6: Supported Browsers

Internet Explore 5, 6
Netscape 7
Mozilla
Firefox

- 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 1-6 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 43.
- 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.

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.

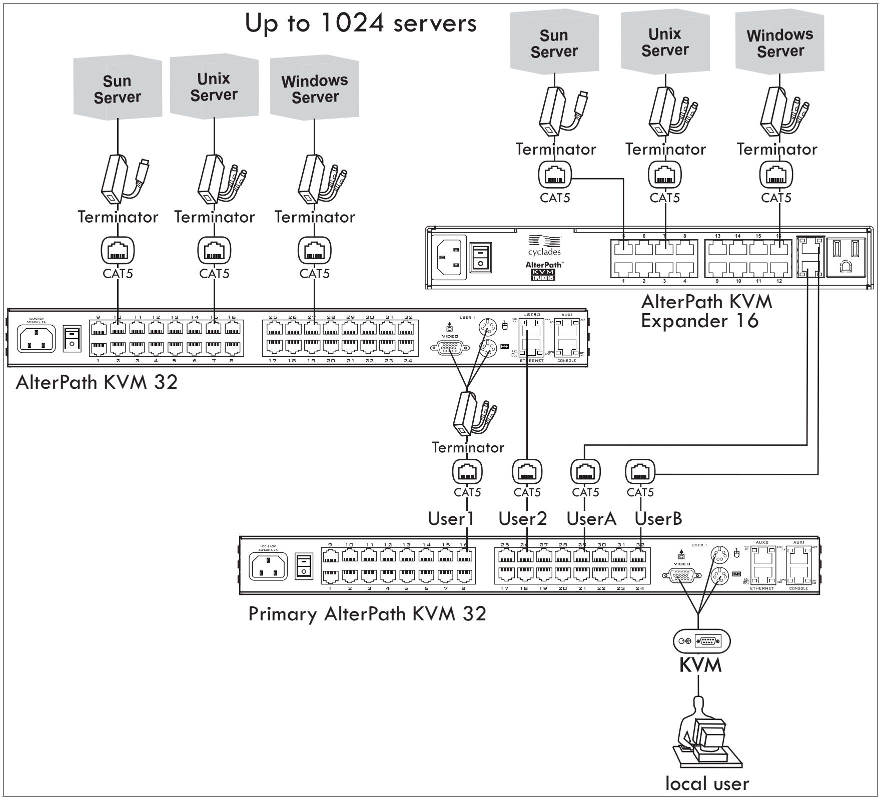


Figure 1-9: Cascaded KVM Devices from an KVM

As depicted in the previous figure, the KVM support 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 or a KVM Expander.

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. You can connect any one of the master KVM's KVM ports to either the User 1 or User 2 management ports on the cascaded KVM or to the User A or User B management ports on the KVM Expander. 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 1-7: Connectors and Ports for Cascading KVM Units

KVM Unit	Management Ports	Connectors
KVM Expander	User A, User B	CAT5 cable
KVM	User 1, User 2	CAT5 cable KVM Terminator (User1)
AlterPath KVM/net	User 1, User 2	CAT5 cable KVM Terminator (User1)
KVM/net Plus	User 1, User 2	CAT5 cable KVM Terminator (User1)

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

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

KVM Port Permissions

In the default configuration, no users except “admin” and “root” can access any ports. 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 1-8: 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 24 “To Assign KVM Port Access to a User or Group” on page 173

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 37 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 25 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 1-9: Tools for Setting KVM Port Permissions

Tools	Where Documented
Web Manager	"To Assign KVM Port Access to a User or Group" on page 173
OSD	"KVM Ports Screens" on page 320

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 need to 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 to only 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 IPDUs 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 IPDUs 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 167
Specify an alias for a PM.	•
Assign permissions to access ports.	• “To Assign KVM Port Access to a User or Group” on page 173
Assign permissions to IPDUs and outlets.	• “To Configure Users to Manage Specific Power Outlets” on page 142

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 265 for the defaults. Under Configure>KVM in the Web Manager, the common escape sequence is defined separately from the command keys. KVM administrators can redefine command keys for users accessing KVM ports through the OSD through the User 1 or USer 2 connection.

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 an escape key followed by a function key. See “Hot Keys for Emulating Sun Keyboard Keys” on page 266 for more details. The default escape key is the Windows key, which is labeled with the Windows logo. KVM administrators can redefine the Sun emulation escape key to be one of the following: 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 1-10: 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 [Expert]” on page 151	Configure> General	“General Configuration Screens [OSD]” on page 386
KVM Command keys for the local user session	Configuration>KVM>General>User 1 Configuration>KVM>General>User 2	“To Redefine KVM Session Keyboard Shortcuts [Expert]” on page 151	Configure> User Station	“User Station Screens” on page 414

Table 1-10: Tasks for Redefining Hot Keys

Part	Web Manager Form	Where Documented	OSD Form	Where Documented
KVM Command keys for IP user sessions	Configuration>KVM>General>IP Users		N/A	
Sun keyboard emulation escape key	Configuration>KVM>General	"To Redefine the Escape Key for Sun Keyboard Emulation Hot Keys [Expert]" on page 236.	Configure> General	"KVM Ports Screens" on page 417

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.

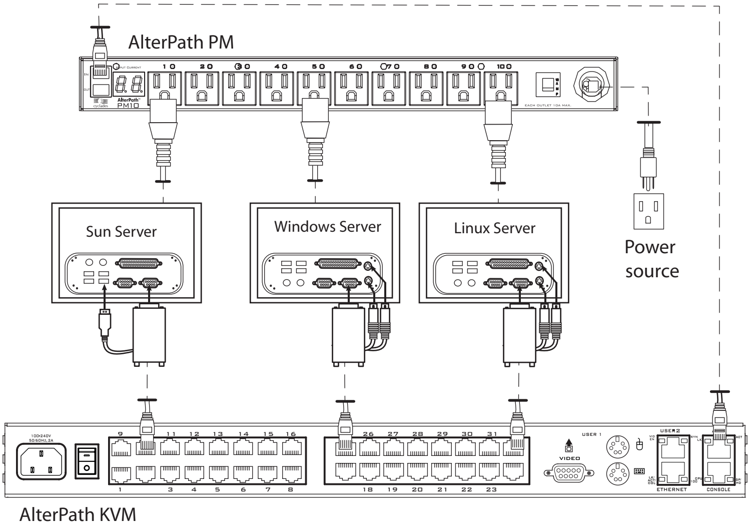


Figure 1-10: Connecting an AlterPath PM to the KVM

See “Setting Up and Configuring Power Management” on page 34 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 35 for more information.

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 IPDU 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 IPDU connected to the AUX port.

  See “Controlling Power While Connected to KVM Ports” on page 36

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

	Task	Where Documented/Notes
1	Install PM units.	• “To Connect a PM to the AUX Port” on page 100 • “To Connect Multiple PMs to the KVM” on page 101
2	Configure the AUX port for use with power management.	“To Configure the AUX Port for Use With a PM or an External Modem” on page 225
3	Plug devices into outlets on the PM connected to the AUX port.	This allows users to control power of the plugged devices from the Web Manager Access page. Refer to the documentation of your PM model for more information if needed.
4	Configure users to manage power.	“To Configure Users to Manage Specific Power Outlets” on page 142

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

	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 [Expert]" 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 173

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.

The following sections describe the different ways authorized users can manage power on connected devices.

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 a PM connected to the AUX port. See "Power Management for Regular Users" on page 257.

Administrators must configure users for IPDU power management. See "To Configure Users to Manage Specific Power Outlets" on page 142. Or see "Setting Up and Configuring Power Management" on page 34 for a list of all of the administration tasks involved insetting 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. See “To Power On, Power Off, or Reboot the Connected Server” on page 271.

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 34 for a list of all of the administration tasks involved in setting up power management.

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 275
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 271

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 following components:

- For logins to the KVM

  The authentication method chosen for the KVM is used for subsequent access through `telnet`, `ssh`, or the Web Manager.
- For logins to all KVM ports

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

Table 1-11: Supported Authentication Types for KVM and Port Types

Authentication Type	**Description**	**KVM**	**All KVM Ports**
None	No login required	N/A	X
Local	Uses user/password file for local authentication on the KVM	X [Default]	X [Default]
Kerberos	Uses Kerberos network authentication protocol	X	X
Kerberos/Local	Uses local authentication if Kerberos authentication fails	X	X

Table 1-11: Supported Authentication Types for KVM and Port Types (Continued)

Authentication Type	Description	KVM	All KVM Ports
KerberosDownlocal	Uses local authentication if Kerberos server is down	X	X
LDAP	Uses LDAP (Lightweight directory access protocol)	X	X
LDAP/Local	Uses local authentication if LDAP authentication fails	X	X
LDAPDownlocal	Uses local authentication if LDAP server is down	X	X
NIS	Uses NIS authentication	X	X
NIS/Local	Uses local authentication if NIS authentication fails	X	X
NISDownlocal	Uses local authentication if NIS server is down	X	X
NTLM	Uses SMB authentication for Microsoft Windows NT/2000/2003	N/A	X
RADIUS	Uses RADIUS authentication	X	X
RADIUSDownlocal	Uses local authentication if RADIUS server is down	X	X

Table 1-11: Supported Authentication Types for KVM and Port Types (Continued)

Authentication Type	Description	KVM	All KVM Ports
RADIUS/local	Uses local authentication if RADIUS authentication fails	X	X
TACACS+	Uses Terminal Access Controller Access Control System (TACACS+) authentication.	X	X
TACACS+/Local	Uses local authentication if TACACS+ authentication fails	X	X
TACACS+Downlocal	Uses local authentication if TACACS+ server is down	X	X

Tools for Specifying Authentication Methods

The administrator generally uses the Web Manager for specifying an authentication method for the KVM and for all KVM ports, as described in “Configuring an Authentication Method” on page 176. 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 1-12:Specifying Authentication Methods

Task	Where Documented/Notes
Choosing an authentication method for the KVM	• Web Manager – “To Configure an Authentication Method for KVM Logins” on page 177 • OSD – “Authentication Screens” on page 336

Table 1-12:Specifying Authentication Methods (Continued)

Task	Where Documented/Notes
Choosing an authentication method for the for all KVM ports	• Web Manager – “To Configure an Authentication Method for Logins Through KVM Ports” on page 178 • OSD – “General Configuration Screens [OSD]” on page 290
Configuring a remote authentication server	If configuring any authentication method other than Local, an authentication server must be set up for that method. • Web Manager – “Configuring Authentication Servers for Logins to the KVM and Connected Devices” on page 179 • OSD – “Authentication Screens” on page 336

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 IPDUs, computers, or other devices can be sent to syslog servers for handling.

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

- Local —stored in the ’sKVM’s flash memory
- 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 42.

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 43.

Syslog Servers

Messages about the KVM, its connected IPDUs, 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 42 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 KVMs. 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 pull-down menu on the System Logger form.

Configuring Logging and Alarms

The following procedures configure logging, alarms, and data buffering.

- “To Add a Syslog Server [Wizard]” on page 134
- “To Delete a Syslog Server [Wizard]” on page 134
- “To Configure Syslogging for KVM Ports and Specify Message Filtering [Expert]” on page 193
- “To Configure Creation of Alarms and Syslog Files for IPDUs [Expert]” on page 144

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's 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 1-13: AlterPath KVM Terminators

Server Type	Connection	KVM Terminator Model	Part Number
PC	Mini DIN 6-pin (COM)	PS/2	ATP4610
PC	USB port	PC USB	ATP4620
USB Sun	USB port. (This terminator does not work with all Sun computers. The Sun computer must have a VGA and USB port.)	Sun USB	ATP4630

See "To Connect Computers to KVM Ports" on page 66 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's 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.

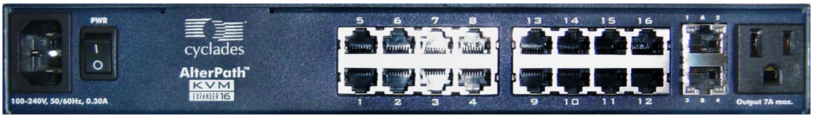
KVM Expander

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/net Plus, the KVM/net, and the KVM. 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 46
- “KVM Expander Models and Components” on page 47
- “Adding the KVM Expander to the KVM Unit’s List of Cascaded Devices” on page 52
- “Upgrading the KVM Expander Microcontroller Code” on page 52

KVM Expander Features

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

The KVM Expander does support the following features:

- Allows the connection of 8 or 16 servers

  See “KVM Expander Models and Components” on page 47 for more details.
- Supports all existing Terminators

  See “KVM Terminator Usage and Types” on page 44 for more details.
- Is compatible with the AlterPath KVM, KVM/net, and KVM/net Plus units

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

  See “Ports on the KVM Expander” on page 48 for more details.
- Supports horizontal or vertical rack mounting

  See “Setting Up the KVM Expander” on page 105 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 108 for more details.
- Displays port status with LEDs.

  See “LEDs on the KVM Expander” on page 49

KVM Expander Models and Components

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

Table 1-14: KVM Expander Model Numbers and Port Options

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

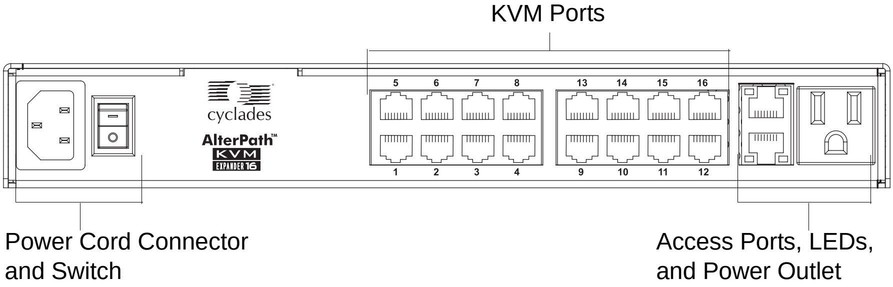

KVM Ports
5
6
7
8
13
14
15
16
1
2
3
4
9
10
11
12
cyclades
AlterPath™
KVM
EXPANDER 16
Power Cord Connector and Switch
Access Ports, LEDs, and Power Outlet

Figure 1-11:KVM Expander Back Panel Components

The following sections explain the components of the KVM Expander:

- "Ports on the KVM Expander" on page 48
- "LEDs on the KVM Expander" on page 49
- "Power Outlets on the KVM Expander" on page 49

Ports on the KVM Expander

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

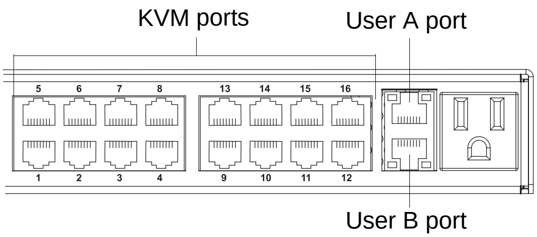


Figure 1-12: Ports on the KVM Expander Back Panel

Table 1-15:KVM Expander Port Types

Port Type	Use and Connection Information
User A and User B	The access ports can be connected with an RJ-45 cable to KVM ports on the primary KVM unit. Once the KVM Expander is configured as a cascaded device on the master KVM unit, users can connect to one or both ports. Each port allows one connection to a server plugged in to the KVM Expander, so a maximum of two server connections can be made at one time. See “Installing the AlterPath KVM Expander” on page 102.
KVM ports	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 USB Sun server running Solaris or a PC running a Windows, Linux, or other open source operating system. See “KVM Ports” on page 9 for more background information on KVM ports. See “Connecting Servers to the KVM Ports” on page 64 for information on connecting servers to the KVM ports.

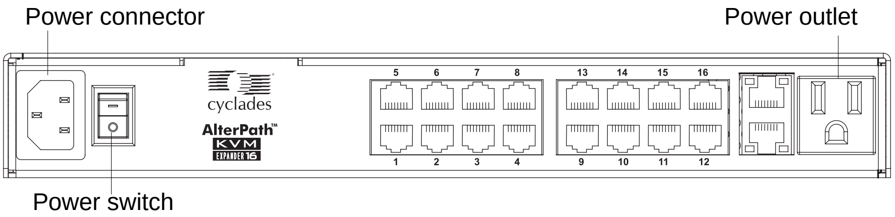
LEDs on the KVM Expander

The two LEDs on either side of the User A and User B ports on the KVM Expander blink when data activity occurs through the User A or User B port respectively.

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.



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 users ports on the KVM Expander.

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

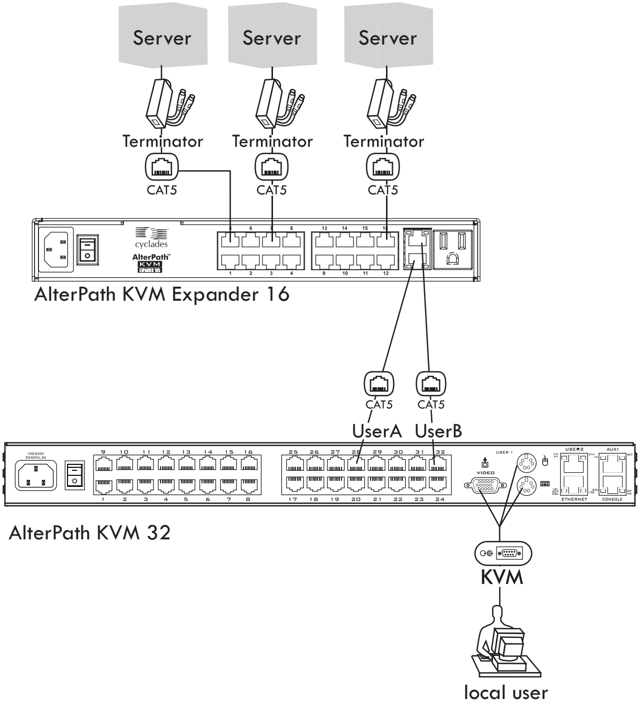


Figure 1-13: Connecting a KVM Expander to the KVM

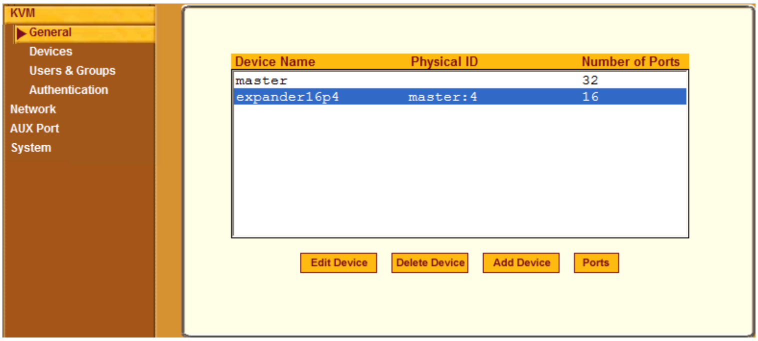
The following table shows the maximum number of servers a primary KVM/net Plus, KVM/net, or KVM can support when cascaded with a KVM Expander 8 or a KVM Expander 16.

Table 1-16: Maximum Number of Supported Servers

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



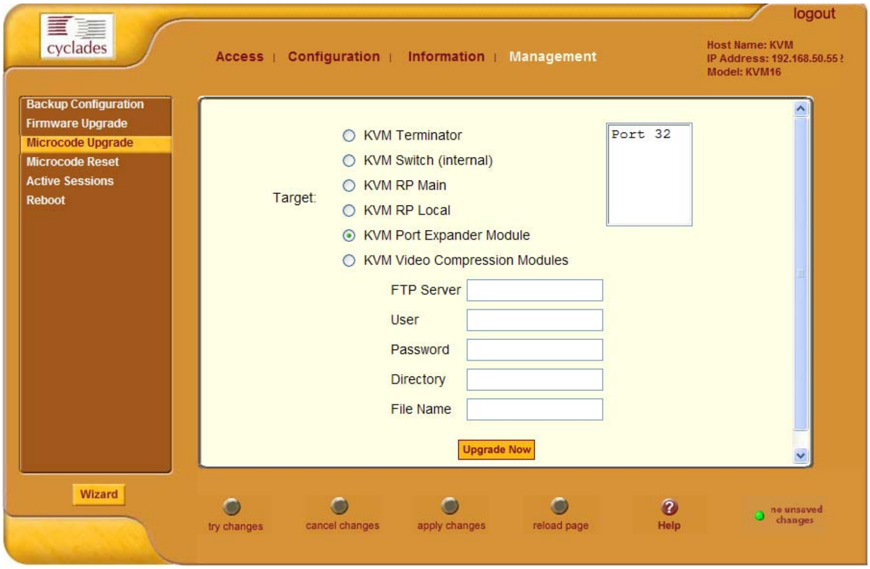
Device Name	Physical ID	Number of Ports
master		32
expander16p4	master:4	16

Figure 1-14: Devices Form on KVM Web Manager

See “Configuring Cascaded KVM Units” on page 158 for instructions on adding, deleting, and modifying cascaded devices.

Upgrading the KVM Expander Microcontroller Code

Once a KVM Expander is installed and configured, administrators can use the Microcode Update form on the primary KVM unit to upgrade the microcode for a KVM Expander. Using the KVM Web Manager in Expert Mode, go to: Management > Microcode Update to see the form displayed in the following figure.



Host Name: KVM
IP Address: 192.168.50.55
Model: KVM16

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

Port 32

FTP Server
User
Password
Directory
File Name

Figure 1-15: Microcode Update Form on KVM Web Manager

See “Microcode Upgrade” on page 245 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 switched ON by both user ports. If this happens, the last USER to access the Server port will have **read-only** access (*i.e.*, the user will have no access to the keyboard and mouse).

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 workstation 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.

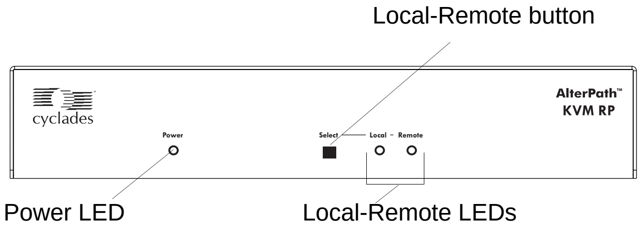


Figure 1-16:KVM RP Front

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.

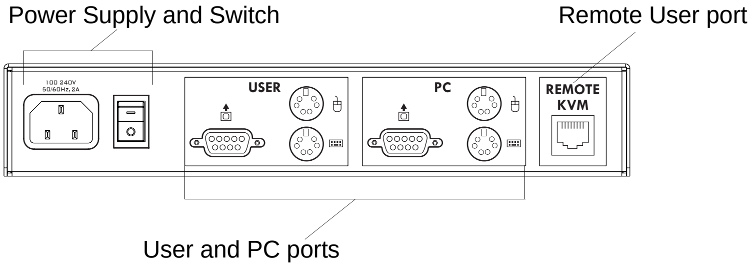


Figure 1-17:KVM RP Back Panel

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

Table 1-17: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.
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
Installing the KVM

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 59
2	Set Up the KVM	Page 61
3	Make an Ethernet connection	Page 63
4	Connect computers and other devices to be managed through the KVM	Page 64
5	Make a direct connection (terminal or local monitor, keyboard, and mouse) to the KVM to prepare for basic network configuration	Page 68
6	Power on the KVM and connected devices	Page 69
7	Perform basic network configuration (using the wiz command or OSD network screen)	Page 70
8	Finish configuration and manage the connected devices using the Web Manager	Page 83

Also see the following instructions for setting up the KVM:

Changing Default Passwords	Page 84
Enabling Access to the Web Manager without Making a Direct Connection	Page 86
Preconfiguring the KVM for Remote Installation	Page 89
Additional Configuration Tasks	Page 90

Perform the optional procedures in “Installing KVM-related Products and Components” on page 97 if you are installing an intelligent power management device (IPDU), an external modem, an AlterPath Remote Presence (RP), an AlterPath KVM Expander, or an other cascaded KVM unit.

Shipping Box Contents AlterPath 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 2)

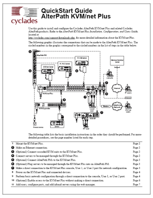
☑	Item	P/N	Description	Purpose
□		PAC0226	Documentation CD	PDF copies of this guide and all other Cyclades product documents.
□	 cyclades QuickStart Guide AlterPath KVM/net Plus	PAC0267	*AlterPath KVM Quick Start Guide*	Basic installation guide for experienced users in printed format.
□		CAB0010	3-pin power cord	Use to plug into a grounded AC power outlet. For other types of power sources, contact Cyclades sales for other cord options.

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

☑	Item	P/N	Description	Purpose
□		CAB0018	RJ-45 to RJ-45 7ft. CAT5 cable	Use for the following: • To connect a server to a KVM port (with the appropriate terminator from Table 1-13 on page 44). See “Connecting Servers to the KVM Ports” on page 64. • To connect an Ethernet port to the LAN. See “To Make an Ethernet Connection” on page 63. • To connect a terminal to a console port. See “To Connect to the Console Port” on page 68. • To connect an IPDU or external modem to the AUX port. See “Connecting AlterPath PMs to the KVM” on page 100 and “Connecting an External Modem” on page 97.
□		HAR0370	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 61.

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 44.

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

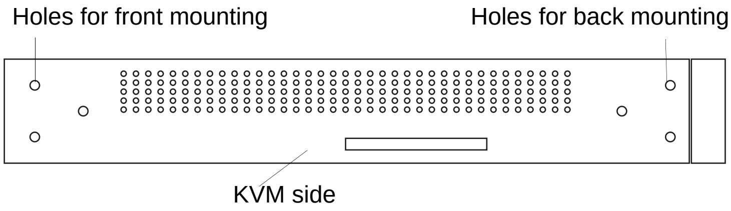
You can mount the KVM on a rack or place it on a desktop or other flat surface. Two brackets are supplied with six hex screws for attaching the brackets to the KVM for mounting.

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

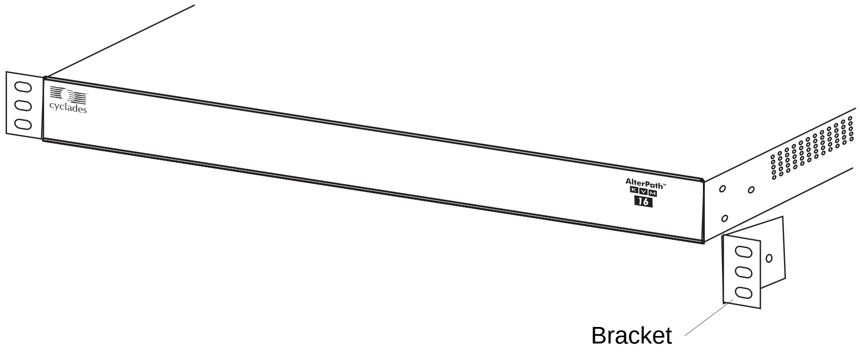
▼ To Mount the KVM

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

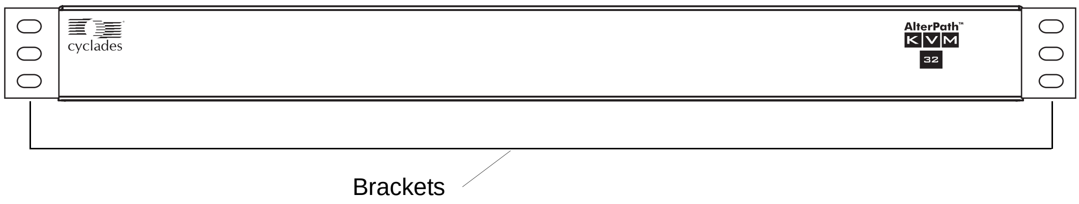
   a. Decide whether you need to mount the KVM by the front or back and locate the appropriate sets of holes on the KVM.



   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.



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



c. Use a hex screwdriver to tighten the screws.

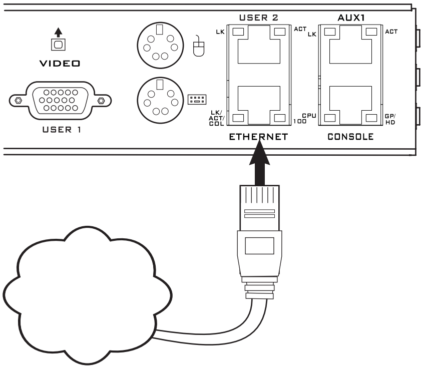
2. Use screws or nuts and bolts as appropriate to mount the KVM on a rack.

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*

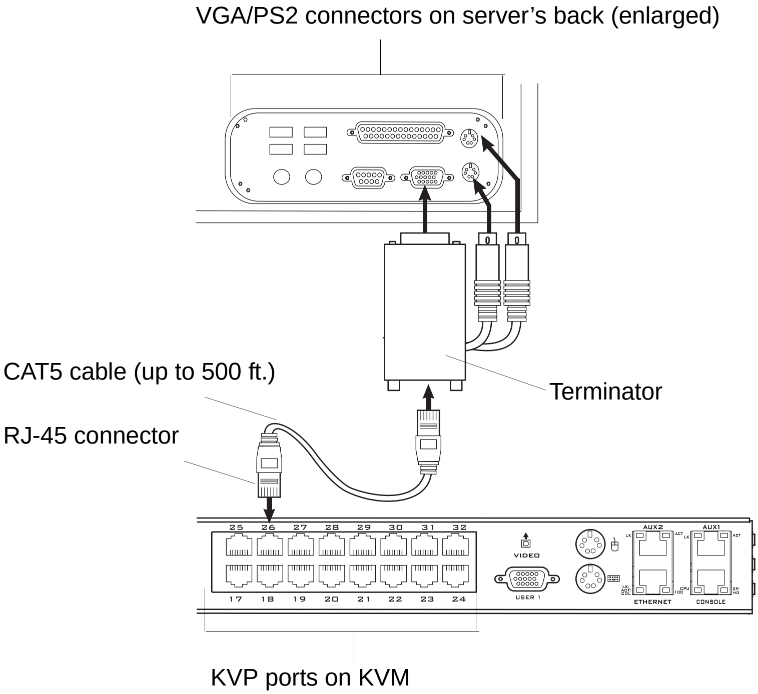
1. Connect one end of an Ethernet cable to your local area network (LAN).
2. Connect the other end to the Ethernet port on the KVM.



Remote connections can also be made through an external modem connected to the AUX port. See “Modem Connections” on page 277 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: PS/2 PC for servers with VGA and PS/2 connectors, USB PC for servers with VGA and USB connectors, and USB Sun terminators for Sun servers with USB connectors. See “KVM Terminator Usage and Types” on page 44 for more details about the KVM Terminators, which are ordered and shipped with the KVM.



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 KVM or on the KVM Expander. For connecting AlterPath PMs or cascaded

KVM units, see Chapter 3, “Installing KVM-related Products and Components.”

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 Devices to the KVM*

1. Make sure all configuration is complete on devices to be connected.

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

- All devices are installed and fully configured.
- User accounts with the appropriate permissions level exist on each device and you have the computer’s root password for users who need root access to manage the device through the KVM.
- On all computers to be connected to KVM server ports, the mouse settings have been modified, as described in “Avoiding Conflicting Mouse Settings” on page 90.

2. If a device 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 device through the KVM.

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

See “Authentication” on page 36 for background information and see “Configuring an Authentication Method” on page 176 for the procedure.

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

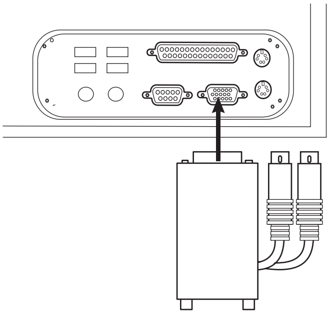
▼ *To Connect Computers to KVM Ports*

Do these steps after completing “To Prepare to Connect Devices to the KVM” on page 65.

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 44 for more details about the terminators, which are ordered and shipped with the KVM.

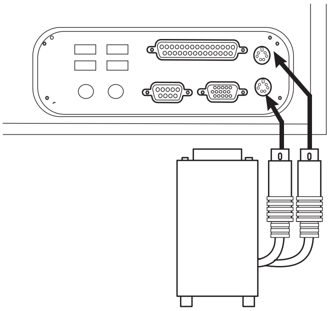
2. Connect the terminator’s VGA (HD-15 male) connector to the computer’s VGA (monitor) port, tightening both screws firmly but not over-tightening.



3. 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.

The VGA DB-9 mini extender (part number ADB0035) can be ordered separately from Cyclades.

4. To complete the connection of a PS/2 terminator to a PC, connect the terminator’s purple and green connectors to the purple keyboard port and green mouse port on the PC.



5. To complete the connection of a USB terminator to a PC or Sun computer, plug the USB connector from the terminator to the computer’s USB port.

6. 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.

7. Connect the RJ-45 connector on other end of the cable to a KVM port on the KVM.

8. Repeat Step 1. through Step 7. for all computers to be connected to the KVM ports.

9. If any user is using a PC with Windows XP server pack 2 installed and Internet Explorer 5 or 6 to remotely administer a connected device, make sure the procedure under “Avoiding Internet Explorer Conflicts” on page 94 has been done on the PC.

10. If this is a first-time installation, go to “Making a Direct Connection for Network Configuration” on page 68.

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 68.
- Connect a keyboard, monitor, and mouse to the monitor, keyboard, mouse connectors on the KVM.

  See “To Connect to the User 1 Management Port” on page 69.

See “Enabling Access to the Web Manager without Making a Direct Connection” on page 86, 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

Data Length: **8** bits

Parity: **None**

Stop Bits: **`1`**

Flow Control: **`None`**

ANSI emulation

4. Go to Chapter 2. “Powering On the KVM and Connected Devices” on page 2-69.

▼ *To Connect to the User 1 Management Port*

Connect a keyboard, monitor, and mouse to the User 1 port on the right back of the KVM.

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 69.

Powering On the KVM and Connected Devices

▼ *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 64.

- 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 71.
- Through a local KVM connection, log into the OSD and configure networking through the network screen.

  See “Configuring Basic Networking Using the OSD” on page 74.

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

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

Note: The following procedures tell you to disable DHCP. Enabling DHCP requires a DHCP server at your site. When DHCP is enabled, anyone administering the KVM or its connected devices needs access to the DHCP server to look up the current IP address every time before using the Web Manager. See “Considerations When Choosing Whether to Enable DHCP” on page 43 for more details and see “To Use a Dynamic IP Address to Access the Web Manager” on page 87 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 68.

▼ *To Log Into the KVM Through the Console*

From your terminal emulation application, log into 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 effect, change the root password.

Important: 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 73.

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 72

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 and go back to Step 4. Unresolved to make any desired changes.

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.

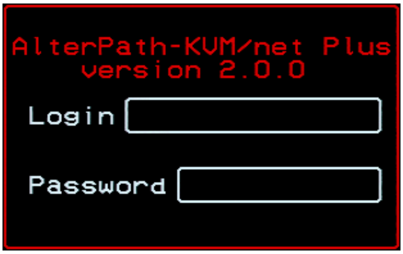
6. The new network parameters display.

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 Chapter 2. “Completing Configuration Using the Web Manager” on page 2-83.

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 69. After the KVM and monitor are powered on, the AlterPath Viewer appears displaying the OSD login screen.



AlterPath-KVM/net Plus
version 2.0.0

Login

Password

Production Note: get new screen shot

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.

Table 2-2: OSD Equivalents for Common Actions (Continued)

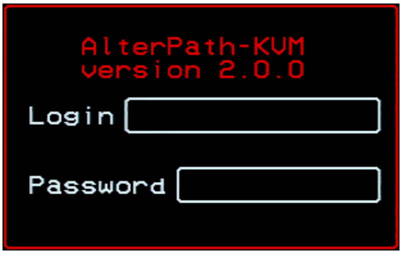
Action.	OSD Equivalent.
Go to a specific screen, as in: “Go to ‘Configure > Users and Groups > Local Users > Change Password’.”	From the Main menu, select the first option shown in the menu path; “Configure” in the example. On the next menu, select the next option shown after the > (right angle bracket); “Users and Groups” in the example. Repeat until you select the last option in the menu path.
Exit the OSD.	Click the X box on the upper right of the viewer. If you are on the Main Menu, you can select Exit.

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

▼ *To Log Into the OSD*

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

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



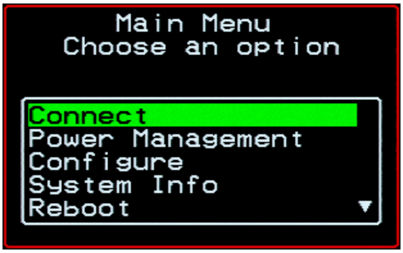
AlterPath-KVM
version 2.0.0

Login

Password

3. Press Enter.

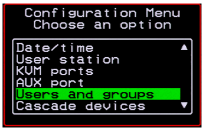
   The OSD Main Menu appears.

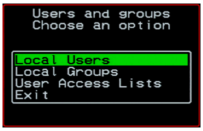


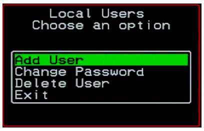
4. If you are performing an initial configuration of basic networking parameters, go to “To Change a Password Using the OSD” on page 76; otherwise, go to “To Configure Network Parameters Using the OSD” on page 78.

▼ *To Change a Password Using the OSD*

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

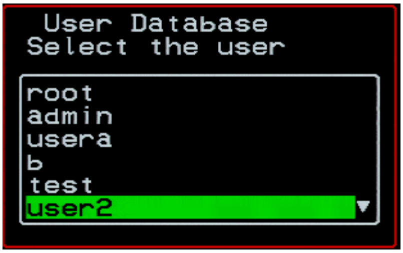






Warning! If the “root” and “admin” passwords have not been changed, change them now. Changing the default password closes a security hole that could be easily exploited.

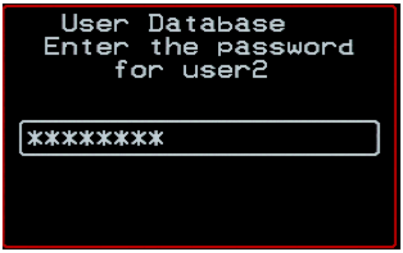
2. Select the user name from the list of users on the User Database screen.



User Database
Select the user

root
admin
usera
b
test
user2

3. Enter a new password.



User Database
Enter the password
for user2

****

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.

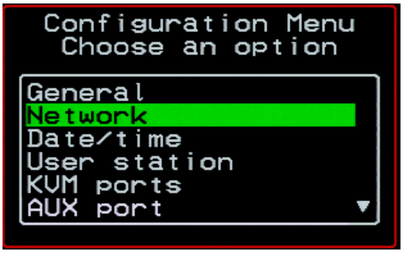
   You can use the Exit or Cancel option or the Esc key to exit any window on the OSD.

7. If you are performing an initial configuration of basic networking parameters, go to: To Configure Network Parameters Using the OSD.”

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

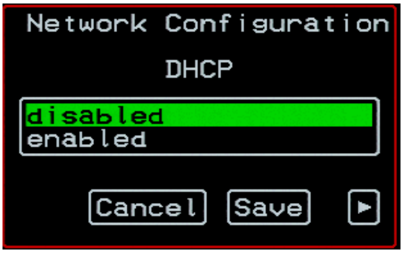
▼ *To Configure Network Parameters Using the OSD*

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



Configuration Menu
Choose an option

The DHCP form appears.



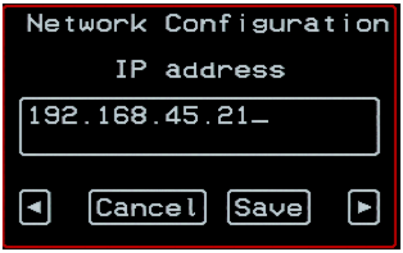
Network Configuration

DHCP

disabled
enabled

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

   The IP address form appears.



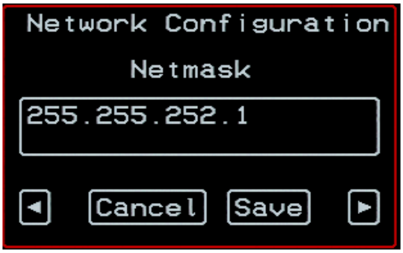
Network Configuration

IP address

192.168.45.21_

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

   The Netmask form appears.



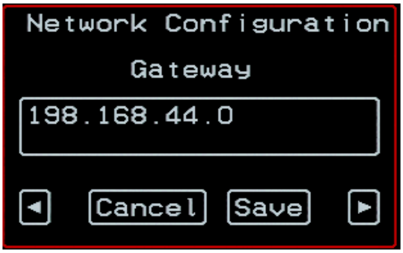
Network Configuration

Netmask

255.255.252.1

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

   The Gateway form appears.



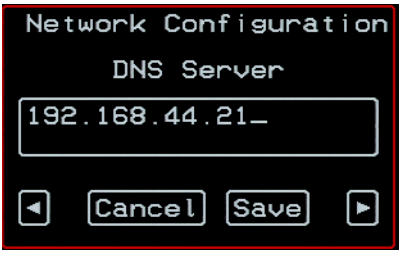
Network Configuration

Gateway

198.168.44.0

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

   The DNS Server form appears.



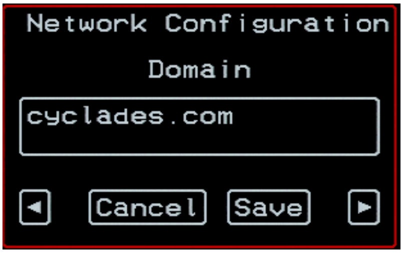
Network Configuration

DNS Server

192.168.44.21_

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

   The Domain form appears.



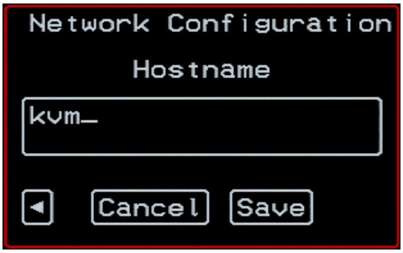
Network Configuration

Domain

cyclades.com

7. Enter the domain name and press Enter.

   The Hostname form appears.



Network Configuration

Hostname

kvm_

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

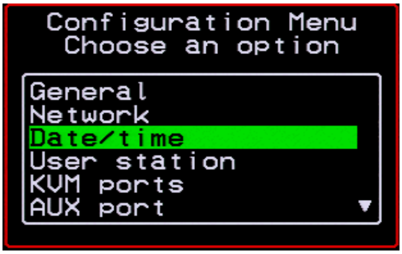
   The Configuration menu appears.

   - 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 81.
   - 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 83.
   - 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*

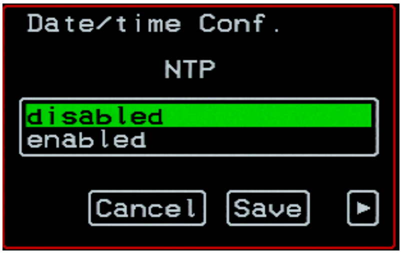
1. From the Main menu of the OSD, go to Configure.

   The Configuration menu appears.



2. Select Date/time.

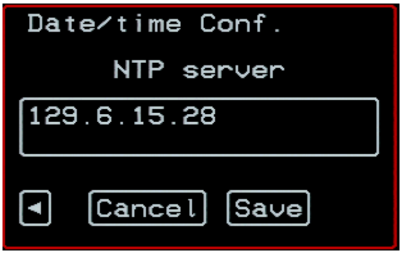
   The Date/time conf. form appears.



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



NTP server: 129.6.15.28

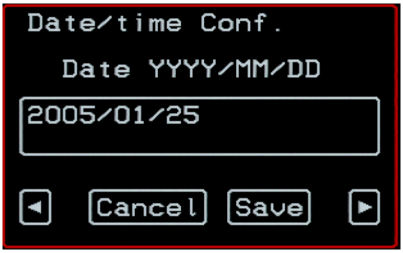
   b. Enter the IP address of the NTP server.

   c. Save the changes.

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

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

The Date entry screen appears.



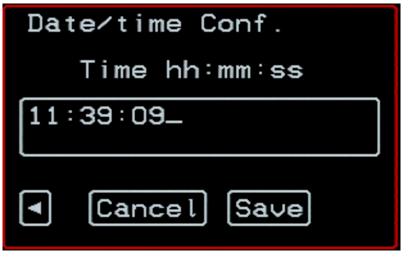
Date/time Conf.

Date YYYY/MM/DD

2005/01/25

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

The Time entry screen appears.



Date/time Conf.

Time hh:mm:ss

11:39:09_

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

If you are performing an initial configuration of basic networking parameters, go to: “Completing Configuration Using the Web Manager” on page 83.

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 or other supported IPDU device
- 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 117 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 **Step3: 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 into 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 69. 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 86.”
- 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 87.”

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

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

1. Set up the AlterPath KVM/net Plus.

   See “To Mount the KVM” on page 61.

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

   See “Connecting Servers to the KVM Ports” on page 64.

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

   See “Powering On the KVM and Connected Devices” on page 69.

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

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

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

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

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

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

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

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

1. Set up the AlterPath KVM/net Plus.

   See “To Mount the KVM” on page 61.

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

   See “Connecting Servers to the KVM Ports” on page 64.

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

   See “Powering On the KVM and Connected Devices” on page 69.

4. To obtain the KVM/net Plus’ 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 68 for instructions if needed.

b. Execute the command

```
ifconfig eth0
```

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

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

5. To obtain the KVM/net Plus’ current IP address from the DHCP server, supply the MAC address from the bottom side of the KVM/net Plus’ chassis. (The address has the form: *NN-NN-NN-NN-NN-NN*, as in this example: 00-60-3D-01-36-B4.)
6. Finish configuring KVM/net Plus 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 preconfigure the KVM with basic network parameters at Cyclades Corporation 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 68
Power on the KVM and connected devices.	"Powering On the KVM and Connected Devices" on page 69
Perform basic network configuration.	"Performing Basic Network Configuration" on page 70

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."

▼ *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 89. 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 61
2	Make an Ethernet connection.	“Making an Ethernet Connection” on page 63
3	Connect computers and other devices.	“Connecting Servers to the KVM Ports” on page 64
4	Power on the KVM and connected devices.	“Powering On the KVM and Connected Devices” on page 69

Additional Configuration Tasks

See the following sections for other procedures.

Task	Where Documented/Notes
Avoiding Conflicting Mouse Settings	“Avoiding Conflicting Mouse Settings” on page 90
Avoiding Internet Explorer Conflicts	“Avoiding Internet Explorer Conflicts” on page 94
Assigning Your Own TCP Viewer Port Address	“Types of Ports” on page 6

Avoiding Conflicting Mouse Settings

The administrator of each computer connected to one of the KVM’s KVM server ports must perform one of the procedures in this section. Performing the procedure prevents conflicts between the mouse settings on the connected computers and the mouse settings on computers used to do administration through the KVM.

Work with the administrators of computers to be connected to the KVM to ensure that one of the following procedures is performed, depending on the type of computer:

- “To Prevent Mouse Conflicts [Windows XP/Windows 2003]” on page 91
- “To Prevent Mouse Conflicts [Windows 2000 / ME]” on page 92
- “To Prevent Mouse Conflicts [Windows 95/98/NT]” on page 92
- “To Prevent Mouse Conflicts [Linux]” on page 93

▼ *To Prevent Mouse Conflicts [Windows XP/ Windows 2003]*

1. As administrator, on the Start Menu, go to: Control Panel > Mouse > Pointer Options.
2. To disable “Enhance pointer precision,” click the check box to clear it.
3. To set the motion speed to medium, move the slider to the middle of the “Select a pointer speed” scale.
4. Go to: Control Panel > Display > Appearance > Effects
5. To disable transition effects, click both transition effects check boxes to clear them.
6. Click OK.

▼ *To Prevent Mouse Conflicts [Windows 2000 / ME]*

1. As administrator, on the Start menu, go to: Settings > Control Panel > Mouse > Pointer Options.
2. To set the mouse pointer acceleration to none, do the following:

   a. Click the **Advanced** button.

      The Advanced Setting Pointer Speed dialog box appears.

   b. On Windows ME, clear the **Pointer acceleration** check box.

   c. On Windows 2000, clear the **Enable pointer acceleration** check box.

   d. Click **OK**.
3. Set the motion speed to medium by moving the slider to the middle of the **Adjust how fast the pointer moves** scale.
4. Click **OK**.
5. To disable transition effects do the following:

   a. Go to: Control Panel > Display > Effects.

   b. Clear **Use transition effects for menus and tooltips**.

   c. Click **OK**.

▼ *To Prevent Mouse Conflicts [Windows 95/98/ NT]*

1. As administrator, on the Start menu, go to: Settings > Control Panel > Mouse > Motion.
2. Set the motion speed by moving the slider to the lowest setting on the “Pointer Speed” scale.
3. Go to: Settings > Control Panel > Display > Effects > Advanced Settings for Pointer Speed.
4. Disable window, menu, and list animation by clearing “Animate windows, menus, and lists.”

▼ *To Prevent Mouse Conflicts [Linux]*

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

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

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

   The root prompt appears.

```
#
```

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

```
# xset m 0
```

6. Exit the AlterPath Viewer.

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

Avoiding Internet Explorer Conflicts

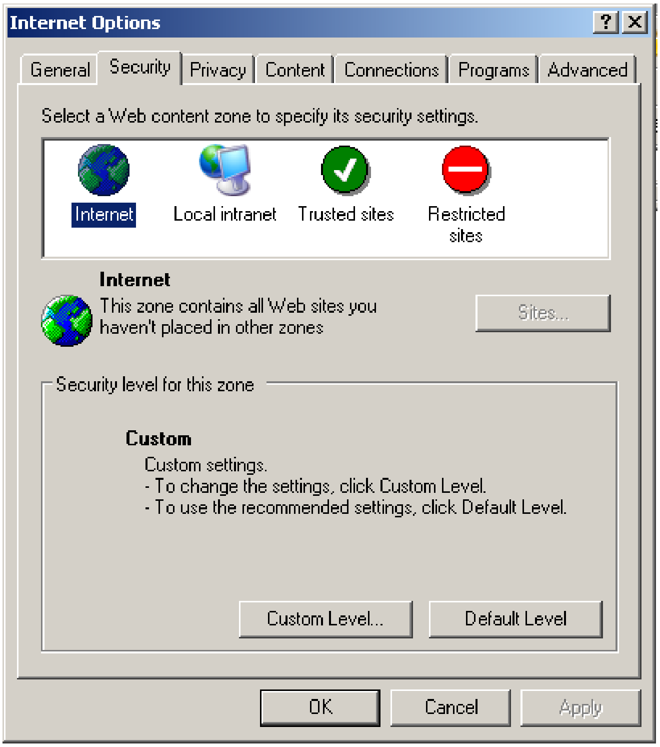
The procedure described in this section must be performed on an PC if all the following are true:

- A PC running Windows XP with Service Pack 2 is being used to remotely administer a computer connected to a KVM server port
- Internet Explorer (IE) is used to bring up the Cyclades Web Manager and the AlterPath Viewer

▼ *To Modify IE Security Settings*

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

   The **Security** form appears.



Internet Options

Select a Web content zone to specify its security settings.

Internet

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

Security level for this zone

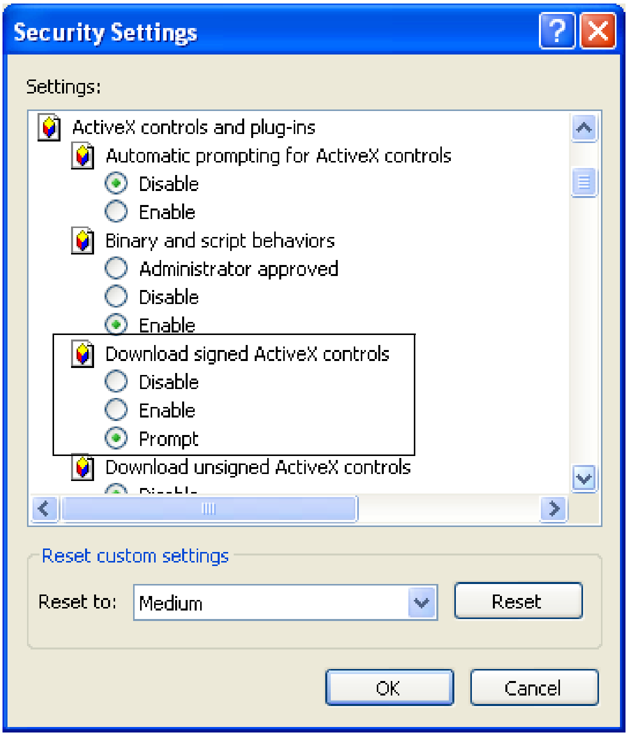
Custom

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

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

   The Security Settings form appears.

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



Security Settings

Settings:

- ActiveX controls and plug-ins
  - Automatic prompting for ActiveX controls
    - ● Disable
    - ○ Enable
  - Binary and script behaviors
    - ○ Administrator approved
    - ○ Disable
    - ● Enable
  - Download signed ActiveX controls
    - ○ Disable
    - ○ Enable
    - ● Prompt
  - Download unsigned ActiveX controls

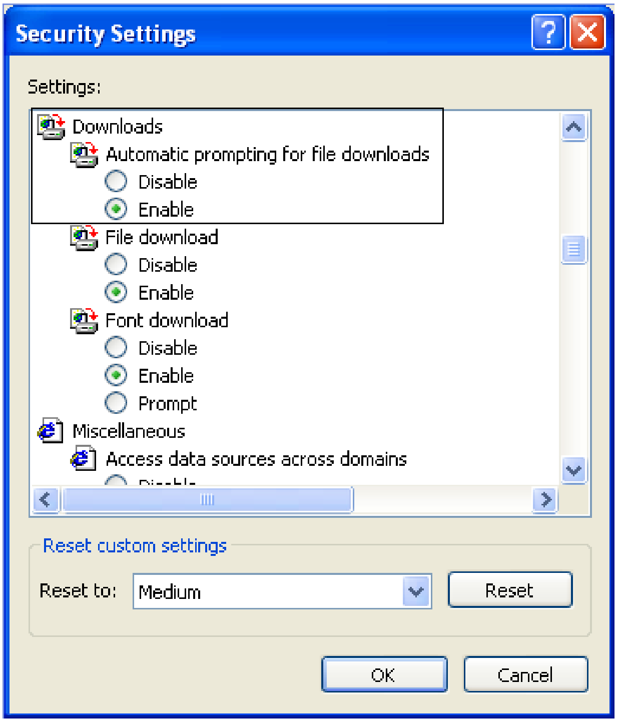
Reset custom settings

Reset to: Medium

4. Select either **Enable** or **Prompt**.

5. If you selected **Enable**, press the **OK** button.

6. If you selected **Prompt**, go to **Downloads** > **Automatic prompting for file downloads**, and select **Enable**.



Security Settings

Settings:

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

Reset custom settings

Reset to: Medium

7. Select the **OK** button.

Chapter 3

Installing KVM-related Products and Components

This chapter outlines and described tasks for installing the KVM-related components which are used to extend the access to and control of the KVM.

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 97
AlterPath PM	Page 100
Cascaded KVM units	Page 109
AlterPath KVM Expander	Page 112
AlterPath Remote Presence	Page 112

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 224 and “To Configure the AUX Port for Use With a PM or an External Modem” on page 225.

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 a 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 a PM or an External Modem” on page 225.

Once 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 101
Manage the power of devices connect to configured PM units.	• Web Manager – “Power Management” on page 138 • OSD – “Power Management Menu” on page 286
Control the power of a device while connected to it through a KVM port.	• Web Manager – “To Power On, Power Off, or Reboot the Connected Server” on page 271 • OSD – “To Power On, Power Off, Lock, Unlock, or Cycle Devices Plugged into PM Outlets” on page 275

▼ 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 a PM to the AUX Port” on page 100 for the procedure.

1. Use an RJ-45 CAT5 cable to connect the Out port of a PM that is already connected to the AUX port of a KVM to the In port of the next AlterPath PM.
2. Repeat Step 1 until you have connected the desired number of PMs.

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

See “Power Management” on page 138 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 103
2	Set up the KVM Expander	Page 105
3	Connect computers to the KVM ports on the KVM Expander	Page 64
4	Connect the KVM Expander to the KVM	Page 111
5	Power on the KVM Expander and connected devices	Page 108
6	Add the KVM Expander to the primary KVM unit’s list of cascaded devices	Page 160

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 (Sheet 1 of 2)

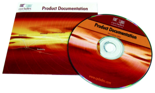
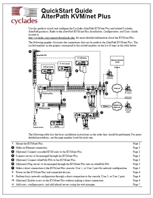
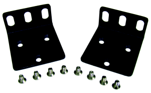
☑	Item	P/N	Description	Purpose
□		PAC0226	Documentation CD	PDF copies of this guide and all other Cyclades product documents.
□		PAC0267	*AlterPath KVM Quick Start Guide*	Basic installation guide for experienced users in printed format.
□		CAB0010	3-pin power cord	Use to plug into a grounded AC power outlet. For other types of power sources, contact Cyclades sales for other cord options.

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

☑	Item	P/N	Description	Purpose
□		CAB0018	RJ-45 to RJ-45 7ft. CAT5 cable	Use for the following: • To connect a server to a KVM port (with the appropriate terminator from Table 1-13 on page 44). See “Connecting Servers to the KVM Ports” on page 64. • 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 111 .
□		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 105.

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 44.

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 hex 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 hex screwdriver and the the appropriate nuts and bolts before starting the following procedure.

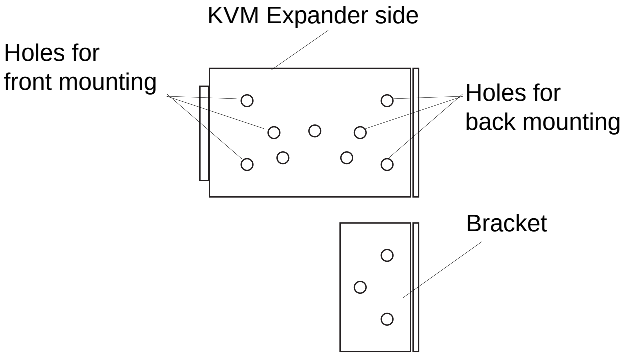
Note: Place the KVM Expander in a location that is within the 500 feet distance allowable between the KVM and its connected computers. Using cables longer than 500 feet in total length can compromise performance.

▼ *To Mount the KVM Expander*

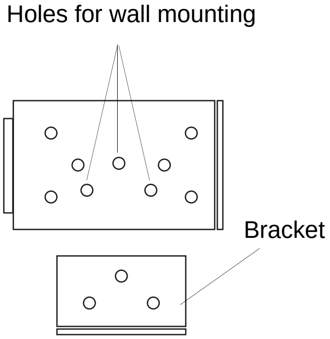
1. Connect the two supplied brackets to the KVM Expander, connecting one bracket to each side of the box.

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.

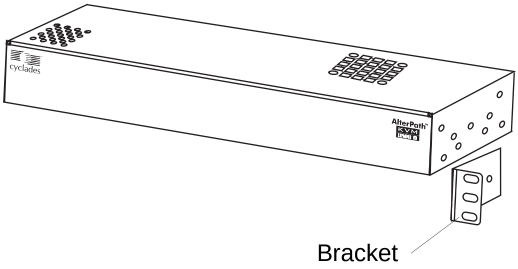


The following figure shows the angle of a bracket being installed for wall mounting.

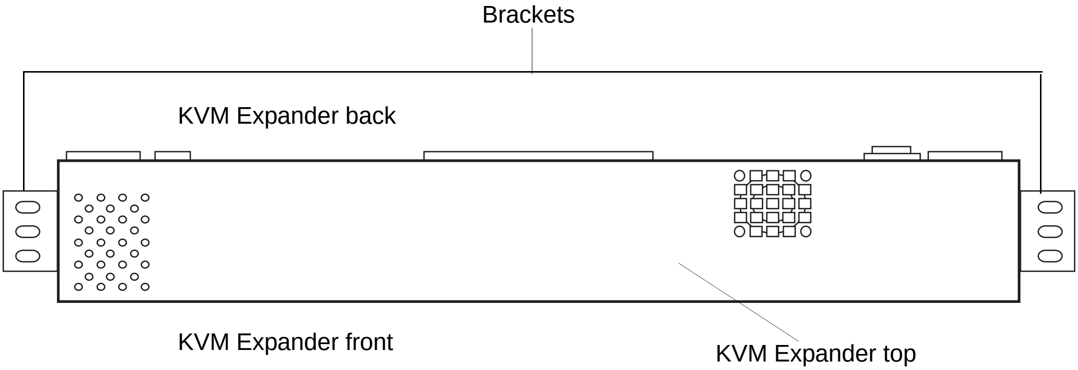


b. For each bracket, insert a screw through each of the three holes on the bracket into the appropriate holes at either the front or back of the KVM Expander.

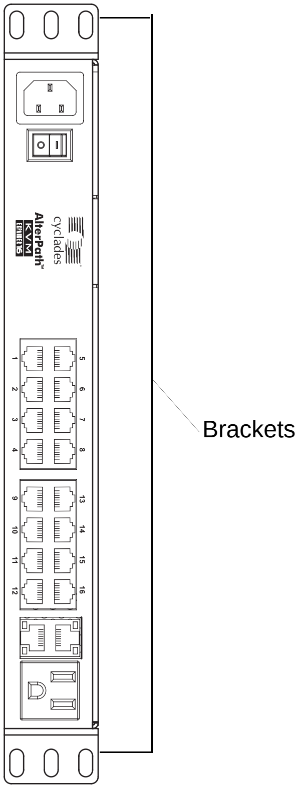
The following figure shows the brackets as they appear from the side and front of the KVM Expander after the brackets are installed for rack mounting.



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.

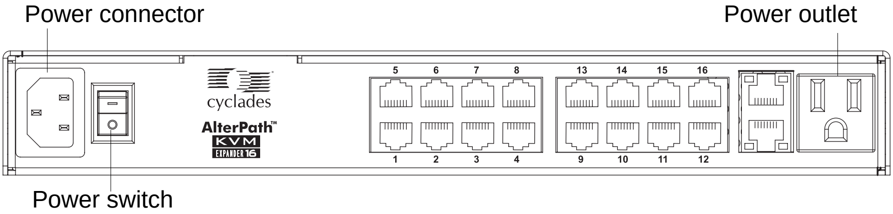
2. Use screws or nuts and bolts as appropriate to mount the KVM Expander on the wall, on a rack, or in a cabinet.

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 64.

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

Connecting Cascaded KVM Units to the Primary KVM

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, KVM/net, or KVM/net Plus to the Primary KVM" on page 110
- "To Connect a KVM Expander to the Primary KVM" on page 111

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

- AlterPath KVM – See the *AlterPath KVM Manual* for installation instructions.
- KVM Expander – See the "Installing the AlterPath KVM Expander" on page 102 for installation instructions.
- KVM – See the "Installing the KVM" on page 57 for installation instructions.

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

▼ *To Connect a Secondary KVM, KVM/net, or KVM/net Plus 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, KVM/net, or KVM/net Plus, 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, KVM/net, or KVM/net Plus.
3. To connect to the User 1 port of a secondary KVM, KVM/net, or KVM/net Plus, 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, KVM/net, or KVM/net Plus.

      See “Connecting Servers to the KVM Ports” on page 64 for detailed instructions on how to connect devices to KVM ports using KVM Terminators.
4. Repeat steps 1 through 3 for each secondary KVM to be connected to the primary KVM.

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

See “Installing the AlterPath KVM Expander” on page 102 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 Remote Presence

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 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 RP to the KVM.	"To Connect the RP to the KVM" on page 114.
3	Connect a keyboard, monitor, and mouse to the RP.	"Options for Accessing the RP" on page 114
4	Supply power to and turn on the RP.	"Supplying Power to the RP" on page 115
5	Use the RP to control the KVM.	"Controlling the OSD Through the AlterPath Remote Presence" on page 349

Shipping Box Contents KVM RP

The shipping box for the 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 (Sheet 1 of 2)

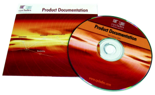
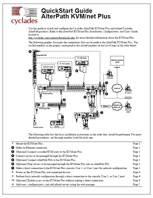
☑	Item	P/N	Description	Purpose
□		PAC0226	Documentation CD	PDF copies of this guide and all other Cyclades product documents.
□		PAC0267	*AlterPath KVM Quick Start Guide*	Basic installation guide for experienced users in printed format.
□		CAB0010	3-pin power cord	Use to plug into a grounded AC power outlet. For other types of power sources, contact Cyclades sales for other cord options.
□		CAB0018	RJ-45 to RJ-45 7ft. CAT5 cable	Use to connect the User 2 port on the KVM to the Remote User port on the KVM RP. See “To Connect the RP to the KVM” on page 114.

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

☑	Item	P/N	Description	Purpose
□		ATP4710	KVM cable	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 RP. See "To Connect the RP to the Local Work Station" on page 115 more information.

▼ *To Connect the 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 RP

The RP offers the two options for monitor, keyboard, and mouse control. Administrators can connect a dedicated keyboard, monitor, and mouse directly to the RP. Or administrators can connect the 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 RP to a Dedicated Keyboard, Monitor, and Mouse*

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

▼ *To Connect the RP to the Local Work Station*

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

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

Supplying Power to the RP

The 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 RP.

▼ *To Power On the KVM RP*

1. If the RP has its own dedicates 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 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 RP to the Local Work Station” on page 115 for instructions on connecting the 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 168 for how the admin adds a regular user account and adds the account to the admin group.)

Administrators whose accounts are configured without administrative access can log into the Web Manager as regular users and then access connected devices, as described in Chapter 5. “Web Manager for Regular Users” on page 253. For more background about the differences between user types, see “Types of Users” on page 15.

Before following the procedures in this chapter, review “Prerequisites for Using the Web Manager” on page 20, 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 Tasks

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

Task	Where Documented/Notes
Set up other users to access connected devices without being able to make changes to the KVM configuration	• “To Add a User [Wizard]” on page 129 • “To Add a User [Expert]” on page 169
Assign users or groups to specific ports, restricting access to a limited set of devices	• “To Assign KVM Port Access to a User or Group” on page 173
Set up other users to share all administration of the KVM	• “To Add a User [Wizard]” on page 129 • “To Add a User [Expert]” on page 169
Enable direct login to ports from the Web Manager login screen	• To Enable Direct Access to KVM Ports [Expert]
Set up logging of system messages to a syslog server	• “To Add a Syslog Server [Wizard]” on page 134 • 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 [Expert]

Task	Where Documented/Notes
Configure power management for one or both of the AUX ports (if the port is connected to an optional AlterPath PM or other supported IPDU device)	• "To Configure the AUX Port for Use With a PM or an External Modem" on page 225 Also see the procedures under "Power Management" on page 138 including: • "To View Status, Lock, Unlock, and Cycle Power Outlets [Expert]" on page 140 • "To View and Reset IPDU Information [Expert]" on page 141 • "To Configure Creation of Alarms and Syslog Files for IPDUs [Expert]" on page 144 • "To Upgrade Firmware on an AlterPath PM [Expert]" on page 145
Choose among authentication methods and specify authentication servers for logins to the KVM and for logins to devices connected to the KVM's ports	• "To Configure an Authentication Method for KVM Logins" on page 177 • "To Configure an Authentication Method for Logins Through KVM Ports" on page 178
Configure rules for the KVM to filter packets like a firewall	• "To Add a Chain for IP Filtering" on page 205 • "To Edit A Chain for IP Filtering" on page 207 • "To Add a Rule for IP Filtering" on page 207 • "To Edit a Rule for IP Filtering" on page 204

Common Features of Administrators’ Windows

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

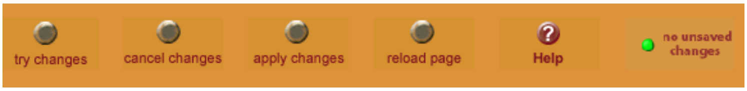
- Control and logout buttons and KVM Information

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

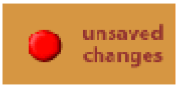
  See “Obtaining More Information” on page 121

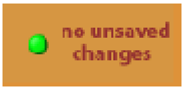
Administrators’ Control Buttons, Logout Button, and KVM Information

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

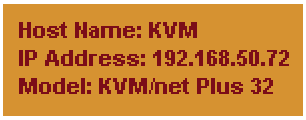


The following table describes the uses for each control button.

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.
 Host Name: KVM IP Address: 192.168.50.72 Model: KVM/net Plus 32	Displays the hostname and IP address assigned during initial configuration (see “Performing Basic Network Configuration” on page 70). 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 Into the Web Manager and Saving Changes

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

To Log Into the Web Manager as Admin	Page 122
To Save Configuration Changes	Page 122

For procedures specific to each mode, see “Administrative Modes” on page 125.

▼ *To Log Into the Web Manager as Admin*

This procedure assumes that the prerequisites described under “Prerequisites for Using the Web Manager” on page 20 are done and that you can connect to the Web Manager.

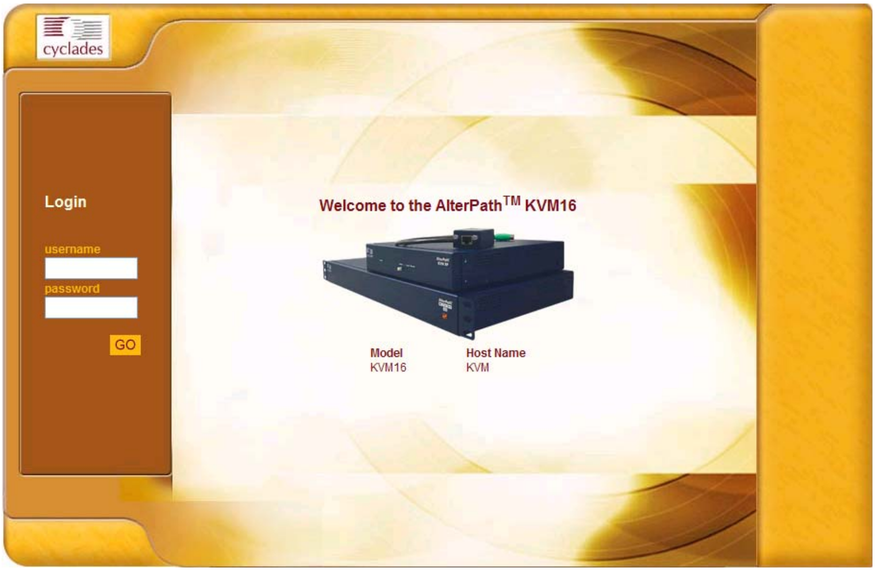
1. To bring up the Web Manager, enter the IP address of the KVM in the address (URL) field of a supported browser on a computer running a Windows operating system.

Note: Devices like the KVM Analog 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 43 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.

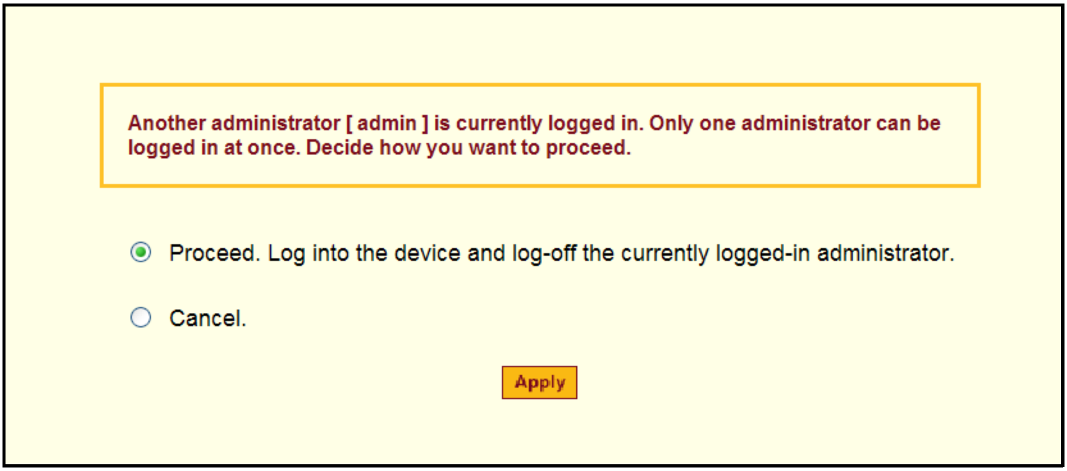
b. If DHCP is not enabled, use a fixed IP address assigned by the administrator to the KVM.

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



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 appears.



Another administrator [admin] is currently logged in. Only one administrator can be logged in at once. Decide how you want to proceed.

● Proceed. Log into the device and log-off the currently logged-in administrator.

○ Cancel.

Note: For more information about the numbers of simultaneous logins allowed, see "Simultaneous KVM Logins" on page 16.

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

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.

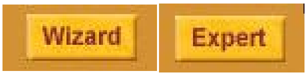
- Click the “apply changes” button to save configuration changes.

  The “no unsaved changes” graphical LED appears.

Administrative Modes

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

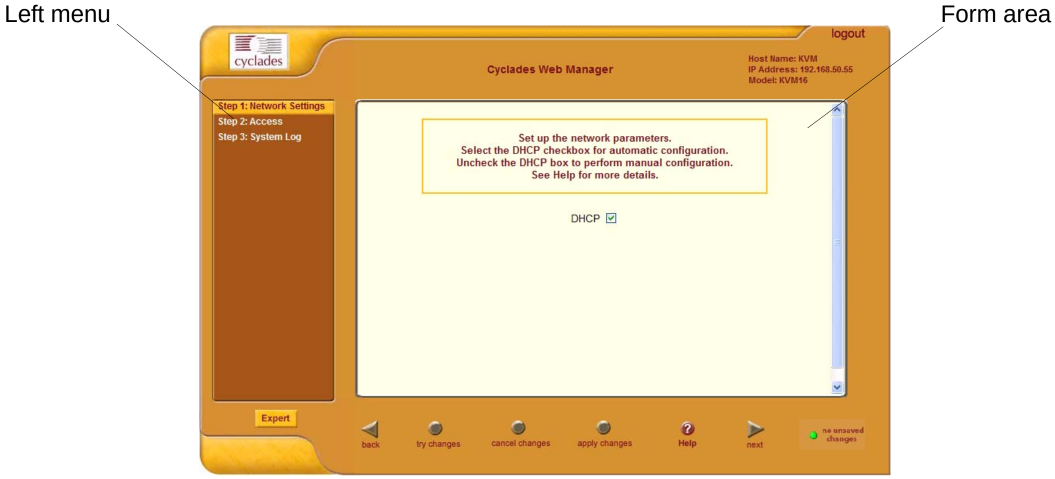
- “Wizard Mode” on page 125
- “Expert Mode” on page 135

	In Expert mode, the Wizard button displays. In Wizard mode, the Expert button displays. Pressing these buttons toggles between Wizard and Expert mode. Expert is the default mode.

Wizard Mode

The Wizard mode guides the administrator through three 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.

After you log in as described in “To Log Into the Web Manager as Admin” on page 122, Expert mode is in effect by default. To change to Wizard mode, select the Wizard button, which displays only in Expert mode.



Left menu

Form area

Host Name: KVM
IP Address: 192.168.50.55
Model: KVM16

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

DHCP ☑

Figure 4-1: Example Window in Wizard Mode

Procedures in Wizard Mode

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

To Change Network Settings [Wizard]	Page 127
To Add a User [Wizard]	Page 129
To Delete a User [Wizard]	Page 131
To Change a Password [Wizard]	Page 131
To Add a Syslog Server [Wizard]	Page 134
To Delete a Syslog Server [Wizard]	Page 134

Steps in Wizard Mode

Three 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: Network Settings [Wizard]	Page 126
Step 2: Access [Wizard]	Page 128

Step 1: Network Settings [Wizard]

In Wizard Mode, selecting "Step 1: 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 87, 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 “Collecting Basic Network Information” on page 84, which provides a form to record information you need to collect ahead of time. See “To Change Network Settings [Wizard]” on page 127 for the procedure.

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 190. In Expert mode under Configuration>Network, you can configure syslog servers for ports; specify rules for filtering syslog messages, specify PCMCIA card, Virtual Private Network (VPN), and SNMP settings; 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.

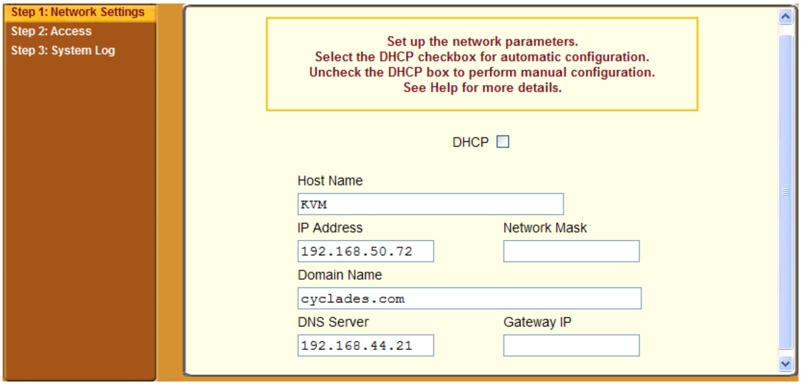
   See the list of network information to collect under “Performing Basic Network Configuration” on page 70, if needed.

2. In Wizard mode, go to “Step 1: 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 that can change. The administrator chooses whether or not to use

DHCP during initial setup. The initial setting may have been changed since initial configuration.



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

DHCP □

Host Name: KVM

IP Address: 192.168.50.72

Network Mask:

Domain Name: cyclades.com

DNS Server: 192.168.44.21

Gateway IP:

3. If the “DHCP” check box is not checked, enter the network information in the fields.

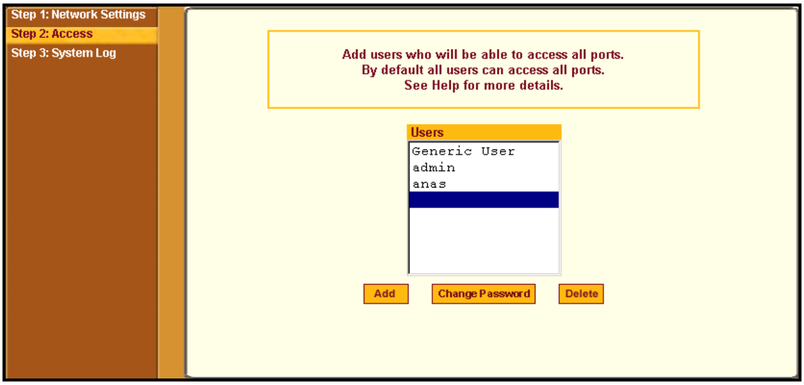
4. Click the “apply changes” button.

Warning! 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. If appropriate, press the Next button or select “Step 2: Access” from the left menu**.**

Step 2: 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. Added users can optionally be configured to administer the KVM by assigning them to the “admin” group.



Add users who will be able to access all ports.
By default all users can access all ports.
See Help for more details.

Generic User
admin
anas

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.

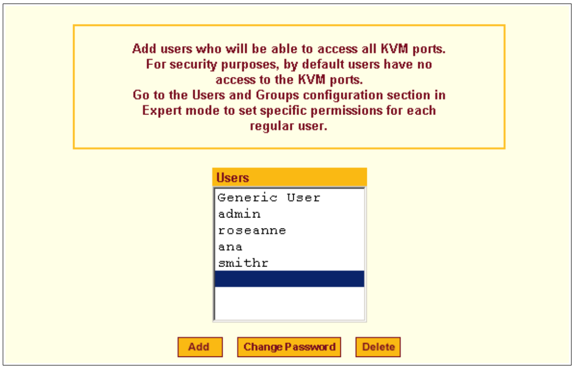
To Add a User [Wizard]	Page 129
To Delete a User [Wizard]	Page 131
To Change a Password [Wizard]	Page 131

Note: To perform advanced configuration for 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.



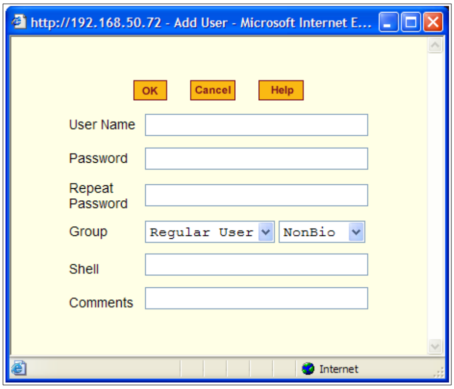
Add users who will be able to access all KVM ports.
For security purposes, by default users have no access to the KVM ports.
Go to the Users and Groups configuration section in Expert mode to set specific permissions for each regular user.

Users

```
Generic User
admin
roseanne
ana
smithr
```

2. Click Add.

   The "Add User" dialog box appears.



http://192.168.50.72 - Add User - Microsoft Internet E...

User Name

Password

Repeat Password

Group: Regular User, NonBio

Shell

Comments

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

Field Name	Definition
User Name	The username for the account being added.
Password	The password for the account.

Field Name	Definition
Group	On the pull-down menu, 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 15, if needed, for more background.
Shell	Optional. The default shell when the user makes a `ssh` or `telnet` connection with the switch. Choices are: `sh` or `bash`. The default is `sh`.
Comments	Optional notes about the user’s role or configuration.

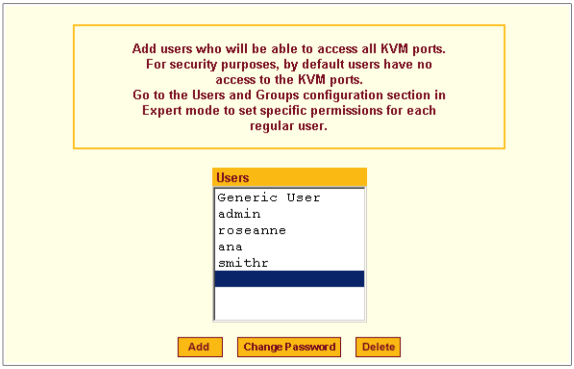
4. Click OK.

5. Click the “apply changes” button.

▼ To Delete a User [Wizard]

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

   The “Access” form displays.



Add users who will be able to access all KVM ports.
For security purposes, by default users have no access to the KVM ports.
Go to the Users and Groups configuration section in Expert mode to set specific permissions for each regular user.

Users
Generic User
admin
roseanne
ana
smithr

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

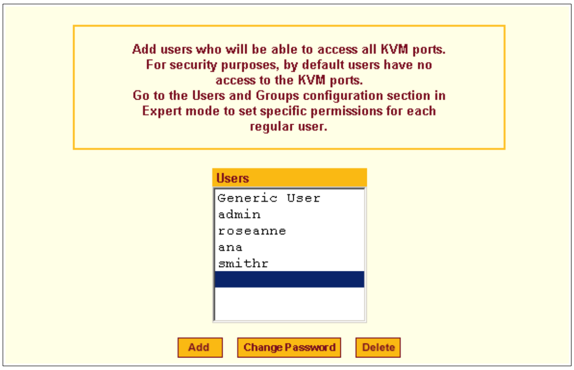
   The username disappears from the Users list.
3. Click the “apply changes” button.

▼ 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.”

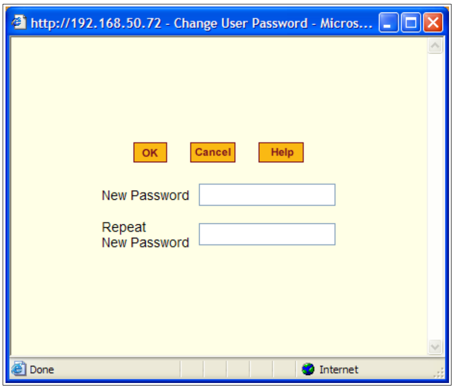
   The “Access” form appears.



Add users who will be able to access all KVM ports.
For security purposes, by default users have no access to the KVM ports.
Go to the Users and Groups configuration section in Expert mode to set specific permissions for each regular user.

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

   The “Change User Password” dialog box appears.

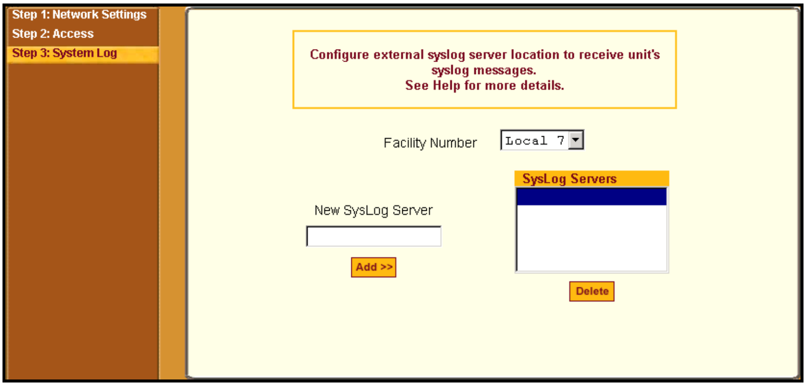


http://192.168.50.72 - Change User Password - Micros...

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

Step 3: System Log [Wizard]

In Wizard mode, selecting “Step 3: System Log” brings up a form for identifying one or more syslog servers to receive syslog messages from the KVM.



Configure external syslog server location to receive unit's syslog messages.
See Help for more details.

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 42, 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 134
To Delete a Syslog Server [Wizard]	Page 134

This form configures 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 193.

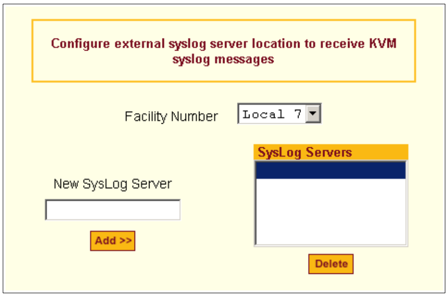
▼ *To Add a Syslog Server [Wizard]*

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 3: System Log.”

   The System Log form appears.



Configure external syslog server location to receive KVM syslog messages

Facility Number: Local 7

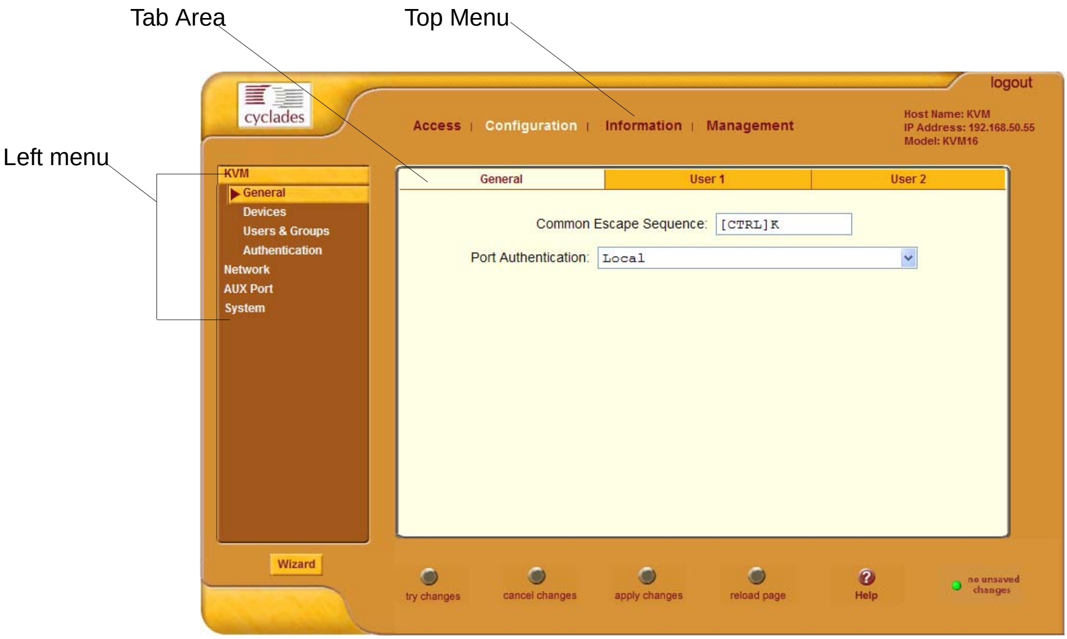
2. From the Facility Number drop-down menu, select the facility number.
3. In the New Syslog Server field, enter the IP address of a syslog server, and select the Add button. (Repeat this step until all syslog servers are listed.)
4. The new server(s) appear in the Syslog Servers list.
5. Click “apply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



Host Name: KVM
IP Address: 192.168.50.55
Model: KVM16

Common Escape Sequence: [CTRL]K

Port Authentication: Local

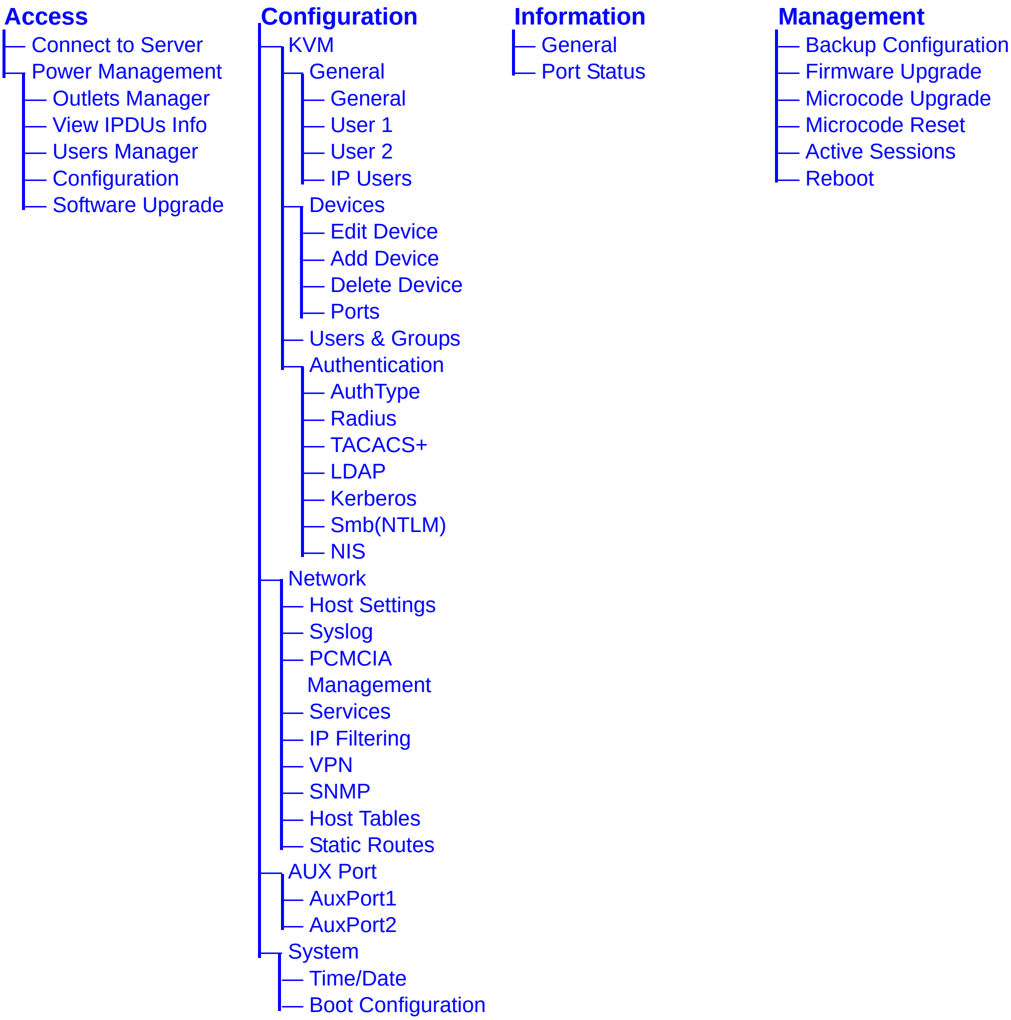
Making a selection from the top menu changes the list of menu options displayed in the left menu.

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 “IP Users” form in the right tab in the previous figure would use this convention, “In Expert mode, go to Configuration> KVM>General >IP Users.”

Overview of Menus and Forms in Expert Mode

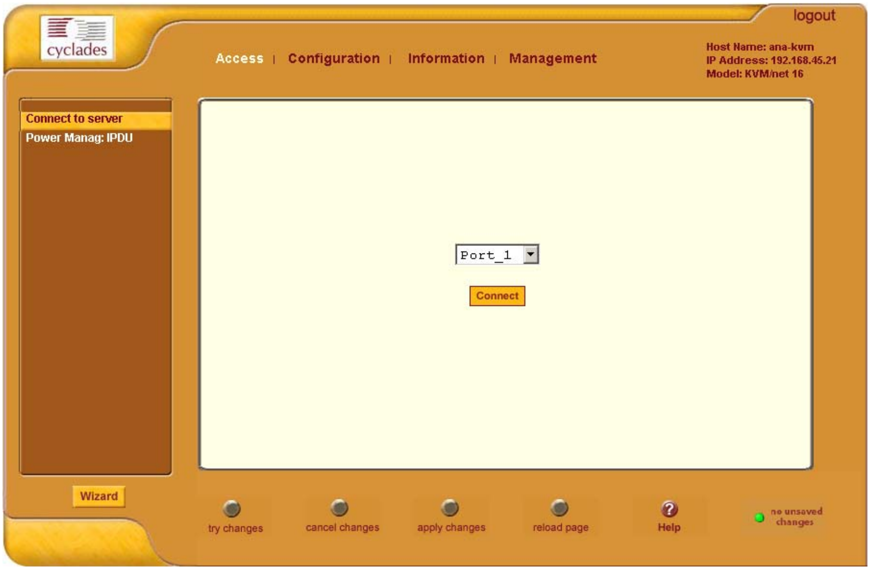
The following figure shows all the menus and forms available in Expert mode. If you are viewing this document online, click any term to go to the section where the form is described.



- **Access**
  - Connect to Server
  - Power Management
    - Outlets Manager
    - View IPDUs Info
    - Users Manager
    - Configuration
    - Software Upgrade
- **Configuration**
  - KVM
    - General
      - General
      - User 1
      - User 2
      - IP Users
    - Devices
      - Edit Device
      - Add Device
      - Delete Device
      - Ports
    - Users & Groups
    - Authentication
      - AuthType
      - Radius
      - TACACS+
      - LDAP
      - Kerberos
      - Smb(NTLM)
      - NIS
  - Network
    - Host Settings
    - Syslog
    - PCMCIA Management
    - Services
    - IP Filtering
    - VPN
    - SNMP
    - Host Tables
    - Static Routes
  - AUX Port
    - AuxPort1
    - AuxPort2
  - System
    - Time/Date
    - Boot Configuration
- **Information**
  - General
  - Port Status
- **Management**
  - Backup Configuration
  - Firmware Upgrade
  - Microcode Upgrade
  - Microcode Reset
  - Active Sessions
  - Reboot

Access

Under “Access” in Expert mode, four options appear in the left menu bar, as shown in the following figure.



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

- “Connect to Server” on page 137
- “Power Management” on page 138

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

Connect to Server

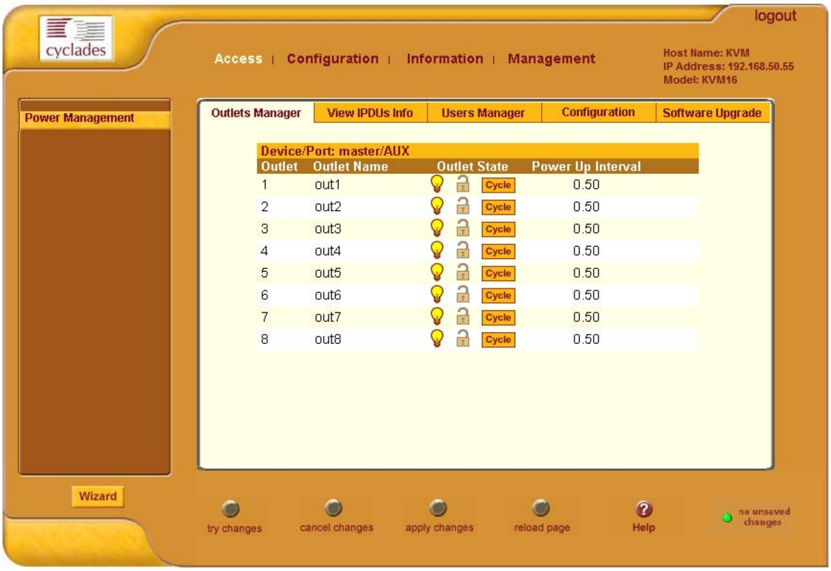
On the “Connect to Server” form under Access, you can connect to servers that are connected to KVM ports or to in-band servers that use RDP (Remote Desktop Protocol). The following sections in Chapter 6: Accessing Connected Devices discusses connecting to servers in more detail:

- “Prerequisites for Accessing Servers” on page 261
- “Connecting to Servers” on page 262

- “Sharing KVM Port Connections” on page 273

Power Management

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



Host Name: KVM
IP Address: 192.168.50.55
Model: KVM16

Device/Port: master/AUX

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

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

- An AlterPath PM or other IPDU 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.

  For the procedure, see “To Connect a PM to the AUX Port” on page 100.
- The AUX port is configured for power management.

  For the procedure, see “To Configure the AUX Port for Use With a PM or an External Modem” on page 225.

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

- “Outlets Manager” on page 139
- “View IPDUs Info” on page 141
- “Users Manager” on page 142

- "Configuration" on page 143
- "Software Upgrade" on page 144

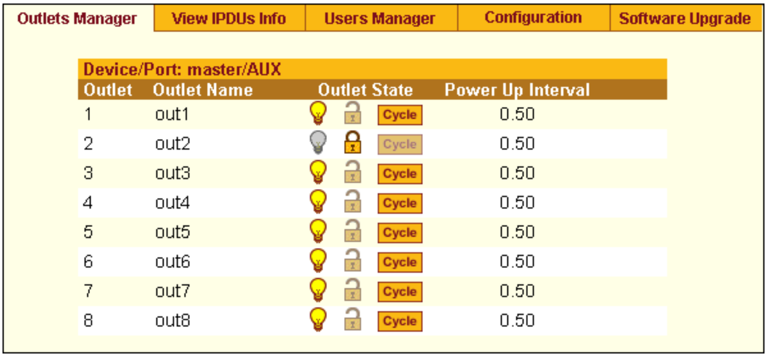
See the following sections for related procedures:

- "To View Status, Lock, Unlock, and Cycle Power Outlets [Expert]" on page 140
- "To View and Reset IPDU Information [Expert]" on page 141
- "To Configure Users to Manage Specific Power Outlets" on page 142
- "To Configure Creation of Alarms and Syslog Files for IPDUs [Expert]" on page 144
- "To Upgrade Firmware on an AlterPath PM [Expert]" on page 145

Outlets Manager

On the "Outlets Manager" form under Access>Power Management in Expert mode, you can do the following for all outlets on all connected IPDUs:

- Check the status
- Turn on
- Turn off
- Cycle (by briefly switching the outlet off and on)
- Lock
- Unlock



Device/Port: master/AUX

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

▼ *To View Status, Lock, Unlock, and Cycle Power Outlets [Expert]*

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

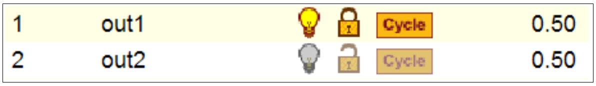
The “Outlets Manager” form appears.

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.



1	out1	💡	🔒	Cycle	0.50
2	out2	💡	🔓	Cycle	0.50

4. To power an outlet off and quickly power it on again, click the adjacent “Cycle” button.

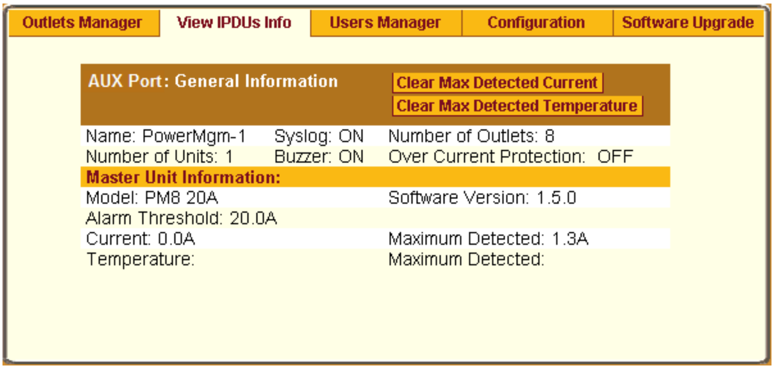
5. Click “apply changes.”

View IPDUs Info

On the “View IPDUs Info” form under Access>Power Manage IPDU 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.



AUX Port: General Information

Name: PowerMgm-1 Syslog: ON Number of Outlets: 8

Number of Units: 1 Buzzer: ON Over Current Protection: OFF

Master Unit Information:

Model: PM8 20A Software Version: 1.5.0

Alarm Threshold: 20.0A

Current: 0.0A Maximum Detected: 1.3A

Temperature: Maximum Detected:

▼ *To View and Reset IPDU Information [Expert]*

1. In Expert mode, go to Access>Power Management>View IPDUs Info.

The “View IPDUs Info” form appears.

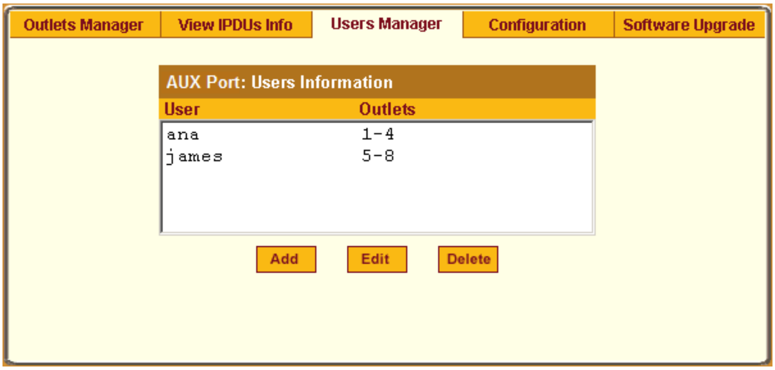
2. To clear the stored values for the maximum detected current, select the “Clear Max Detected Current” button.

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>Power Management in Expert mode, you can assign users to outlets.



AUX Port: Users Information

User	Outlets
ana	1-4
james	5-8

▼ *To Configure Users to Manage Specific Power Outlets*

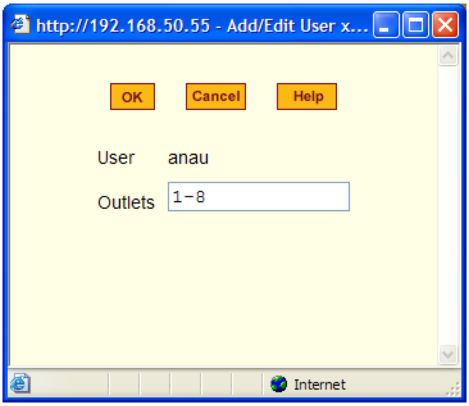
1. In Expert mode, go to Access>Power Management>Users Manager.

   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.



User anau

Outlets 1-8

4. To add a new user, click “Add.”

   The “Add/Edit User x Outlets” dialog box appears.

5. In the “Add/Edit User x Outlets” dialog box, do the following as appropriate.

a. Enter the username in the “User” field.

b. Enter or modify the numbers of the outlets to which the user is assigned in the “Outlets” field.

   Use a comma to separate outlet numbers, and use a hyphen to indicate a range of outlets (for example: 1, 3, 6, 9-12).

6. Click OK.

7. Click “apply changes.”

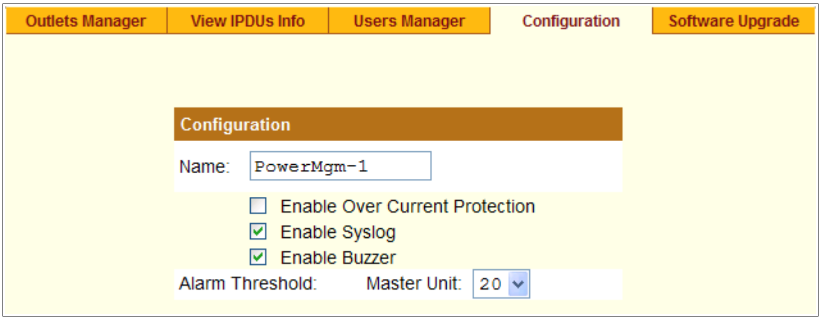
Configuration

On the “Configuration” form under Access>Power 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.

The Configuration form shows the ports that are currently connected to IPDUs. The following example displays for an KVM with an AlterPath PM connected to AUX port.



Configuration

Name: PowerMgm-1

□ Enable Over Current Protection

☑ Enable Syslog

☑ Enable Buzzer

Alarm Threshold: Master Unit: 20

▼ To Configure Creation of Alarms and Syslog Files for IPDUs [Expert]

1. In Expert mode, go to Access>Power Management>Configuration.

   The Configuration form displays entries for all ports configured for power management.

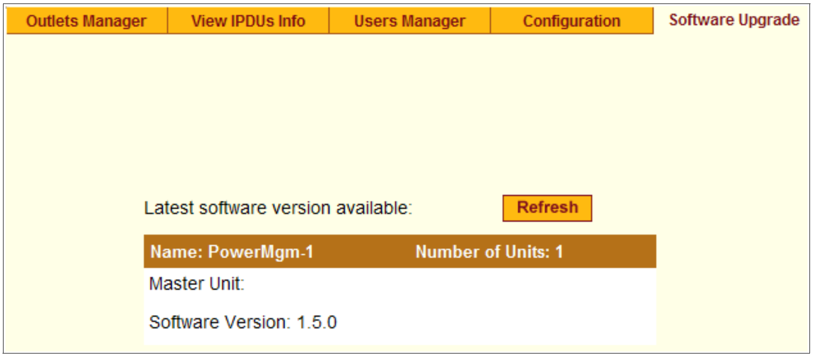
2. Click the appropriate check boxes to enable or disable Over Current Protection, the generation of Syslog files, and the sounding of a Buzzer if a defined threshold is exceeded.

3. If enabling the buzzer or alarm notification, select an Alarm Threshold (1-20 amps) from the pull-down menu for the master and any slave unit.

4. Click “apply changes.”

Software Upgrade

On the “Outlets Manager” form under Access>Power Management in Expert mode, you can upgrade the Power Management firmware for AlterPath PM IPDUs.



Latest software version available:

Name: PowerMgm-1 Number of Units: 1

Master Unit:

Software Version: 1.5.0

An entry appears for every connected PM and for each slave. The version of the currently-installed firmware displays on the form. If the KVM has access to the Internet, clicking the Refresh button checks for a more-recent version of the PM firmware at the Cyclades website.

If the KVM does not have access to the Internet, upgrade is possible only if you first download a more-recent version of the PM firmware onto the KVM.

▼ *To Upgrade Firmware on an AlterPath PM [Expert]*

Perform this procedure if the firmware on a connected AlterPath PM unit is older than the most-recent firmware available at Cyclades, Corp.

This procedure requires one of the two following prerequisites to succeed:

- The KVM has access to the Internet so that it can automatically download the PM firmware from the Cyclades FTP server.

  OR

- An Update button appears on the form.

  An Update button appears on the Access>Power Management>Software Upgrade form if a copy of a more-recent version of the AlterPath PM firmware exists in the KVM's `/tmp` directory under the filename: /`tmp/pmfirmware`.

1. If the KVM can contact the Cyclades FTP server, and if a more recent version of the firmware is available at Cyclades, download the updated firmware onto the KVM.

   a. Download the firmware onto a computer with a direct connection to the KVM.

   b. Copy the firmware file to the KVM and put it in: `/tmp/pmfirmware`.

2. In Expert mode, go to Access>Power Management>Software Upgrade.

   The Software Upgrade form displays.

3. If the KVM has access to the Internet, click the Refresh button.

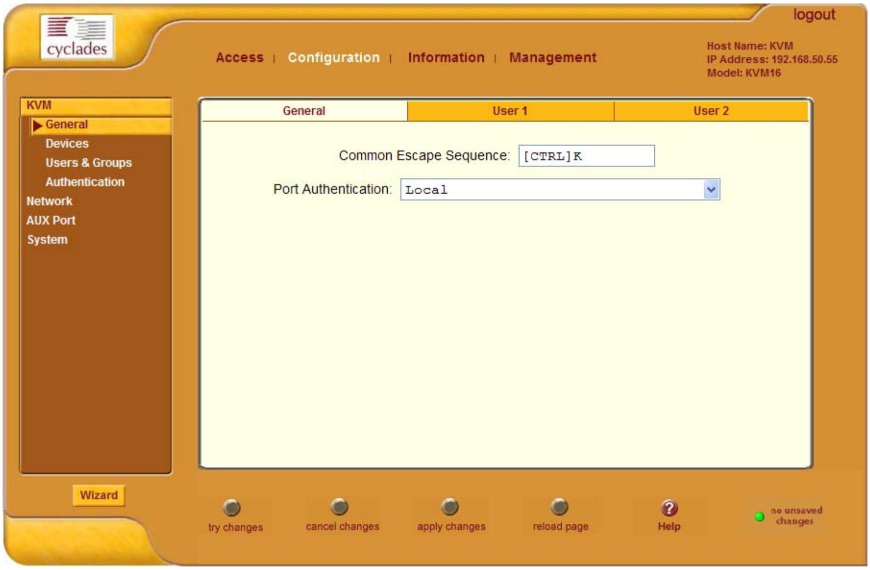
   The KVM contacts the Cyclades website to check if a more recent version of the PM firmware is available. If a more recent version is available, the KVM downloads it from Cyclades and installs it on the PM.

4. Click “Update.”

5. Click “apply changes.”

Configuration

Under “Configuration” in Expert mode, four main options appear in the left menu, as shown in the following figure.



Common Escape Sequence: [CTRL]K

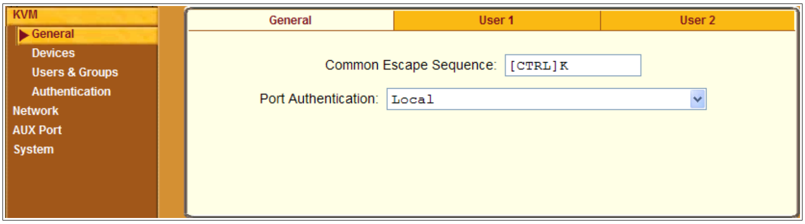
Port Authentication: Local

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

- “KVM” on page 148
- “Network” on page 188
- “AUX Port” on page 224
- “System” on page 226

KVM

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



Common Escape Sequence: [CTRL]K

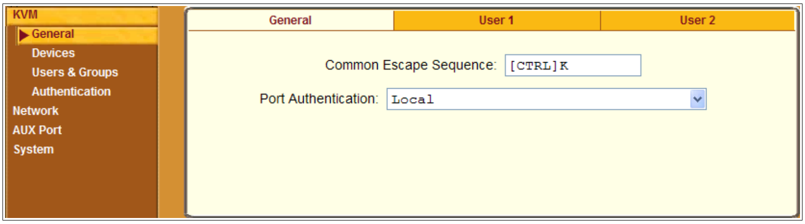
Port Authentication: Local

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

General	Page 148
Modifying Individual KVM Ports	Page 156
Modifying Individual KVM Ports	Page 156

General

Selecting Configuration>KVM>General in Expert mode brings up three tabs, as shown in the following figure.



Common Escape Sequence: [CTRL]K

Port Authentication: Local

The following table provides links to the sections that describe how to use the forms under Configuration>KVM>General in Expert mode.

General	“General” on page 149.
User 1, User 2, and IP Users	“Local User and IP 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.

Parameter Name	Definition	Where Documented
Direct Access	Selecting this check box enables logins to KVM ports directly from the Web Manager Login screen.	• “Enabling Direct Access to KVM Ports [Expert]” on page 193 • “To Enable Direct Access to KVM Ports [Expert]” on page 180
Common Escape Sequence	Redefines keyboard shortcuts used in the AlterPath Viewer	• “Redefining KVM AlterPath Viewer Keyboard Shortcuts (Hot Keys)” on page 180 • “To Redefine KVM Session Keyboard Shortcuts [Expert]” on page 181
Authentication Type	Allows you to choose whether authentication is required for KVM port logins. If needed, see the introduction to authentication on the KVM under “Authentication” on page 26.	• “Specifying Authentication for KVM Port Logins” on page 182 • “To Specify an Authentication Method for KVM Port Logins [Expert]” on page 182

Enabling Direct Access to KVM Ports [Expert]

When direct access to KVM ports is enabled, users authorized to access KVM ports can use a port field on the Web Manager login screen to log in and connect directly to the port. See “To Log Into the Web Manager as admin” on page 108, if desired, for an example of the login screen when direct login is enabled.

▼ To Enable Direct Access to KVM Ports [Expert]

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

   The General form appears.

2. Select the “Direct access” check box.
3. Click “apply changes.”

Redefining KVM Connection Keyboard Shortcuts (Hot Keys)

You can use the four General forms (General, User 1, User 2, IP Users) to redefine a default set of keyboard shortcuts (called hot keys), which allow administrators to perform common actions while connected to KVM ports. You redefine the common escape sequence portion of each hot key separately from the command key.

The following table summarizes the format of the hot keys for KVM connections, the defaults, and where they can be redefined.

	Common Escape Sequence	Command Key	Where Defined
Format	“Ctrl” + “*letter key*”	“*letter key*”	• Configuration>KVM>General> General

	Common Escape Sequence	Command Key	Where Defined
Defaults	Ctrl+k	"p" to bring up the "power management" window, "q" to quit, and so forth. See Table 6-2, "Default KVM Connection Keyboard Shortcuts," on page 265 for all the default command keys.	• Configuration>KVM>General> User 1 • Configuration>KVM>General> User 2 • Configuration>KVM>General> IP Users

The following table has links to procedures for redefining the hot keys for KVM connections.

To Redefine KVM Session Keyboard Shortcuts [Expert].	Page 151
To Redefine KVM Session Keyboard Shortcuts [OSD] unresolved	Page 194

▼ *To Redefine KVM Session Keyboard Shortcuts [Expert]*

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.

   - OR -

   - To change the command key for administrators who access KVM ports through the User 2, go to the User 2 tab.

   - OR -

- To change the command key for users who access KVM ports through the Web Manager, go to the IP Users tab.

4. On the “User 1,” “User 2,”or “IP Users” tab, redefine the command keys, if desired, in any of the following fields: “Quit,” “Power Management,” “Mouse/Keyboard Reset,” “Video Control,” “Switch Next,” “Switch Previous,” “Port Info.”

5. Click “apply changes.”

Specifying Authentication for KVM Port Logins

Choice of authentication types for KVM ports are:

- None
- Local
- Kerberos (either Kerberos or Kerberos/DownLocal),
- LDAP (either LDAP or LDAP/DownLocal)
- NTLM (either NTLM Windows NT/2000/2003 or NTLM/DownLocal)
- RADIUS (either RADIUS or RADIUS/DownLocal
- TACACS+ (either TACACS+, and TACACS+/DownLocal)

▼ *To Specify an Authentication Method for KVM Port Logins*

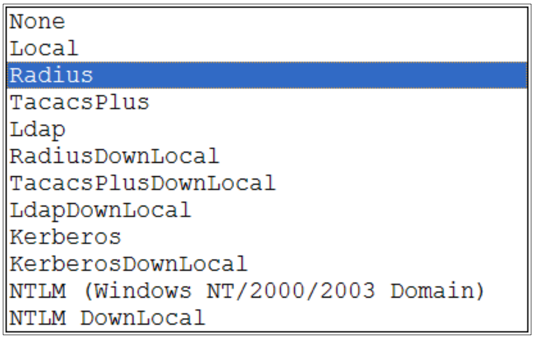
This procedure configures a single authentication method that applies whenever anyone attempts to log into a device through a connected KVM port.

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

   The General form appears.

2. Select an authentication method from the Authentication pull-down menu.

   The default option is None.



```
None
Local
Radius
TacacsPlus
Ldap
RadiusDownLocal
TacacsPlusDownLocal
LdapDownLocal
Kerberos
KerberosDownLocal
NTLM (Windows NT/2000/2003 Domain)
NTLM DownLocal
```

3. Click “Done.”

4. Click “apply changes.”

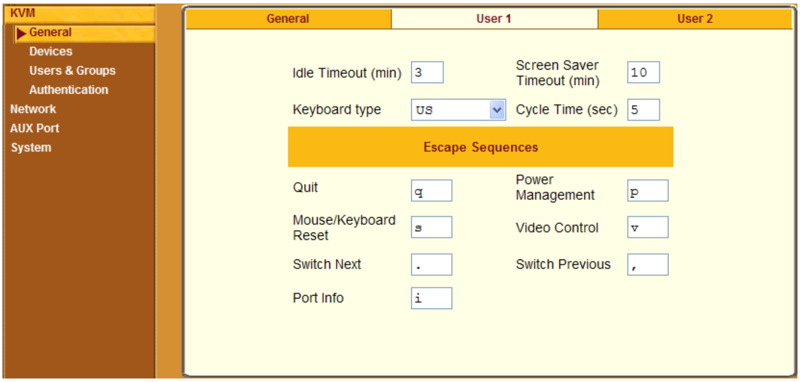
   The changes are stored in `/etc/kvmd.conf` on the KVM.

5. If you select any authentication method other than None or Local, make sure that an authentication server is specified for the selected authentication type.

   See “Configuring Authentication Servers for Logins to the KVM and Connected Devices” on page 160.

Local User and IP Users

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



Idle Timeout (min)	3	Screen Saver Timeout (min)	10
Keyboard type	us	Cycle Time (sec)	5

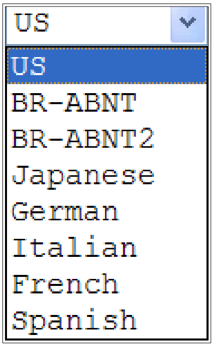
Escape Sequences

Quit	q	Power Management	p
Mouse/Keyboard Reset	s	Video Control	v
Switch Next	.	Switch Previous	,
Port Info	i		

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

User 2 management port on 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.

The following table lists and describes the parameters that appear on the forms for both users.

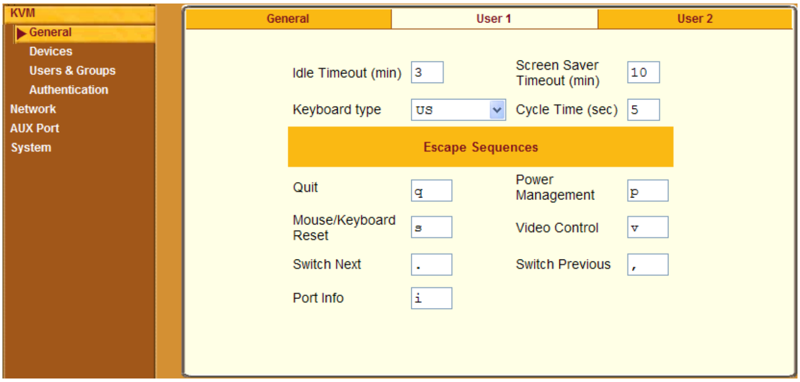
Field Name	Definition
Idle Timeout	Sets the maximum time (in minutes) for the session to be idle before it is closed. The maximum value is 60 minutes. A value of 0 disables the idle timeout.
Screen Save Timeout	Sets the time (in minutes) for the session to be idle before the screen saver activates.The 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.  US US BR-ABNT BR-ABNT2 Japanese German Italian French Spanish
Cycle Time	Change the cycle time (in seconds) within the following range: 3 to 60 seconds.

On the “User 1” and “User 2” forms, you can also redefine the command key portion of keyboard shortcuts for each type of user. For more information about redefining keyboard shortcuts, see “Redefining Keyboard Shortcuts (Hot Keys)” on page 56 and “To Redefine KVM Session Keyboard Shortcuts [Expert]” on page 151 if needed.

▼ *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 into 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.



Idle Timeout (min)	3	Screen Saver Timeout (min)	10
Keyboard type	us	Cycle Time (sec)	5
Escape Sequences			
Quit	q	Power Management	p
Mouse/Keyboard Reset	s	Video Control	v
Switch Next	.	Switch Previous	,
Port Info	i		

3. To configure parameters for the User 2 port, select the User 2 tab.

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.

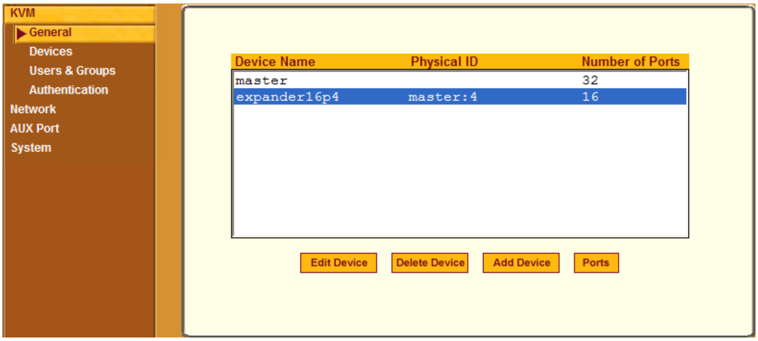
4. To change the idle timeout, enter a different number of minutes in the “Idle Timeout” field.
5. To change the screen saver timeout, enter a different number of minutes in the “Screen Saver Timeout” field.
6. To change the keyboard type, select a different keyboard from the “Keyboard type” pull-down menu.
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.”

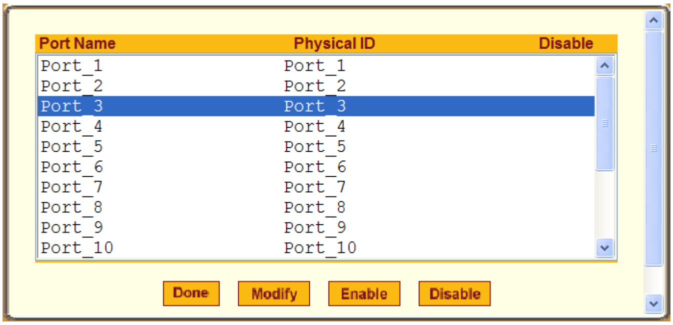
Modifying Individual KVM Ports

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



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

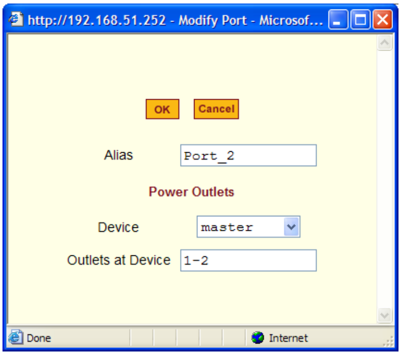
The device name “master” stands for the KVM, which is the master KVM unit in a cascaded configuration. Other device names may appear below “master” depending on the number of KVM units cascaded to the master. Selecting the name of a KVM unit in the list and clicking the “Ports” button brings up a list of the KVM ports on the KVM device, as shown in the following figure.



Port Name	Physical ID	Disable
Port_1	Port_1	
Port_2	Port_2	
Port_3	Port_3	
Port_4	Port_4	
Port_5	Port_5	
Port_6	Port_6	
Port_7	Port_7	
Port_8	Port_8	
Port_9	Port_9	
Port_10	Port_10	

When you select one or more ports, you can enable or disable the KVM port(s) using the “Enable” or “Disable” buttons on the form.

When you select a port and click the “Modify” button, the dialog box shown in the following figure appears.



Alias Port_2

Power Outlets

Device master

Outlets at Device 1-2

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 into the server

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

To Configure a KVM Port for Power Management [Expert]	Page 158
To Specify or Change the Alias for a KVM Port	Page 167
To Enable or Disable a KVM Port	Page 167

▼ *To Configure a KVM Port for Power Management [Expert]*

Perform this procedure to enable a user who is connected to a server through a KVM port to perform power management for the server while connected. When this procedure is completed, the user can manage up to two power connections for any one server. Before you start make sure the following prerequisites are complete:

- The computer is plugged into an IPDU connected to the KVM’s AUX port.
- The AUX port has been configured for power management.

  See “To Configure an AUX Port for Power Management or PPP [Expert]” on page 252, if needed.

- You know the outlet number or numbers to which the computer's power cable or cables are plugged.

Configuring Cascaded KVM Units

The Devices form allows you to configure one or more secondary KVM units to a primary KVM unit, a process also known as cascading or daisy-chaining. See “Cascaded Devices” on page 21 for background information.

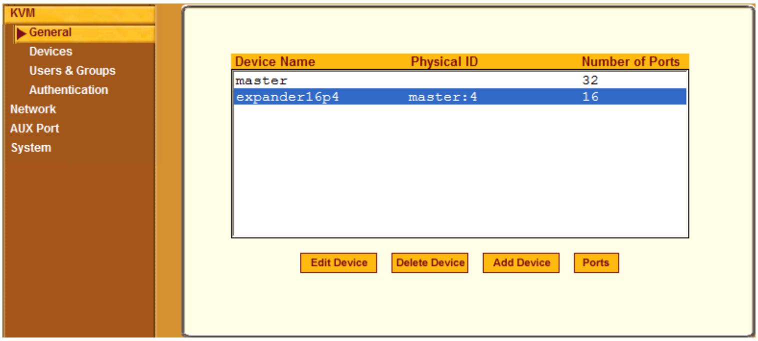
Selecting Configuration>KVM>Devices in Expert mode brings up the Devices form on which you can perform the following tasks:

- 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 160
- Edit the configuration of a cascaded device.

  See “To Edit the Configuration of a Cascaded KVM Unit” on page 161
- Delete the configuration of a cascaded device.

  See “To Delete the Configuration of a Cascaded KVM Unit” on page 163

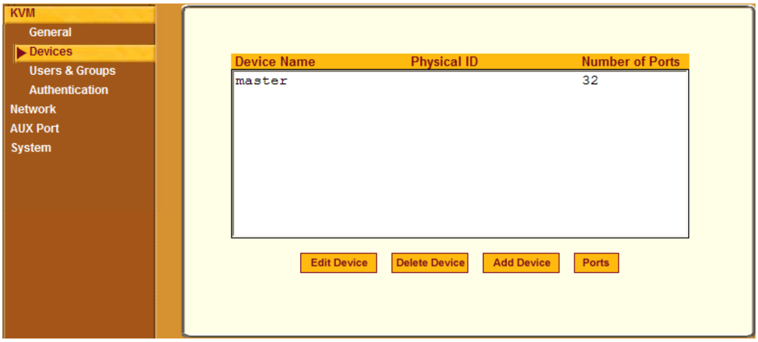


Device Name	Physical ID	Number of Ports
master		32
expander16p4	master:4	16

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

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

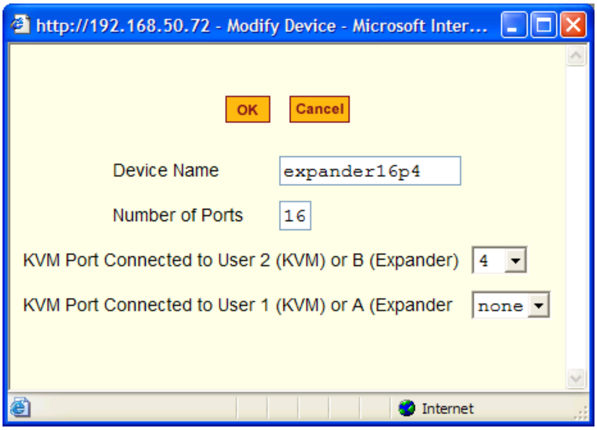
   The Devices configuration form appears.



Device Name	Physical ID	Number of Ports
master		32

2. Click the Add Device button.

   The Modify Device dialog box appears.



Device Name: expander16p4

Number of Ports: 16

KVM Port Connected to User 2 (KVM) or B (Expander): 4

KVM Port Connected to User 1 (KVM) or A (Expander: none

3. In the Device Name field, specify a name for the secondary device or KVM unit.

4. In the Number of Ports field, enter the number of ports contained in the cascaded device.

5. In the KVM Port Connected to User 2 (KVM) or B (Expander) drop-down list, enter the port number of the master KVM that is connected to the User 2 port of the secondary KVM device or the B port on the Expander.

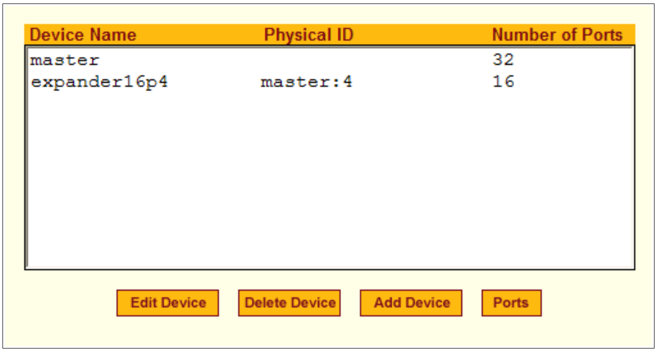
Note: See “Connecting Cascaded KVM Units to the Primary KVM” on page 109 for a background on the possible devices that can be cascaded and for instructions on connecting these devices to the master KVM.

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.

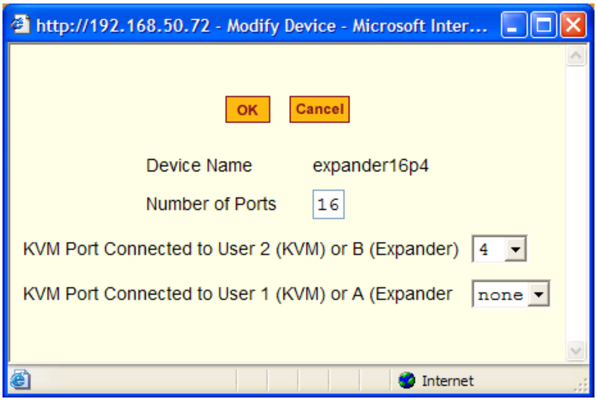
   The Devices form appears.



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.



Device Name expander16p4

Number of Ports 16

KVM Port Connected to User 2 (KVM) or B (Expander) 4

KVM Port Connected to User 1 (KVM) or A (Expander none

3. In the Number of Ports field, enter the number of ports contained on the cascaded device.

4. To enable one user to access the ports on the cascaded kvm unit, in the KVM Port Connected to User 2 (KVM) or B (Expander) drop-down list, select the port number on the master KVM 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 109 for a background on the possible devices that can be cascaded and for instructions on connecting these devices to the master KVM.

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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.

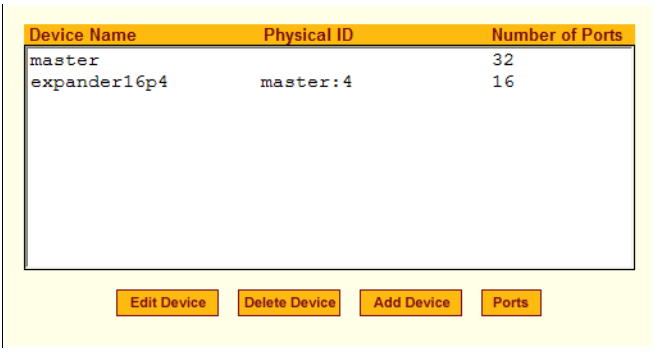
6. Click the OK button.

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.

Modifying Individual KVM Ports

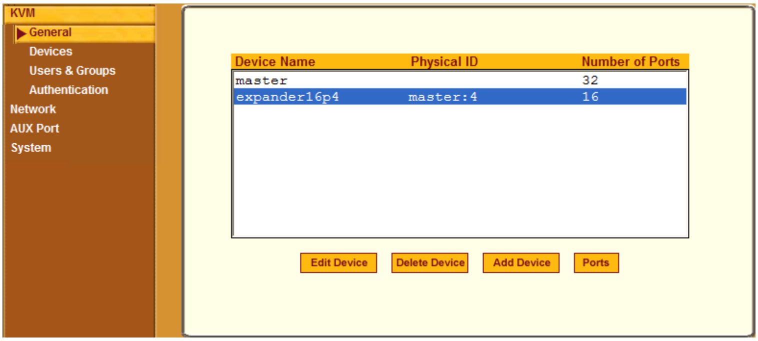
On the Modify Port dialog box, you can do the following:

- 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 into the server

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

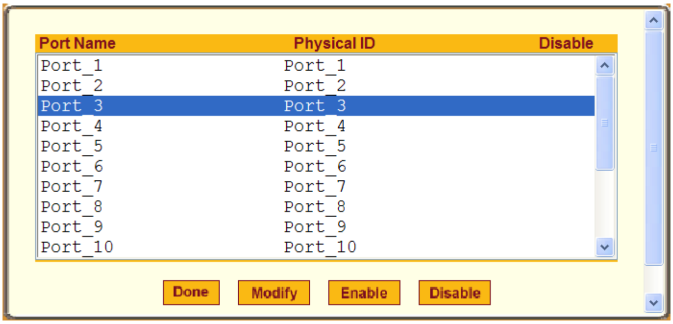
To Configure a KVM Port for Power Management [Expert]	Page 158
To Specify or Change the Alias for a KVM Port	Page 167
To Enable or Disable a KVM Port	Page 167

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



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

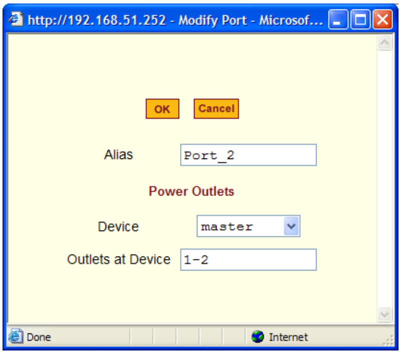
The device name "master" stands for the KVM, which is the master KVM unit in a cascaded configuration. Other device names may appear below "master" depending on the number of KVM units cascaded to the master. Selecting the name of a KVM unit in the list and clicking the "Ports" button brings up a list of the KVM ports on the KVM, as shown in the following figure.



Port Name	Physical ID	Disable
Port_1	Port_1	
Port_2	Port_2	
Port_3	Port_3	
Port_4	Port_4	
Port_5	Port_5	
Port_6	Port_6	
Port_7	Port_7	
Port_8	Port_8	
Port_9	Port_9	
Port_10	Port_10	

When you select one or more ports, you can enable or disable the KVM port(s) using the "Enable" or "Disable" buttons on the form.

When you select a port and click the "Modify" button, the dialog box shown in the following figure appears.



Alias Port_2

Power Outlets

Device master

Outlets at Device 1-2

▼ *To Configure a KVM Port for Power Management [Expert]*

Perform this procedure to enable a user who is connected to a server through a KVM port to perform power management for the server while connected. When this procedure is completed, the user can manage up to two power connections for any one server. Before you start make sure the following prerequisites are complete:

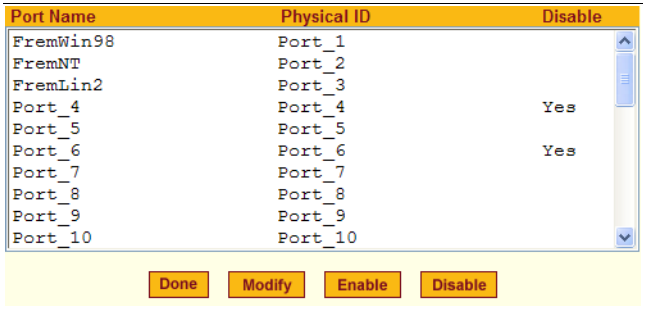
- The computer is plugged into an IPDU connected to the KVM's AUX port.
- The AUX port has been configured for power management.

  See "To Configure an AUX Port for Power Management or PPP [Expert]" on page 252, if needed.
- You know the outlet number or numbers to which the computer's power cable or cables are plugged.

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

   The Devices form appears.
2. Select the Device that contains the port(s) to be configured and click the Port button.

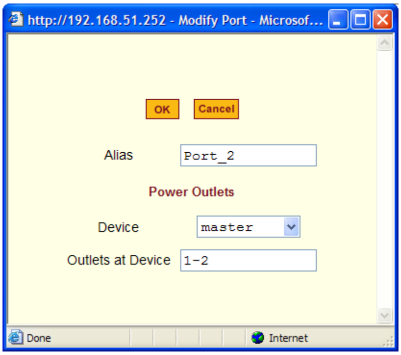
   The Port Name list appears.



Port Name	Physical ID	Disable
FremWin98	Port_1	
FremNT	Port_2	
FremLin2	Port_3	
Port_4	Port_4	Yes
Port_5	Port_5	
Port_6	Port_6	Yes
Port_7	Port_7	
Port_8	Port_8	
Port_9	Port_9	
Port_10	Port_10	

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

   The Modify Port dialog box appears.



Alias: Port_2

Power Outlets

Device: master

Outlets at Device: 1-2

4. In the Alias field, type an alias for the port
5. In the Device drop-down list, select the device that port is on.

   The device could be the master KVM or a cascaded KVM unit.
6. In the Outlets at Device 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.
7. Click the OK button.
8. Click the “apply changes” button to save your configuration.

▼ *To Specify or Change the Alias for a KVM Port*

1. Go to Configuration>KVM >Devices in Expert mode, select the device that includes the port(s) you wish to modify.
2. Click the “Ports” button.

   A list of all the selected ports appears.
3. Select a single port to be modified, and then select the “Modify” button.

   The “Modify Port” dialog box appears.
4. To change the port’s alias, do the following steps.

   a. Enter a new alias in the “Alias” field.

   b. Click OK on the dialog box.
5. Click “Done” on the form listing all the ports.
6. Click “apply changes.”

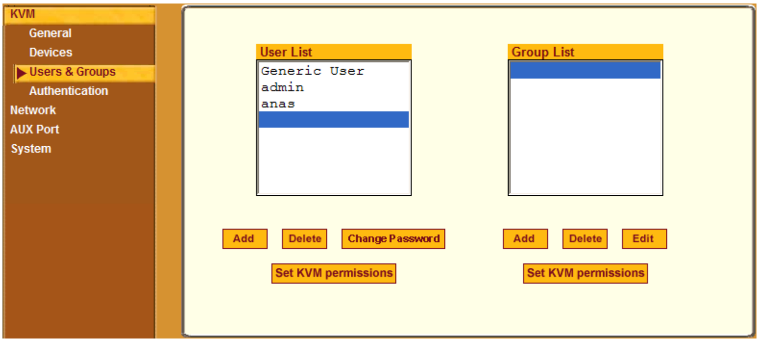
▼ *To Enable or Disable a KVM Port*

1. Go to Configuration>KVM >Devices in Expert mode, and select the device that contains the port(s) you wish to enable or disable.
2. Click the “Ports” button.

   A form listing all the selected ports appears.
3. Select the port(s) to be enabled or disabled, and then select the “Enable” or “Disable” button.
4. Click “Done” on the form listing all the ports.
5. Click “apply changes.”

Users & Groups

Selecting Configuration > KVM > Users & Groups in Expert mode brings up the form shown in the following figure.



Generic User
admin
anas

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.

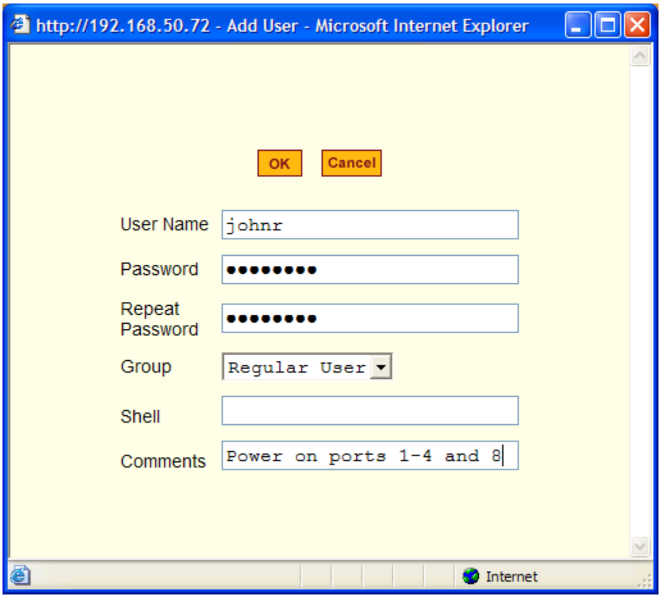
▼ *To Add a User [Expert]*

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

   The Users & Groups form appears.

2. Click “Add.”

   The “Add User” dialog box displays.


http://192.168.50.72 - Add User - Microsoft Internet Explorer
OK
Cancel
Internet

User Name johnr

Password ●●●●●●●●●

Repeat Password ●●●●●●●●●

Group Regular User

Shell

Comments Power on ports 1-4 and 8

3. Either type the required information in the fields or select the desired option from the pull-down menu as shown in the previous screen and defined in the following table.

Field Name	Definition
User Name	Name of the user to be added.
Password	The password associated with the user name.
Group	On the left pull-down menu, 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 15 for more details.

Field Name	Definition
Shell	Optional. The default shell when the user makes an `ssh` or `telnet` connection with the switch. Choices are: `sh` or `bash`. The default is `sh`.
Comments	Optional notes about the user’s role or configuration.

4. Click OK.
5. Click “apply changes.”

▼ *To Delete a User or Group [Expert]*

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

   The Users & Groups form displays.
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 displays.
2. Select the name of the user whose password you want to change.
3. Click “Change Password.”

   The Change User Password” dialog box displays.
4. Enter the new password in the “New Password” filed and enter it again in the “Repeat New Password” field.
5. Click OK.
6. Click “apply changes.”

▼ *To Add a Group [Expert]*

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

   The Users & Groups form displays.

2. Under the list of groups, click "Add."

   The "Add Group" dialog box displays.

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 [Expert]*

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

   The Users & Groups form displays.

2. Select the name of a group to modify.
3. Click "Edit."

   The "Edit Group" form displays.

4. Add or delete users from the group as desired.
5. Click OK.
6. Click "apply changes."

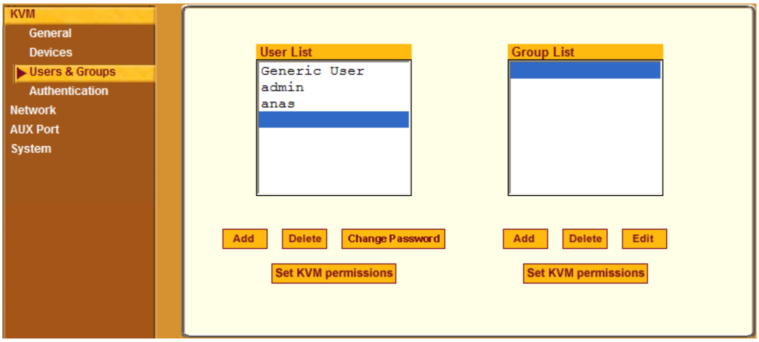
▼ *To Select Users and Groups for Assigning KVM Port Access [Expert]*

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.



User List

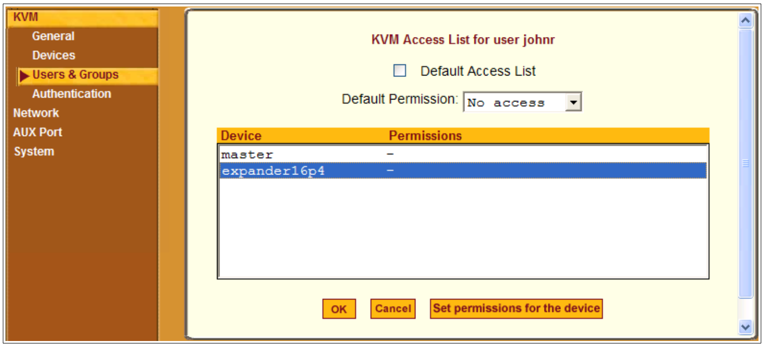
Generic User
admin
anas

Group 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.



KVM Access List for user johnr

☐ Default Access List

Default Permission: No access

Device	Permissions
master	-
expander16p4	-

Note: When the “Default Access List” check box is checked, the user or group has the same permissions that are assigned to the Generic User. Changes made on this form when a username is selected convert the user into a non-generic user.

5. Go to “To Assign KVM Port Access to a User or Group” on page 173.

▼ *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.

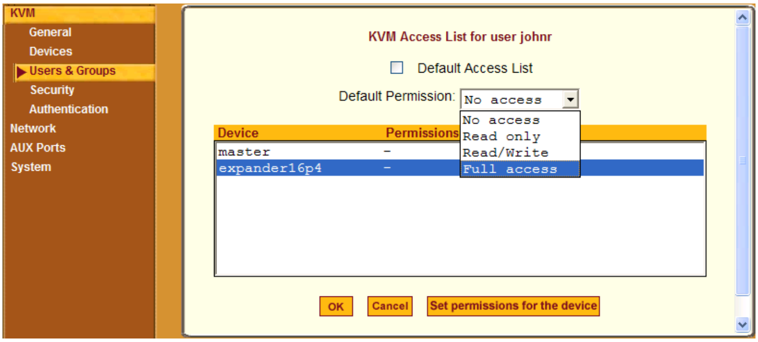
1. Go to Expert>Configuration >Users & Groups, and select a user or group.

   If needed see “To Select Users and Groups for Assigning KVM Port Access [Expert]” on page 172.

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:” pull-down menu.



KVM Access List for user johnr

□ Default Access List

Default Permission: No access

Device	Permissions
master	-
expander16p4	-

As shown in the previous screen example, the options are: “No access,” “Read only,” “Read/Write,” “Full access.”

5. To configure access to a device and all of its ports, do the following:

a. Select one or more devices from the Device list.

b. From the Default Permissions drop-down list, select the permissions you wish to apply.

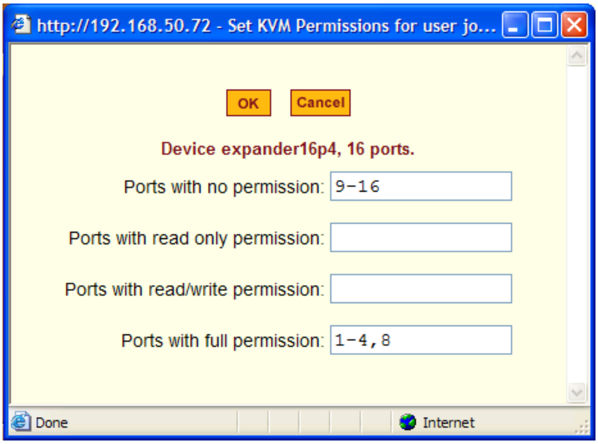
c. Go to Step 8.

6. To configure access to individual ports or groups of ports, do the following:

a. Select a device from the Device list.

b. Click the "Set permissions for the device" button.

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



Device expander16p4, 16 ports.

Ports with no permission: 9-16

Ports with read only permission:

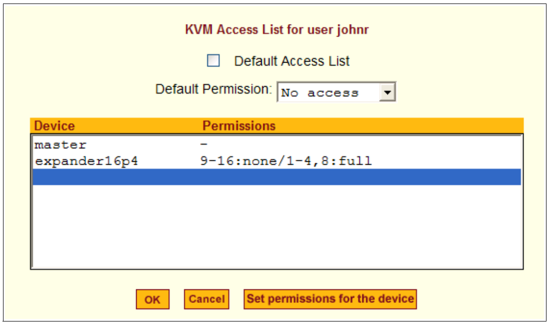
Ports with read/write permission:

Ports with full permission: 1-4,8

In the fields for each desired category, type either port aliases or numbers, separating them either by commas or dashes.

7. Click OK.

The newly-set permissions appear next to the Device name in the Permissions column, as shown in the following screen example, which shows the restrictions applied to the user name "ana."



KVM Access List for user johnr

□ Default Access List

Default Permission: No access

Device	Permissions
master	-
expander16p4	9-16:none/1-4,8:full

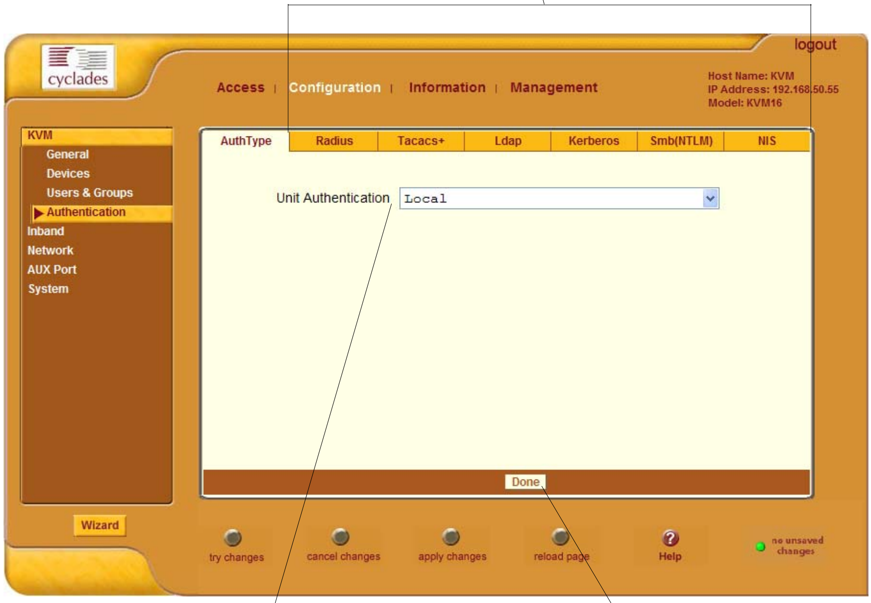
8. Click OK.

9. Click “apply changes.”

Configuring an Authentication Method

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

Authentication Form Tabs



Unit Authentication: Local

Pull-down Menu of Authentication Methods

Done Button

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 pull-down menu on the AuthType form.

  See “To Configure an Authentication Method for KVM Logins” on page 177 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 36 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 and Connected Devices” on page 179.

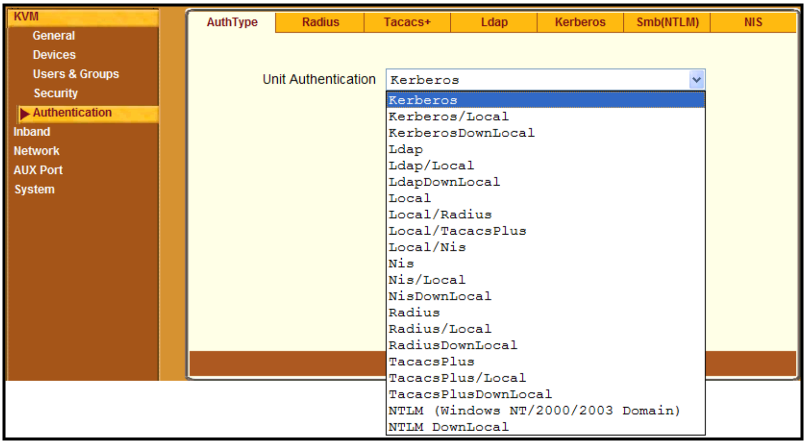
See “To Configure an Authentication Method for Logins Through KVM Ports” on page 178 for instruction on how to specify an authentication method for ports.

▼ *To Configure an Authentication Method for KVM Logins*

See “Configuring an Authentication Method” on page 176, if needed, for background information.

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

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



Unit Authentication: Kerberos

2. To specify an authentication method for logins to the KVM, select a method from the Authentication pull-down menu.

3. Make sure that an authentication server is specified for the selected authentication type.

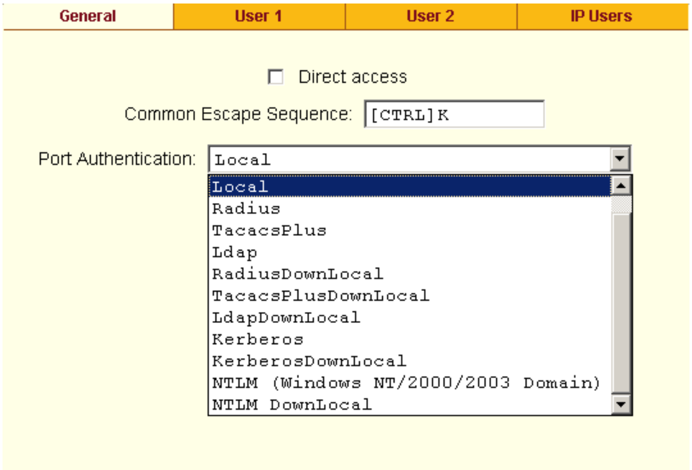
See “Configuring Authentication Servers for Logins to the KVM and Connected Devices” on page 179.

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

By default, all users can log into all ports. This procedure configures a single authentication method that applies whenever anyone attempts to log into a device connected to any KVM port.

1. Go to Expert>Configuration>General.

The General form displays.



□ Direct access

Common Escape Sequence: [CTRL]K

Port Authentication: Local

2. Select an Authentication Type from the pull-down menu.

The default option is None.

3. Make sure that an authentication server is specified for the selected authentication type.

See “Configuring Authentication Servers for Logins to the KVM and Connected Devices” on page 179.

Configuring Authentication Servers for Logins to the KVM and Connected Devices

The administrator fills out the appropriate form to set up an authentication server for every authentication method to be used by the KVM and by any of its ports: Kerberos, LDAP, NIS, NTLM/SMB (ports only), RADIUS, TACACS+.

The following table lists the procedures that apply to each authentication method.

Method	Variations	Procedures
Kerberos	Kerberos, Local/Kerberos, Kerberos/Local, or Kerberos/DownLocal	"To Identify a Kerberos Authentication Server [Expert]" on page 161
LDAP	LDAP, Local/LDAP, LDAP/Local, or LDAP/DownLocal	"To Identify an LDAP Authentication Server [Expert]" on page 163
NIS	NIS, Local/NIS, NIS/Local, or NIS/ DownLocal	"To Configure a NIS Authentication Server [Expert]" on page 165
NTLM (Windows NT/ 2000/2003 Domain)	NTLM (Windows NT/2000/2003 Domain), or NTLM/DownLocal	"To Configure an SMB(NTLM) Authentication Server [Expert]" on page 165
RADIUS	RADIUS, Local/RADIUS, RADIUS/ Local, or RADIUS/DownLocal	"To Identify a RADIUS Authentication Server [Expert]" on page 166
TACACS+	TACACS+, Local/TACACS+, TACACS+/ Local, or TACACS+/DownLocal	"To Identify a TACACS+ Authentication Server [Expert]" on page 167

▼ *To Identify a Kerberos Authentication Server*

Perform this procedure to identify the authentication server when the KVM or any of its ports is configured to use the Kerberos authentication method or any of its variations (Kerberos, Local/Kerberos, Kerberos/Local, or KerberosDownLocal.)

Before starting this procedure, find out the following information from the Kerberos server's administrator:

- Realm name and KDC address
- Host name and IP address for the Kerberos server

Also, work with the Kerberos server's administrator to ensure that following types of accounts are set up on the Kerberos server and that the administrators of the KVM 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 into 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.

Time and date synchronization is most easily achieved by setting both to use the same NTP server.

a. To specify an NTP server, follow the procedure under “To Configure Time and Date Using an NTP Server” on page 256.

b. To manually set the time and date on the KVM, follow “To Manually Set the Time and Date” on page 255.

c. Work with the authentication server’s administrator to synchronize the time and date between the KVM and the server.

3. If the KVM is not located in the PST time zone, set the timezone on the KVM.

a. Make a console connection to the KVM and log in as root,

```
KVM login: root
Password: ********
```

The root prompt appears.

```
[root@kvm root]#
```

b. Enter **`set_timezone`**.

A list of timezones appears followed by a prompt asking you to enter a number of a timezone.

```
[root@kvm root]# set_timezone
Please choose the time zone where this machine is located.
0) GMT
1) 1h West GMT
2)10h West GMT
...
26) 9h East GMT
Enter your option:
```

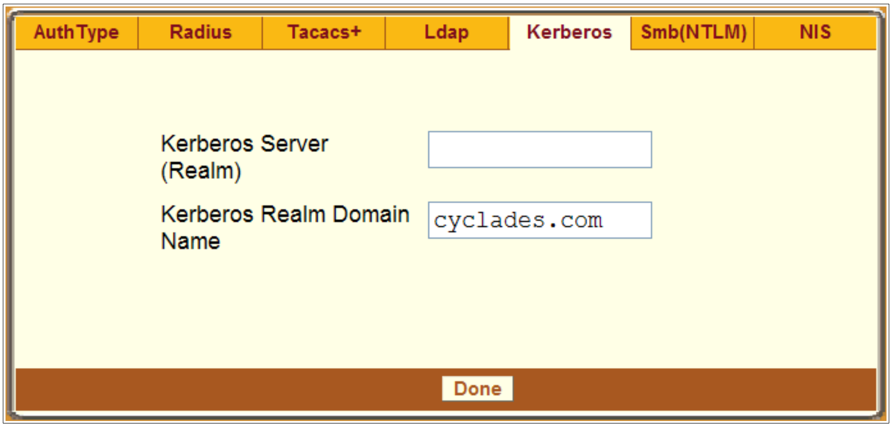
c. Enter the number of the timezone where the KVM is located.

```
Enter your option: 10
```

d. Logout from the console session and close the terminal.

4. In the Web Manager Expert mode, go to Configuration>Authentication> Kerberos.

   The Kerberos form displays as shown in the following figure.



Kerberos Server (Realm):

Kerberos Realm Domain Name: cyclades.com

5. Fill in the form according to your local setup of the Kerberos server.
6. Click “Done.”
7. Click “apply changes.”

▼ *To Identify an LDAP Authentication Server [Expert]*

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:

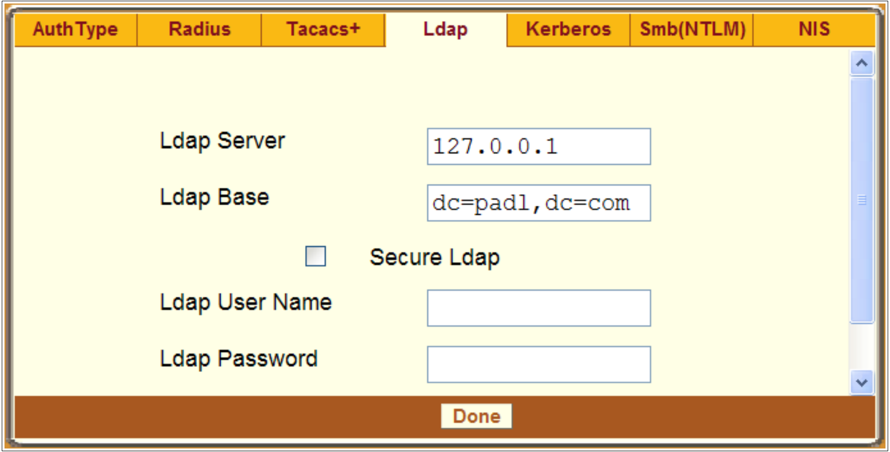
- The LDAP password
- The LDAP user name

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 into 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.



Ldap Server 127.0.0.1

Ldap Base dc=padl,dc=com

□ Secure Ldap

Ldap User Name

Ldap Password

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. Click "Done."

6. Click "apply changes."

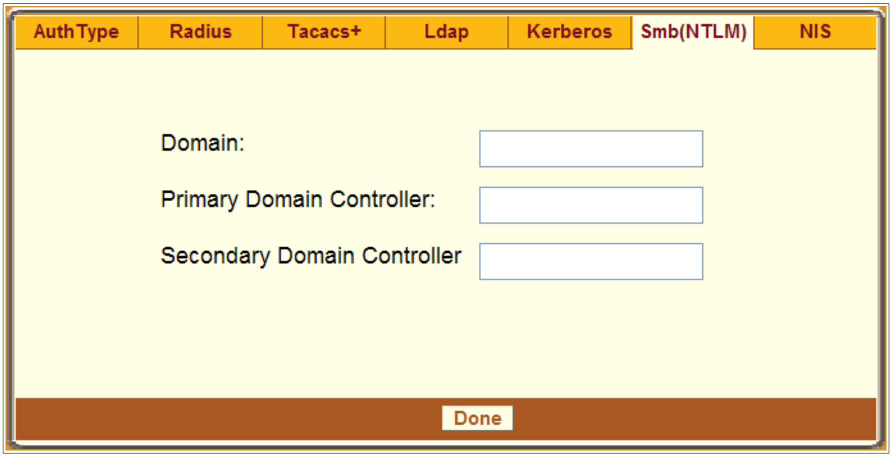
   The changes are stored in `/etc/ldap.conf` on the KVM.

▼ *To Configure an SMB(NTLM) Authentication Server [Expert]*

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.



2. Fill in the form according to your configuration of the SMB server.

3. Click "Done."

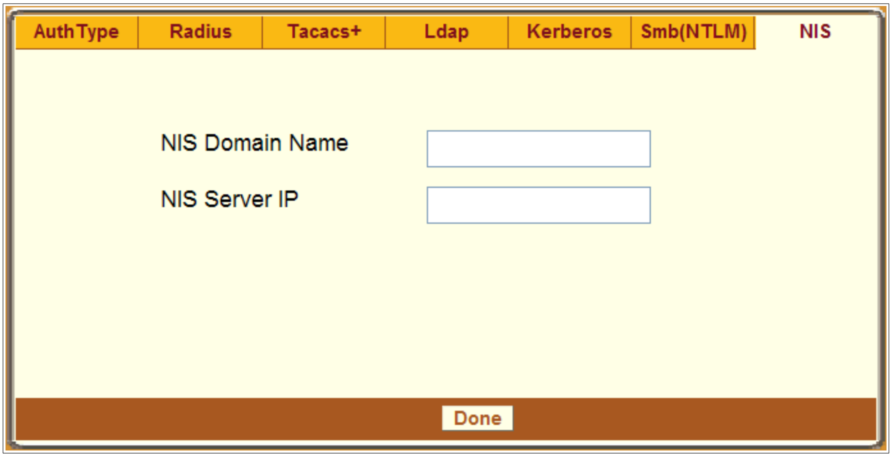
4. Click "apply changes."

▼ *To Configure a NIS Authentication Server [Expert]*

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.



NIS Domain Name

NIS Server IP

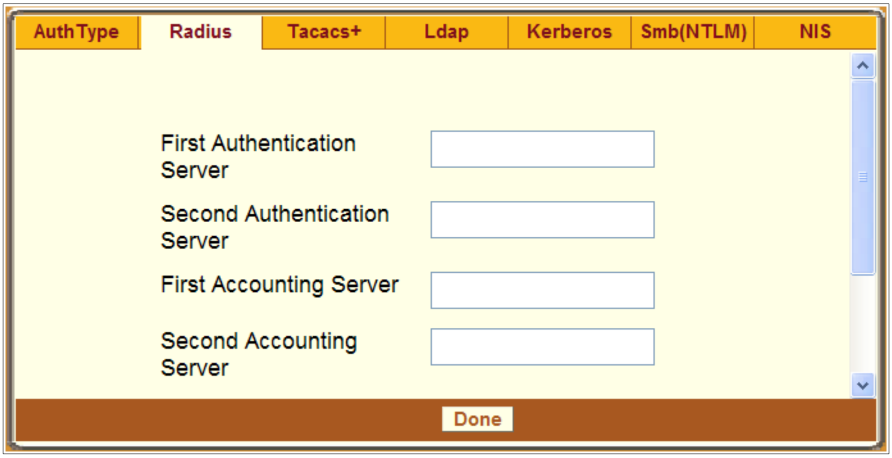
2. Fill in the form according to your configuration of the NIS server.
3. Click “Done.”
4. Click “apply changes.”

▼ *To Identify a RADIUS Authentication Server [Expert]*

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.



2. Fill in the form according to your local setup of the RADIUS server or servers.
3. Click “Done.”
4. Click “apply changes.”

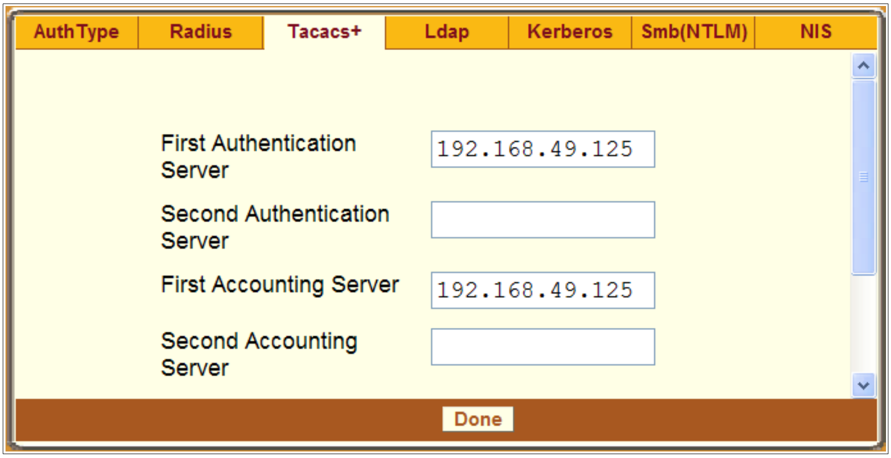
   The changes are stored in `/etc/raddb/server` on the KVM.

▼ *To Identify a TACACS+ Authentication Server [Expert]*

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.



First Authentication Server: 192.168.49.125

Second Authentication Server:

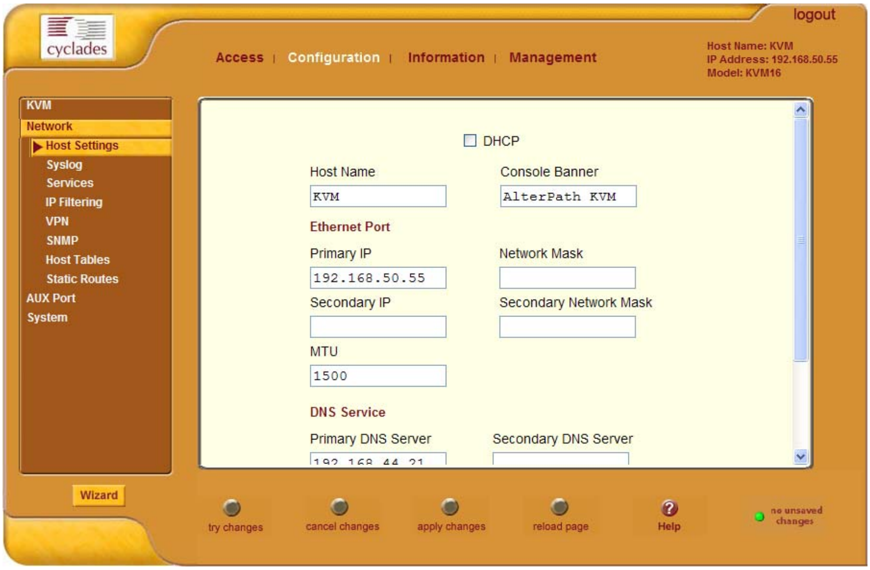
First Accounting Server: 192.168.49.125

Second Accounting Server:

2. Fill in the form according to your local setup of the TACACS+ server or servers.
3. Click “Done.”
4. Click “apply changes.”
5. The changes are stored in `/etc/tacplus.conf` on the KVM.

Network

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



☐ DHCP

Host Name: KVM

Console Banner: AlterPath KVM

Ethernet Port

Primary IP: 192.168.50.55

Network Mask:

Secondary IP:

Secondary Network Mask:

MTU: 1500

DNS Service

Primary DNS Server: 192.168.44.21

Secondary DNS Server:

Network configuration comprises eight forms:

Table 4-1: Network Forms

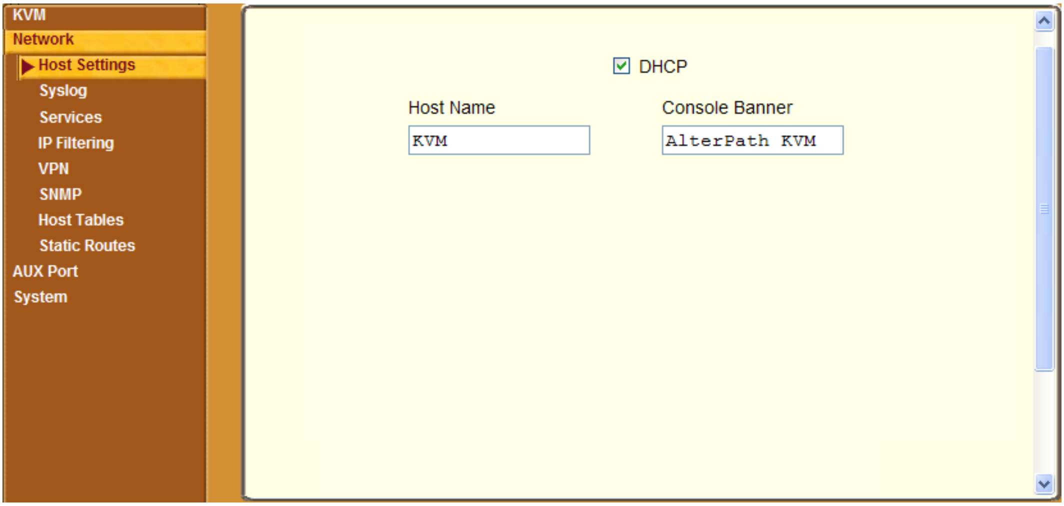
Form	Use this form to:
Host Settings	Configure host connections, including: Ethernet Port connections, DNS Service, and Name Service Access.
Syslog	Define the Syslog Servers to enable system logging.
PCMCIA Management	Configure one of the PCMCIA card slots for use with a modem card.
Services	Define or activate the method of access (*i.e.*, Telnet, SSH, SNMP, Client, or NTP).

Table 4-1: Network Forms (Continued)

Form	Use this form to:
IP Filtering	Configure the selective filtering of packets that may potentially crack your network system or generate unnecessary traffic.
VPN	Configure IPsec tunnels to establish a secure connection between KVM and a security gateway machine.
SNMP	Configure the SNMP server to manage complex networks.
Host Table	View hosts list; add, edit, and delete hosts.
Static Routes	View, create, and delete routes from the table.

Host Settings

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

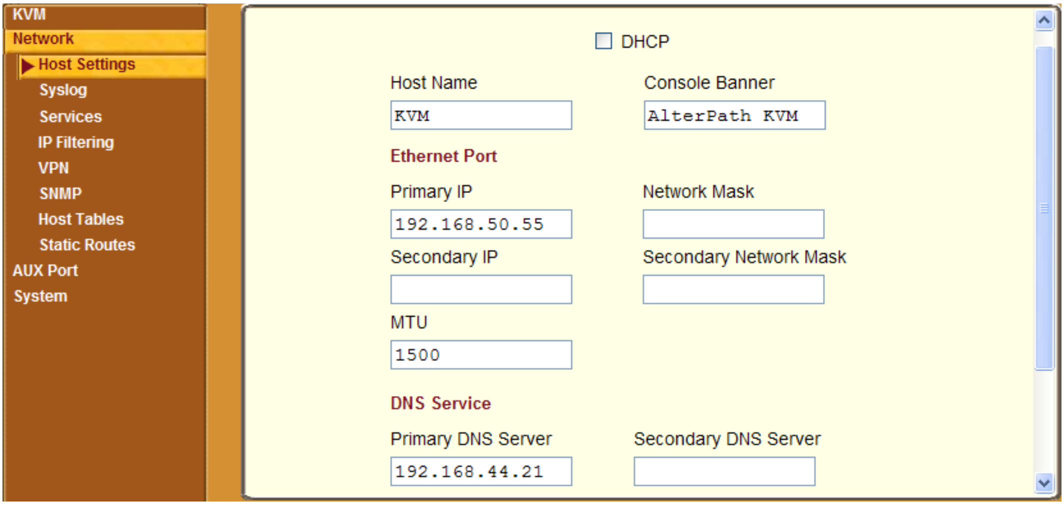


☑ DHCP

Host Name: KVM

Console Banner: AlterPath KVM

If the “DHCP” check box is not checked, then other options appear on the form as shown in the following example.



□ DHCP

Host Name: KVM

Console Banner: AlterPath KVM

Ethernet Port

Primary IP: 192.168.50.55

Network Mask:

Secondary IP:

Secondary Network Mask:

MTU: 1500

DNS Service

Primary DNS Server: 192.168.44.21

Secondary DNS Server:

▼ *To Configure Host Settings [Expert]*

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

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 4-2: 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.

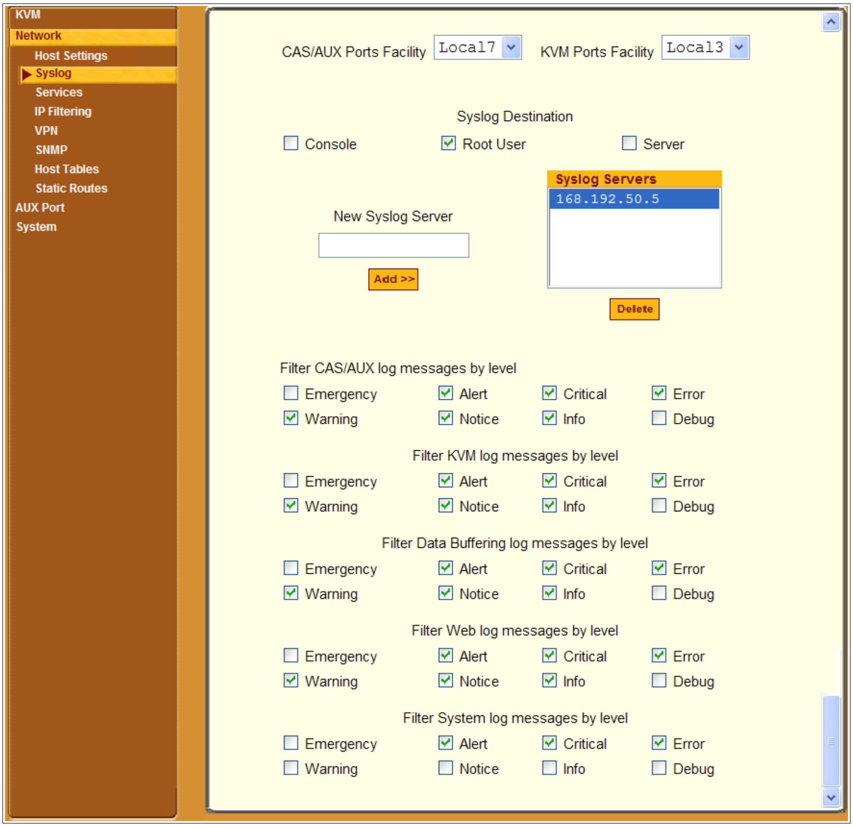
Table 4-2: Host Settings Configuration Fields (Continued)

Field Name	Definition
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.
Domain Name	The name that identifies the domain (e.g., 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.



CAS/AUX Ports Facility Local7 KVM Ports Facility Local3

Syslog Destination

□ Console ☑ Root User □ Server

New Syslog Server

Syslog Servers

168.192.50.5

Filter CAS/AUX log messages by level

□ Emergency ☑ Alert ☑ Critical ☑ Error
☑ Warning ☑ Notice ☑ Info □ Debug

Filter KVM log messages by level

□ Emergency ☑ Alert ☑ Critical ☑ Error
☑ Warning ☑ Notice ☑ Info □ Debug

Filter Data Buffering log messages by level

□ Emergency ☑ Alert ☑ Critical ☑ Error
☑ Warning ☑ Notice ☑ Info □ Debug

Filter Web log messages by level

□ Emergency ☑ Alert ☑ Critical ☑ Error
☑ Warning ☑ Notice ☑ Info □ Debug

Filter System log messages by level

□ Emergency ☑ Alert ☑ Critical ☑ Error
□ Warning □ Notice □ Info □ Debug

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 KVM ports and AUX ports 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 134 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 "CAS/AUX log;" "KVM log;" "Data Buffering log;" "Web log;" or "System log."

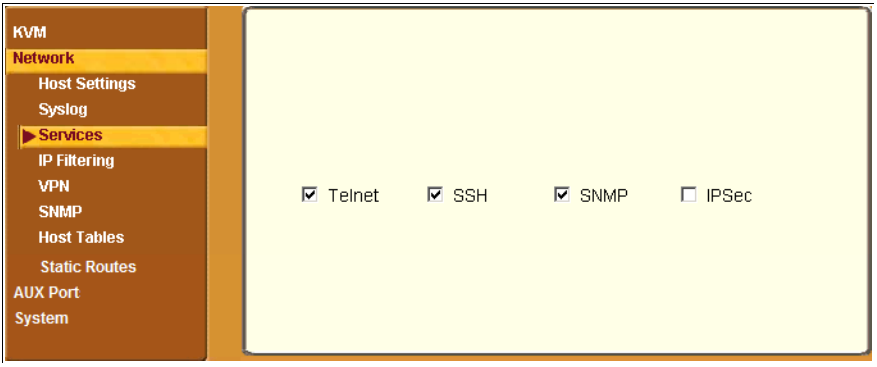
▼ *To Configure Syslogging for KVM Ports and Specify Message Filtering [Expert]*

1. Go to Configuration>Network>Syslog in Expert mode.

   The Syslog form displays.
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 or AUX ports by selecting the number from the "CAS/AUX Ports Facility" pull-down menu.
5. Select a facility number for messages generated by KVM ports by selecting the number from the "KVM Ports Facility" pull-down menu.
6. Click "apply changes."

Services

Selecting Configuration>Network>Services in Expert Mode, brings up the following form.



☑ Telnet ☑ SSH ☑ SNMP □ IPSec

By selecting the appropriate box, the Services form allows you to enable or disable the daemons to use to allow different incoming connections.

Note: If you plan on using VPN, make sure to enable IPsec.

Depending on the security requirements of your site, you may want to enable or disable the daemons that support the following types of connections:

- telnet [enabled by default]
- SSH [enabled by default]
- SNMP [enabled by default]
- IPSec

Each of these services is required when telnet, ssh, SNMP, or VPN are configured, as described in the following table.

Service Name	Notes and Where Documented
Telnet	Enable telnet if users need to access the KVM through telnet.
SNMP	Enable “SNMP” if you configure SNMP in “To Configure SNMP” on page 216.
IPsec	Enable “IPsec” if you configure VPN in “To Configure VPN” on page 213.

▼ To Select the Daemons Used for Incoming Connections

1. In Expert mode got to: Configuration>Network>Services.

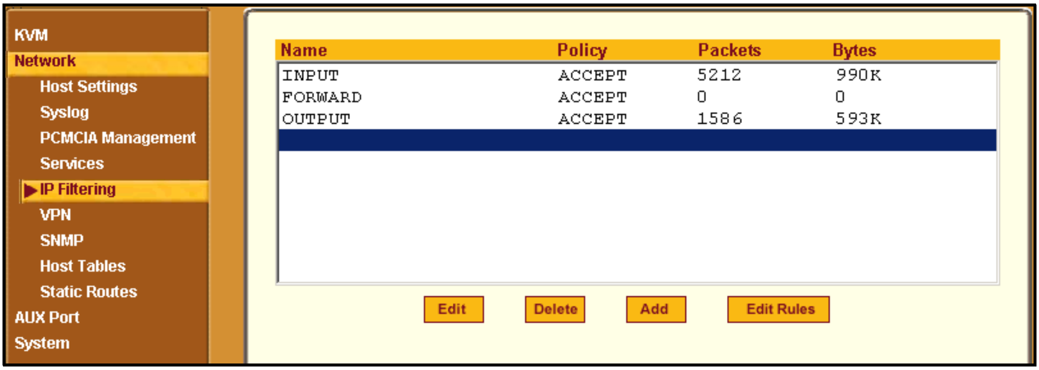
   The Services form appears.

2. Select or clear the check boxes next to the desired service(s) to enable or disable the service.

3. Select “apply changes” when done.

IP Filtering

Selecting Configure>Network>IP Filtering in Expert mode brings up the IP Filtering form as shown in the following figure.



Name	Policy	Packets	Bytes
INPUT	ACCEPT	5212	990K
FORWARD	ACCEPT	0	0
OUTPUT	ACCEPT	1586	593K

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

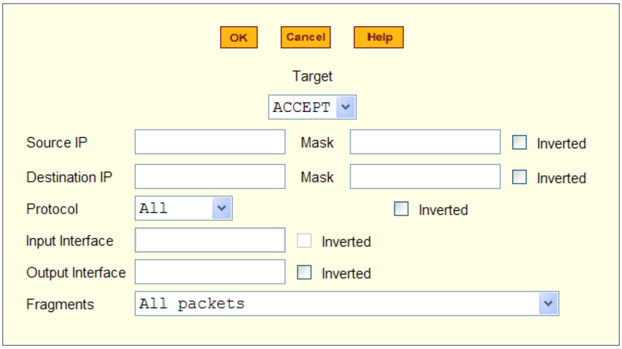
The KVM uses chains and rules for filtering packets like a firewall. Each entry in the list represents a chain with a set of rules.

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.



Target: ACCEPT

Source IP: Mask: □ Inverted

Destination IP: Mask: □ Inverted

Protocol: All □ Inverted

Input Interface: □ Inverted

Output Interface: □ Inverted

Fragments: All packets

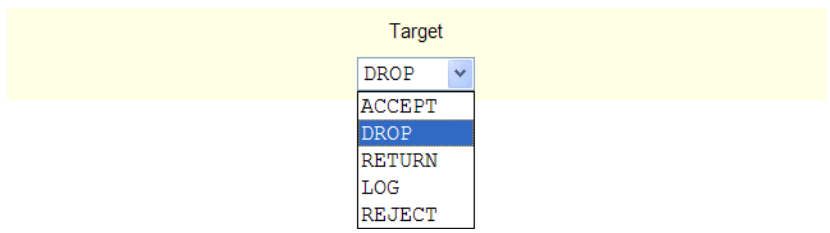
Inverted Check Boxes

If you check the "Inverted" check box on any line, the target action is performed on packets that do not match any of the criteria specified in that line when any other specified criteria are also met.

For example, if you select DROP as the target action, check "Inverted" on the line with a source IP address specified, and do not specify any other criteria in the rule, any packets arriving from any other source IP address than the one specified are dropped.

Target Pull-down Menu Options

The "Target" is the action to be performed on an IP packet that matches all the criteria specified in a rule.The target pull-down menu is shown in the following figure.


Target: DROP

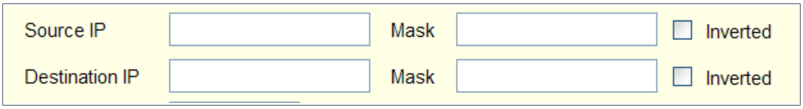
If the “LOG” and “REJECT” targets are selected, additional fields appear as described under “LOG Target” on page 201 and “REJECT Target” on page 202.

Source or Destination IP and Mask

If you fill in the “Source IP” field, incoming packets are filtered for the specified IP address. If you fill in the “Destination IP” field, outgoing packets are filtered for the specified IP address.

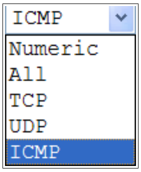
If you fill in either “Mask” field, incoming or outgoing packets are filtered for IP addresses from the network in the specified netmask.

The source and destination IP and related fields are shown in the following figure.


Source IP ____ Mask ____ □ Inverted
Destination IP ____ Mask ____ □ Inverted

Protocol

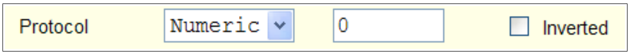
You can select a protocol for filtering from the “Protocol” pull-down menu, which is shown in the following figure.


ICMP

The additional fields that appear for each protocol are explained in the following sections.

Numeric Protocol Fields

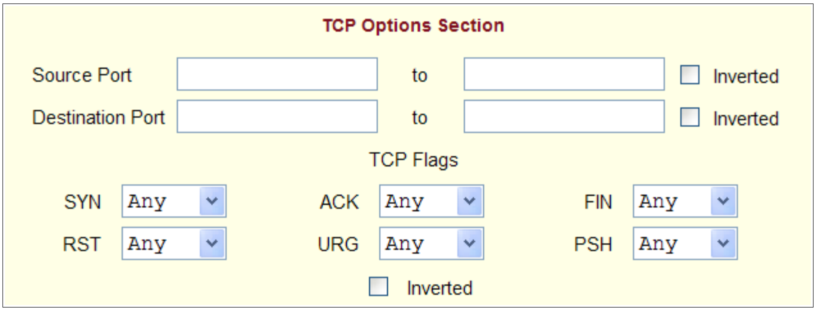
If you select Numeric as the protocol when specifying a rule, a text field appears to the right of the menu for you to enter the desired number, as shown in the following figure.



Protocol Numeric 0 □ Inverted

TCP Protocol Fields

If you select TCP as the protocol when specifying a rule, the additional fields shown in the following figure appear for you to fill out at the bottom of the form.



TCP Options Section

Source Port ____ to ____ □ Inverted

Destination Port ____ to ____ □ Inverted

TCP Flags

SYN Any ACK Any FIN Any

RST Any URG Any PSH Any

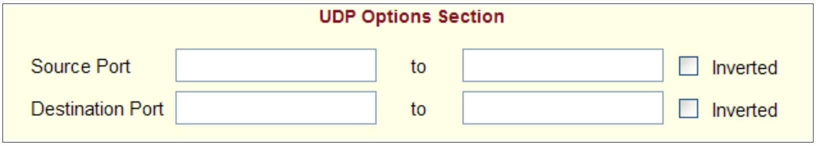
□ Inverted

The following table defines the fields and menu options in the “TCP Options Section.”

Field/Menu Option	Definition
Source Port - OR - **Destination Port** -AND- **to**	You can specify a source or destination port number for filtering in the “Source Port” or “Destination Port” field. If you specify a second number in the “to” field, TCP packets are filtered for any port number within the range that starts with the first port number and that ends with the second.
TCP Flags	You can select the check box next to any of the TCP flags: “SYN” (synchronize), “ACK” (acknowledge), “FIN” (finish), “RST” (reset), “URG” (urgent), or “PSH” (push) and select either “Any,” “Set,” or “Unset,” TCP packets are filtered for the specified flag and the selected condition.

UDP Protocol Fields

If you select UDP as a protocol when specifying a rule, the additional fields shown in the following figure appear at the bottom of the form.



UDP Options Section

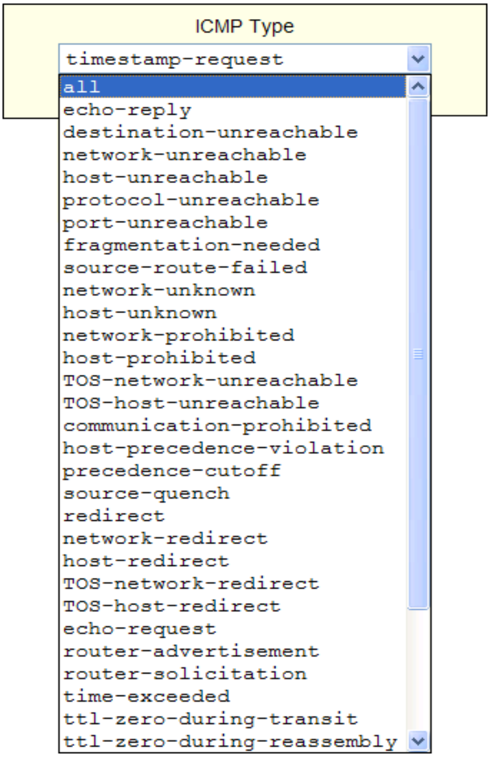
Source Port		to		□ Inverted
Destination Port		to		□ Inverted

The following table defines the fields in the UDP Options Section.

Field	Definition
Source Port - OR - **Destination Port** -AND- **to**	Specify a source or destination port number for filtering in the “Source Port” or “Destination Port” field. You can specify a source or destination port number for filtering in the “Source Port” field. If you specify a second number in the “to” field, TCP packets are filtered for any port number within the range that starts with the first port number and that ends with the second.

ICMP Protocol Fields

If you select ICMP as a protocol when specifying a rule, the ICMP Type pull-down menu appears in the ICMP Options Section at the bottom of the IP Filtering form. The following figure shows the options.



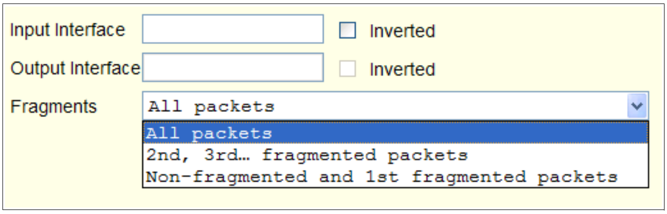
ICMP Type

timestamp-request

Input Interface, Output Interface, and Fragments

If you enter an interface (such as `eth0` or `eth1`) in the “Input Interface” field, incoming packets are filtered for the specified interface. If you enter an interface in the “Output Interface” field, outgoing packets are filtered for the specified interface.

These fields are shown in the following figure.



Input Interface □ Inverted

Output Interface □ Inverted

Fragments: All packets

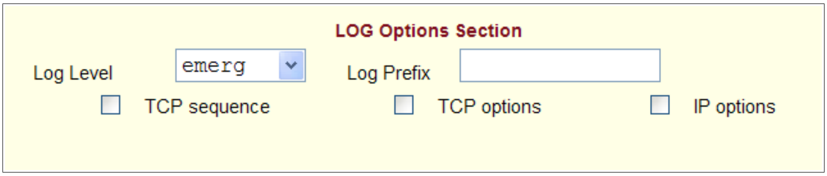
All packets
2nd, 3rd… fragmented packets
Non-fragmented and 1st fragmented packets

The following table defines the fields in the previous figure.

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

LOG Target

If you select “LOG” from the “Target” field, the following fields and menus appear in the “LOG Options Section” at the bottom of the form.



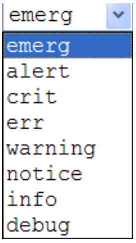
LOG Options Section

Log Level: emerg

Log Prefix:

□ TCP sequence □ TCP options □ IP options

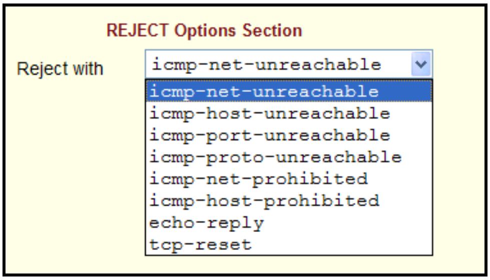
The following table defines the menu options, field, and check boxes in the “LOG Options Section.”

Field or Menu Name	Definition
Log Level	One of the options in the pull-down menu:  emerg emerg alert crit err warning notice info debug
Log Prefix	The prefix to use in the log entry.

Field or Menu Name	Definition
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 pull-down menu, the following pull-down menu appears



REJECT Options Section

Reject with: icmp-net-unreachable

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 [Expert]	Page 203
To Edit a Chain [Expert]	Page 203
To Edit a Rule for IP Filtering	Page 204
To Add a Packet Filtering Rule [Expert]	Page 205

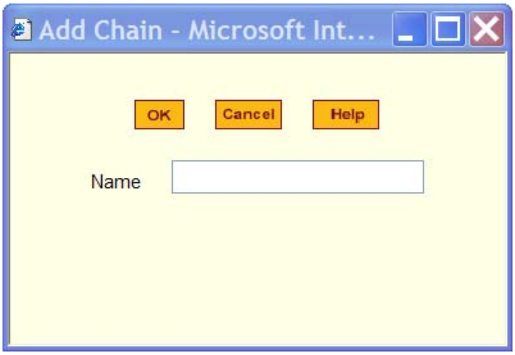
▼ *To Add a Chain [Expert]*

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” on page 245.

▼ *To Edit a Chain [Expert]*

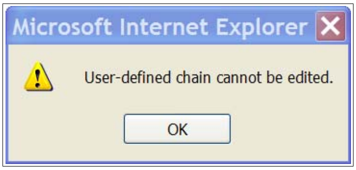
Perform this procedure if you want to change the policy for a default chain.

Note:User-defined chains cannot be edited.

1. Go to Configuration>Network >Firewall Configuration in Expert Mode.

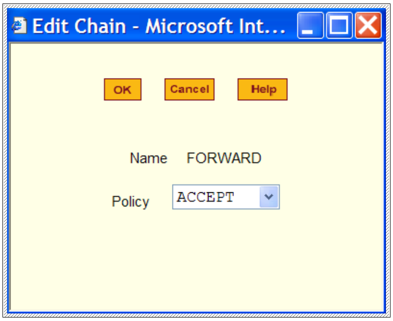
2. Select one of the default chains from Chain list, and then click the “Edit” button.

   If you select a user-defined chain, the following dialog box appears.



User-defined chain cannot be edited.

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



Name FORWARD

Policy ACCEPT

3. Select the desired policy from the Policy pull-down menu, 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 207 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 195 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 [Expert]*

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.”

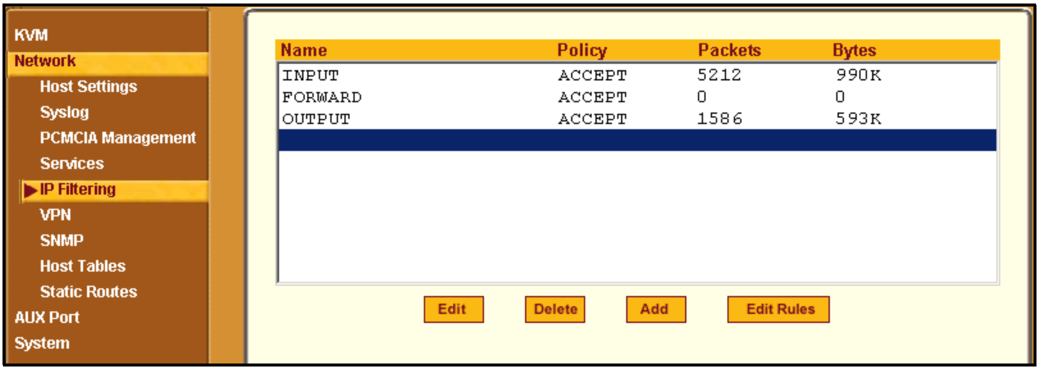
You can perform the following task from the IP Filtering Form:

- “To Add a Chain for IP Filtering” on page 205
- “To Edit A Chain for IP Filtering” on page 207
- “To Add a Rule for IP Filtering” on page 207
- “To Edit a Rule for IP Filtering” on page 204

▼ *To Add a Chain for IP Filtering*

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

   The IP Filtering configuration form appears.

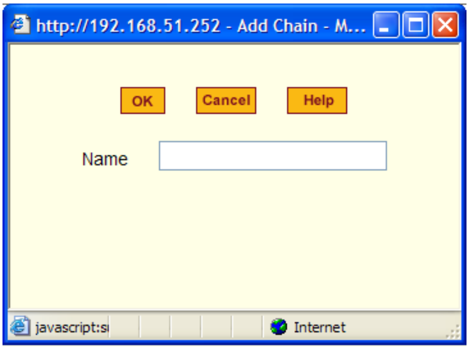


Name	Policy	Packets	Bytes
INPUT	ACCEPT	5212	990K
FORWARD	ACCEPT	0	0
OUTPUT	ACCEPT	1586	593K

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 207.

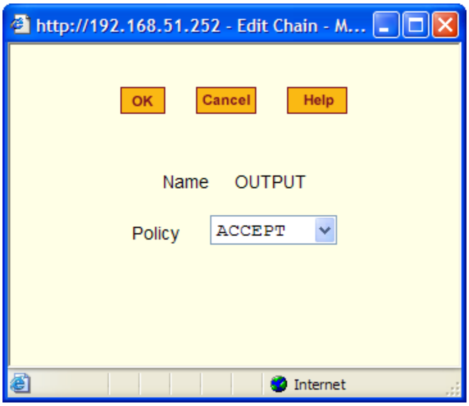
▼ To Edit A Chain for IP Filtering

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

   The IP Filtering configuration form appears.

2. Select the Chain you wish to edit from the Chain list box (or filter table), and select the Edit button.

   The Edit Chain dialog box appears.



Name OUTPUT

Policy ACCEPT

3. Modify the Policy field, as needed, and select OK.

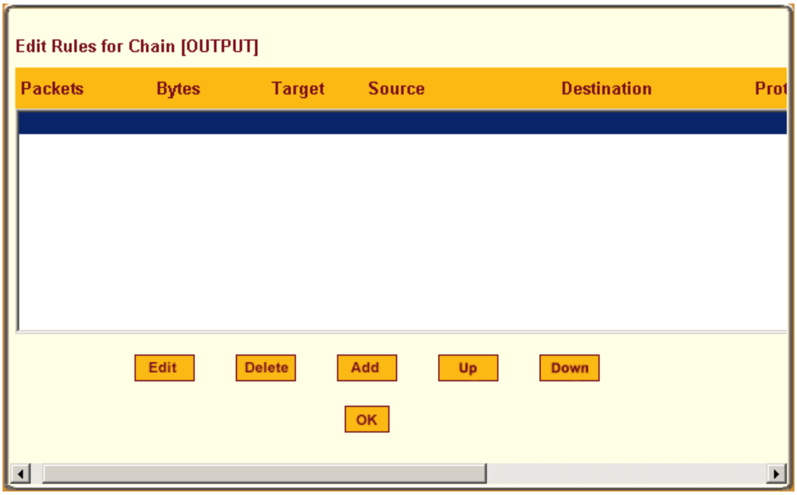
4. Verify your entry from the main form and click “apply changes” to save your changes.

5. If you need to add any rules for this chain, go to “To Add a Rule for IP Filtering” on page 207.

▼ To Add a Rule for IP Filtering

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

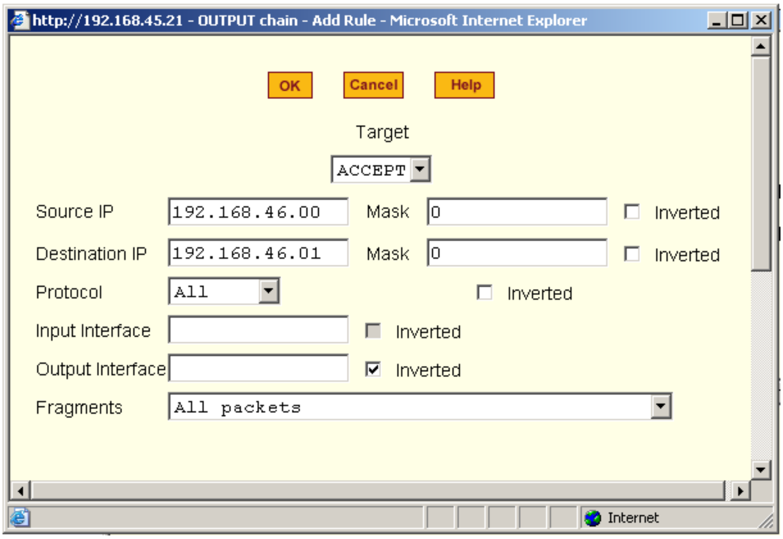
   The IP Filtering configuration form appears.



Edit Rules for Chain [OUTPUT]

2. Click the Add button.

   The Add Rule dialog box appears.



http://192.168.45.21 - OUTPUT chain - Add Rule - Microsoft Internet Explorer

Target: ACCEPT

Source IP	192.168.46.00	Mask	0	□ Inverted
Destination IP	192.168.46.01	Mask	0	□ Inverted
Protocol	All		□ Inverted	
Input Interface		□ Inverted		
Output Interface		☑ Inverted		
Fragments	All packets			

3. Complete the following data fields as necessary:

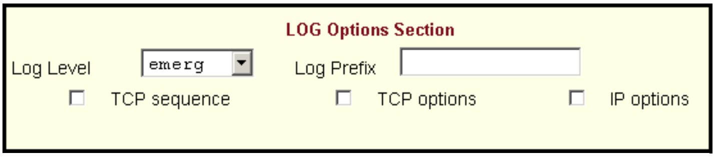
Field Name	Definition
Target	Indicates the action to be performed to the IP packet when it matches the rule. For example, the kernel can ACCEPT DROP, RETURN, LOG or REJECT the packet by sending a message, translating the source or the destination IP address/port or sending the packet to another user-defined 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.
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.

Field Name	Definition
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.
Inverted	Select box adjacent to Output Interface to invert the target action. For example, the action assigned to the target will be performed to all interfaces except to the one just defined.
Fragments	Indicates the fragments or unfragmented packets to be checked. The IP Tables can check for: • All Packets • 2nd, 3rd... fragmented packets • Non-fragmented and 1st fragmented packets
ICMP Type	This dropdown list box contains all the ICMP types that may be applied to the current rule.

Field Name	Definition
Inverted	This ICMP option will be applied to all rules except the currently selected rule.

4. Complete the following additional fields as necessary:

- If you selected Log from the Target field, the following options also appear.



LOG Options Section

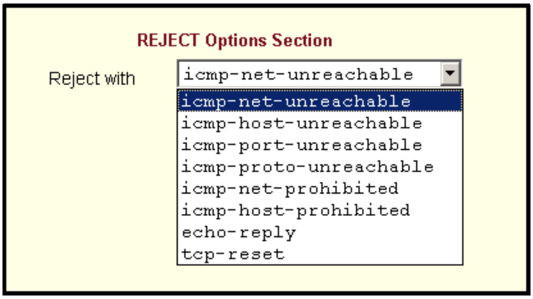
Log Level: emerg

Log Prefix:

□ TCP sequence □ TCP options □ IP options

Field Name	Definition
Log Level	The log level classification to be used based on the type of error message (such as, alert, warning, info, debug, and so on.).
Log Prefix	The prefix that will identify the log.
TCP Sequence	Check box to include TCP sequence in the log.
TCP Options	Check box to include TCP options in the log.
IP Options	Check box to include IP options in the log.

- If you selected Reject from the Target field, the following field appears:



REJECT Options Section

Reject with: icmp-net-unreachable

"Reject with" means that the filter drops the input packet and sends back a reply packet according to any of the reject types listed below.

Using tcp flags and appropriate reject type, the packets are matched with the REJECT target. The following options are available:

- icmp-net-unreachable – ICMP network unreachable alias
- icmp-host-unreachable – ICMP host unreachable alias
- icmp-port-unreachable – ICMP port unreachable alias
- icmp-proto-unreachable – ICMP protocol unreachable alias
- icmp-net-prohibited – ICMP network prohibited alias
- icmp-host-prohibited – ICMP host prohibited alias
- echo-reply – Echo reply alias
- tcp-reset – TCP RST packet alias

5. Click on the OK button when done.

6. Click on "apply changes."

VPN

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.

A VPN, or Virtual Private Network lets the KVM and a whole network communicate securely when the only connection between them is over a third network which is untrustable. A gateway must exist on the remote network that is capable of encrypting packets going to the KVM and decrypting packets from the KVM. This creates a security tunnel between the KVM and the gateway. The gateway machine and the KVM encrypt packets entering the untrusted net and decrypt packets leaving it, creating a secure tunnel through it.

Often it may be useful to have explicitly configured IPsec tunnels between the KVM and a gateway of an office with a fixed IP address (in this case every machine on the office network would have a secure connection with the KVM), or between the KVM and the KVM administrator machine, which must, in this case, have a fixed IP address. You can add this connection descriptor to both the Console Server and the other end. This is the advantage of using left and right instead of using local remote parameters.

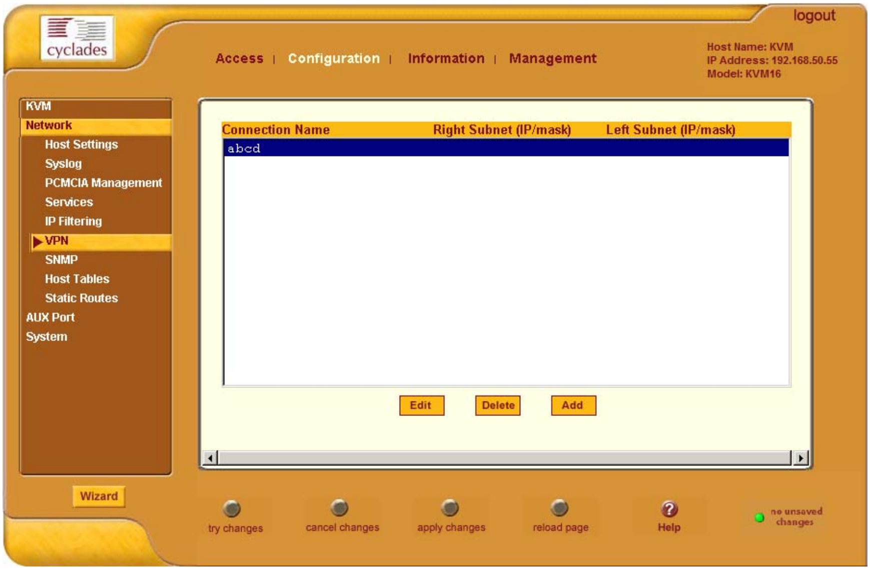
If you give an explicit IP address for left (and left and right are not directly connected), then you must specify leftnexthop (the router which KVM sends packets to in order to get them delivered to right). Similarly, you may need to specify rightnexthop (vice versa).

▼ *To Configure VPN*

For the VPN to function to properly, ensure that you have also enabled IPsec on the Services form. See “To Select the Daemons Used for Incoming Connections” on page 195 for instructions on configuring IPsec.

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

   The VPN form appears.



Host Name: KVM
IP Address: 192.168.50.55
Model: KVM16

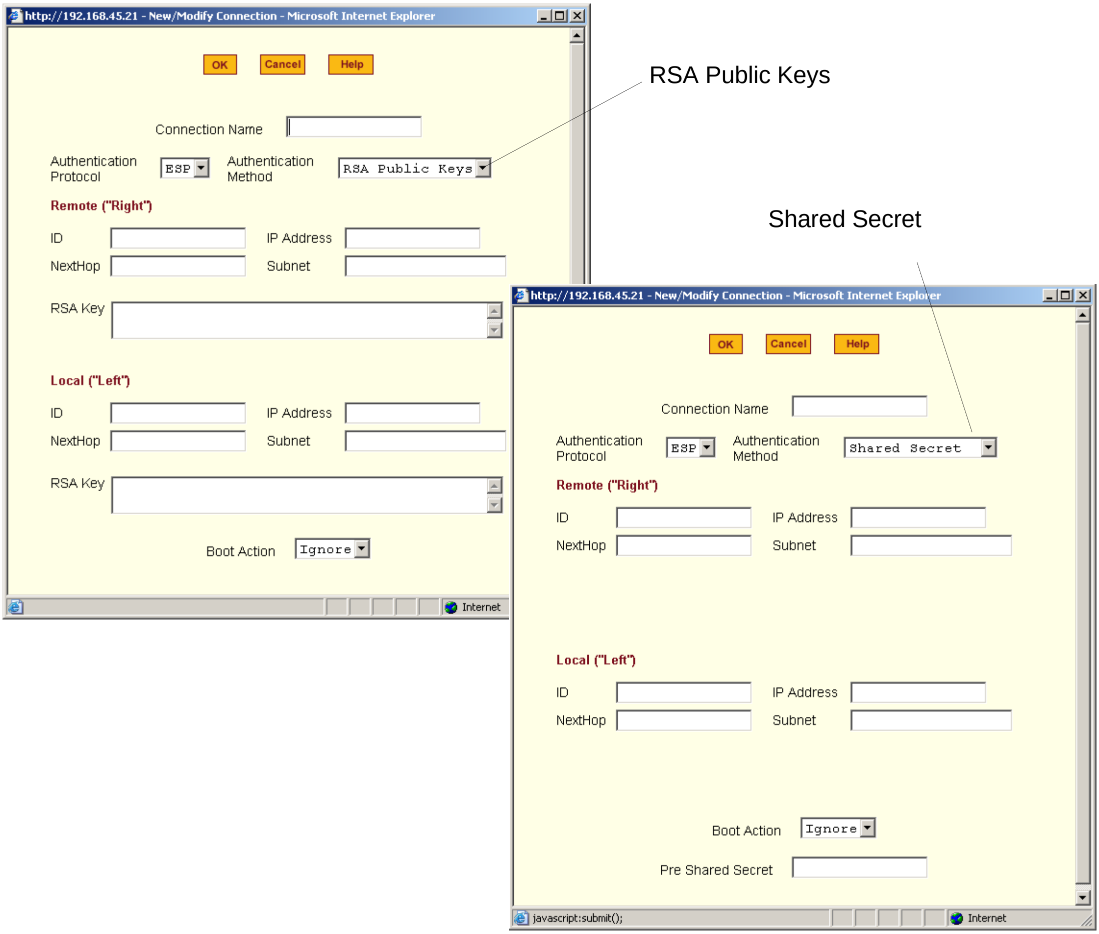
Connection Name	Right Subnet (IP/mask)	Left Subnet (IP/mask)
abcd		

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.



Authentication Protocol ESP
Authentication Method RSA Public Keys
Boot Action Ignore

Authentication Protocol ESP
Authentication Method Shared Secret
Boot Action Ignore

RSA Public Keys

Shared Secret

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	Name of the VPN connection.

Field Name	Definition
Authentication Protocol	Authentication protocol used to establish a VPN connection.
Authentication Method	Authentication method used to establish a VPN connection.
Remote (“Right”)	
ID	The identification name of the remote host, commonly referred to as the “right” host.
IP Address	Remote IP address.
NextHop	The router to which the Console Server sends packets in order to deliver them to the left.
Subnet Mask	As indicated.
RSA Key	You may use the copy and paste feature of your browser to enter the RSA key.
Local (“Left”)	
ID	The identification name of the local host, commonly referred to as the “left” host.
IP Address	The IP address of the local or left host.
NextHop	The router to which the Console Server sends packets in order to deliver them to the right.
Subnet Mask	As indicated
RSA Key	You may use the copy and paste feature of your browser to enter the RSA key.
Boot Action	The boot action configured for the local host.

Field Name	Definition
Pre-Shared Secret	Pre-shared password between left and right users.

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.

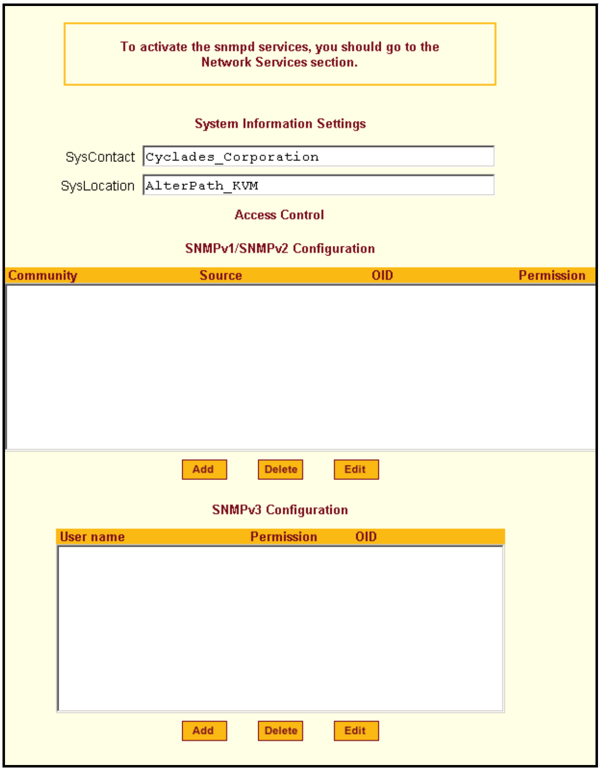
SNMP is configured with community names, OID and user names. The KVM supports SNMP v1, v2, and v3. The two versions require different configurations. SNMP v1/v2 requires community, source, object ID and the type of community (read-write, read-only). V3 requires user name.

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.



To activate the snmpd services, you should go to the Network Services section.

System Information Settings

SysContact: Cyclades_Corporation

SysLocation: AlterPath_KVM

Access Control

SNMPv1/SNMPv2 Configuration

Community	Source	OID	Permission

SNMPv3 Configuration

User name	Permission	OID

2. Enter the following system information, as necessary:

Field Name	Definition
Community	The community name acts as a password to authenticate messages sent between an SNMP client and a router containing an SNMP server. The community name is sent in every packet between the client and the server.
SysContact	The email of the person to contact regarding the host on which the agent is running (e.g., me@mymachine.mydomain)
SysLocation	The physical location of the system (e.g., mydomain).

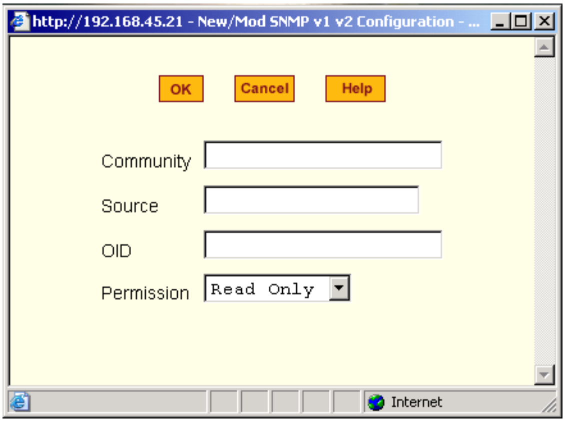
If you are using SNMPv3, skip to Step 6.

3. To Add an SNMP agent using SNMPv1/SNMP2 Configuration, select the Add button located at the bottom of this view table.

OR

To edit an SNMP agent, select the Edit button.

The New/Modify SNMP Daemon Configuration dialog box appears.


http://192.168.45.21 - New/Mod SNMP v1 v2 Configuration - ...
OK
Cancel
Help
Internet

Community

Source

OID

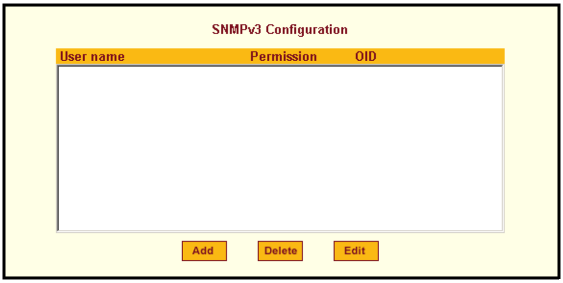
Permission Read Only

4. Complete the dialog box as follows:

Field Name	Definition
Community	The community name acts as a password to authenticate messages sent between an SNMP client and a router containing an SNMP server. The community name is sent in every packet between the client and the server.
Source	The source IP address or range of IP address.
OID	Object Identifier.

Field Name	Definition
Permission	Select the permission type: • Read Only – Read-only access to the entire MIB except for SNMP configuration objects. • Read/Write – Read-write access to the entire MIB except for SNMP configuration objects. • Admin – Read-write access to the entire MIB.

5. If you are adding or editing an SNMP agent using SNMPv3, scroll down to the lower half of the SNMP Configuration form and select the Add button located at the bottom of this view table

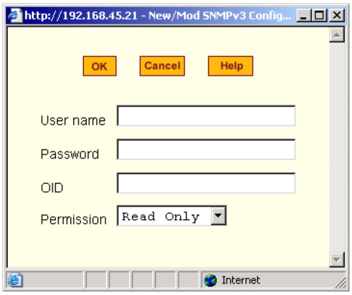

SNMPv3 Configuration

User name	Permission	OID

6. To add an SNMP agent using SNMPv3, click Add.

7. To edit an SNMP agent using SNMPv3, click Edit.

   The New/Modify SNMP Daemon Configuration dialog box.


http://192.168.45.21 - New/Mod SNMPv3 Config...

User name

Password

OID

Permission: Read Only

8. Complete the form and when done.

Field Name	**Definition**
Username	Name of user account accessing the KVM/net Plus.
Source	The source IP address or range of IP address.
OID	Object Identifier.
Permission	Select the permission type: • Read Only – Read-only access to the entire MIB except for SNMP configuration objects. • Read/Write – Read-write access to the entire MIB except for SNMP configuration objects.

9. Click the OK button.

10. Verify your entry or modification on the SNMP form.

11. Click “apply changes” to complete the procedure.

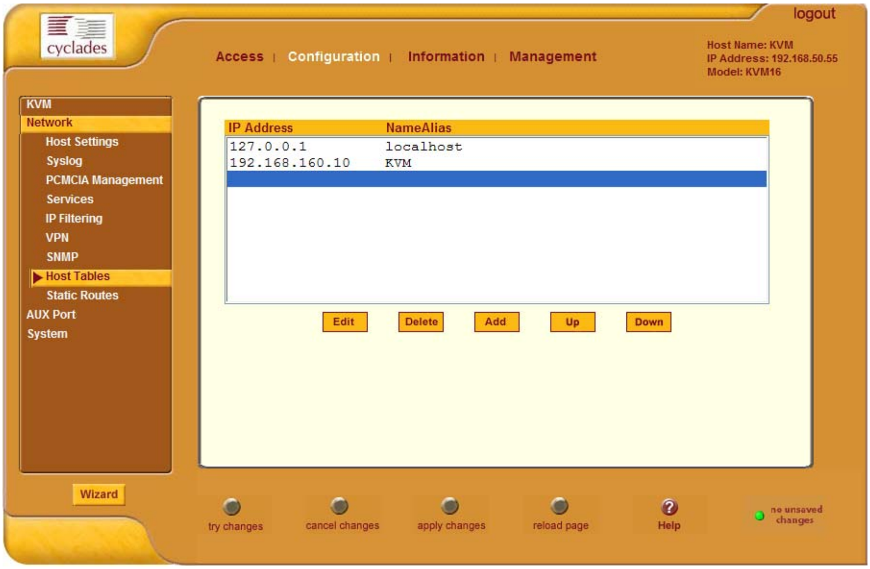
Host Tables

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.



Host Name: KVM
IP Address: 192.168.50.55
Model: KVM16

IP Address	NameAlias
127.0.0.1	localhost
192.168.160.10	KVM

2. Do on of the following:

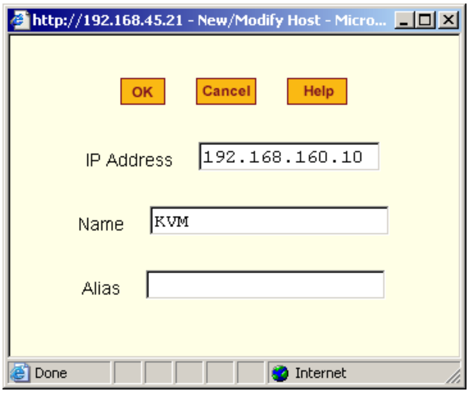
   - To edit a host, select the host IP address from the Host Table and then click the Edit button.

     If the list is long, use the Up and Down buttons to go through each item in the list.

   - OR -

   - To add a host, click the Add button.

   The New/Modify Host dialog box appears.



IP Address 192.168.160.10

Name KVM

Alias

3. Enter the new or modified host address in the IP Address field and the host name in the Name field.
4. Click the OK button.
5. To delete a host, select the host you wish to delete from the Host Table form, and select the Delete button on the form.
6. Select “apply changes” to save your configuration to Flash.

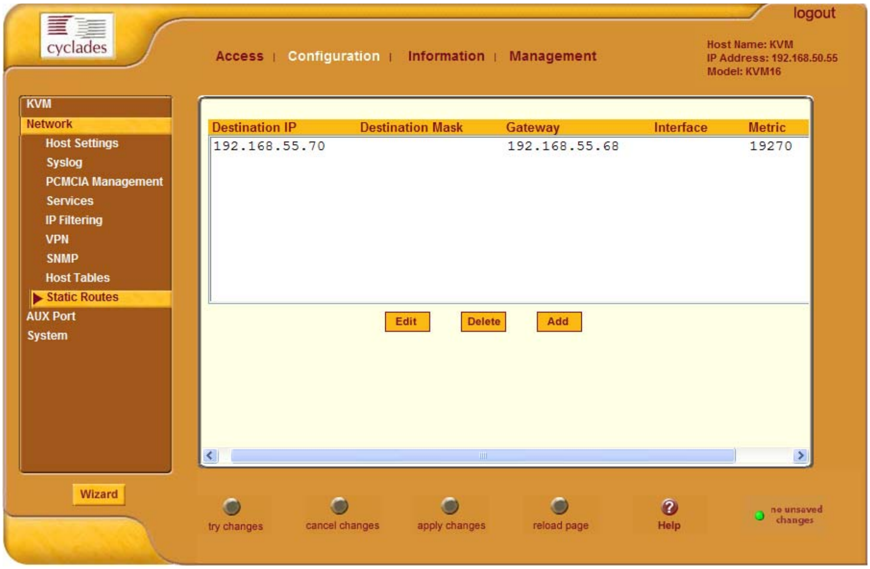
Static Routes

The Static Routes form allows you to manually add routes. The Routing Table defines which interface should transmit an IP packet based on destination IP information. Static routes are a quick and effective way to route data from one subnet to another.

To Add, Edit, or Delete a Static Route

1. In Expert mode, go to: Configure > Network > Static Routes.

   The Static Routes table form appears.



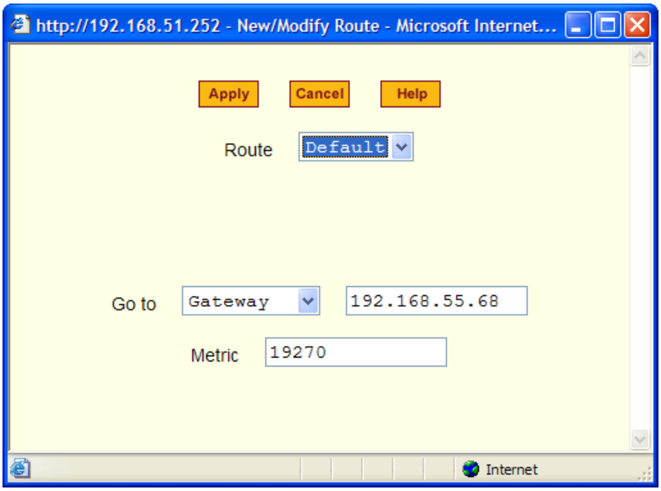
Host Name: KVM
IP Address: 192.168.50.55
Model: KVM16

Destination IP	Destination Mask	Gateway	Interface	Metric
192.168.55.70		192.168.55.68		19270

2. Do one of the following:
   - To edit a static route, select a route from the Static Routes form, and click the Edit button.

- To add a static route, select the Add button from the form.

The New/Modify Route dialog box appears.


http://192.168.51.252 - New/Modify Route - Microsoft Internet...
Apply
Cancel
Help
Internet

Route: Default
Go to: Gateway, 192.168.55.68
Metric: 19270

3. Complete the dialog box as follows:

Table 4-3: 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 4-3: Add/Modify Static Routes Fields

Field Name	Definition
Metric	The number of hops.

4. Click the Apply button to close the dialog box.

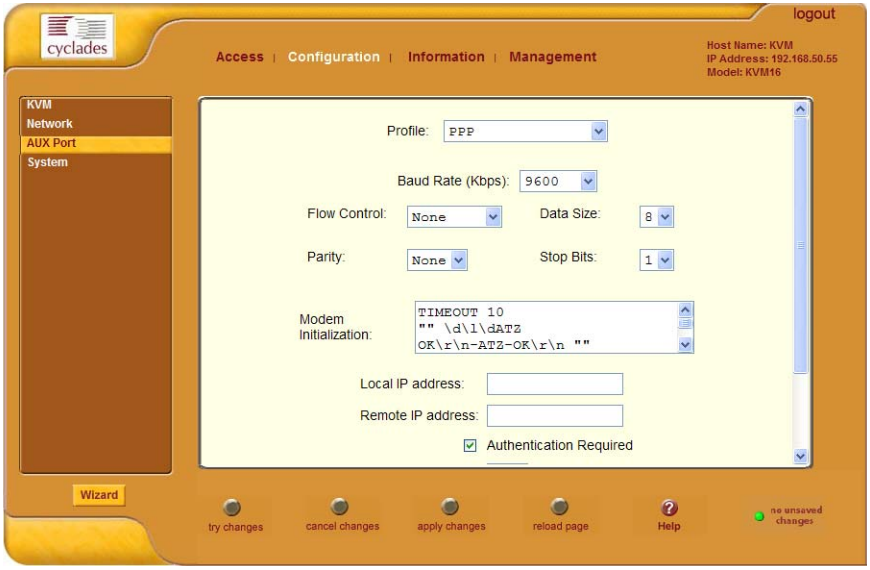
The new or modified route appears in the list.

5. To delete a static route, select a route from the list and click Delete.

6. Click “apply changes.”

AUX Port

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



Host Name: KVM
IP Address: 192.168.50.55
Model: KVM16

Profile: PPP

Baud Rate (Kbps): 9600

Flow Control: None

Data Size: 8

Parity: None

Stop Bits: 1

Modem Initialization:

```
TIMEOUT 10
"" \d\l\dATZ
OK\r\n-ATZ-OK\r\n ""
```

Local IP address:

Remote IP address:

☑ Authentication Required

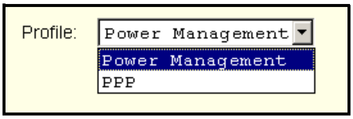
The AUX Port form is used to configure the AUX port for use with an AlterPath PM or an external modem or an external modem.

▼ *To Configure the AUX Port for Use With a PM 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.



3. Click "apply changes."

See "Power Management" on page 33 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 field.

   Additional fields appear on the form.

5. Complete the fields as shown below.

Table 4-4: PPP Fields for Configuring the AUX Port

Field Name	Definition
Profile	Select the device to be connected. For **PPP**, the following input fields are used:
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.
Stop Bits	The number of stop bits.
Modem Initialization	The modem initialization string.

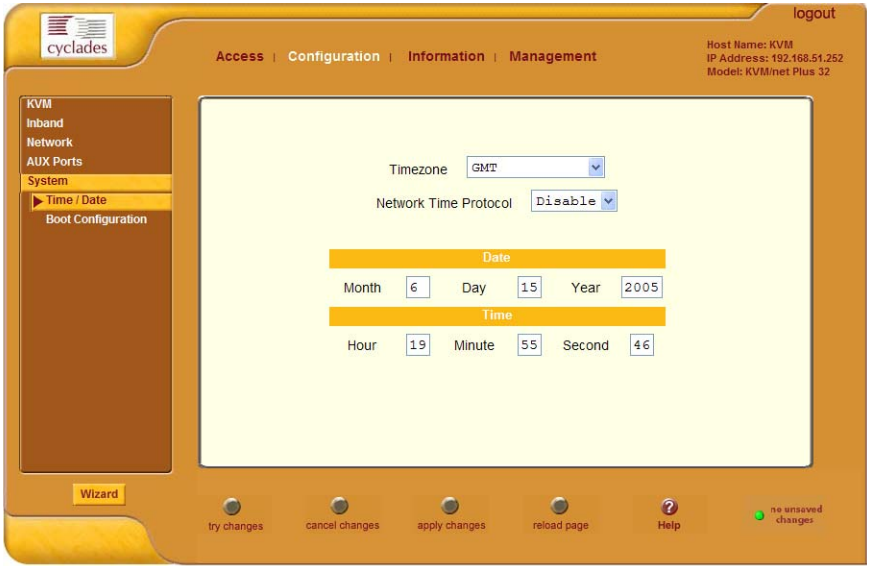
Table 4-4: PPP Fields for Configuring the AUX Port (Continued)

Field Name	Definition
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.



Host Name: KVM
IP Address: 192.168.51.252
Model: KVM/net Plus 32

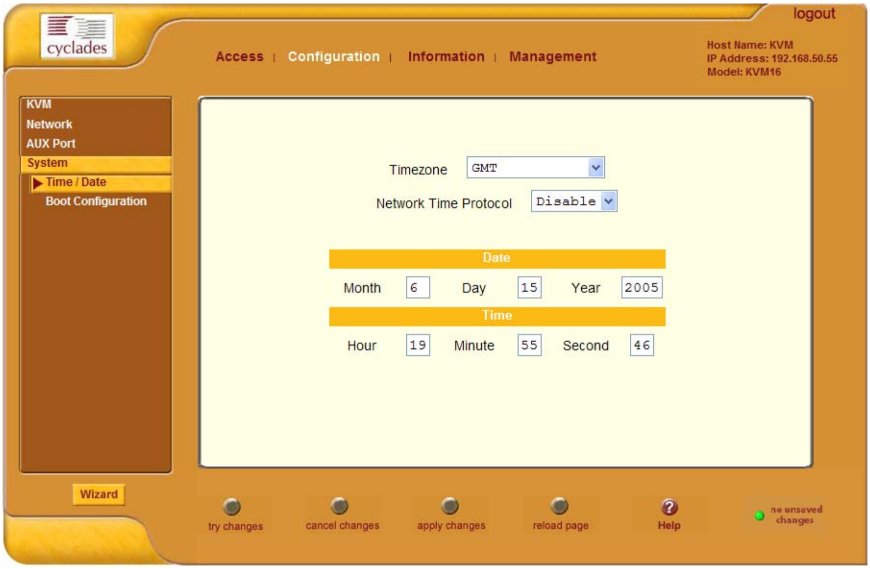
Timezone: GMT
Network Time Protocol: Disable

Date

Month: 6 Day: 15 Year: 2005

Time

Hour: 19 Minute: 55 Second: 46



Timezone: GMT

Network Time Protocol: Disable

Date

Month 6 Day 15 Year 2005

Time

Hour 19 Minute 55 Second 46

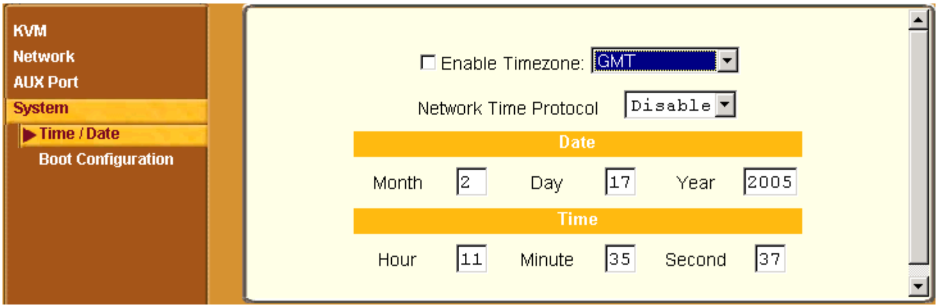
With the System form administrators can set the time and date on the KVM and reboot the KVM if necessary. The following procedures are available on the System form:

- “To Set the KVM’s Date and Time Manually” on page 228
- “To Set The Time and Date With NTP” on page 228
- “To Set the Time and Date to the KVM’s Local GMT” on page 229
- “To Configure KVM Boot” on page 233

Time/Date

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

- “To Set the KVM’s Date and Time Manually” on page 228
- “To Set The Time and Date With NTP” on page 228
- “To Set the Time and Date to the KVM’s Local GMT” on page 229



□ Enable Timezone: GMT

Network Time Protocol: Disable

Date

Month 2 Day 17 Year 2005

Time

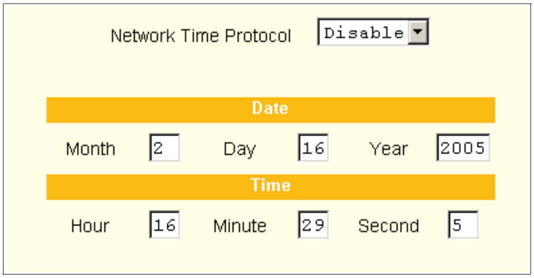
Hour 11 Minute 35 Second 37

▼ *To Set the KVM's Date and Time Manually*

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

   The Date/Time form appears.

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



Network Time Protocol: Disable

Date

Month 2 Day 16 Year 2005

Time

Hour 16 Minute 29 Second 5

3. Fill in the date and time fields by selecting the appropriate numbers from the drop-down lists.
4. Click "apply changes."

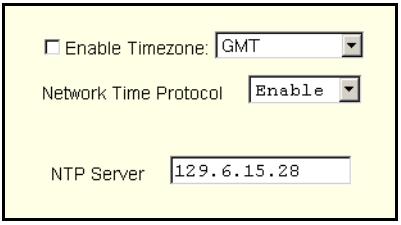
▼ *To Set The Time and Date With NTP*

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.



□ Enable Timezone: GMT

Network Time Protocol: Enable

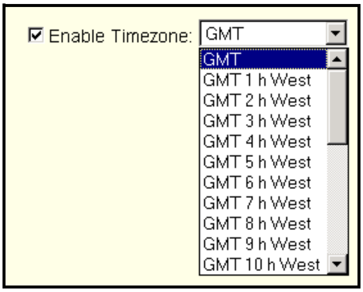
NTP Server: 129.6.15.28

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

▼ *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.

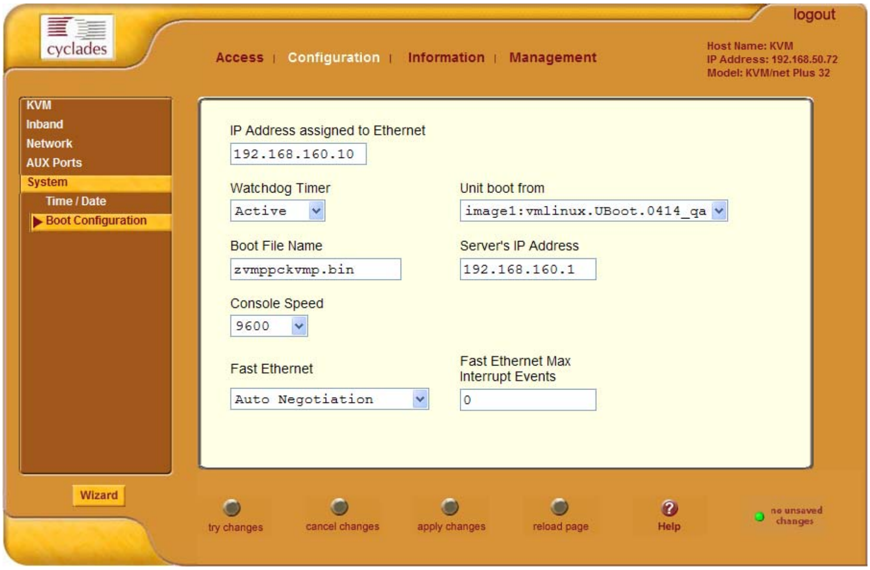


☑ Enable Timezone: GMT

4. Click "apply changes."

Boot Configuration

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



Host Name: KVM
IP Address: 192.168.50.72
Model: KVM/net Plus 32

IP Address assigned to Ethernet: 192.168.160.10

Watchdog Timer: Active

Unit boot from: image1:vmlinux.UBoot.0414_qa

Boot File Name: zvmppckvmp.bin

Server's IP Address: 192.168.160.1

Console Speed: 9600

Fast Ethernet: Auto Negotiation

Fast Ethernet Max Interrupt Events: 0

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

By default, the KVM boots from a boot file in the on-board Flash memory. To understand the “Unit boot from” options, you need to understand how the KVM handles software upgrades:

- The KVM initially boots from a software image referred to as “image1.”
- The first time you download and install a new software version from Cyclades, the new image is stored as “image2” in the Flash memory and the configuration is changed to boot the KVM from “image 2.”
- The second time you download a new software version, the latest image is stored as “image 1,” and the KVM configuration is changed to boot from “image1.”
- Subsequent downloads are stored following the same pattern, alternating “image1” with “image2.”

In the “Unit boot from” pull-down menu, an entry showing the number of the *current* image and the name of the boot file are selected by default. The word “image” is followed by the number, followed by a colon (:), followed by the name of the file, including the version number. In the initial configuration, the menu item appears as follows:

```
image1: zvmppcons.vversion_number
```

For the first version the filename would be:

```
image1: zvmppcons.v100
```

After one or more software upgrades have been performed, a second image is also listed in the menu, for example:

```
image1: zvmppcons.v100
image2: zvmppcons.v101
```

If, for any reason, you want to boot from another image than the one currently selected, you can select that image from the “Unit boot from” menu. You can select “Network” and configure a boot server to boot from the network instead, if desired.

A network boot has the following prerequisites:

- A TFTP or BOOTP server must be available to the KVM on the network.
- An upgraded KVM boot image file must be downloaded from Cyclades and available on the boot server.
- The KVM must have a fixed IP address and you must know the address.
- You must know the boot filename and the IP address of the TFTP server.

These and other boot related options are described in the following table.

Table 4-5: 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. See “Boot Configuration” on page 286 for how the watchdog timer can be activated or deactivated.
Unit boot from	Choose one or more images and “Network” from the list.
Boot File Name	An alternative name for the boot file.
Server’s IP Address	An IP address for a boot server.

Table 4-5: Boot Configuration Fields and Options (Continued)

Field or Value Name	Description
Console Speed	An alternative console speed from 4800 to 115200 (9600 is the default).
Fast Ethernet	The speed of the Ethernet connection: Auto Negotiation, 100 BaseT Half-Duplex, 100 BaseT Full-Duplex, 10 BaseT Half-Duplex, 10 BaseT Full-Duplex
Fast Ethernet Max Interrupt Events	An alternate number of maximum interrupt events to improve performance (0 is the default)

▼ *To Configure KVM Boot*

For more information about the fields in the “Boot Configuration” form, see Table 4-5 on page 231, if desired.

1. Go to Configuration > System > Boot Configuration in Expert mode.

   The Boot Configuration form appears.

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. Choose the desired image or “Network” from the “Unit boot from” menu.
5. Accept or change the filename of the boot program in the “Boot File Name” field.
6. 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” pull-down menu.
   c. Choose an Ethernet speed from the “Fast Ethernet” pull-down menu.
   d. Specify the maximum number of packets that the CPU handles before an interrupt in the “Fast Ethernet Max. Interrupt Events” field.
7. Click “apply changes.”

Viewing System Information

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

- General
- Port Status
- Read Sensor

General

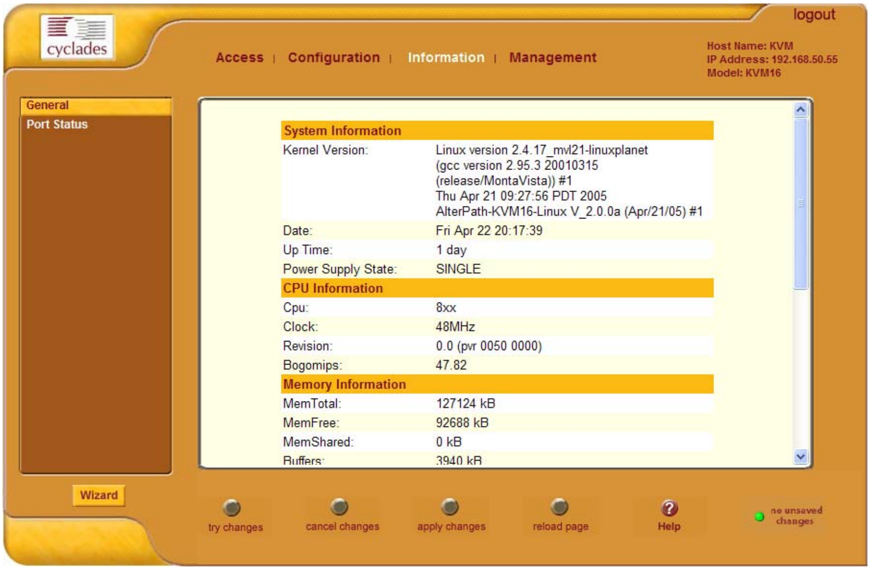
Use the General form to view system information in the following categories:

- System – Kernel version, date, uptime, power supply
- CPU – CPU, clock, revision, Bogomips
- Memory – Total, free, cached, active/inactive, and so on.
- Ram Disk Usage – 1k-blocks, used/available, percent used, and mounted
- Fan Status – Rotations per minute

▼ *To View General Information for Your KVM*

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

The General information form appears.



Host Name: KVM
IP Address: 192.168.50.55
Model: KVM16

System Information	
Kernel Version:	Linux version 2.4.17_mvl21-linuxplanet (gcc version 2.95.3 20010315 (release/MontaVista)) #1 Thu Apr 21 09:27:56 PDT 2005 AlterPath-KVM16-Linux V_2.0.0a (Apr/21/05) #1
Date:	Fri Apr 22 20:17:39
Up Time:	1 day
Power Supply State:	SINGLE
CPU Information	
Cpu:	8xx
Clock:	48MHz
Revision:	0.0 (pvr 0050 0000)
Bogomips:	47.82
Memory Information	
MemTotal:	127124 kB
MemFree:	92688 kB
MemShared:	0 kB
Buffers:	3940 kB

Port Status

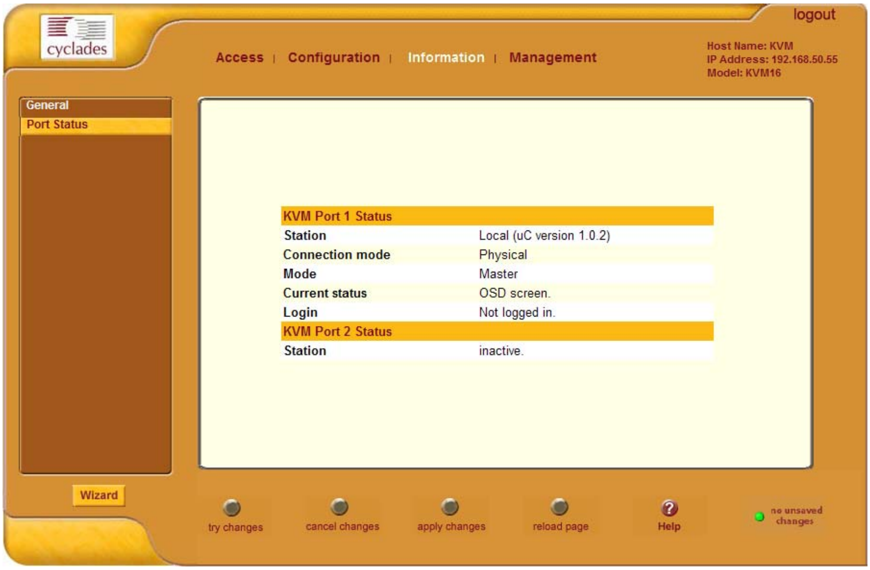
Use the Port Status form to view the system status of each KVM port. The Port Status form displays information for six ports–two local and four remote.

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 > Port Status.

   The Port Status form appears.



KVM Port 1 Status	
Station	Local (uC version 1.0.2)
Connection mode	Physical
Mode	Master
Current status	OSD screen.
Login	Not logged in.
KVM Port 2 Status	
Station	inactive.

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

Table 4-6: Port Status Information

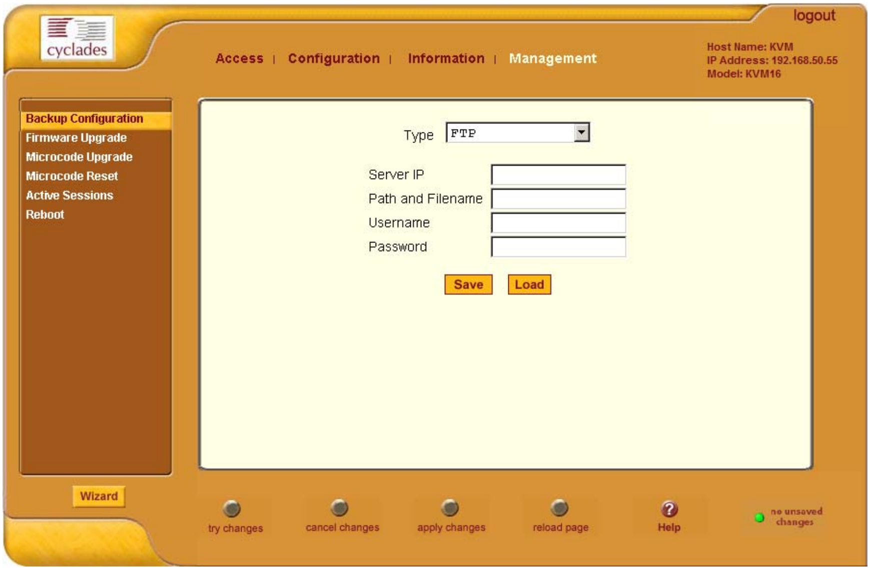
Field	Information
Station	Displays whether the station is Local, Remote, or Inactive and lists the microcontroller version used. This field also displays whether the KVM is a Master or Slave and lists the model number of the master KVM.
Connection mode	Displays whether the connection is **Network** or **Physical** or if the system is **Trying to connect** (if the cable is disconnected).
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.

Table 4-6: Port Status Information

Field	Information
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 Management form as displayed in the following figure.



Host Name: KVM
IP Address: 192.168.50.55
Model: KVM16

Type: FTP

Server IP
Path and Filename
Username
Password

Administrators can use the management menu to perform system and software management such as booting, backing up, upgrading firmware, and handling configuration data.

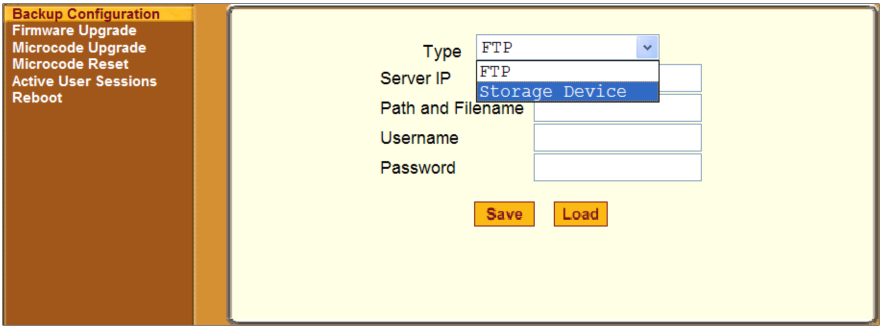
Menu Selection	Use this menu to:
Backup Configuration	Use a FTP server to save or retrieve your configuration data.
Firmware Upgrade	Upload firmware from the web to the KVM and save the new software version or update.
Microcode Upgrade	Update any of the microcontroller microcodes that are stored in the KVM terminator, main KVM, local KVM, and internal KVM switch.
Microcode Reset	Reset any of the micro controller microcodes.
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.



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.

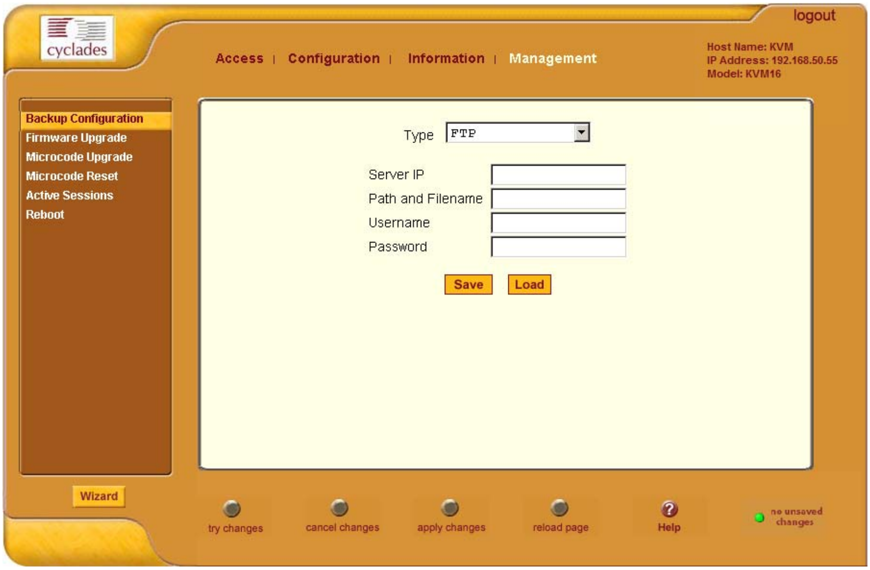
The following table described the information you need to enter in the fields on the "Backup Configuration" form when FTP is selected from the "Type" pull-down menu.

Field	Definition
Server IP	IP address of the FTP server
Path and Filename	Path of a directory on the FTP server where you have write access for saving the backup copy of the configuration file. Specify a filename if you want to save the file under another name. For example, to save the configuration file in a file whose name identifies its origin and date (such as `KVM8802config040406`) in a directory called "`upload`" on the FTP server, you would enter the following in the "Path and Filename" field: `upload/KVM8802config040406`.
Username and Password	Username for accessing FTP server (check with the FTP server's administrator, if needed to obtain the username and password to use),

▼ *To Back Up or Retrieve KVM Configuration Data*

1. In Expert mode, go to: Management > Backup Configuration.

The Backup Configuration form appears.

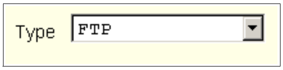


Host Name: KVM
IP Address: 192.168.50.55
Model: KVM16

Type FTP

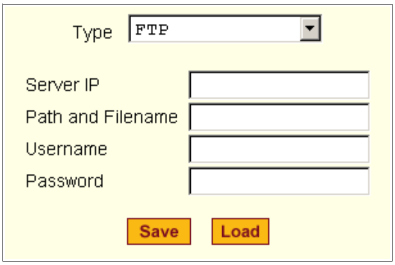
2. To save or retrieve data from an FTP server, do the following:

a. From the Type drop-down list, select FTP.



Type FTP

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



Type FTP

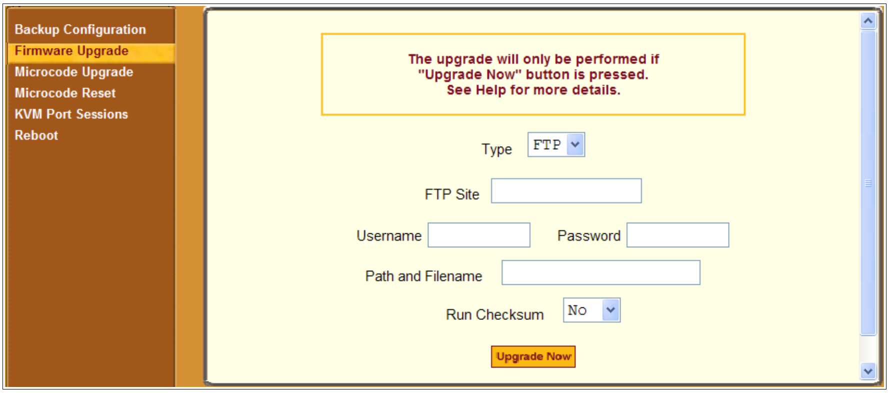
b. Fill in the following fields with appropriate connection information:

- 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 upgrade will only be performed if "Upgrade Now" button is pressed. See Help for more details.

Type FTP

FTP Site

Username

Password

Path and Filename

Run Checksum No

You can use the form to set up automatic upgrades of the operating system and files on the KVM. The form collects information used to automatically download software from an FTP server and install the software 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.

Field/Menu Name	Definition
FTP Site	The address of the FTP server where the microcode is located. You can use any FTP server if you download the firmware on it first. The Cyclades FTP site address is: `ftp.cyclades.com.` If desired, see "To Upgrade Firmware [Expert]" on page 244 for how to download the firmware for installation on your own local FTP server.
Username	Username recognized by the FTP server. The Cyclades FTP username for microcode downloads is "anonymous."
Password	Password associated with the Username. An empty password is accepted for anonymous login at the Cyclades FTP server
Path and FIle Name	The pathname of the software on the FTP server. On the Cyclades FTP server, the directory is under `pub/cyclades/alterpath/KVM/released/`*`version_number/`*`filename`, where *`version_number`* is `V_`*`N.N.N`*., and *`N.N.N`* is the most recent version number, for example, `1.2.1`. The filename includes the version number in the following format: `zImage_ons_`*`NNN`*`.bin`. The pathname for this example would be: `pub/cyclades/alterpath/KVM/released/V_1.2.0/zImage_ons_121.bin` Go to `ftp://ftp.cyclades.com/pub/cyclades/alterpath/KVM/released` in a browser, if needed, to verify the correct pathname and file names for the software (`zImage`) for the KVM.

The following table has links to the related procedures.

To Find the Cyclades Pathname for Firmware or Microcode Upgrades	Page 243
To Upgrade Firmware [Expert]	Page 244
To Download Microcode From an FTP Server [Expert]	Page 246

▼ *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, if the `released` directory contains directories named `V_1.1.0` and `V_1.2.0`, you would click on the `V_1.2.0` directory name. In the version directory, you would see several files like those shown in the following figure.

```
1.0.5.6-04.10.18.4bin

KVM_v104.bin

KVMterm_v104.bin

KVMUSBterm_v106.bin

zImage_ons_120.bin

zImage_ons_120.md5
```

3. If upgrading the KVM kernel, applications, and configuration files, take a note of the filename of the file whose name starts with `zImage` and has the `.bin` suffix and go to “To Upgrade Firmware [Expert]” on page 267.
4. If upgrading the microcode on a KVM PS2 terminator, take a note of the filename of the file whose name starts with `KVMterm` and has the `.bin` suffix and go to “To Download Microcode From an FTP Server [Expert]” on page 269.
5. If upgrading the microcode on a KVM USB terminator, take a note of the filename of the file whose name starts with `KVMUSBterm` and has the `.bin` suffix and go to “To Download Microcode From an FTP Server [Expert]” on page 269.
6. If upgrading the KVM switch microcode, take a note of the filename of the file whose name starts with `KVM_v`*`XXX`* and has the `.bin` suffix and go to “To Download Microcode From an FTP Server [Expert]” on page 269.

7. If upgrading the microcode on KVM IP modules take a note of the filename of the file whose name 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 [Expert]" on page 269.

▼ *To Upgrade Firmware [Expert]*

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.

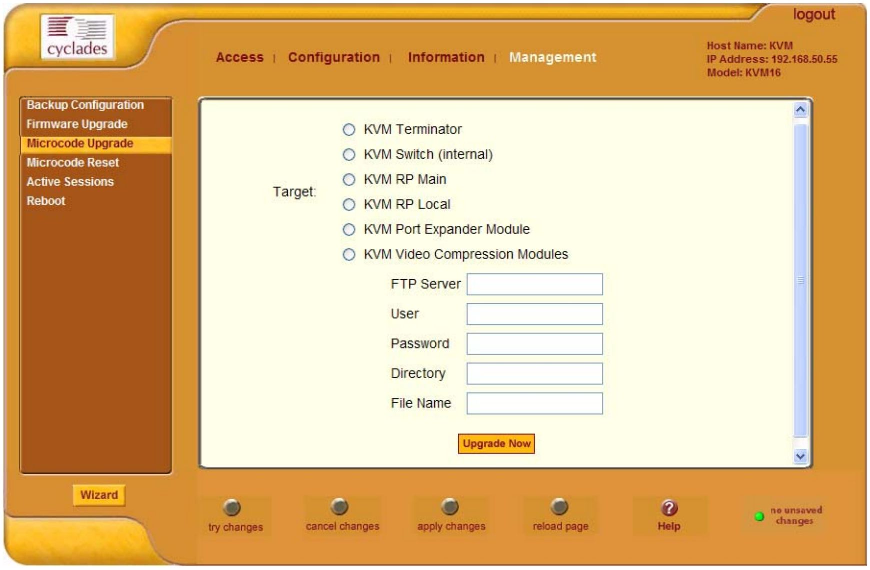
   On the Cyclades FTP server, the directory is under `pub/cyclades/alterpath/`KVM`/released/`*`version_number/`*

   See "To Find the Cyclades Pathname for Firmware or Microcode Upgrades" on page 266, if needed.

7. Press the "Upgrade Now" button.
8. Click "apply changes."

Microcode Upgrade

Selecting Management>Microcode Upgrade in Expert mode bring sup the following form.



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

FTP Server
User
Password
Directory
File Name

Upgrade Now

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_v*NNN*.bin	KVM Terminator (PS2)
	KVMUSBterm_v*NNN*.bin	KVM Terminator (USB)
KVM Switch (internal)	KVM_v*NNN*.bin	KVM switch (internal)
KVM Video Compression Modules	*N.N.N.N-NN.NN.NN.N*.bin	IP modules

You need to enter the actual pathname components in the “Directory” and “File Name” fields. If needed, go to: “To Find the Cyclades Pathname for Firmware or Microcode Upgrades” on page 266.

The following table defines the information you need to supply on the form.

Field Name	Definition
Target	The name of the component whose microcode you wish to upgrade.
FTP Server	The address of the FTP server where the microcode is located. You can use any FTP server if you download the firmware on it first. The Cyclades FTP site address is: `ftp.cyclades.com.`
Username	Username recognized by the FTP server. The Cyclades FTP username for microcode downloads is “anonymous.”
Password	Password associated with the Username. An empty password is accepted for anonymous login at the Cyclades FTP server
Directory	The pathname where the microcode resides on the FTP server. On the Cyclades FTP server, the directory is under `pub/cyclades/alterpath/KVM/released/`*`version_number`*`/filename`. Go to `ftp://ftp.cyclades.com/pub/cyclades/alterpath/KVM/released` 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.”

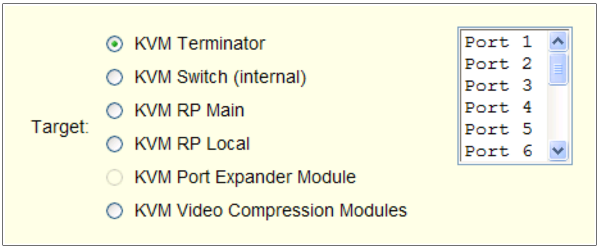
▼ *To Download Microcode From an FTP Server [Expert]*

1. Go to Management>Microcode Upgrade in Expert mode.

The Microcode form appears.

2. Click the radio button next to the “Target” whose microcode you want to update.

If you select the KVM Terminator radio button, a scrollable port list appears next to the Target list.



Target:

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

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.

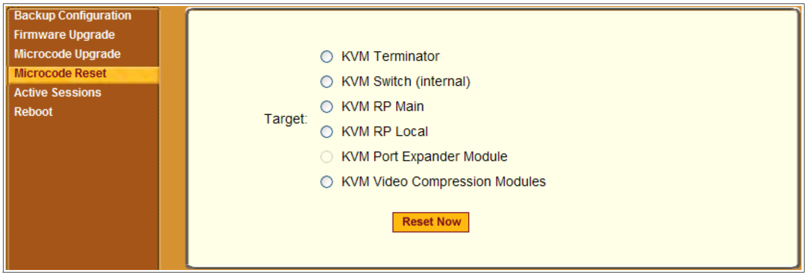
9. Click the “Upgrade Now” button.

10. Click “apply changes.”

11. Go to “To Reset the Microcode After Upgrade [Expert]” on page 272.

Microcode Reset

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



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 [Expert]” on page 267.

1. From the top menu, select Management; from the side menu, select Microcode Reset.

   The Microcode Reset form appears.

2. To reset the microcode in a KVM terminator, do the following steps.

   a. Click the KVM Terminator radio button.

      A scrollable list of KVM ports appears.

   b. Select the port to which the KVM terminator is connected from the port list.

3. To reset another type of microcode, select the radio button next to the target you want to upgrade, either “KVM Switch (internal),” or “KVM Video Compression Modules.”

4. Press the “Reset Now” button.

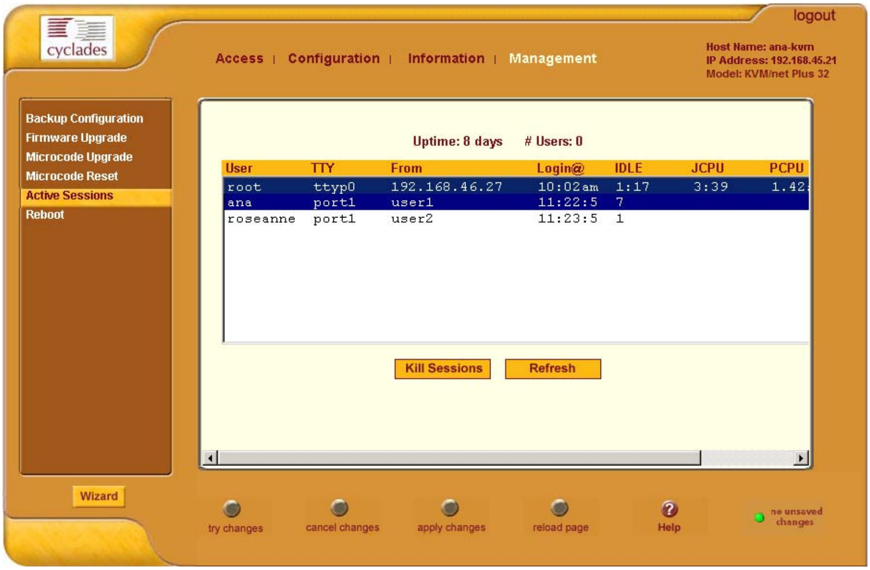
Active Sessions

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.



Host Name: ana-kvm
IP Address: 192.168.45.21
Model: KVM/net Plus 32

Uptime: 8 days # Users: 0

```
User      TTY    From           Login@   IDLE  JCPU  PCPU
root      ttyp0  192.168.46.27  10:02am  1:17  3:39  1.42:
ana       port1  user1          11:22:5  7
roseanne  port1  user2          11:23:5  1
```

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.

Column	Definition
TTY	The name of the KVM port.
From	The network machine to which the port is connected.
Login@	The day and time of the last login.
Idle	The time when the session or server became inactive.
JCPU	The duration of time used by all processes attached to the tty. It does not include past background jobs; only currently running background jobs.
PCPU	The time used by the current process that is named in the What column.
What	The current process attached to the tty.

3. Select the Refresh button to update the form with current information.

▼ *To Kill an Active Session*

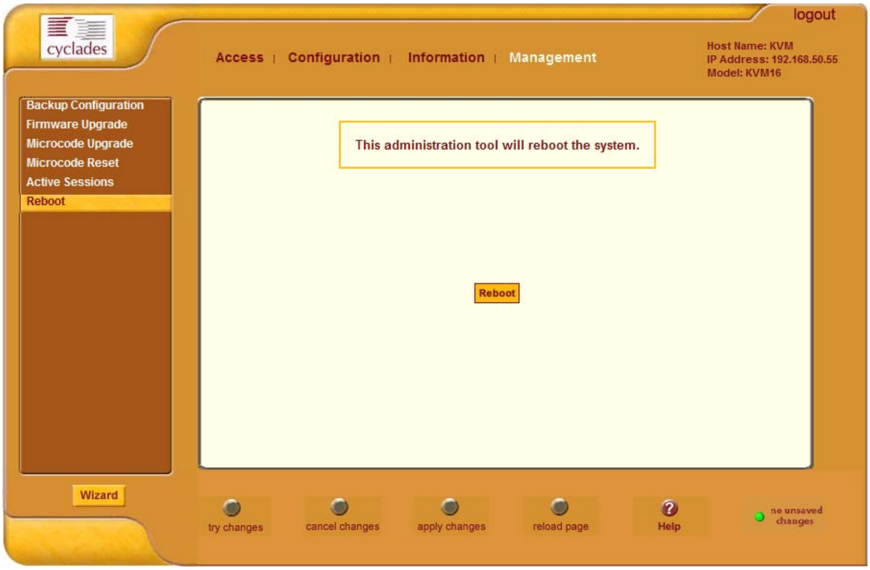
1. In Expert mode, go to Management > Active Sessions.

   The Active Sessions window appears.

2. Select the sessions you wish to kill.
3. Click Kill Session.
4. Click “apply changes.”

Reboot

Selecting Management>Reboot in Expert mode, brings up the following form.

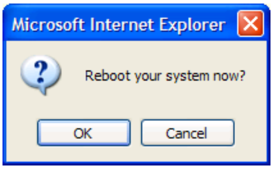


This administration tool will reboot the system.

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.



Reboot your system now?

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.

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:

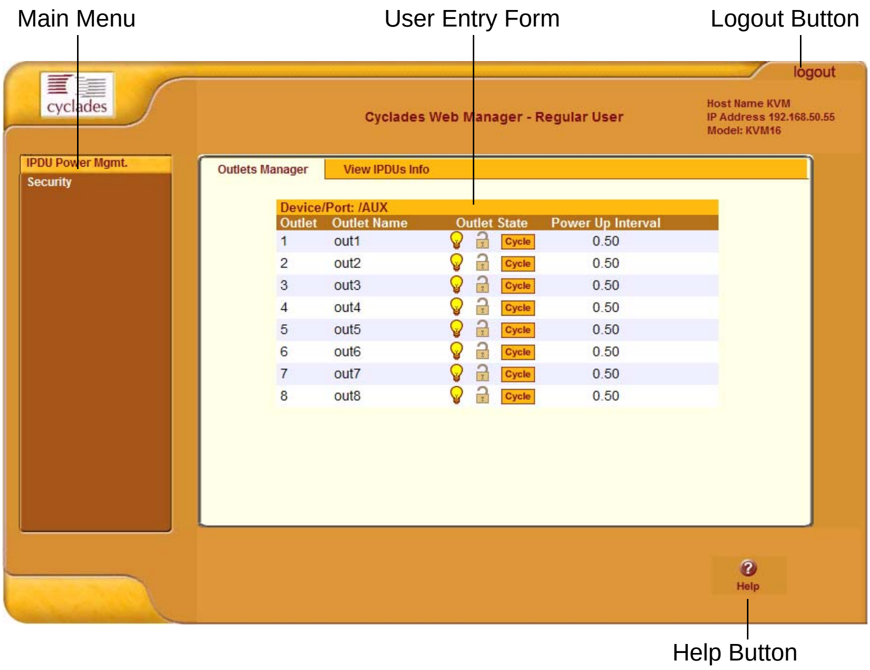
- Power Management – Form used to control the power of devices plugged in to AlterPath PM IPDUs.

  See “Power Management for Regular Users” on page 257.
- Security – Form used to change your password.

  See “Changing Your KVM Password” on page 258.

The Power Management and Security forms can be accessed by clicking the corresponding menu items.

The Web Manager interface provides you with a static main menu and a user entry form as displayed in Figure 5-1. The content of the user entry form changes based on your menu selection.



Cyclades Web Manager - Regular User

Host Name KVM
IP Address 192.168.50.55
Model: KVM16

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 5-1: Cyclades KVM Web Manager

Prerequisites for Logging in to the Web Manager

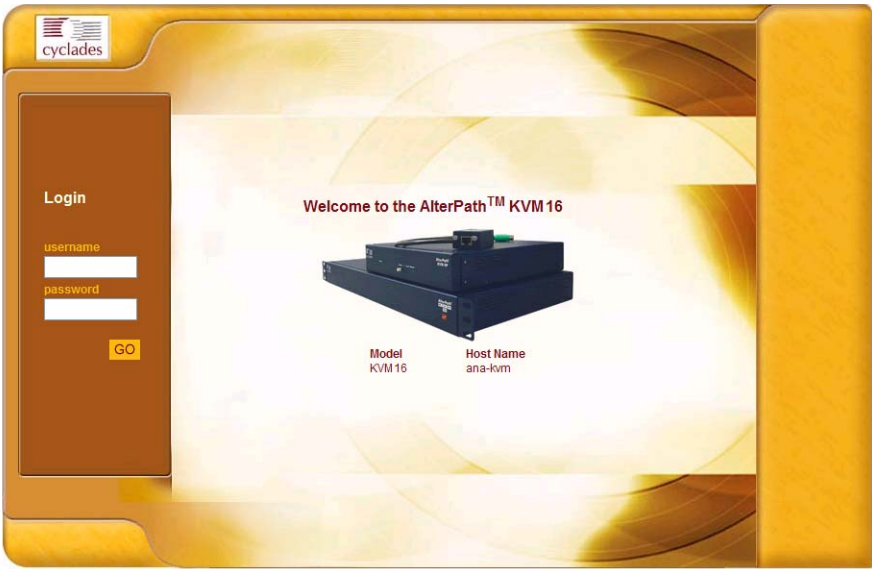
You must collect the following information from your KVM administrator before accessing and logging into the KVM:

- KVM IP address
- Username
- Password

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

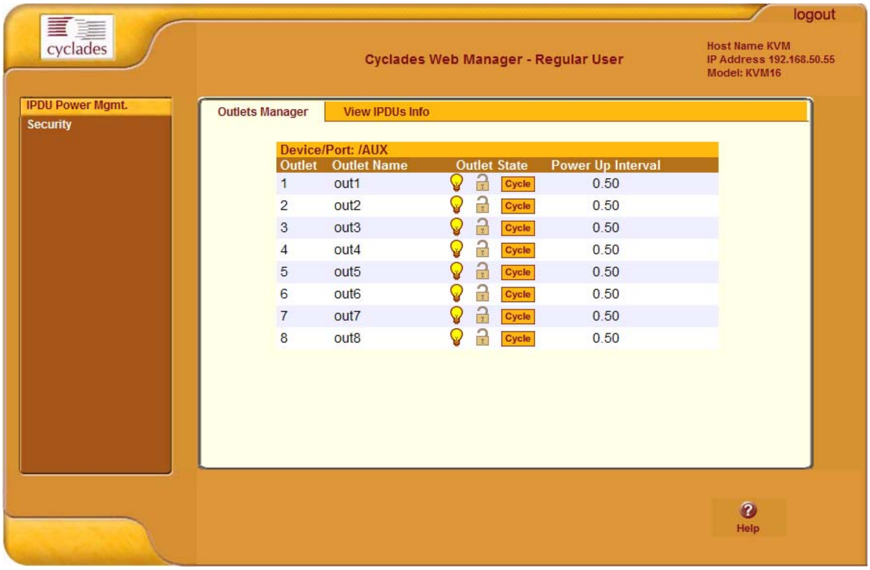
1. Launch a supported browser and type the KVM IP address (for example http://10.0.0.1/) into the browser’s URL field.

   The AlterPath KVM log in screen appears.



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

   The Power Management form appears.



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

See “Web Manager for Regular Users” on page 254 for an introduction to using the Web Manager and links to more detailed information.

Power Management for Regular Users

Depending on your access rights, the KVM allows you to remotely view and manage all PMs connected to the KVM. Regular users can go to the IPDUs 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 network devices.	• "Outlets Manager" on page 139 • "To View Status, Lock, Unlock, and Cycle Power Outlets [Expert]" on page 140
View IPDU information by ports and slaves.	• "View IPDUs Info" on page 141 • "To View and Reset IPDU Information [Expert]" on page 141

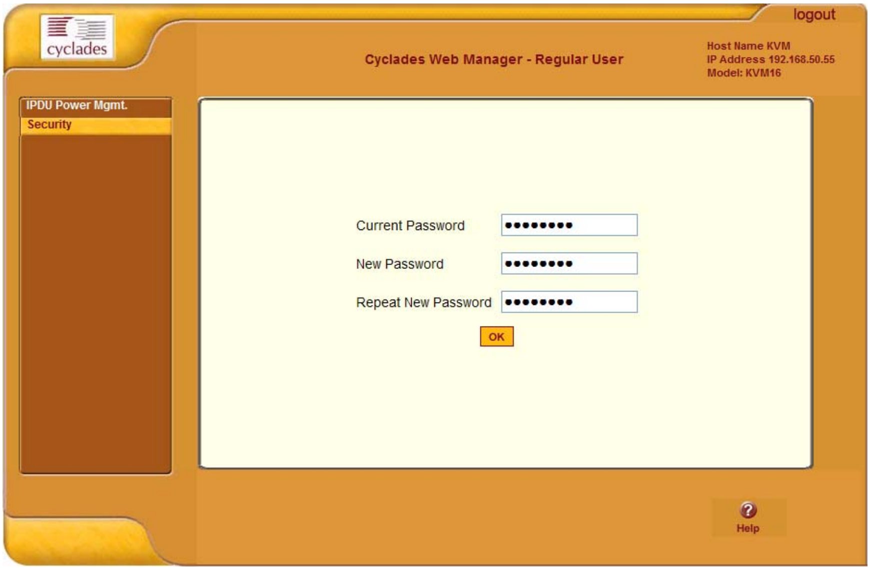
Changing Your KVM Password

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.



Cyclades Web Manager - Regular User

Host Name KVM
IP Address 192.168.50.55
Model: KVM16

Current Password •••••••••

New Password •••••••••

Repeat New Password •••••••••

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 AlterPath KVM.

This chapter discusses the following topics:

The following table lists the procedures in this chapter.

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 15 and “KVM Port Permissions” on page 23 for more information.

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

- Use the Web Manager for most power management.

  See “Cyclades Web Manager” on page 19 and “Prerequisites for Using the Web Manager” on page 20 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 277.

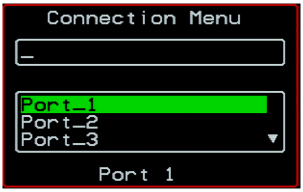
Prerequisites for Accessing Servers

The following prerequisites must be met before you can access a KVM-connected server:

- Know the KVM Port(s) to which you have access (especially 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

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.

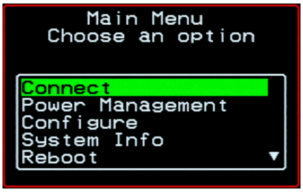


Access to the OSD requires a local keyboard, monitor, and mouse connected to the KVM management ports, User 1 or User 2, on the back of the KVM. See “To Connect to the User 1 Management Port” on page 69 for instructions on connecting to the User 1 port, or see “To Connect the RP to the KVM” on page 114 for instructions on connecting to the User 2 port.

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

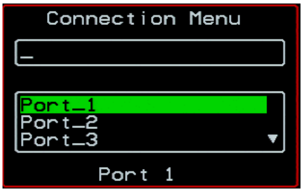
1. On the OSD Login window, enter your username and password as provided to you by the KVM administrator.

   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 6-1, “Tasks Available While Connected to KVM Ports,” on page 264 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 6-1: 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 267.
Access a port that is already in use by another user.	“Sharing KVM Port Connections” on page 273
Make direct connections to other servers without returning to the OSD Connection Menu.	• “To Initiate Cycle by Server” on page 268 • “To Connect to the Next Authorized Server from the Current Server” on page 269 • “To Connect to the Previous Authorized Server from the Current Server” on page 269
Reset your keyboard and mouse.	“To Reset the Keyboard and Mouse” on page 270
Adjust the color and brightness of the server window.	“To Adjust Screen Brightness and Contrast” on page 269
Power on, power off, or reboot the connected server.	“To Power On, Power Off, or Reboot the Connected Server” on page 271
View information about the currently selected port.	“To View Connected Port Information” on page 267

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 6-2: Default KVM Connection Keyboard Shortcuts

Key Combination	Action
Ctrl+k q	Quit. Closes the connection to the current KVM port and ends the KVM connection.
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 that is connected to the server) and “Manual control” for adjusting screen brightness and contrast.
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 31. 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 Sun hot keys to emulate keys that are present on Sun keyboards but are not present on Windows keyboards.

The hot keys are made up of an escape key followed by a function key. The default escape key is the Windows key, 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 keys 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 key at the same time you press the `F9` function key.

Table 6-3: Default Sun Key Emulation Hot Keys

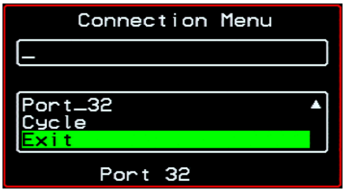
	Win Key	**Sun Key**
Function Keys	`F2`	`Again`
	`F3`	`Props`
	`F4`	`Undo`
	`F5`	`Front`
	`F6`	`Copy`
	`F7`	`Open`
	`F8`	`Paste`
	`F9`	`Find`
	`F10`	`Cut`
	`F11`	`Help`
	`F12`	`Mute`
Numeric Keypad Keys	`*`	`Compose`
	`+`	`Vol +`
	`-`	`Vol -`

KVM administrators can change the default escape key portion of the Sun keyboard emulation hot keys from the Windows key to any of the following: `Ctrl`, `Shift`, or `Alt`. See “Redefining Sun Keyboard Equivalent Hot Keys” on page 31 for details and links to procedures.

▼ To Return to the Connection Menu After Connecting to a Port

1. Press Ctrl+k q to display the OSD Connect Menu.

   The Connection Menu appears.



2. Do one of the following:

   - To make a new server connection, select another port from the list.
   - To return to the Main Menu, select Exit.
   - To cycle through all servers, select Cycle.

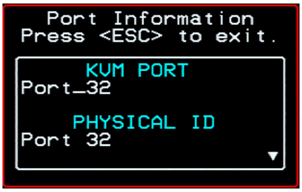
     The cycle option does not appear when you are connected through the Web Manager.

▼ To View Connected Port Information

1. Use the information keyboard shortcut.

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

   The following window appears.



```
Port Information
Press <ESC> to exit.

KVM PORT
Port_32

PHYSICAL ID
Port 32
```

2. Press Esc to exit the Port Information window and return to the connected server.

Cycling Between Servers

Cycle refers to the capability to connect to one or more authorized servers from the server to which you are currently connected. Through the OSD menus or by using a keyboard shortcut, you have immediate access to all configured and authorized servers.

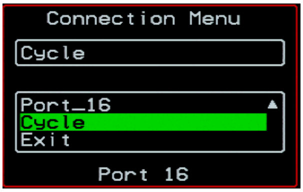
There are two types of cycle commands:

- Cycle by Server – View all authorized servers on a continuous basis until all servers have been exhausted and then start over again.
- Cycle by Key Sequence – View or access the server connected to the next or previous port in the Connection Menu list.

The servers are cycled in the order in which their ports are listed in the Server Connection form.

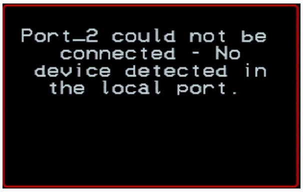
▼ To Initiate Cycle by Server

1. From the Connection Menu, choose Cycle.



2. Select Cycle at the bottom of the list.

   The system initiates the cycle from the first authorized server, and the servers connected to all authorized ports appear for a few moments. If there is no device attached to the port associated with the next logical port, a message appears to indicate that there is no device connected.



```
Port_2 could not be
  connected - No
device detected in
 the local port.
```

3. To abort the process and close the session, press the escape sequence.

   The default is Ctrl+k q.

▼ *To Connect to the Next Authorized Server from the Current Server*

- Use the Next keyboard shortcut.

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

  The next authorized server appears. Repeat this step to move to the next server.

▼ *To Connect to the Previous Authorized Server from the Current Server*

- Use the Previous keyboard shortcut.

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

  The previous authorized server appears. Repeat this step to move to the previous server.

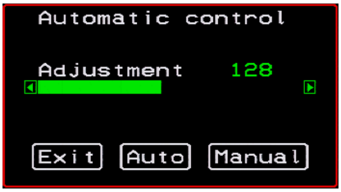
▼ *To Adjust Screen Brightness and Contrast*

1. Press the video control keyboard shortcut.

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

Depending on which window was accessed last, one of the following windows appears.

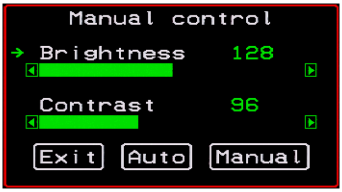
- Automatic Control



Automatic control

Adjustment 128

- Manual Control



Manual control

Brightness 128

Contrast 96

2. To switch to the Auto control window or the Manual control window select Auto or Manual respectively.

3. To adjust screen brightness and contrast 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 contrast on the Manual control page, select the arrow keys to increase or decrease the contrast and brightness.

   The Manual Control window is used to control the levels of video brightness and contrast. The higher the value, the greater the brightness and contrast will be.

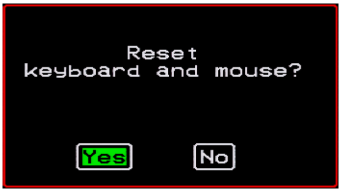
Resetting the Keyboard and Mouse

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 plugging in again the keyboard and mouse.

▼ To Reset the Keyboard and Mouse

1. Type the “Keyboard/Mouse Reset” hot key.

   The default is Ctrl-k s. The following confirmation window appears.



Reset
keyboard and mouse?

2. Select Yes to enable your keyboard and mouse again.

Note: See also the “Avoiding Conflicting Mouse Settings” on page 90.

Controlling Power of a KVM-connected Server

In order to control power of a server while connected to the server, the following conditions must be met:

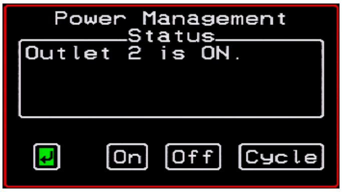
- The server must have at least one power cord plugged into an AlterPath PM that is properly configured and connected to the AUX port.
- The power outlet(s) that the server is connected to must be configured to the port.
- If a regular user is accessing this device, the user must have the following permissions: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

▼ To Power On, Power Off, or Reboot the Connected Server

1. While connected to a server, use the power management keyboard shortcut.

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

   A window similar to the following appears.



Outlet 2 is ON.

2. Select the configured outlet.
3. Do one of the following:
   - To turn the power on, select On.
   - To turn the power off, select Off.
   - To reboot, select Cycle.

   To lock or unlock outlets, you must go to the Power Management menu. See “Power Management” on page 274 for more information.

Closing a KVM Connection

The ways you can close a KVM connection are listed below:

- 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

1. Type the hot key escape sequence.

   Ctrl+k q is the default.

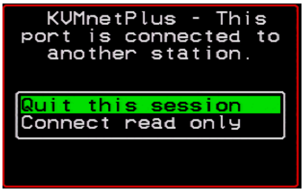
   The Connection menu appears.

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.



KVMnetPlus - This port is connected to another station.

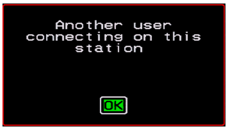
The two menu options are described in the following table.

Quit this session

Ends the connection attempt and returns the user to the Connection Menu

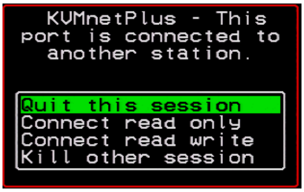
Connect read only

Connects the user in read-only mode and sends this notice to the current user:



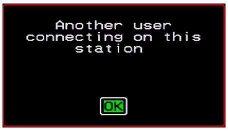
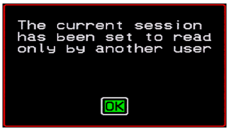
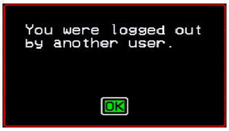
Another user connecting on this station

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



KVMnetPlus - This port is connected to another station.

The two menu options are described in the following table.

Connect read write	Connects the new user in read-write mode and sends this notice to the current user.  Another user connecting on this station If the previous user is in read-write mode, that user's mode is changed to read-only and the user sees the following notice:  The current session has been set to read only by another user
Kill other session	Kills the existing session and connects the new user in read-write mode. Sends the following notice to the current user and disconnects that user:  You were logged out by another user.

When the current user is in read only mode, the connecting user is always granted the highest level of access for which the connecting user is authorized.

If two users are connected to a KVM port, either user may choose at any time to change the access mode or disconnect from the session by issuing a hot key or Esc.

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 user who has administration privileges can turn on, turn off, cycle (reboot), lock, and unlock the outlets. See “Options for Managing Power” on page 35 for a detailed description of how authorized users can manage power.

See “Setting Up and Configuring Power Management” on page 34 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.

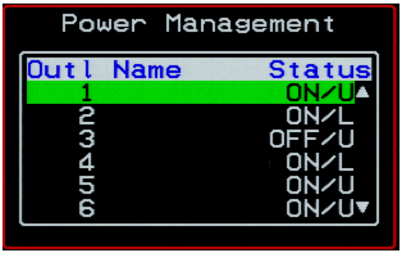
For instructions on how to manage power remotely through the Web Manager, see Table 5-1 on page 257 for a list the power management tasks available to regular users through the Web Manager and links to the associated procedures.

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 271.

▼ 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.



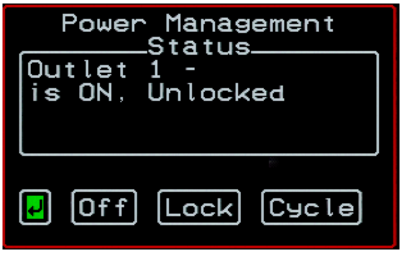
```
     Power Management

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

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

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

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

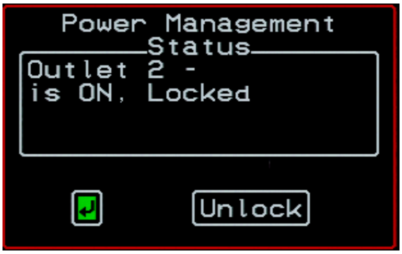


Power Management

Status

Outlet 1 - is ON, Unlocked

The available action options at the bottom of the window change depending on the status of the outlet. For example, an outlet that is locked displays only the Unlock option as in the following figure.

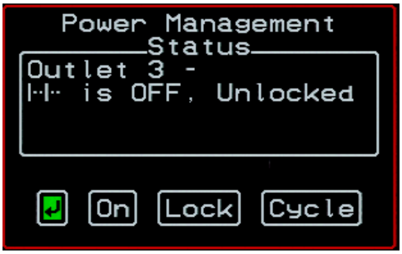


Power Management

Status

Outlet 2 - is ON, Locked

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



Power Management

Status

Outlet 3 - is OFF, Unlocked

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

Modem Connections

In addition to connecting to the KVM 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 6-4: Tasks for Configuring and Making Dial Up Connections (User)

Configure a PPP Connection	“To Configure a PPP Connection on a Remote Computer” on page 278
Connect Using PPP	“To Make a PPP Connection From a Remote Computer” on page 279

▼ *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 277, 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 “User name” 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 278.

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 “User Name” and “Password” fields.

5. Click the “Dial” button

Chapter 7
On Screen Display

This chapter provides an overview of the on screen display (OSD). Most configuration and operations tasks are performed through the Web Manager, as described in Chapter 5 and Chapter 4. Administrators and operators can use the OSD for troubleshooting when a direct connection method is required.

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 69 for instructions on connecting to the User 1 port, or see “To Connect the RP to the KVM” on page 114 for instructions on connecting to the User 2 port.

Once the connected monitor is turned on, the OSD login window appears.

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

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.

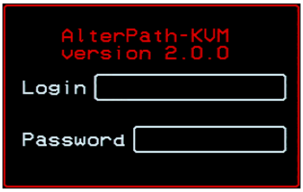
Logging In Through the OSD

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 69 for more information.

Optionally, you can connect to the OSD using an AlterPath Remote Presence (RP), which you buy separately. See “Installing the AlterPath KVM Remote Presence” on page 112 for instructions on installing the RP. See “Controlling the OSD Through the AlterPath Remote Presence” on page 349 for instructions on using the RP.

▼ *To Log In to the KVM Through the OSD*

1. Type your username followed by your password.



2. Press <Enter>.

   The main menu of the KVM OSD appears. See the following section, “OSD Main Menu” on page 284 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.

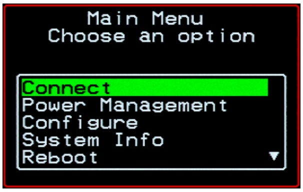


Figure 7-1: OSD Main Menu

Table 7-5 gives a brief description of each menu item and lists where you can find more information.

Table 7-3: OSD Main Menu Items

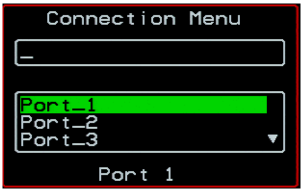
Menu Selection	Select the menu item to:	Where Documented
Connect	View the Server Connection Menu and select the port to which you want to connect.	Page 285

Table 7-3: OSD Main Menu Items

Menu Selection	Select the menu item to:	Where Documented
Power Management	View status of all outlets on connected IPDUs and power on, power off, and cycle connected devices.	Page 286
Configure	View the Configuration Menu and perform KVM configuration.	Page 286
System Info	View the system information pertaining to the KVM version that you are using.	Page 347
Reboot	Reboot the KVM.	Page 348
Exit	Exit from the OSD and close the session.	N/A

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 263 for instructions on connecting to servers through the OSD.

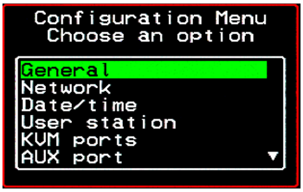
Power Management Menu

The Power Management windows allow you to check the status of the master IPDU connected to the AUX port in addition to all cascaded IPDUs. 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 100 for instructions on connecting IPDUs to the KVM.

For instructions on managing power through the OSD, see

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.



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 290

Table 7-4: Configuration Menu Items (Continued)

Menu Selection	Select the menu item to:	Where Documented
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 292
Date/Time	Enable/disable NTP or manually configure the system date and time.	“Date/time Configuration Screens” on page 315
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 workstation.	“User Station Screens” on page 316
KVM Ports	Activate KVM ports, assign aliases, and enable power management.	“KVM Ports Screens” on page 320
AUX Port	Configure the AUX port for PPP or power management.	“AUX Port Screens” on page 321
Users and Groups	Configure users and groups, user passwords, and KVM port access permissions.	“Users and Groups Screens” on page 328
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 335
Authentication	Configure an authentication method for logins to the KVM and authentication servers for KVM and KVM port logins.	“Authentication Screens” on page 336

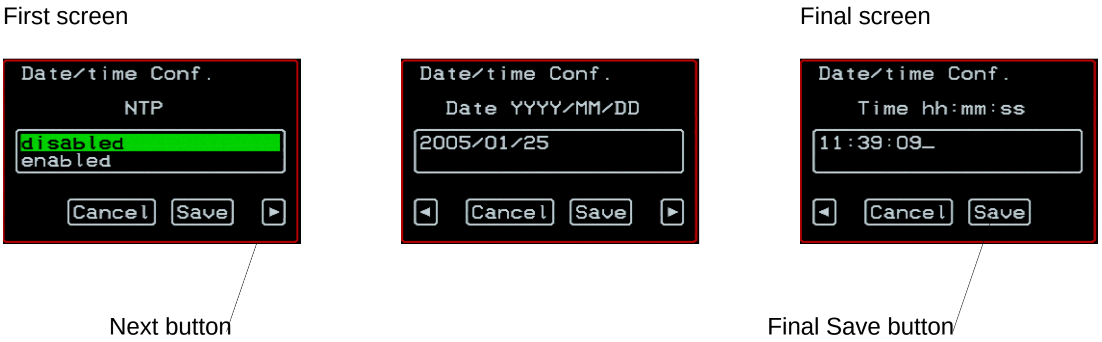
Table 7-4: Configuration Menu Items (Continued)

Menu Selection	Select the menu item to:	Where Documented
Save/Load Config	Permanently save configuration changes, load a stored configuration or restore the configuration to factory default values.	"System Info Menu" on page 347
Exit	Exit from the menu.	N/A

Understanding OSD Configuration Screen Series

Selecting an option from the “Configure” menu usually brings you through a series of related screens, which you navigate through one at a time until you reach the final screen.

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



Date/time Conf.
NTP
disabled
enabled

Date/time Conf.
Date YYYY/MM/DD
2005/01/25

Date/time Conf.
Time hh:mm:ss
11:39:09_

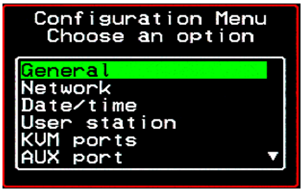
Figure 7-2: First, Middle, and Last Screens in Configuration Series

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 282, if needed, for 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 286.



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]

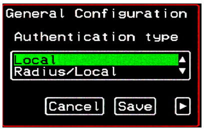
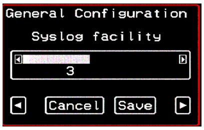
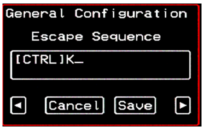
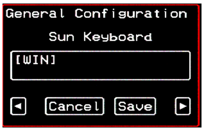
Screen	Description
Authentication Type  General Configuration Authentication type Local Radius/Local Cancel Save	The authentication type applies to *direct KVM port logins from the KVM login screen*: None, Local, Radius, TacacsPlus, Kerberos, LDAP, RadiusDownLocal, TacplusDownLocal, KerberosDownLocal, LdapDownLocal, NTLM(Win NT/2k/2k3), NTLMDownLocal, and Windows NT/2K/2K3. Direct logins to KVM ports must also be enabled. (See “Direct Access” on page 292.) You also must ensure that an authentication server is specified for the type of method you select. See “Authentication Screens” on page 336.
Syslog Facility  General Configuration Syslog facility 3 Cancel Save	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 42 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 335.

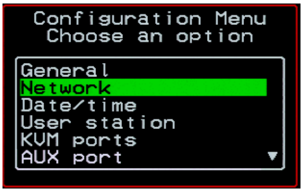
Table 7-5: General Configuration Screens [OSD] (Continued)

Screen	Description
Escape Sequence  General Configuration Escape Sequence [CTRL]K_ 	The escape sequence for AlterPath Viewer hot keys [Default: `Ctrl+k`, shown as `[CTRL]K` in the screen]. See “Redefining KVM Connection Hot Keys” on page 31 for more details.
Sun Keyboard  General Configuration Sun Keyboard [WIN] 	The escape key for Sun hot keys. Default = the Windows [WIN] key, which is the key with the Windows logo on it. Other options are: [CTRL], [SHIFT], and [ALT]. See “Redefining Sun Keyboard Equivalent Hot Keys” on page 31 for more details.

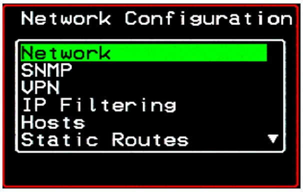
Note: The Save button on every screen saves configuration changes into the configuration files. To permanently save the configuration changes, you must select Save/Load Conf. from the Configuration Menu.

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.

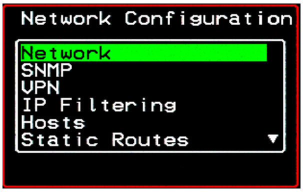
Configure

- Network
  - Network
  - SNMP
  - VPN
  - IP Filtering
  - Hosts
  - Static Routes
  - Exit

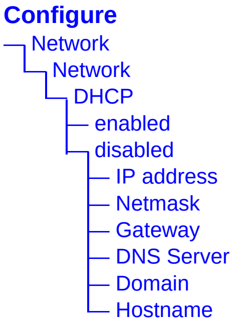
The configuration screen series for each of the options under Configure>Network are listed and described in the following sections:

Network Configuration Screens [OSD]

You can select the Network option from the Network Configuration menu to configure DHCP or configure a fixed IP address and other basic network parameters.



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.

Table 7-6 gives a description of all the related configuration screens.

Table 7-6: Network Configuration Screens [OSD]

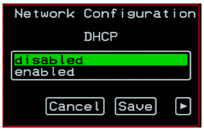
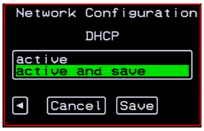
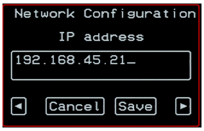
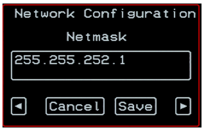
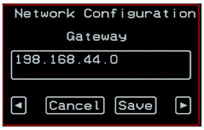
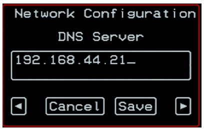
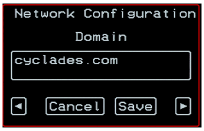
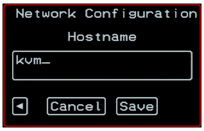
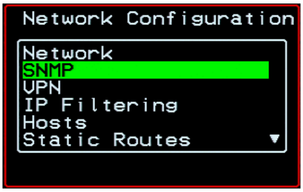
Screen	Description
DHCP  Network Configuration DHCP disabled enabled Cancel Save ►	Enable or disable DHCP. When you select “enabled,” the screen shown in the following figure appears.  Network Configuration DHCP active active and save ◄ Cancel Save “active” saves the changes to the configuration files. “active and save” overwrites the backup configuration files and makes the changes permanent. Either choice brings you back to the Network Configuration menu. When “disabled” is selected, the IP address, Netmask, Gateway, DNS Server, Domain, and Hostname forms appear in the sequence shown in the following rows.
IP Address  Network Configuration IP address ◄ Cancel Save ► 192.168.45.21_	The IP address of the KVM.
Netmask  Network Configuration Netmask ◄ Cancel Save ► 255.255.252.1	The netmask for the subnet (if applicable) in the form *`NNN.NNN.NNN.N`* (for example: `255.255.252.0`).

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

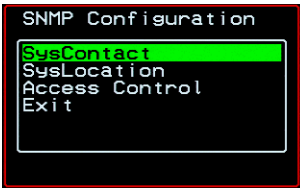
Screen	Description
Gateway  Network Configuration Gateway 198.168.44.0 	The IP address for the gateway (if applicable).
DNS Server  Network Configuration DNS Server 192.168.44.21_ 	The IP address for the DNS server.
Domain  Network Configuration Domain cyclades.com 	The domain name.
Hostname  Network Configuration Hostname kvm_ 	The hostname for the KVM.

SNMP Configuration Screens [OSD]

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



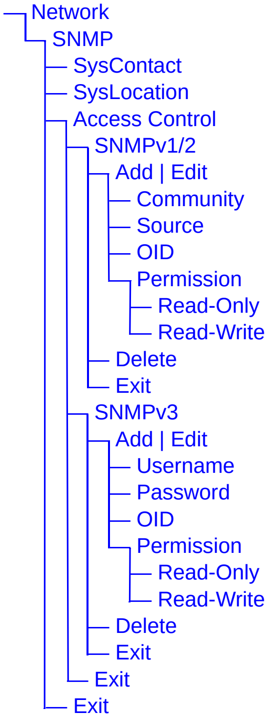
Selecting SNMP under Configuration>Network brings up the SNMP Configuration Menu. The SNMP Configuration Menu provides a number of options, as shown in the following screen.



The following diagram lists the names of all the configuration screen series accessed from the Configuure>Network>SNMP Configuration menu.

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

Configure



- Network
  - SNMP
    - SysContact
    - SysLocation
    - Access Control
      - SNMPv1/2
        - Add | Edit
          - Community
          - Source
          - OID
          - Permission
            - Read-Only
            - Read-Write
        - Delete
        - Exit
      - SNMPv3
        - Add | Edit
          - Username
          - Password
          - OID
          - Permission
            - Read-Only
            - Read-Write
        - Delete
        - Exit
      - Exit
    - Exit

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

Table 7-7: SNMP Configuration Screens [OSD]

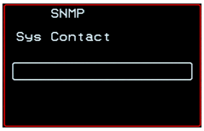
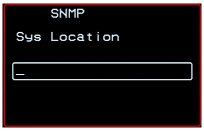
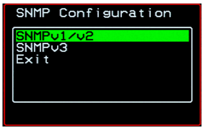
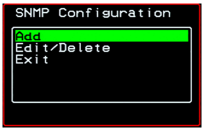
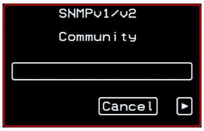
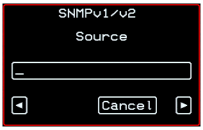
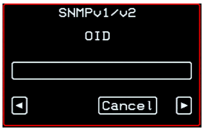
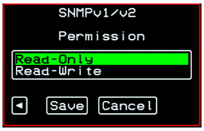
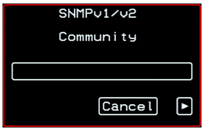
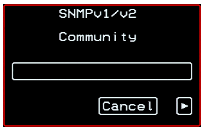
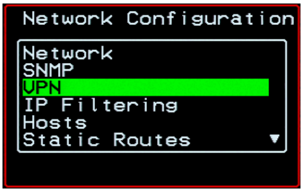
Screen	Description
SysContact  	The email address for the KVM administrator, for example: `kvm_admin@cyclades.com`.
SysLocation  	The physical location of the KVM.
Access Control  	Choices are SNMP v1/2 or SNMP v3.
SNMP Configuration  	Appears when either SNMP v1/2 or SNMP v3 is selected. Choices are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

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

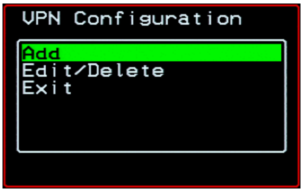
Screen	Description
SNMPv1/v2 Source  	The source IP address or range of IP addresses.
SNMPv1/v2 or v3 OID  	Object Identifier. Each managed object has a unique identifier.
SNMPv1/v2 or v3 Permission  SNMPv1/v2 Permission Read-Only Read-Write Save Cancel	Choices are “Read-Only” and “Read-Write.” Read Only - Read-only access to the entire MIB (Management Information Base) except for SNMP configuration objects. Read/Write - Read-write access to the entire MIB except for SNMP configuration objects.
SNMPv3 Username  	User name.
SNMPv3 Password  	Password.

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 212 for details.

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

Configure

- Network
  - VPN
    - Add | Edit
      - Connection Name
      - Protocol
        - ESP
        - AH
      - Local ID
      - Local IP
      - Local Nexthop
      - Local Subnet
      - Remote ID
      - Remote IP
      - Remote Nexthop
      - Boot Action
        - Ignore
        - Add
        - Start
    - Delete
    - Exit

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

Table 7-8: VPN Configuration Screens [OSD]

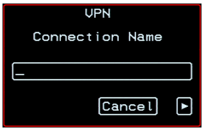
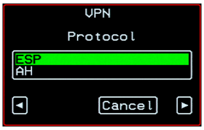
Screen	Description
Connection Name  	Any descriptive name you want to use to identify this connection such as “MYCOMPANYDOMAIN-VPN”
Protocol  	The authentication protocol used, either “ESP” (Encapsulating Security Payload) or “AH” (Authentication Header)

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

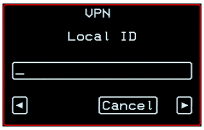
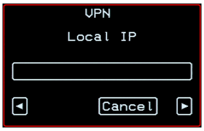
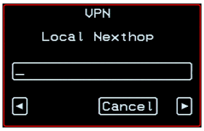
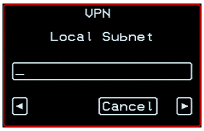
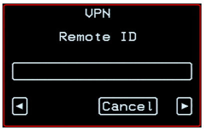
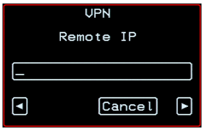
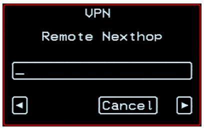
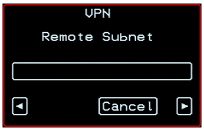
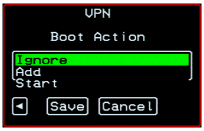
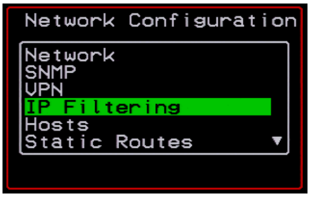
Screen	Description
Local ID  	The hostname of the KVM, referred to as the “local” host.
Local IP  	The IP address of the KVM.
Local NextHop  	The router through which the KVM sends packets to the host on the other side.
Local Subnet  	The netmask of the subnetwork where the KVM resides, if applicable.
Remote ID  	The hostname of the remote host or security gateway
Remote IP  	The IP address of the remote host or security gateway.

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

Screen	Description
Remote Nexthop  	The IP address of the router through which the host on the other side sends packets to the KVM.
Remote Subnet  	The netmask of the subnetwork where the remote host or security gateway resides, if applicable.
Boot Action  VPN Boot Action Ignore Add Start Save Cancel	Choices are “Ignore,” “Add,” and “Start.” “Ignore” means that VPN connection is ignored. “Add” means to wait for connections at startup. “Start” means to make the connection

IP FIltering Configuration Screens

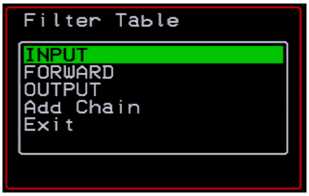
You can select the IP Filtering option from the Network Configuration menu to configure the KVM to filter packets like a firewall.



Network Configuration

Network
SNMP
VPN
IP Filtering
Hosts
Static Routes ▼

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.



Filter Table

INPUT
FORWARD
OUTPUT
Add Chain
Exit

You can use this menu to create chains and set up rules for the new chains or you can edit or delete a previously-configured chain. The following diagram lists the names of the configuration screens accessed under Configure> Network>IP Filtering.

Configure

- Network
  - IP Filtering
    - Filter Table
      - Add Chain
        - Chain Name
      - [Choose a chain]
        - Edit [default chain only]
          - Accept
          - Drop
        - Delete Chain *chain_name*? [user-added chain only]
        - Rules
          - Add/Edit
            - Target
              - ACCEPT
              - DROP
              - RETURN
              - LOG
              - REJECT
            - Source IP
            - Source Mask
            - Destination IP
            - Destination Mask
            - Protocol
              - All
              - Numeric
              - TCP
                - SYN | RST | ACK | URG | FIN | PSH Flag
                  - Any
                  - Set
                  - Unset
              - UDP
              - ICMP
            - Source Port [TCP and UDP only]
            - Destination Port [TCP and UDP only]
            - Input Interface
            - Output Interface
            - Fragments
              - All packets
              - 2nd, ... frag.
              - Non-frag. and 1st fr
          - Exit
        - Exit
      - Exit

The following table shows the IP filtering screens.

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

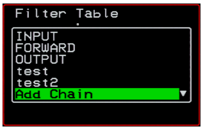
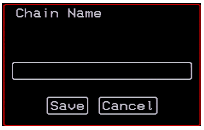
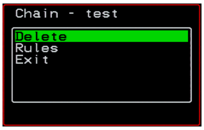
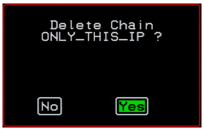
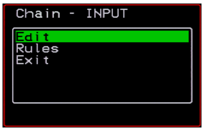
Screen	Description
Filter Table  Filter Table INPUT FORWARD OUTPUT test test2 Add Chain	Lists the default chains along with any administratively-configured chains, the "Add Chain," and the "Exit" options.
Chain Name  	Only appears when "Add Chain" is selected. Entering the name of the chain adds the new chain's name to the "Filter Table," where you need to select the name of the new chain and define rules for the chain.
Chain - *chain_name*  	Appears when a user-added chain is selected from the "Filter Table." The choices are "Delete," "Rules," "Exit."
Delete Chain *chain_name?*  	Appears when a user-added chain is selected and the Delete option is chosen from the "Chain - *chain_name*" menu.A
Chain - *CHAIN_NAME*  	Appears when a default chain is selected from the "Filter Table." The choices are "Edit," "Rules," and "Exit."

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

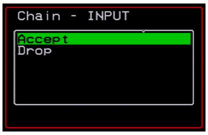
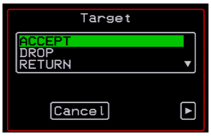
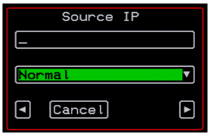
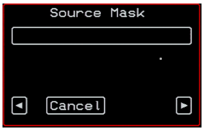
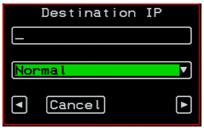
Screen	Description
Edit  	Appears when a default chain is selected and the Edit option is chosen from the Chain - *Chain_name* menu. Choices are “Accept” or “Drop.”
	The following screens define the rules for packet filtering. The packet is filtered for the characteristics defined in the rule, for example, a specific IP header, input and output interfaces, TCP flags or protocol. The target action is performed on all packets that have the characteristic. If “Inverted” is selected for a characteristic, the target action is performed on all packets that do not have the characteristic.
Target  	Appears when a user-added chain is selected. Choices specify the target action to take when a packet’s characteristics match the rule, or, if “Inverted” is selected, if the packets do not match the rule. Choices are: “ACCEPT,” “DROP,” “RETURN,” “LOG,” and “REJECT.”
Source IP  	The IP address of the source of an input packet.
Source Mask  	The netmask of the subnetwork where an input packet originates.
Destination IP  	The IP address of an output packet’s destination.

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

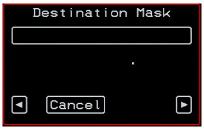
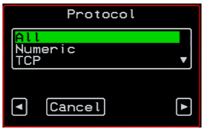
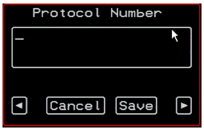
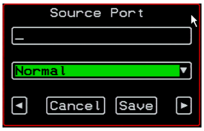
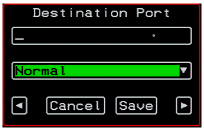
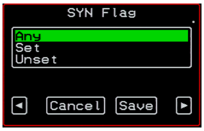
Screen	Description
Destination Mask  	The netmask of the subnet to which an output packet is going.
Protocol  	Choices are “All,” “Numeric,” “TCP,” “UDP,” “ICMP.”
Protocol Number  	Appears only if “Numeric” is selected from the “Protocol” menu.
Source Port  	Appears only if “TCP” or “UDP are selected from the “Protocol” menu. The source port number.
Destination Port  	Appears only if “TCP” or “UDP are selected from the “Protocol” menu. The destination port number.
SYN Flag  	Appears only if “TCP” is selected from the “Protocol” menu. Options are “Any,” “Set,” “Unset.”

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

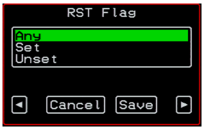
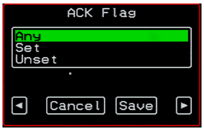
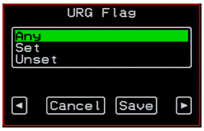
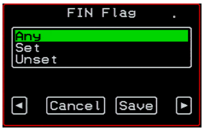
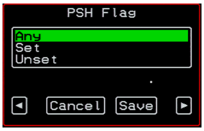
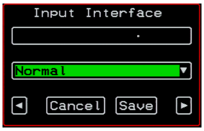
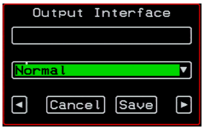
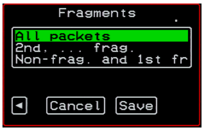
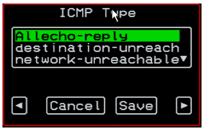
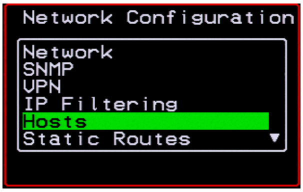
Screen	Description
RST Flag 	Appears only if “TCP” is selected from the “Protocol” menu. Options are “Any,” “Set,” “Unset.”
ACK Flag 	Appears only if “TCP” is selected from the “Protocol” menu. Options are “Any,” “Set,” “Unset.”
URG Flag 	Appears only if “TCP” is selected from the “Protocol” menu. Options are “Any,” “Set,” “Unset.”
FIN Flag 	Appears only if “TCP” is selected from the “Protocol” menu. Options are “Any,” “Set,” “Unset.”
PSH Flag 	Appears only if “TCP” is selected from the “Protocol” menu. Options are “Any,” “Set,” “Unset.”
Input Interface 	Appears only if “All,” “Numeric,” “TCP,” “UDP,” or “ICMP are selected from the “Protocol” menu.

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

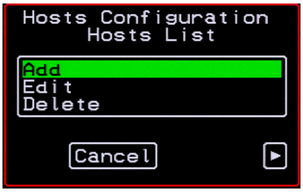
Screen	Description
Output Interface  	Appears only if “All,” “Numeric,” “TCP,” “UDP,” or “ICMP are selected from the “Protocol” menu.
Fragments  Fragments All packets 2nd. ... frag. Non-frag. and 1st fr ◄ Cancel Save	Appears only if “All,” “Numeric,” “TCP,” “UDP,” or “ICMP are selected from the “Protocol” menu.
ICMP Type  ICMP Type Allecho-reply destination-unreach network-unreachable ▼ ◄ Cancel Save ►	Appears only if ICMP is selected from the “Protocol” menu. Choices are: • all • echo-reply • destination-unreachable • network-unreachable • host-unreachable • port-unreachable • fragmentation needed • source-route-failed • network-unknown • host-unknown • network-prohibited • host-prohibited

Hosts Configuration Screens [OSD]

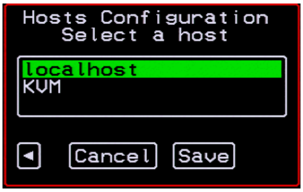
You can select the Hosts option from the Network Configuration menu to configure hosts.



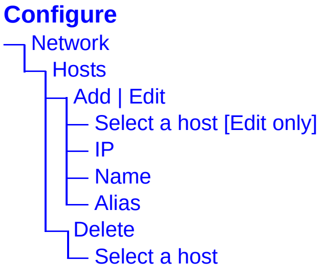
Selecting Hosts under Configuration>Network brings up the “Hosts List” action menu, as shown in the following screen.



You can select the options on this menu to add, edit, or delete host entries. Selecting “Edit” or “Delete Entry” brings up the following “Select a host” screen.

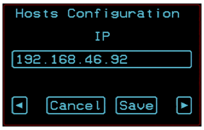
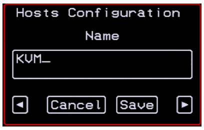
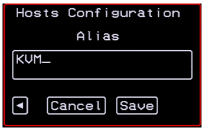


The following diagram lists the names of the configuration screens accessed under Configure>Network>Hosts.



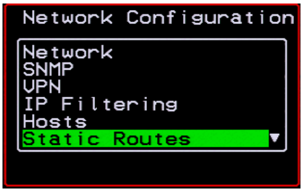
The following table shows the screens for the Add and Edit options.

Table 7-10: Hosts Configuration Screens [OSD]

Screen	Description
IP  Hosts Configuration IP 192.168.46.92 	IP address of the host
Name  Hosts Configuration Name KVM_ 	Hostname of the host
Alias  Hosts Configuration Alias KVM_ 	Optional alias of the host

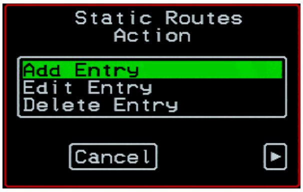
Static Routes Configuration Screens

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



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

Selecting Static Routes under Configuration>Network brings up the Static Routes Action Menu, as shown in the following screen.



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

Configure

- Network
  - Static Routes
    - Add | Edit Entry
      - Select a route [Edit option only]
      - Host or Net Route [Select host | net | default]
        - Target [host and net options only]
        - Netmask [net option only]
        - Gateway or Device
          - Gateway (gw)
            - Gateway
            - Metric
          - Network Device (dev)
            - Device
            - Metric
    - Delete Entry
      - Select a route

The following table shows the static routes screens that appear when you select one of the actions.

Table 7-11: Static Routes Screens [OSD]

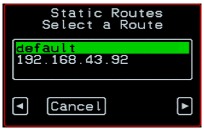
Screen	Description
Select a route  Static Routes Select a Route default 192.168.43.92 Cancel	Appears only when the Edit and Delete options are selected. Choices are “default” and any previously-configured static routes.

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

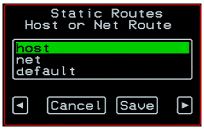
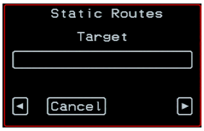
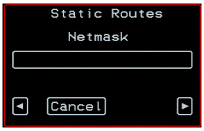
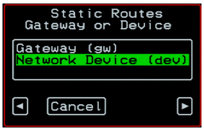
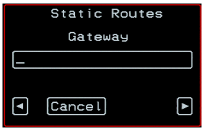
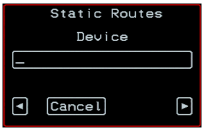
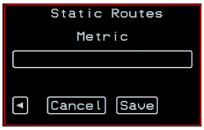
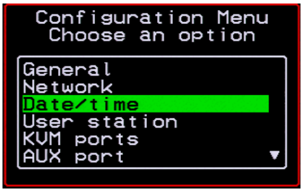
Screen	Description
Host or Net Route  Static Routes Host or Net Route host net default Cancel Save	Types of routes: “host,” “net,” or “default.” **Note:** A default route is used to direct packets that are addressed to networks not listed in the routing table.
Target  	IP address for the target host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

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

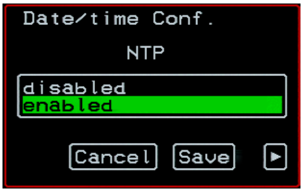
Screen	Description
Metric 	The number of hops to the destination.

Date/time Configuration Screens

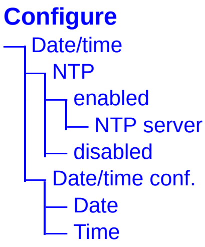
You can select the Date/time option from the OSD Configuration menu to either configure an NTP server or manually set the date and time.



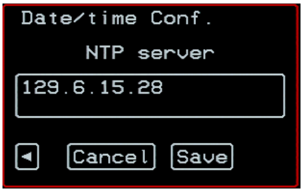
Selecting Date/time under Configuration>Network brings up the NTP menu, as shown in the following screen.



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



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



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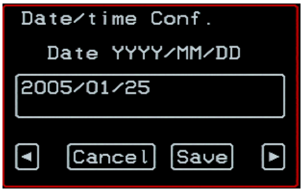
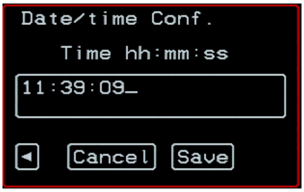
If NTP is disabled, the following series of two screens appears to allow you to enter the date and time manually.



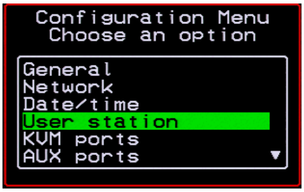
2005/01/25

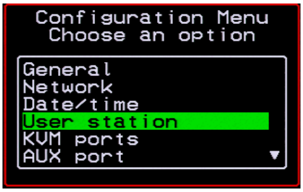


11:39:09_

User Station Screens

You can select the User Station option from the OSD Configuration menu to redefine the parameters that apply to a local user session (when a user is accessing the OSD through the User 1 or User 2 port).





The changes apply only to the currently accessed local station. For example, if an administrator configures these settings while connected to the User 2 port, these settings will be changed for all users who log in to the User 2 port, but the USer 1 port setting will remain unchanged.

The following diagram lists the configuration screens accessed through the Configure>User station option. All the screens that appear after the "Keyboard type" screen are for optionally redefining the command key portion of the KVM connection hot keys: "Quit," "Power Management," "Mouse/Keyboard Reset," "Video Configuration," "Switch Next," "Switch Previous," and "Port Info." See "Redefining Keyboard Shortcuts (Hot Keys)" on page 30 for details, if needed.

Configure

- User station
  - Idle timeout (min)
  - Scr. saver time (min)
  - Cycle time (sec)
  - Keyboard type
  - Quit
  - Power Management
  - Mouse/Keyboard Reset
  - Video Configuration
  - Switch Next
  - Switch Previous
  - Port Info

Figure 7-3: User Station Configuration Screens

The following table shows the user station configuration screens.

Table 7-12: User Station Configuration Screens

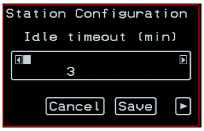
Screen	Description
Idle timeout  Station Configuration Idle timeout (min) 3 	The period of inactivity before the user is logged out from the OSD. The default is 3 minutes.

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

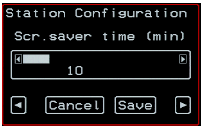
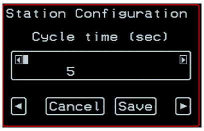
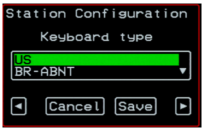
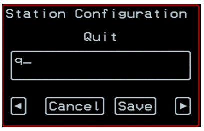
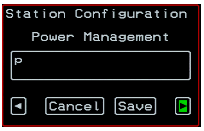
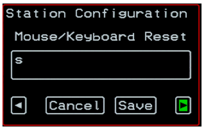
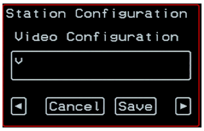
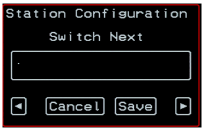
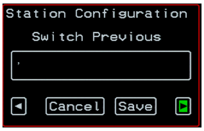
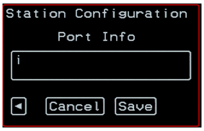
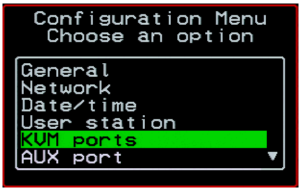
Screen	Description
Scr. saver timeout  Station Configuration Scr.saver time (min) 10 	The period of inactivity before the screen saver starts. The default is 10 minutes.
Cycling  Station Configuration Cycle time (sec) 5 	The number of seconds each server is viewed while the user is cycling from one port to another. Default = 5 seconds. See “To Initiate Cycle by Server” on page 268 for instructions on how to cycle through the servers.
Keyboard Type  Station Configuration Keyboard type US BR-ABNT 	The type of keyboard connected to the User 1 or User 2 management port of the KVM. • US [Default] • BR-ABNT • BR-ABNT2 • Japanese • German • Italian • French • Spanish
Quit  Station Configuration Quit q_ 	Redefine the command key for the KVM connection quit hot key.
Power Management  Station Configuration Power Management P 	Redefine the command key portion of the KVM connection power management hot key.

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

Screen	Description
Mouse/Keyboard  Station Configuration Mouse/Keyboard Reset s 	Redefine the command key portion of the KVM connection mouse/keyboard reset hot key.
Video  Station Configuration Video Configuration v 	Redefine the command key portion of the KVM connection video brightness and contrast hot key.
Switch Next  Station Configuration Switch Next . 	Redefine the command key portion of the KVM connection switch next hot key.
Switch Previous  Station Configuration Switch Previous , 	Redefine the command key portion of the KVM connection switch previous hot key.
Port Info  Station Configuration Port Info i 	Redefine the command key portion of the KVM connection port info hot key.

KVM Ports Screens

You can select the KVM Ports option on the OSD Configuration Menu to configure KVM ports.



The following diagram lists the configuration screens accessed through the Configure>KVM ports option.

Configure

- KVM ports [Select a port]
  - Active
  - Server name
  - Power outlet

Figure 7-4: KVM Ports Configuration Screens

The following table shows the KVM port configuration screens.

Table 7-13:KVM Port Configuration Screens

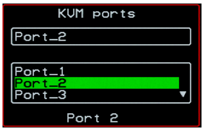
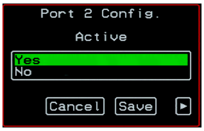
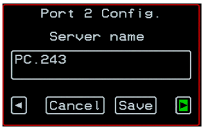
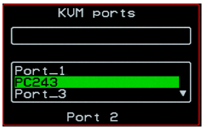
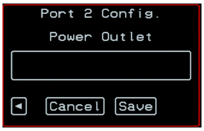
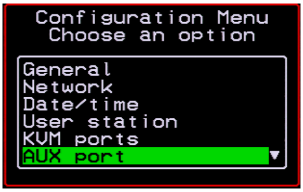
Screen	Description
KVM ports  	Lists all KVM ports by their default names or administratively-defined aliases.
Active  	Choices are “Yes” and “No” to activate or deactivate the selected KVM port.

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

Screen	Description
Server name  PC.243	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: 
Power Outlet  	Allows you to enter one or more numbers that identify power outlet or outlets into which the server that is connected to this KVM port is plugged. When IPDUs are daisy-chained, the outlets on the second and subsequent IPDUs 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 36 for details. Also see “To Power On, Power Off, or Reboot the Connected Server” on page 271, if needed.

AUX Port Screens

You can select the AUX Port option on the OSD Configuration Menu to configure the AUX port.



The following diagram lists the configuration screens accessed through the Configure>AUX port option.

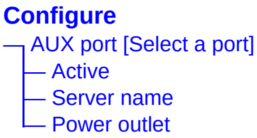

Configure
AUX port [Select a port]
Active
Server name
Power outlet

Figure 7-5: AUX Port Configuration Screens

The following table shows the AUX port configuration screens.

Table 7-14:KVM Port Configuration Screens

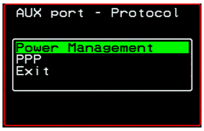
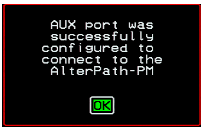
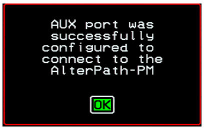
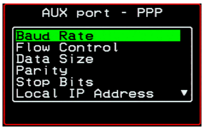
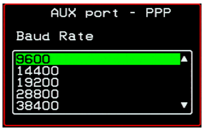
Screen	Description
AUX port - Protocol  AUX port - Protocol Power Management PPP Exit	Choices are “Power Management” and “PPP.” If you select Power Management, the following confirmation screen displays:  AUX port was successfully configured to connect to the AlterPath-PM OK If you select PPP, the following connection configuration menu displays:  AUX port was successfully configured to connect to the AlterPath-PM OK
AUX port - PPP  AUX port - PPP Baud Rate Flow Control Data Size Parity Stop Bits Local IP Address ▼	Appears when PPP is selected from the AUX port - Protocol screen. Allows you to configure the connection settings for any PPP connection being made through an external modem connected to the AUX port.
AUX port - PPP Baud Rate  AUX port - PPP Baud Rate 9600 ▲ 14400 19200 28800 38400 ▼	The port speed.

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

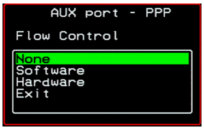
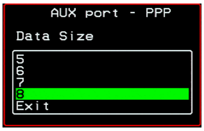
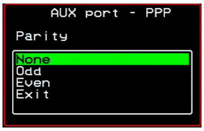
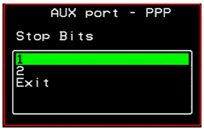
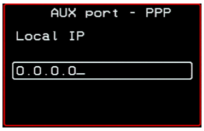
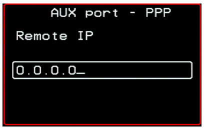
Screen	Description
AUX port - PPP Flow Control  AUX port - PPP Flow Control None Software Hardware Exit	Gateway or interface address used for the route.
AUX port - PPP Data Size 	The number of data bits.
AUX port - PPP Parity 	None, even, or odd.
AUX port - PPP Stop Bits 	The number of stop bits.
AUX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

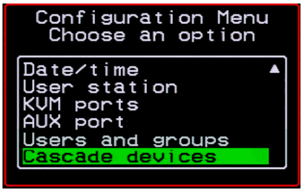
Table 7-14:KVM Port Configuration Screens (Continued)

Screen	Description
AUX port - PPP Remote IP  AUX port - PPP Remote IP 0.0.0.0_	

Cascade Devices

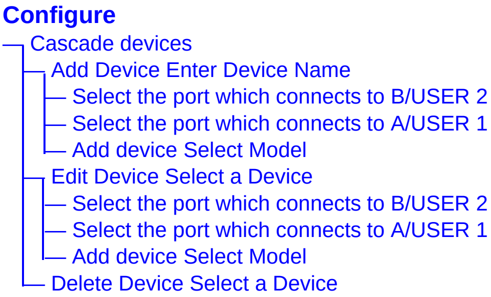
You can select the Cascade Devices option on the OSD Configuration Menu to perform the following tasks:

- 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/net Plus, a

KVM/net, a KVM, or a KVM Expander. The following diagram lists the configuration screens accessed through the Configure>AUX port option.



Configure
- Cascade devices
  - Add Device Enter Device Name
    - Select the port which connects to B/USER 2
    - Select the port which connects to A/USER 1
    - Add device Select Model
  - Edit Device Select a Device
    - Select the port which connects to B/USER 2
    - Select the port which connects to A/USER 1
    - Add device Select Model
  - Delete Device Select a Device

Figure 7-6: Cascade Devices Configuration Screens

The following table shows the Cascade Devices configuration screens.

Table 7-15: Cascade Devices Configuration Screens

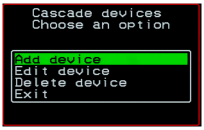
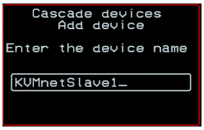
Screen	Description
Cascade device Choose an option  Cascade devices Choose an option Add device Edit device Delete device Exit	Options include Add device, Edit device, and Delete device.
Cascade Device Add Device Enter the device name  Cascade devices Add device Enter the device name KVMnetSlave1_	Appears when Add device is selected from the “Cascade device Choose an option” screen. Enter the name of the new cascaded KVM unit.

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

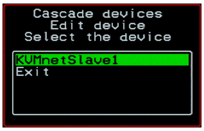
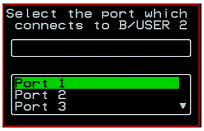
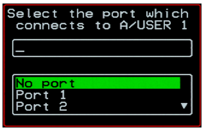
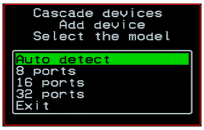
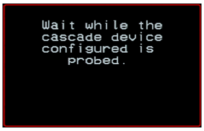
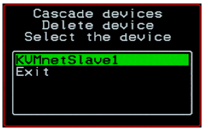
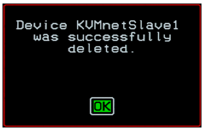
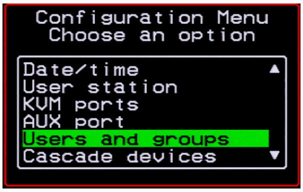
Screen	Description
Cascade Device Edit DeviceSelect the device  Cascade devices Edit device Select the device KVMnetSlave1 Exit	Appears when Edit device is selected from the “Cascade device Choose an option” screen. Select the name of a previously added cascaded KVM unit.
Select the port which connects to B/USER 2  Select the port which connects to B/USER 2 Port 1 Port 2 Port 3	Enter the port number of the 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 109 for a background on the possible devices that can be cascaded and for instructions on connecting these devices to the master KVM.
Select the port which connects to A/USER 1  Select the port which connects to A/USER 1 _ No port Port 1 Port 2	Enter the secondary KVM port that is connected to the User 1 port of the primary KVM or the User A port on the Expander.
Cascade device Add device Select Model  Cascade devices Add device Select the model Auto detect 8 ports 16 ports 32 ports Exit	Select the number of ports on the cascaded KVM unit or select Auto detect and press <Enter>. Selecting Auto detect automatically detects the number of ports on the cascaded KVM unit. The unit must be already connected in order for the auto detect option to work. During auto detection, the following message appears.  Wait while the cascade device configured is probed.

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

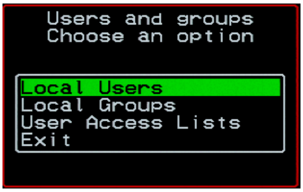
Screen	Description
Cascade Device **Delete Device** **Select the device**  Cascade devices Delete device Select the device KVMnetSlave1 Exit	Appears when Delete device is selected from the “Cascade device Choose an option” screen. The following confirmation screen appears once a cascaded device is selected.  Device KVMnetSlave1 was successfully deleted. OK

Users and Groups Screens

You can choose the “Users and groups” option from the OSD Configuration menu to configure users, groups, and KVM port permissions.



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:

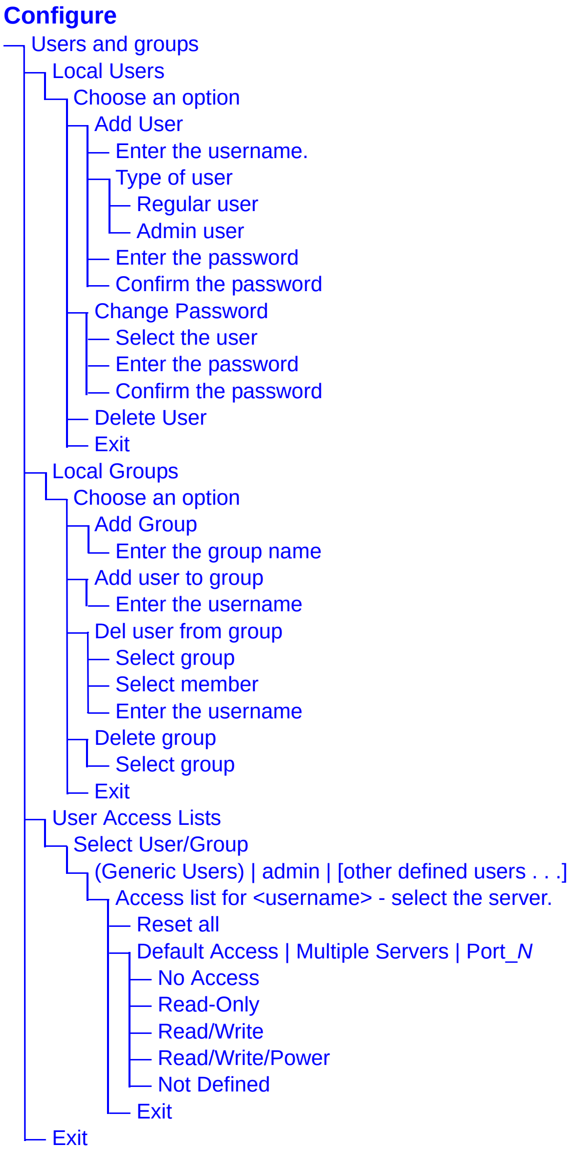


Figure 7-7: Users and Groups Configuration Screens

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

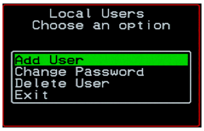
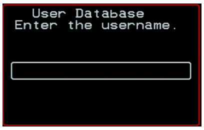
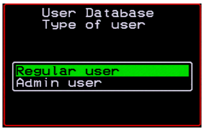
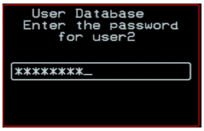
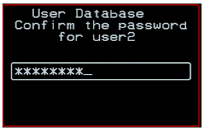
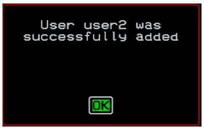
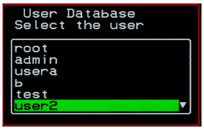
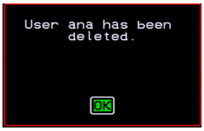
Screen	Description
Choose an option  Local Users Choose an option Add User Change Password Delete User Exit	Options are: “Add User,” “Change Password,” “Delete User,” or “Exit.”
User Database Enter the username  User Database Enter the username.	Appears only when “Add User” is selected.
Type of user  User Database Type of user Regular user Admin user	Appears only when “Add User” is selected.
Enter the password  User Database Enter the password for user2 `********_`	Appears only when “Add User” or “Change Password” are selected. **Note:** Passwords are case sensitive. When the password is successfully confirmed, the following dialog box appears.
Confirm the password  User Database Confirm the password for user2 `********_`	 User user2 was successfully added OK

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

Screen	Description
Select the user  User Database Select the user root admin usera b test user2	Appears only when “Change Password” or “Delete User” are selected. When “Delete User” and then a username are selected, a confirmation screen like the following appears:  User ana has been deleted.

The following table shows the configuration screens that appear when the “Local Groups” option is selected from the Users and Groups menu under Configure in the OSD.

Table 7-17: Local Groups Configuration Screens

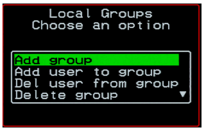
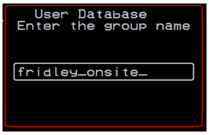
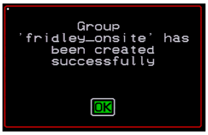
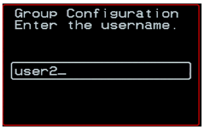
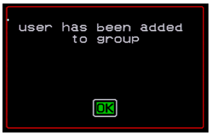
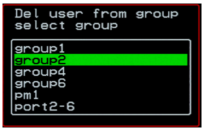
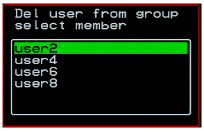
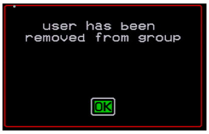
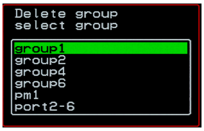
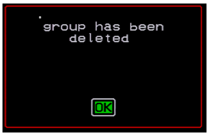
Screen	Description
Choose an option  Local Groups Choose an option Add group Add user to group Del user from group Delete group	Options are “Add group,” “Add user to group,” “Del. user from group,” “Delete group,” and Exit
Enter the group name  fridley_onsite_	When “Add group” is selected. After the group name is entered, a confirmation screen like the following appears.  Group 'fridley_onsite' has been created successfully

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

Screen	Description
Enter the username  Group Configuration Enter the username. user2_	When “Add user” or “Add user to group” are selected. To add multiple users, use a comma to separate each username. When the user is successfully added, the following confirmation screen appears.  user has been added to group
Delete user from group select group  Del user from group select group group1 group2 group4 group6 pm1 port2-6	When “Del user from group” is selected.
Select member  Del user from group select member user2 user4 user6 user8	When “Del user from group” and a username are selected, the user is removed from the group, and the following confirmation screen appears:  user has been removed from group
Delete group select group  Delete group select group group1 group2 group4 group6 pm1 port2-6	When “Delete group” and a group name are selected, the following confirmation screen appears.  group has been deleted

You can use the User Access Lists menu to view and change KVM port access permissions for the Default User and all administratively-configured users and groups. See “Prerequisites for Accessing Servers” on page 261 for details.

The following table shows the configuration screens related to setting KVM port access permissions when the “User Access List” option is selected from the Users and Groups menu under Configure in the OSD.

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

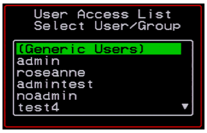
Screen	Description
Select User/Group  User Access List Select User/Group [Generic Users] admin roseanne admintest noadmin test4	“[Generic Users],” “admin,” and any administratively-defined users and groups are listed, along with the “Exit” option. The Generic Users’ permissions apply to all users except for “admin” and any users in the “admin” group. By default, the Generic Users’ default permission is “No Access,” and no KVM port permissions are defined. Therefore, by default, any regular users that may be added cannot access any KVM ports. The KVM administrator can configure access to KVM ports for added regular users by: • By selecting “[Generic Users]” and modifying the permissions - OR - • By configuring specific permissions for one or more individual users or groups (by selecting a single port or the “Multiple servers” option)

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

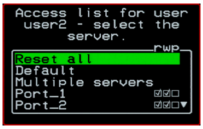
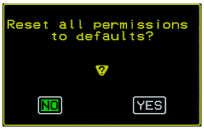
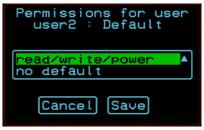
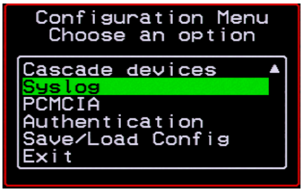
Screen	Description
Access list for *`username`* **- select the server**  Access list for user user2 - select the server. rwp Reset all Default Multiple servers Port_1 ☑☑□ Port_2 ☑☑□▼	The access list includes the “Reset all,” “Default,” “Multiple servers,” and “Exit” options along with each individual KVM ports. The “Default” option defines access permissions for all KVM ports, which apply unless the user has specific access permissions for any KVM ports. For a new user, because “Default Access,” is not defined, and also because no permissions are specified for that user’s access to any specific port, the Generic Users’ permissions apply. A series of three checkboxes appear to the right of each entry that has specific permissions (as defined in the following row). If a3 port has “No Access” defined, the checkboxes are empty. The headings for the checkboxes are: `rwp` for read, write, and power, and the boxes are checked appropriately when any of these permissions are defined. For example, in the screen to the left, the `r` and `w` boxes are checked next to “Port_1” and “Port_2,” which indicates that the user has read-write access to these ports. If “Reset all” is selected, the following confirmation screen appears.  Reset all permissions to defaults?

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

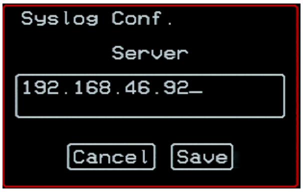
Screen	Description
Permissions for *username* **:** *port_number* **or for** *username* **: followed by another Access list option, such as "Default" or "Multiple Servers"**  Permissions for user user2 : Default read/write/power no default Cancel Save	The permissions from this menu can be configured to be "Default" permissions for all ports, applied to Multiple Servers, or applied to a selected port. Permissions menu options are "No Access," Read-Only," "Read Write," "Read/Write/Power." When "Default" is selected from the previous menu, the "Not Defined" menu option also appears. When any of the other options

Syslog Screens

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



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



Syslog Conf.

Server

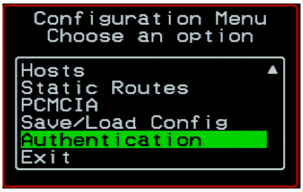
192.168.46.92_

Figure 7-8: Syslog Configuration Server Screen

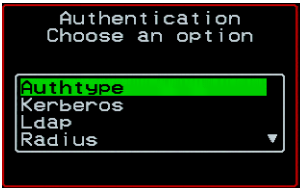
To complete the configuration of system logging, you must specify a facility number as shown in "Syslog Facility" on page 290.

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 36 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.

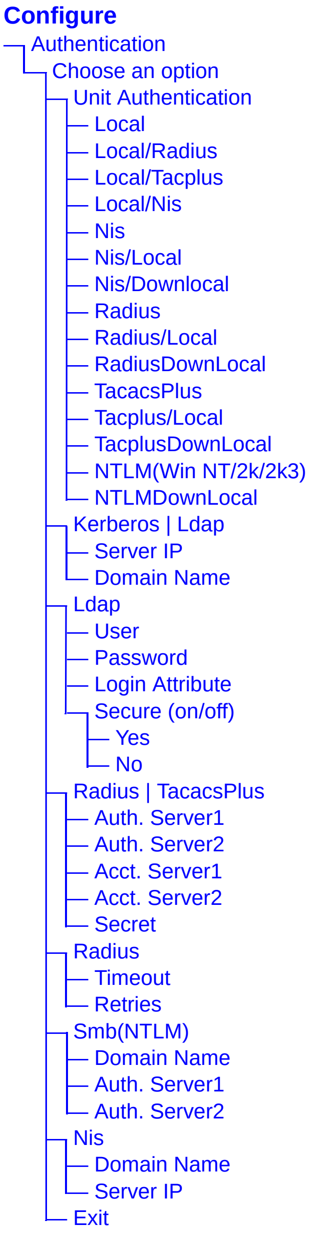
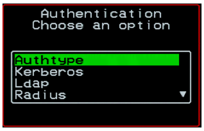
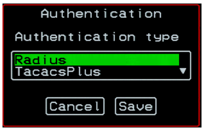


Figure 7-9: Authentication Options and Screens

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
Choose an option  Authentication Choose an option Authtype Kerberos Ldap Radius	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.
Authentication type  Authentication Authentication type Radius TacacsPlus Cancel Save	Authentication method options for KVM logins. Default = “Local.” Other authorization type options are: Local/Radius, Local/Tacplus, Local/Nis, Nis, Nis/Local, Nis/Downlocal, Radius, Radium/Local, RadiusDownLocal, TacacsPlus, Tacplus/Local, TacplusDownLocal, NTLM(Win NT/2k/2k3), NTLMDownLocal

The following table shows the common screens that appear when Kerberos or Ldap are selected to configure an authentication server.

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

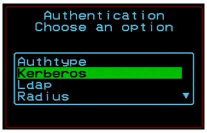
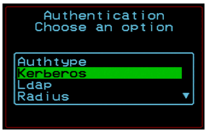
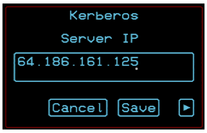
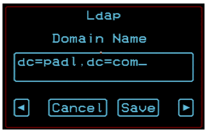
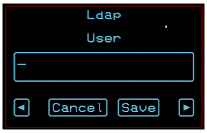
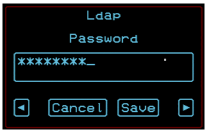
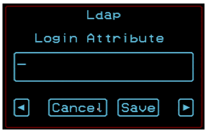
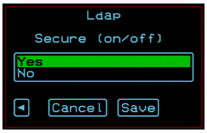
Screen	Description
Ldap  Authentication Choose an option Authtype Kerberos Ldap Radius	Choose Ldap to configure an LDAP authentication server.
Kerberos  Authentication Choose an option Authtype Kerberos Ldap Radius	Choose Kerberos to configure a Kerberos authentication server.

Table 7-20: Common Configuration Screens for Kerberos and LDAP Authentication Servers (Continued)

Screen	Description
Server IP  Kerberos Server IP 64.186.161.125 	IP address of the Kerberos or LDAP server.
Domain Name  Ldap Domain Name dc=padl.dc=com_ 	Domain name.

The following table shows the unique screens for configuring an LDAP server that appear in addition to the screens shown in Table 7-20, “Common Configuration Screens for Kerberos and LDAP Authentication Servers,” on page 7-338.The following table shows the configuration screens for the

Table 7-21: Unique LDAP Authentication Server Configuration Screens

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

Radius and TACACS+ authentication servers.The following table shows the

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

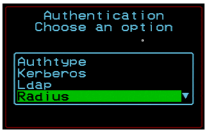
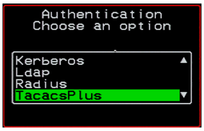
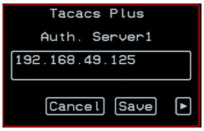
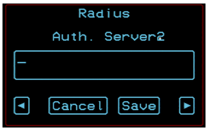
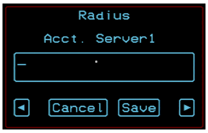
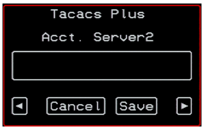
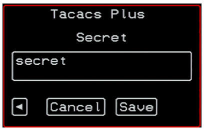
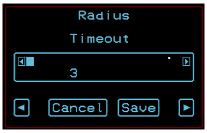
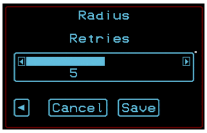
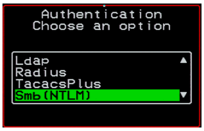
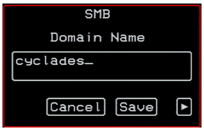
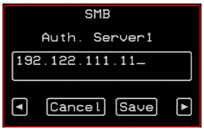
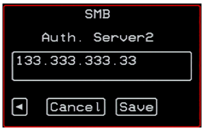
Screen	Description
Radius **TacacsPlus**  Authentication Choose an option Authtype Kerberos Ldap Radius  Authentication Choose an option Kerberos Ldap Radius TacacsPlus	Choose Radius or TacacsPlus to configure a Radius or TACACS+ authentication server.
Auth. Server1 **Auth. Server2**  192.168.49.125 	IP addresses of one or two authentication servers. The second server is optional.
Acct. Server1 and Acct. Server2  	IP addresses of one or two optional accounting servers.
Secret  secret	Shared secret.
Timeout  3	Appears only when Radius is selected. Timeout in seconds. The default is 3.

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

Screen	Description
Retries  Radius Retries 5 	Appears only when Radius is selected. Number of retries. The default is 5.

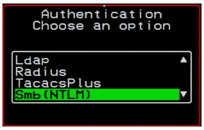
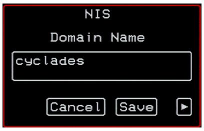
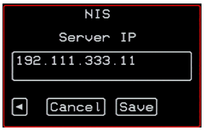
Screens for configuring a Smb (NTLM) authentication server.

Table 7-23: Smb (NTLM) Configuration Screens

Screen	Description
Smb(NTLM)  Authentication Choose an option Ldap Radius TacacsPlus Smb(NTLM)	Choose Smb(NTLM) to configure an SMB (NTLM) authentication server.
Domain Name  SMB Domain Name cyclades_ 	The domain name.
Auth. Server1 and Auth. Server2  SMB Auth. Server1 192.122.111.11_  SMB Auth. Server2 133.333.333.33 	IP addresses for one or two SMB (NTLM) authentication servers. The second server IP is optional.

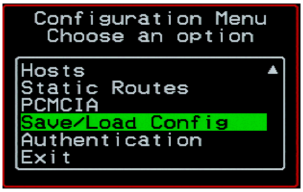
The following table shows the screens for configuring a NIS authentication server.

Table 7-24:NIS Configuration Screens

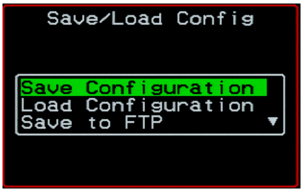
NIS  Authentication Choose an option Ldap Radius TacacsPlus Smb(NTLM)	Choose the NIS authentication server
Domain Name  NIS Domain Name cyclades 	Enter the Domain Name
Server IP  NIS Server IP 192.111.333.11 	IP address of the NIS server.

Save/Load Configuration Screens

You can use the Save/Load Config option on the OSD Configuration Menu to save any configuration changes you have made since the last save into a backup directory or onto an FTP server. You can also restore configuration file changes from a backup directory or FTP server to overwrite any configuration changes that were made since the last save.



The Save/Load Config screen appears as shown in the following figure. Not all options are visible.



The following diagram lists the Save/Load Configuration screens.

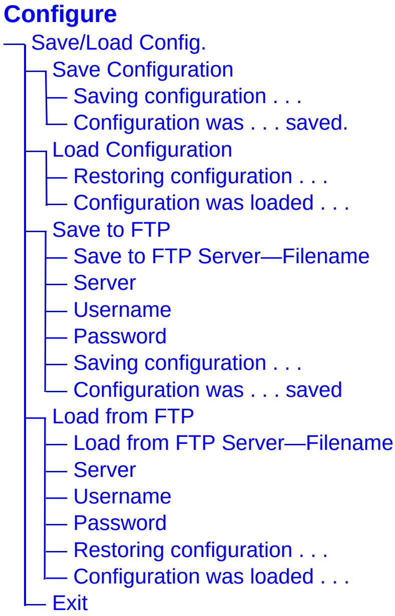

Configure
Save/Load Config.
Save Configuration
Saving configuration . . .
Configuration was . . . saved.
Load Configuration
Restoring configuration . . .
Configuration was loaded . . .
Save to FTP
Save to FTP Server—Filename
Server
Username
Password
Saving configuration . . .
Configuration was . . . saved
Load from FTP
Load from FTP Server—Filename
Server
Username
Password
Restoring configuration . . .
Configuration was loaded . . .
Exit

Figure 7-10: Save/Load Config Configuration Screens

The following table shows the screens that appear when the “Save/Load Configuration” option is selected from the Configure menu in the OSD.

Table 7-25: Save/Load Configuration Screens

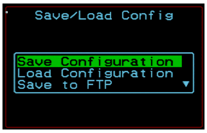
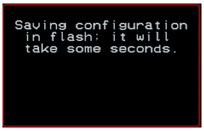
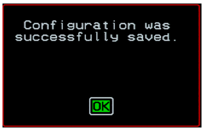
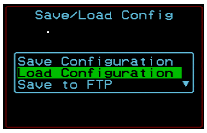
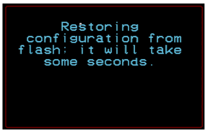
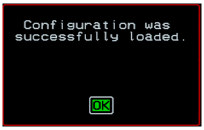
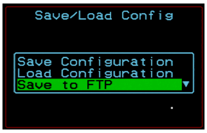
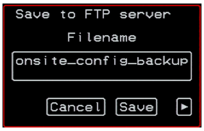
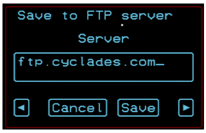
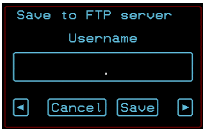
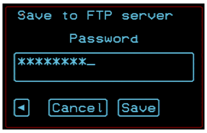
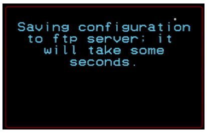
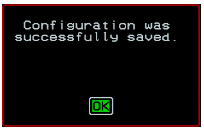
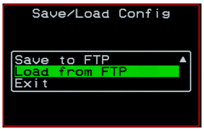
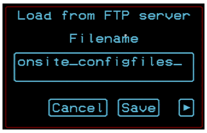
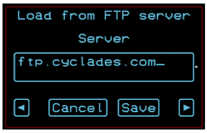
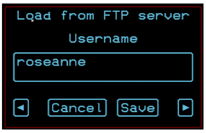
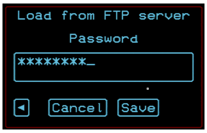
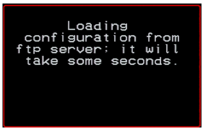
Screen	Description
Save Configuration  Save/Load Config Save Configuration Load Configuration Save to FTP	When “Save Configuration” is selected, the following two screens appear.  Saving configuration in flash: it will take some seconds.  Configuration was successfully saved.

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

Screen	Description
Load Configuration  Save/Load Config Save Configuration Load Configuration Save to FTP	When “Load Configuration” is selected, the following two screens appear.  Restoring configuration from flash: it will take some seconds.  Configuration was successfully loaded.
Save to FTP  Save/Load Config Save Configuration Load Configuration Save to FTP	When “Save to FTP” is selected, the following five screens appear for you to enter the “Filename,” FTP “Server” name, FTP Login “Username” and “Password.” The last screens confirm the save to FTP succeeded.  Save to FTP server Filename onsite_config_backup  Save to FTP server Server ftp.cyclades.com_  Save to FTP server Username  Save to FTP server Password ********_  Saving configuration to ftp server: it will take some seconds.  Configuration was successfully saved.
Load from FTP  	When “Load from FTP” is selected, the following four screens appear for you to enter the “Filename,” FTP “Server” name, FTP Login “Username” and “Password.”  Load from FTP server Filename onsite_configfiles_  Load from FTP server Server ftp.cyclades.com_  Lqad from FTP server Username roseanne  Load from FTP server Password ********_  Loading configuration from ftp server: it will take some seconds.

System Info Menu

System Information window provides administrators detailed system information. The following table offers an example of the type of information you may see on the System Info window.

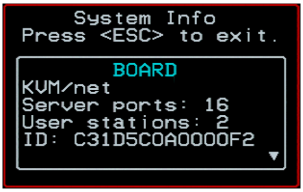
Table 7-26: System Information Example

Information Type	Example
Board	KVM 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
User2 connection	RP main, V1.0.4 RP local, V1.0.4

▼ *To Access System Information*

1. On the Main Menu, select System Info.

   The System Info window appears.



```
   System Info
 Press <ESC> to exit.

      BOARD
KVM/net
Server ports: 16
User stations: 2
ID: C31D5C0A0000F2
```

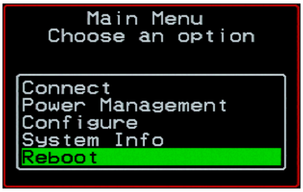
2. Use the up and down arrow keys to view the information.
3. To exit, press the escape key.

Reboot

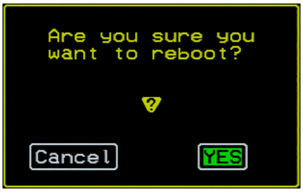
You can reboot the KVM from the Main Menu of the OSD. This is particularly useful when operating through the RP.

▼ *To reboot the KVM*

1. Select Reboot from the Main Menu.



   The following message appears.



Are you sure you want to reboot?

2. Select Yes to reboot the KVM.

Controlling the OSD Through the AlterPath Remote Presence

While using the AlterPath Remote Presence (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 workstation 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 Remote Presence” on page 112 for details on how to install an RP. No configuration is required to begin using the RP.

▼ *To Use to the AlterPath KVM RP to Access the KVM*

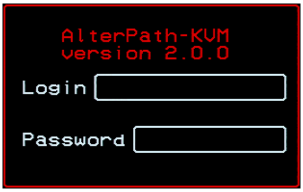
1. Connect the RP to the KVM using a CAT5 cable up to 500 feet long.

   See “Installing the AlterPath KVM Remote Presence” on page 112 for detailed instructions and diagrams on how to connect the RP to the KVM and to your local work station.

2. Power on the RP.

3. Press the Select Local-Remote button on the front of the AlterPath KVM RP unit to switch the local video display from your local work station to the KVM OSD.

   The OSD login screen appears.



AlterPath-KVM
version 2.0.0

Login

Password

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 284 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 286, “System Info Menu” on page 347, and “Reboot” on page 348.
   - If desired, connect to devices that are physically connected to the KVM.

     See “Connection Menu” on page 285 for instructions.
   - If desired, power manage devices that are plugged into a configured AlterPath Power Management unit. (PM).

     See “Power Management Menu” on page 286 for instructions.

▼ To Switch the 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 RP front.

  The green LED labelled Remote turns off, and the green LED labelled Local lights on.

  By default the 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 351 for instructions on turning the beep on or off.

▼ To Switch the 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 RP front.

  The green LED labelled Local turns off, and the green LED labelled Remote lights on.

By default the 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 351 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

This chapter provides information and tasks related to troubleshooting the KVM in the following sections.

Replacing a Boot Image

How the KVM boots is introduced at a high level in “Boot Configuration” on page 229. The additional information in this section is to give an administrator with root access to the KVM enough understanding to be able to boot from an alternate image if the need arises and if the Web Manager is not available.

The KVM uses a U-Boot boot loader that resides in soldered flash memory and automatically runs at boot time. U-Boot boots the KVM from an image whose location is configurable. The image can reside either in removable flash memory on the KVM or on a boot server on the network. For more about U-Boot, go to: http://sourceforge.net/projects/u-boot.

By default, the KVM boots from the first partition.

- The KVM initially boots from a software image referred to as “image 1.”
- The first time you download and install a new software version from Cyclades, the new image is stored as “image 2” in the removable flash memory and the configuration is changed to boot the KVM from “image 2.”
- The second time you download a new software version, the latest image is stored as “image 1,” and the KVM configuration is changed to boot from “image 1.”
- Subsequent downloads are stored following the same pattern, alternating “image 1” with “image 2.”

Each image on the KVM’s removable flash has three separate file systems mounted on three Linux partitions. As shown in the following table, the first partition for each image is in VFAT (file allocation table) format, and it contains the Linux kernel. The second partition, in ext2 format, contains the root-mounted filesystem, and is read only. The third partition, in ext2 format, contains the configuration files and is read/write.

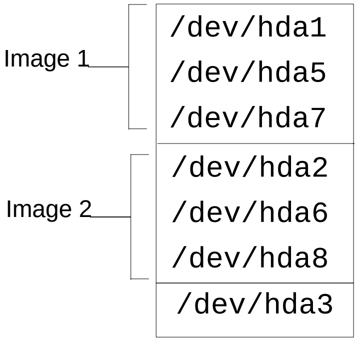
Table A-1: Boot Partitions, Formats, and Contents

Filesystem	Format	Contents
`hda1`	VFAT	Linux kernel for Image 1
`hda2`	VFAT	Linux kernel for Image 2
`hda3`	ex2	configuration backup

Table A-1: Boot Partitions, Formats, and Contents

Filesystem	Format	Contents
`hda4`	extended partition	
`hda4`	ext2	root filesystem for Image 1
`hda6`	ext2	root filesystem for Image 2
`hda7`	ext2	configuration for Image 1
`hda8`	ext2	configuration for Image 2

The following figure illustrates the partitions where Image 1 and Image 2 are stored.



Downloading a New Software Version

You can download a new software version in the following ways:

- Use the Web Manager Firmware Upgrade form to download the image from an FTP server

  When the image is downloaded by FTP, a script (`saveimage`) automatically extracts the filesystem from the image, mounts it, and copies the files to the removable flash. If a current version of the image is being run from one of the three-partitions sets, the downloaded image is stored in the other set of partitions. The environment variable `currentimage` is changed so that the system boots from the new image.

- Do a network boot from the new image and then save it onto the removable flash

  The monitor command `net_boot` boots the image from the TFTP server specified in the environment variables. After the image is downloaded by network boot, the root filesystem is in the RAMDISK, and the image can run even if there is no removable flash card is inserted.

  From the command line, you can run the `create_cf` script with the `--doformat` option to automatically save the image in removable flash. The script erases everything in the flash, partitions the flash, if necessary, formats the partitions, and copies the files currently in the RAMDISK into the corresponding image partitions. If the flash is already partitioned, you can choose where the image is saved using the option `--imageN`.

Changing the Boot Image

If, for any reason, you want to change to another image from the current one, if you have access to the Web Manager, you can use the Configuration > System > Boot Configuration form in Expert mode to select the other image, and then use the reboot button on the Management > Reboot form in Expert mode to reboot the KVM.

You can use the Linux `bootconf` options if you do not have access to the Web Manager. See “To Boot from an Alternate Image With bootconf” on page 356.

You can also boot in U-Boot monitor mode and use the available boot commands. See “To Boot in U-Boot Monitor Mode” on page 358.

▼ To Boot from an Alternate Image With bootconf

1. Connect to the KVM from a terminal connected to the console port or create a `telnet` or `ssh` connection, and log in as root.
2. Enter the `bootconf` command.

```
# bootconf
```

The `bootconf` application prompts you for values to accept or change.

3. Press “Enter” to accept the current values as prompted until the “Image names” and the prompt shown in the following screen example appear.

```
Image names:
image1:zvmppcons.v100
image2:zvmppcons.v102

Current image (image(1) or image(2)) [1] :
```

4. Enter the number of the alternate image to boot from.

   The following screen example shows the number `2` entered to configure booting from image 2.

```
Current image (image(1) or image(2)) [1] :2
```

5. Enter **Y** when prompted: “Do you confirm these changes in flash.”

```
Do you confirm these changes in flash ( (Y)es, (N)o (Q)uit )[N]:Y
```

6. Restart the KVM.

```
[root@ons /]# reboot
```

Changing the Boot Image in U-Boot Monitor Mode

You can access U-Boot monitor mode in one of the following two ways:

- During boot, when the “Hit any key to stop autoboot” prompt appears, pressing any key before the timer expires brings the KVM to monitor mode.
- If boot fails, the KVM automatically enters monitor mode.

The U-Boot `hw_boot` command boots from either the first or second image according to the value of the “currentimage” environment variable, which can be either 1 or 2. You can use the following procedures to specify another image.

"To Boot in U-Boot Monitor Mode"	Page 358
To Boot from an Alternate Image in U-Boot Monitor Mode	Page 358

To Boot in U-Boot Monitor Mode

1. Open a terminal connection to the console port, and log in as root.
2. Enter the `reboot` command.

```
# reboot
```

3. During boot, when the “Hit any key to stop autoboot” prompt appears, press any key before the time elapses to stop the boot.
4. The U-Boot monitor prompt appears:

```
=>
```

5. Enter `help` to see a list of supported commands.

```
=> help
```

To Boot from an Alternate Image in U-Boot Monitor Mode

1. Go to U-Boot monitor mode.

   See "To Boot in U-Boot Monitor Mode" if needed.
2. Set the current image environment variable to the number of the image you want to boot.

```
=> setenv currentimage N
```

For example, to boot from image 2 enter the number 2, as shown in the following screen example.

```
=> setenv currentimage 2
```

3. Enter the boot command.

```
=> hw_boot
```

To Boot in Single User Mode from U-Boot Monitor Mode

1. See “To Boot in U-Boot Monitor Mode” on page 358 if needed.
2. Boot by entering `hw_boot` followed by `single`, as shown in the following screen example.

```
=> hw_boot single
```

To Replace a Boot Image From a Network Boot in U-Boot Monitor Mode

After performing a network boot, you can use the `create_cf` command at any time to save the files in the removable flash. The only changes you should make before running `create_cf` are configuration file changes.

1. Log in as root.
2. Set the “bootfile,” “serverip,” and “ipaddr” environment variables using the boot filename, the boot server’s IP address, and the IP address of the KVM to use for network booting.

   The format of the boot filename is: `zmppcons.v`*`version_number`*, for example: `zmppcons.v120`.

```
=> setenv ipaddr KVM’s_IP_address
=> setenv serverip boot_server’s_IP_address
=> setenv bootfile boot_file’s_name
```

3. Check that the environment variables are set properly with the `showenv` command.

```
=> printenv
```

4. Enter the `net_boot` command.

```
=> net_boot
```

5. Log in as root after boot completes.

6. Run the `create_cf` command with the `--doformat` argument.

```
[root@ons root]# create_cf --doformat
```

7. Configure the KVM to boot from flash.

8. Reboot.

To Restore the KVM Configuration to the 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 **`restoreconf`** command with the **`factory_default`** option.

```
[root@ KVM  root]# restoreconf factory_default
```

```
restoreconf:
Usage:
Restore from flash:           restoreconf
Restore from factory default: restoreconf factory_default
Restore from storage device:  restoreconf sd
Restore from local file:      restoreconf local <FILE>
Restore from FTP server:      restoreconf ftp <FILE>
<FTP_SERVER> <USER> <PASSWORD>
Restore from TFTP server:     restoreconf tftp <FILE>
<TFTP_SERVER>
Restore from SSH server:      restoreconf ssh <FILE>
<SSH_SERVER> <USER>
```

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 onlymemory 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.

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 workstations 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.

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.

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.

Hot-Swap

Ability to remove and add hardware to a computer system without powering off the system.

IP address

A 32-bit address assigned to hosts using TCP/IP. It belongs to one of five classes (A-E) and is expressed as 4 octets separated by periods formatted as dotted decimals. Each address has a network number, an optional sub network number and a host number. The first two numbers are used for routing, while the host number addresses an individual host within the network or sub network. A subnet mask is used to extract network and sub network information from the IP address.

IP packet filtering

This is a set of facilities in network equipment that allows the filtering of data packets based on source/destination addresses, protocol, TCP port number and other parameters. Packet filtering is one of the main functions of a firewall.

IPsec

Short for *IP Security Protocol*, IPsec is an extended IP protocol that provides encrypted security services. These services enable authentication, as well as access and trustwothiness 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 "lightweight" (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.

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 (i.e. 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.

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.

OSD

On-Screen Display.

packet

A packet is a basic communication data unit used when transmitting information from one computer to another. The maximum length of a packet depends on the communication medium. As an example, in Ethernet networks the maximum length is1500 bytes. A data packet can be divided into two parts: the header part and the data part. The header contains information needed for communication between nodes; the data is the body of the packet that is ultimately received by the application.

parity

In serial communications, the parity bit is used in a simple error detection algorithm. As a stream of data bits is formed, an extra bit, called the parity bit, is added. This bit is set on (1) or off (0), depending on the serial communications parameters set in the UART chip.

The following lists the available parity parameters and their meanings:

Odd – Parity bit set so that there is an odd number of 1 bits

Even – Parity bit set so that there is an even number of 1 bits

None – Parity bit is ignored, value is indeterminate

PCMCIA

Personal **C**omputer **M**emory **C**ard **I**nternational **A**ssociation – An organization that supports standards for a compact hardware interface that accepts a variety of devices such as modems, storage, and other devices.

port

A port is a 16-bit number (the allowed range being 1 through 65535) used by the TCP and UDP protocols at the transport layer. Ports are used to address applications (services) that run on a computer. If there was only a single network application running on the computer, there would be no need for port numbers and the IP address only would suffice for addressing services. However, several applications may run at once on a particular computer and we need to differentiate among them. This is what port numbers are used for. Thus, a port number may be seen as an address of an application within the computer.

PPP

Point-to-Point Protocol. This protocol is a way to connect your computer to the Internet over telephone lines. PPP is replacing an older protocol, SLIP, as it is more stable and has more error-checking features.

PPP has been a widely-used Internet standard for sending datagrams over a communications link. The PPP standard is described in RFC 1661 by the Point-to-Point Working Group of the Internet Engineering Task Force (IETF). PPP is commonly used when remote computers call an Internet service provider (ISP) or a corporate server that is configured to receive incoming calls.

RADIUS

Remote Authentication Dial-In User Service) is a client/server protocol and software that enables remote access servers to communicate with a central server to authenticate dial-in users and authorize their access to the requested system or service. RADIUS allows a company to maintain user profiles in a central database that all remote servers can share.

RC4

Rivest Cipher four, an encryption method using variable length secret key streams. RC4 is an alternate to DES and is approximately ten times as fast as DES; however, it is less secure.

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.

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.

VPN
Virtual Private Networking allows local area networks to communicate across wide area networks, typically over an encrypted channel. See also: **IPsec**.

Watchdog timer
Mechanism to detect hardware and operating system failures.

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