



Dominion KX II

User Guide
Release 2.6.0

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In Raritan products that require Rack Mounting, please follow these precautions:

- Operation temperature in a closed rack environment may be greater than room temperature. Do not exceed the rated maximum ambient temperature of the appliances. See **Specifications** (on page 287) in online help.
- Ensure sufficient airflow through the rack environment.
- Mount equipment in the rack carefully to avoid uneven mechanical loading.
- Connect equipment to the supply circuit carefully to avoid overloading circuits.
- Ground all equipment properly, especially supply connections, such as power strips (other than direct connections), to the branch circuit.

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Chapter 1 Introduction

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KX II Overview

Raritan's Dominion KX II is an enterprise-class, secure, digital KVM (Keyboard, Video, Mouse) switch that provides BIOS-level (and up) access and control of servers from anywhere in the world via a web browser. Up to 64 servers can be controlled with a standard KX II. With the KX II 8-user model, up to 32 servers can be controlled with the KX2-832 and up to 64 servers can be controlled with the KX2-864. A scan feature allows you to locate and view up to 32 targets. The targets are displayed as thumbnails in a slide show from which users connect to each target.

The KX II supports up to 8 video channels, allowing up to eight concurrent users to connect to eight different video targets at any given point in time. Digital audio devices are supported, allowing you to connect to playback and record devices from the remote client PC to the target server. At the rack, the KX II provides BIOS-level control of up to 64 servers and other IT devices from a single keyboard, monitor, and mouse. The integrated remote access capabilities of the KX II provide the same levels of control of your servers via a web browser.

The KX II is easily installed using standard UTP (Cat 5/5e/6) cabling. Its advanced features include virtual media, 256-bit encryption, dual power supplies, remote power control, dual Ethernet, LDAP, RADIUS, Active Directory®, Syslog integration, external modem capabilities, and web management. The KX II 8-user model also provides an extended local port located on the back of the device. These features enable you to deliver higher up-time, better productivity, and bulletproof security - at any time from anywhere.

KX II products can operate as standalone appliances and do not rely on a central management device. For larger data centers and enterprises, numerous KX II devices (along with Dominion SX devices for remote serial console access and Dominion KSX for remote/branch office management) can be integrated into a single logical solution using Raritan's CommandCenter Secure Gateway (CC-SG) management unit.

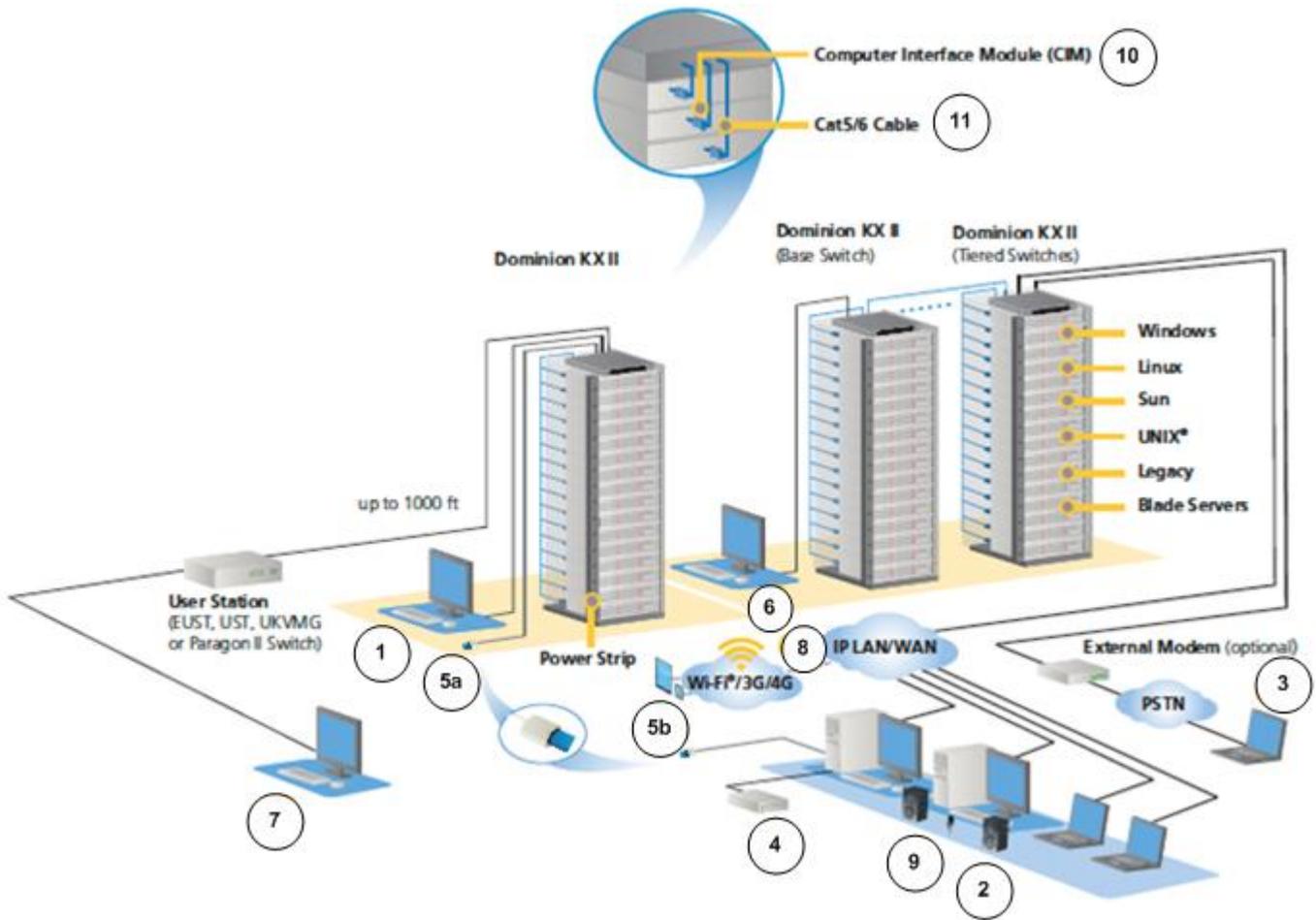


Diagram key			
1	Local port access	6	Tiering
2	IP-based network access	7	Extended local port
3	Modem	8	Mobile access via iPhone® and iPad® using CC-SG
4	Virtual media	9	Digital audio
5a	Smart card access at the rack	10	CIMs
5b	Remote smart card access	11	Cat5/6 cable

Package Contents

Each KX II ships as a fully-configured stand-alone product in a standard 1U (2U for DKX2-864) 19" rackmount chassis. Each KX II device ships with the following contents:

- 1 - KX II device
- 1 - KX II Quick Setup Guide
- 1 - Rackmount kit
- 2 - AC power cords
- 2 - Cat5 network cable
- 1 - Cat5 network crossover cable
- 1 - Set of 4 rubber feet (for desktop use)
- 1 - Application note
- 1 - Warranty card

KX II Device Photos and Features



KX II



KX2-808



KX2-832



KX2-864

See ***KX II Dimensions and Physical Specifications*** (on page 287) for product specifications. See ***Supported Computer Interface Module (CIMs) Specifications*** (on page 289) for CIM specifications and images.

Product Features

Hardware

- Integrated KVM-over-IP remote access
- 1U or 2U rack-mountable (brackets included)
- Dual power supplies with failover; autoswitching power supply with power failure warning
- Support for tiering in which a base KX II device is used to access multiple other tiered devices. See **Configuring and Enabling Tiering** (on page 147) for more information on tiering.
- Multiple user capacity (1/2/4/8 remote users; 1 local user)
- UTP (Cat5/5e/6) server cabling
- Dual Ethernet ports (10/100/1000 LAN) with failover
- Field upgradable
- Local User port for in-rack access
 - Keyboard/mouse ports on the KX2-808, KX2-832 and KX2-864 are USB only
 - One front and three back panel USB 2.0 ports for supported USB devices
 - Fully concurrent with remote user access
 - Local graphical user interface (GUI) for administration
- Extended local port provides extended reach to in-rack access on KX2-8xx devices
- Centralized access security
- Integrated power control
- LED indicators for dual power status, network activity, and remote user status
- Hardware Reset button
- Serial port to connect to an external modem
- Supported users and ports per model:

Model	Remote users	Ports
KX II-864	8	64
KX II-832	8	32
KX II-808	8	8
KX II-464	4	64
KX II-432	4	32

Model	Remote users	Ports
KX II-416	4	16
KX II-232	2	32
KX II-216	2	16
KX II-132	1	32
KX II-116	1	16
KX II-108	1	8

Software

- Virtual media support in Windows®, Mac® and Linux® environments with D2CIM-VUSB and D2CIM-DVUSB CIMs and digital CIMs
- Support for digital audio over USB
- Port scanning and thumbnail view of up to 32 targets within a configurable scan set
- Absolute Mouse Synchronization with D2CIM-VUSB CIM, D2CIM-DVUSB CIM and digital CIMs
- Plug-and-Play
- Web-based access and management
- Intuitive graphical user interface (GUI)
- Support for dual port video output
- 256-bit encryption of complete KVM signal, including video and virtual media
- LDAP, Active Directory®, RADIUS, or internal authentication and authorization
- DHCP or fixed IP addressing
- Smart card/CAC authentication
- SNMP, SNMP3 and Syslog management
- IPv4 and IPv6 support
- Power control associated directly with servers to prevent mistakes
- Integration with Raritan's CommandCenter Secure Gateway (CC-SG) management unit
- CC Unmanage feature to remove device from CC-SG control
- Support of Raritan PX1 and PX2 appliances

KX II Client Applications

The following client applications can be used in the KX II:

KX II 2.2 (and later):

- Virtual KVM Client (VKC)
- Active KVM Client (AKC)
- Multi-Platform Client (MPC)

KX II (Generation 2):

- Virtual KVM Client (VKC)
- Multi-Platform Client (MPC)

Java™ 1.7 is required to use the Java-based KX II Virtual KVM Client (VKC) and Multi-Platform Client (MPC)..

Microsoft .NET® 3.5 (or later) is required to use KX II with the Microsoft Windows®-based Active KVM Client (AKC).

KX II Help

KX II online help is considered your primary help resource. PDF versions of help are a secondary resource.

See the KX II Release Notes for important information on the current release before you begin using the KX II.

KVM Client help is provided as part of KX II online help.

Online help is accompanied by the KX II Quick Setup Guide, which is included with your KX II and can be found on the Raritan Support page of **Raritan's website** (<http://www.raritan.com/support/firmware-and-documentation>).

Note: To use online help, Active Content must be enabled in your browser.

Chapter 2 Installation and Configuration

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Overview

This section provides a brief overview of the installation process. Each step is further detailed in the remaining sections of this chapter.

Before installing the KX II, configure the target server you want to access via the KX II so you ensure optimum performance.

Rack Mounting

The KX II can be mounted in 1U (1.75", 4.4 cm) of vertical space in a standard 19" equipment rack.

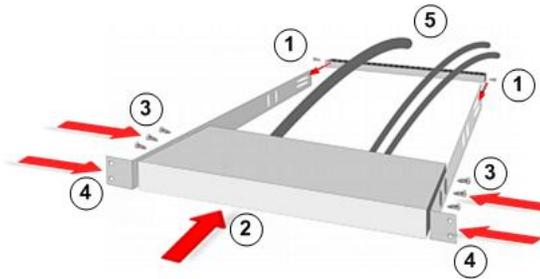
Note: The Raritan device depicted in the rack mounting diagrams is for example purposes only and may not depict your device. The mounting instructions are specific to your device.

Forward Mount

The steps correspond to the numbers shown in the front rackmount diagrams.

1. Secure the cable-support bar to the back end of the side brackets using two of the included screws.
2. Slide the KX II between the side brackets, with its rear panel facing the cable-support bar, until its front panel is flush with the "ears" of the side brackets.
3. Secure the KX II to the side brackets using the remaining included screws (three on each side).
4. Mount the entire assembly in your rack, and secure the side brackets' ears to the rack's front rails with your own screws, bolts, cage nuts, and so on.

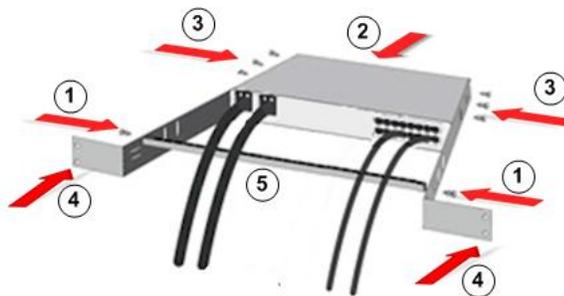
- When connecting cables to the rear panel of the KX II drape them over the cable-support bar.



Rear Mount

The steps correspond to the numbers shown in the rear rackmount diagrams.

- Secure the cable-support bar to the front end of the side brackets, near the side brackets' "ears," using two of the included screws.
- Slide the KX II between the side brackets, with its rear panel facing the cable-support bar, until its front panel is flush with the back edges of the side brackets.
- Secure the KX II to the side brackets using the remaining included screws (three on each side).
- Mount the entire assembly in your rack and secure the side brackets' ears to the rack's front rails with your own screws, bolts, cage nuts, and so on.
- When connecting cables to the rear panel of the user station or switch, drape them over the cable-support bar.



Default Login Information

Default	Value
User name	<i>admin</i> This user has administrative privileges.
Password	<i>raritan</i> The first time you start the KX II, you are required to change the default password.
IP address	192.168.0.192.

Important: For backup and business continuity purposes, it is strongly recommended that you create a backup administrator user name and password and keep that information in a secure location.

Getting Started

Note that the following configuration requirements apply only to the target server, not to the computers that you remotely access the KX II.

Step 1: Configuring Network Firewall Settings

TCP Port 5000

Allow network and firewall communication on TCP Port 5000 to enable remote access to the KX II.

Alternatively, configure the KX II to use a different TCP port, then allow communication on that port.

TCP Port 443

Allow access to TCP Port 443 (Standard HTTPS) so you can access KX II via a web browser.

TCP Port 80

Allow access to TCP Port 80 (Standard HTTP) to enable automatic redirection of HTTP requests to HTTPS.

Step 2: Configure the KVM Target Servers

Target Server Video Resolutions

For optimal bandwidth efficiency and video performance, KVM target servers running graphical user interfaces such as Windows®, Linux®, X-Windows, Solaris™, and KDE may require configuration.

The desktop background does not need to be completely solid, but desktop backgrounds featuring photos or complex gradients might degrade performance.

Ensure that the server video resolution and refresh rate are supported by KX II, and that the signal is non-interlaced.

See the **KX II Online Help** for a list of supported target server video resolutions.

Mouse Settings

Following are the mouse settings for various operating systems.

These settings are configured on your target operating system unless otherwise indicated.

See the **KX II Online Help** for details on configuring these mouse settings.

Windows 7 and Windows Vista Mouse Settings

► **Configure these mouse settings in Windows 7® and Windows Vista®:**

Configure the motion settings:

- Set the mouse motion speed setting to exactly the middle speed
- Disable the "Enhanced pointer precision" option

Disable animation and fade effects:

- Animate controls and elements inside windows
- Animate windows when minimizing and maximizing
- Fade or slide menus into view
- Fade or slide ToolTips into view
- Fade out menu items after clicking

Windows XP, Windows 2003, Windows 2008 Mouse Settings

▶ **Configure these mouse settings in Windows XP®, Windows 2003® and Windows 2008®:**

Configure the Motion settings:

- Set the mouse motion speed setting to exactly the middle speed
- Disable the "Enhance pointer precision" option
- Disable the Snap To option

Disable transition effects:

- Deselect the "Use the following transition effect for menus and tooltips" option

Windows 2000 Mouse Settings

▶ **Configure these Windows 2000® mouse settings:**

Configure the Motion settings:

- Set the acceleration to None
- Set the mouse motion speed setting to exactly the middle speed

Disable transition effects:

- Deselect the "Use the following transition effect for menus and tooltips" option

Apple Mac Mouse Settings

▶ **Configure these Apple Mac® mouse settings:**

Absolute Mouse Synchronization is required for proper mouse synchronization on KVM target servers running a Mac® operating system.

In order for Absolute Mouse Synchronization to work, a virtual media CIM is required. For a list of supported CIMs, see Supported Computer Interface Module (CIMs) Specifications.

Once you have completed your KX II installation, set the Mac USB profile. If you do not set this profile, the mouse does not synch in OS X.

To do this, do one of the following:

1. Connect to the Mac target from the Raritan KVM Client.
2. Select USB Profile > Other Profiles > Mac OS-X (10.4.9 and later).

Or

3. In KX II, select Device Settings > Port Configuration, then click on the target name to open the Port page.
 4. Expand 'Select USB Profiles for Port' section.
 5. Select 'Mac OS-X (10.4.9) and later' from the Available box, then click Add to add it to the Selected box.
 6. Click on 'Mac OS-X (10.4.9) and later' in the Selected box. This automatically adds it to the Preferred Profile drop-down.
 7. Select 'Mac OS-X (10.4.9) and later' from the Preferred Profile drop-down, then check the checkbox under 'Set Active Profile As Preferred Profile'.
- Click OK to apply.

Linux Mouse Settings

▶ **Configure these Linux® mouse settings:**

- (Standard Mouse Mode only) Set the mouse acceleration to exactly 1 and set the threshold to exactly 1. Enter the following command:
`xset mouse 1 1`. This should be set for execution upon login.

Sun Solaris Mouse Settings

▶ **Configure these Sun® Solaris™ mouse settings:**

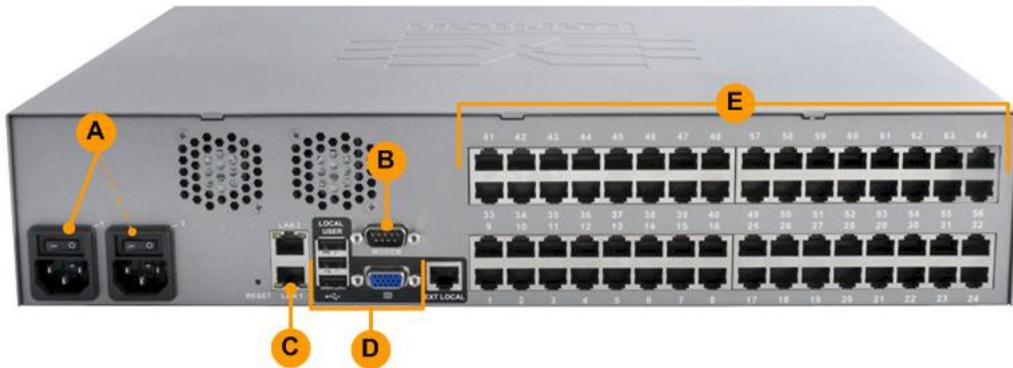
- Set the mouse acceleration value to exactly 1 and the threshold to exactly 1
- Ensure that your video card is set to a supported resolution and that its output is VGA, not composite sync

IBM AIX Mouse Settings

▶ **Configure these IBM AIX® mouse settings:**

- Go to the Style Manager, click on Mouse Settings and set Mouse Acceleration to 1.0 and Threshold to 3.0

Step 3: Connect the Equipment



A. AC Power

► **Connect the power supply(s):**

1. Attach the included AC power cord to the KX II, and plug it into an AC power outlet.
2. For dual-power failover protection, attach the second included AC power cord to the KX II, and plug it into a different power source than the first power cord.

B. Modem Port (Optional)

Please see the **KX II Online Help** for information on connecting modems.

C. Network Port

The KX II provides two Ethernet ports for failover purposes - not for load-balancing.

By default, only LAN1 is active, and the automatic failover is disabled.

Enable network failover if you want LAN2 to use the same IP address should the KX II internal network interface or the network switch it is connected to become unavailable.

► **To connect to the network:**

1. Connect a standard Ethernet cable from the network port labeled LAN1 to an Ethernet switch, hub, or router.
2. To use the optional KX II Ethernet failover capabilities:
 - a. Connect a standard Ethernet cable from the network port labeled LAN2 to an Ethernet switch, hub, or router.

Enable 'Automatic Failover' on the KX II Network Configuration page.

D. Local Access Port (Local PC)

For access to target servers at the rack, use the KX II Local Access port.

The Local Access port also provides a graphical user interface from the KX II Local Console for administration and target server access.

While the Local Access port is required for installation and setup, it is optional for subsequent use.

Note: The KX2-808, KX2-832 and KX2-864 also provide an Extended Local port labeled EXT LOCAL on the back of the device for access to target servers while at the rack. The Extended Local port is not required for the initial installation and setup. It is not enabled by default and is configured from the Local Console and the Remote Console.

► To connect the local port:

- Attach a multi-sync VGA monitor, mouse, and keyboard to the respective Local User ports using USB keyboard and mouse. The Local User and Extended Local ports are on the back panel of the KX II.
- Monitor - attach a standard multi-sync VGA monitor to the HD15 (female) video port
- Keyboard - attach either a standard keyboard to the Mini-DIN6 (female) keyboard port, or a standard USB keyboard to one of the USB Type A (female) ports
- Mouse - attach either a standard mouse to the Mini-DIN6 (female) mouse port, or a standard USB mouse to one of the USB Type A (female) ports

E. Target Server Ports

The KX II uses standard UTP cabling (Cat5/5e/6) to connect to each target server.

For information on the supported distances between the KX II and target server, see **Supported Target Server Connection Distance/Refresh Rate/Video Resolution** in **KX II Online Help**.

If you are using digital CIMs (DCIMs), review **Digital CIM Target Server Timing and Video Resolution** in **KX II Online Help**.

► To connect a target server to the KX II:

1. Use the appropriate CIM or DCIM. Attach the video connector of your CIM/DCIM to the video port of your target server.

2. Ensure that your target server's video is configured to a supported resolution and refresh rate.

For Sun servers, ensure your target server's video card is set to output standard VGA (H-and-V sync) and not composite sync.

3. Attach the keyboard/mouse connector of your CIM/DCIM to the corresponding ports on your target server.

Use a DCIM if you are connecting from the target server video port to the KX II.

4. Attach the CIM/DCIM to an available server port on the back of the KX II using a standard, straight-through UTP (Cat5/5e/6) cable for CIMs, or standard USB cable for DCIMs.

Note: The DCIM-USB G2 provides a small slide switch on the back of the CIM. Move the switch to P for PC-based USB target servers. Move the switch to S for Sun USB target servers. Power-cycle the CIM by removing the USB connector from the target server, then plugging it back in a few seconds later in order to apply the new switch position.

Step 4: Configure the KX II

For the following steps, you must change the default password and assign the KX II its IP address at the Local Console.

All other steps can be performed from either the Local Console, or from the KX II Remote Console via a supported web browser using the KX II's default IP address.

Java™ 1.7 is required to use the Java-based KX II Virtual KVM Client (VKC) and Multi-Platform Client (MPC)..

Microsoft .NET® 3.5 (or later) is required to use KX II with the Microsoft Windows®-based Active KVM Client (AKC).

Change the Default Password

The first time you start the KX II, you are required to change the default password.

► To change the default password:

1. Once the unit has booted, enter the default username *admin* and password *raritan*. Click Login.
2. Enter the old password *raritan*, then enter and reenter a new password.

Passwords can be up to 64 characters in length consisting of English, alphanumeric and special characters.

3. Click Apply. Click OK on the Confirmation page.

Assign the KX II an IP Address

► To assign an IP address to the KX II:

1. Choose Device Settings > Network. The Network Settings page opens.
2. Specify a meaningful Device Name for your KX II device.
Up to 32 alphanumeric and valid special characters, no spaces between characters.
3. Next, configure the IPv4, IPv6 and DNS settings.

Configure the IPv4 Settings

1. In the IPv4 section, enter or select the appropriate IPv4-specific network settings:
 - a. Enter the IP Address if needed. The default IP address is 192.168.0.192.
 - b. Enter the Subnet Mask. The default subnet mask is 255.255.255.0.
 - c. Enter the Default Gateway if None is selected from the IP Auto Configuration drop-down.
 - d. Enter the Preferred DHCP Host Name if DHCP is selected from the IP Auto Configuration drop-down.
 - e. Select the IP Auto Configuration. The following options are available:
 - None (Static IP) - This option requires you manually specify the network parameters.
This is the recommended option because the KX II is an infrastructure device, and its IP address should not change.
Select this option if you want to ensure redundant failover capabilities should the primary Ethernet port (or the switch/router to which it is connected) fail. If it fails, KX III fails over to the secondary network port with the same IP address, ensuring there is not interruption.
 - DHCP - Dynamic Host Configuration Protocol is used by networked computers (clients) to obtain unique IP addresses and other parameters from a DHCP server.
With this option, network parameters are assigned by the DHCP server.
If DHCP is used, enter the Preferred host name (DHCP only). Up to 63 characters.
2. Next, configure IPv6 and/or DNS settings.

Configure the IPv6 Settings

1. If using IPv6, enter or select the appropriate IPv6-specific network settings in the IPv6 section:
 - a. Select the IPv6 checkbox to activate the fields in the section and enable IPv6 on the device.
 - b. Enter a Global/Unique IP Address. This is the IP address assigned to the KX II.
 - c. Enter the Prefix Length. This is the number of bits used in the IPv6 address.
 - d. Enter the Gateway IP Address.
 - e. Link-Local IP Address. This address is automatically assigned to the device, and is used for neighbor discovery or when no routers are present. **Read-Only**
 - f. Zone ID. Identifies the device the address is associated with. **Read-Only**
 - g. Select an IP Auto Configuration option:
 - None (Static IP) - this option requires you manually specify the network parameters.

This is the recommended option because the KX II is an infrastructure device, and its IP address should not change.

Select this option if you want to ensure redundant failover capabilities should the primary Ethernet port (or the switch/router to which it is connected) fail. If it fails, KX III switches to the secondary network port with the same IP address, ensuring their is no interruption.

If None is selected, the following Network Basic Settings fields are enabled: Global/Unique IP Address, Prefix Length, and Gateway IP Address allowing you to manually set the IP configuration.
 - Router Discovery - use this option to automatically assign IPv6 addresses that have Global or Unique Local significance beyond that of the Link Local, which only applies to a directly connected subnet.
2. Next, configure DNS settings.

Configure the DNS Settings

1. Select Obtain DNS Server Address Automatically if DHCP is selected and Obtain DNS Server Address is enabled. When Obtain DNS Server Address Automatically, the DNS information provided by the DHCP server will be used.

2. If Use the Following DNS Server Addresses is selected, whether or not DHCP is selected, the addresses entered in this section is used to connect to the DNS server.

Enter the following information if the Following DNS Server Addresses is selected. These addresses are the primary and secondary DNS addresses used if the primary DNS server connection is lost due to an outage.

- a. Primary DNS Server IP Address
 - b. Secondary DNS Server IP Address
3. When finished, click OK.

Your KX II device is now network accessible.

Name Your Target Servers

► To name the target servers:

1. Connect all of the target servers if you have not already done so.
2. Select Device Settings > Port Configuration, then click the Port Name of the target server you want to name.
3. Enter a name for the server up to 32 alphanumeric and special characters. Click OK.

Specify Power Supply Autodetection

The KX II provides dual power supplies.

When both power supplies are used, the KX II automatically detects them and notifies you of their status.

Additionally, both the PowerIn1 and PowerIn2 Auto Detect checkboxes are automatically selected on the Power Supply Setup page.

If you are using only one power supply, you can enable automatic detection for only the power supply in use.

► To enable automatic detection for the power supply in use:

1. Choose Device Settings > Power Supply Setup. The Power Supply Setup page opens.
2. If you are plugging power input into power supply number one (left-most power supply at the back of the device), select the PowerIn1 Auto Detect option.
3. If you are plugging power input into power supply number two (right-most power supply at the back of the device), select the PowerIn2 Auto Detect option. Click OK.

If either of these checkboxes is selected and only power input is connected, the power LED on the front of the device is Red.

Configure Date/Time Settings (Optional)

Optionally, configure the date and time settings.

The date and time settings impact SSL certificate validation if LDAPS is enabled.

Use the Date/Time Settings page to specify the date and time for the KX II. There are two ways to do this:

- Manually set the date and time.
- Synchronize the date and time with a Network Time Protocol (NTP) server.

► To set the date and time:

1. Choose Device Settings > Date/Time. The Date/Time Settings page opens.
2. Choose your time zone from the Time Zone drop-down list.
3. Adjust for daylight savings time by checking the "Adjust for daylight savings time" checkbox.
4. Choose the method to use to set the date and time:
 - User Specified Time - use this option to input the date and time manually. For the User Specified Time option, enter the date and time. For the time, use the hh:mm format (using a 24-hour clock).
 - Synchronize with NTP Server - use this option to synchronize the date and time with the Network Time Protocol (NTP) Server.
5. For the Synchronize with NTP Server option:
 - a. Enter the IP address of the Primary Time server.
 - b. Enter the IP address of the Secondary Time server. **Optional**

Note: If DHCP is selected for the Network Settings on the Network page, the NTP server IP address is automatically retrieved from the DHCP server by default. Manually enter the NTP server IP address by selecting the Override DHCP checkbox.

6. Click OK.

Step 5: Launching the KX II Remote Console

Log in to your KX II Remote Console from any workstation with network connectivity that has Microsoft .NET® and/or Java Runtime Environment™ installed.

► To launch the KX II Remote Console:

1. Launch a supported web browser.
2. Enter either:
 - The URL - *http://IP-ADDRESS* to use the Java-based Virtual KVM Client

Or

 - *http://IP-ADDRESS/akc* for the Microsoft .NET-based Active KVM Client

IP-ADDRESS is the IP address assigned to your KX II

You can also use HTTPS, or the DNS name of the KX II assigned by your administrator (if applicable).

3. You are always redirected to the IP address from HTTP to HTTPS.
4. Enter your username and password. Click Login.

Access and Control Target Servers Remotely

The KX II Port Access page provides a list of all KX II ports, as well as the connected target servers, their status, and availability.

Accessing a Target Server**► To access a target server:**

1. On the KX II Port Access page, click the Port Name of the target you want to access.

The Port Action Menu is displayed.

2. Choose Connect from the Port Action menu.

A KVM window opens with a connection to the target.

Switching between Target Servers**► To switch between KVM target servers:**

1. While already using a target server, access the KX II Port Access page.
2. Click the port name of the target you want to access. The Port Action menu appears.

3. Choose Switch From in the Port Action menu. The new target server you selected is displayed.

Disconnecting a Target Server

► **To disconnect a target server:**

- On the Port Access page, click the port name of the target you want to disconnect from, then click Disconnect on Port Action menu when it appears.

Step 6: Configuring the Keyboard Language (Optional)

Note: This step is not required if you are using the US/International language keyboard.

If you are using a non-US language, the keyboard must be configured for the appropriate language.

Additionally, the keyboard language for the client machine and the KVM target servers must match.

Consult your operating system documentation for additional information about changing the keyboard layout.

Changing the Keyboard Layout Code (Sun Targets)

Use this procedure if you are using a DCIM-SUSB and want to change the keyboard layout to another language.

► **To change the keyboard layout code (DCIM-SUSB only):**

1. Open a Text Editor window on the Sun™ workstation.
2. Check that the Num Lock key is active. then press the left Ctrl key and the Del key on your keyboard, or select the option "set CIM keyboard/Mouse options" from the keyboard menu.

The Caps Lock light starts to blink, indicating that the CIM is in Layout Code Change mode.

The text window displays: Raritan Computer, Inc. Current keyboard layout code = 22h (US5 UNIX).

3. Type the layout code desired (for example, 31 for the Japanese keyboard). Press Enter.
4. Shut down the device and power on once again. The DCIM-SUSB performs a reset (power cycle).
5. Verify that the characters are correct.

Step 7: Configure Tiering (Optional)

The optional tiering feature allows you to use a KX II as your base device, then connect additional KX II's to it as tiered devices.

You can then access servers and PX PDUs through the base both locally and remotely. See the **Device Management (on page 141)** section of the **KX II Help** for more information on this feature.

► To enable tiering:

1. From the base KX II tier device, select Device Settings > Device Services to open the Device Service Settings page.
2. Select Enable Tiering as Base.
3. In the Base Secret field, enter the secret shared between the base and the tiered devices. This secret is required for the tiered devices to authenticate the base device. Enter the same secret word for the tiered device. Click OK.
4. Enable the tiered devices. From the tiered device, choose Device Settings > Local Port Settings.
5. In the Enable Local Ports section of the page, select Enable Local Port Device Tiering.
6. In the Tier Secret field, enter the same secret word you entered for the base device on the Device Settings page. Click OK.

Logging in to the KX II

Log in to your KX II Remote Console from any workstation with network connectivity. Java™ 1.7 is required to use the Java-based Virtual KVM Client (VKC) and Multi-Platform Client (MPC). Alternatively, Microsoft .NET® 3.5 (or later) is required to use KX II with the Microsoft Windows®-based Active KVM Client (AKC).

Logging in and using KX II requires you to allow pop-ups.

For information on security warnings and validation messages, and steps to reduce or eliminate them, see **Security Warnings and Validation Messages** (on page 26).

► To log in to the KX II:

1. Launch a supported web browser.
2. Enter either:
 - The URL - *http://IP-ADDRESS* to use the Java-based Virtual KVM Client

Or

- `http://IP-ADDRESS/akc` for the Microsoft .NET-based Active KVM Client

IP-ADDRESS is the IP address assigned to your KX II

You can also use HTTPS, or the DNS name of the KX II assigned by your administrator (if applicable).

You are always redirected to the IP address from HTTP to HTTPS.

3. Enter your username and password, then click Login.
4. Accept the user agreement (if applicable).
5. If security warnings appear, accept and/or allow access.

Allow Pop-Ups

Regardless of the browser used, you must allow pop-ups from the device's IP address to launch the KX II Remote Console.

Security Warnings and Validation Messages

When logging in to KX II, security warnings and application validation message may appear.

These include:

- Java™ security warnings and requests to validate KX II. See **Java Validation and Access Warning** (on page 26), and **Installing a Certificate** (on page 27)
- Additional security warnings based on your browser and security settings. See **Additional Security Warnings** (on page 27)

Java Validation and Access Warning

When logging in to KX II, Java™ 1.7 prompts you to validate KX II, and to allow access to the application.

Raritan recommends installing an SSL certificate in each KX II device in order to reduce Java warnings, and enhance security. See **SSL Certificates** (on page 234)

Additional Security Warnings

Even after an SSL certificate is installed in the KX II, depending on your browser and security settings, additional security warnings may be displayed when you log in to KX II.

It is necessary to accept these warnings to launch the KX II Remote Console.

Reduce the number of warning messages during subsequent log ins by checking the following options on the security and certificate warning messages:

- In the future, do not show this warning
- Always trust content from this publisher

Installing a Certificate

You may be prompted by the browser to accept and validate the KX II's SSL certificate.

Depending on your browser and security settings, additional security warnings may be displayed when you log in to KX II.

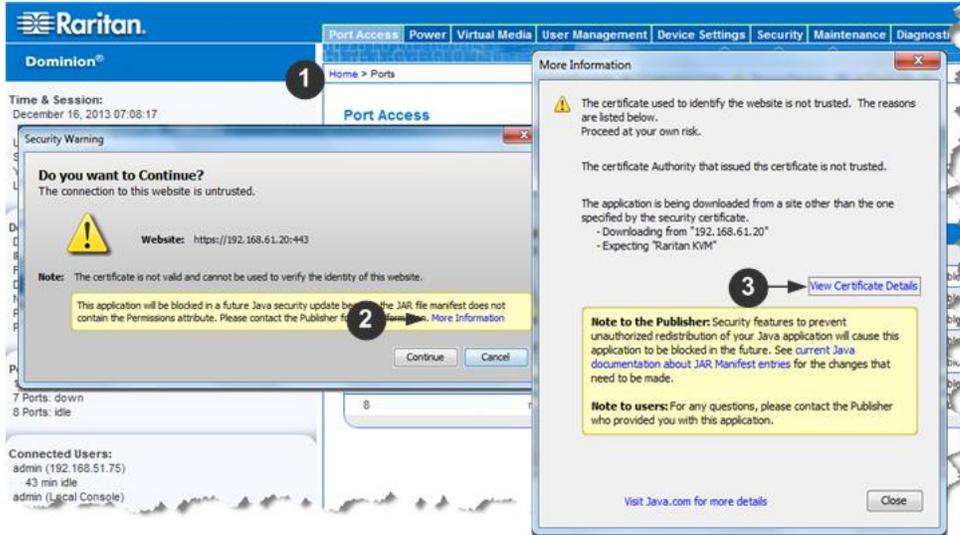
It is necessary to accept these warnings to launch the KX II Remote Console. For more information, see ***Security Warnings and Validation Messages*** (on page 26).

Two sample methods on how to install an SSL Certificate in the browser are provided here, both using Microsoft Internet Explorer 8® and Windows 7®.

Specific methods and steps depend on your browser and operating system. See your browser and operating system help for details.

Example 1: Import the Certificate into the Browser

In this example, you import the Certificate into the browser.



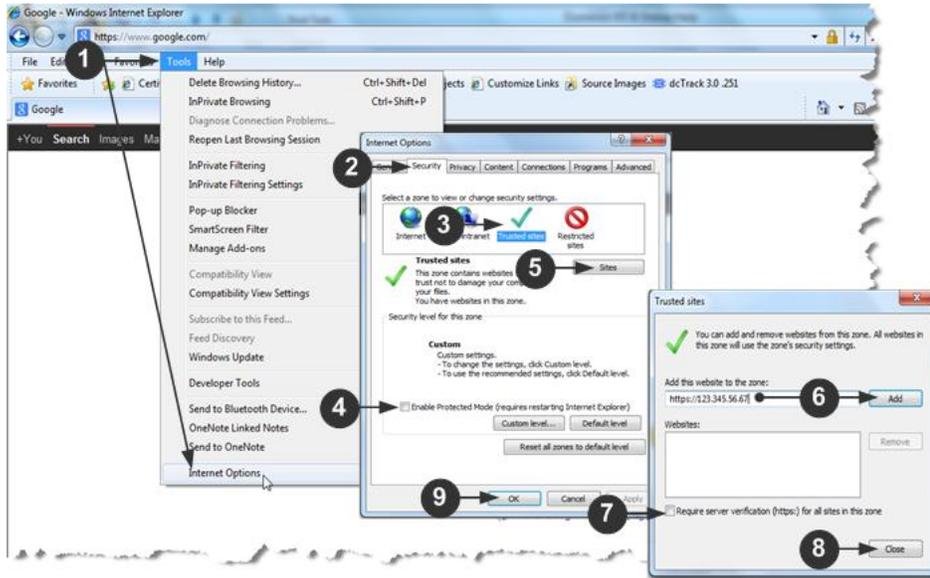
Steps	
1	Open an IE browser, then log in to KX II.
2	Click More Information on the first Java™ security warning.
3	Click View Certificate Details on the More Information dialog. You are prompted to install the certificate. Follow the wizard steps.
<i>Note: If you are not prompted by the browser, manually select Tools > Internet Options to open the Internet Options dialog.</i>	



Steps	
4	Click the Content tab.
5	Click Certificates.
6	The Certificate Import Wizard opens and walks you through each step. <ul style="list-style-type: none"> ▪ File to Import - Browse to locate the Certificate ▪ Certificate Store - Select the location to store the Certificate
7	Click Finish on the last step of the Wizard.
8	The Certificate is imported. Close the success message.
9	Click OK on the Internet Options dialog to apply the changes, then close and reopen the browser.

Example 2: Add the KX II to Trusted Sites and Import the Certificate

In this example, the KX II's URL is added as a Trusted Site, and the Self Signed Certificate is added as part of the process.



Steps

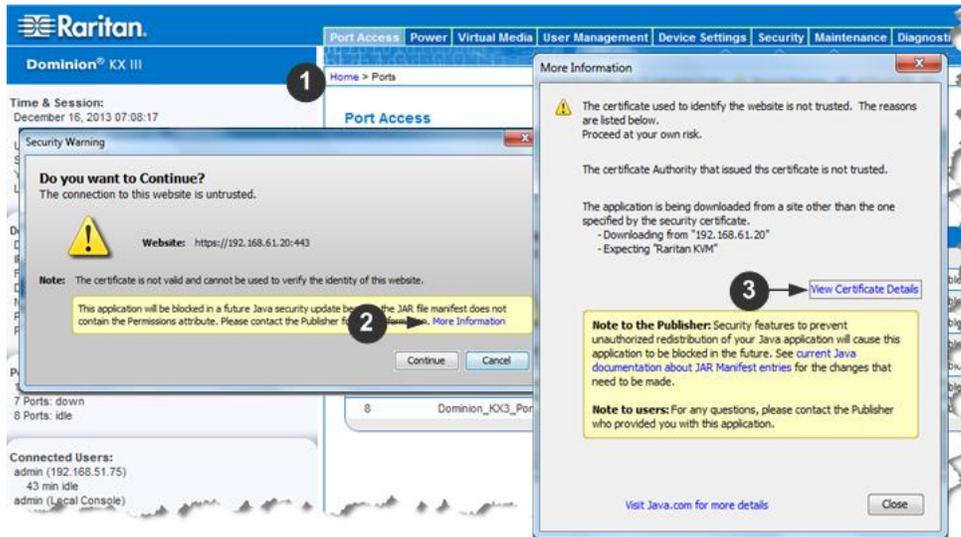
1	Open an IE browser, then select Tools > Internet Options to open the Internet Options dialog
2	Click the Security tab.
3	Click on Trusted Sites.
4	Disable Protected Mode, and accept any warnings.
5	Click Sites to open the Trusted Sites dialog.
6	Enter the KX II URL, then click Add.
7	Deselect server verification for the zone (if applicable).
8	Click Close.

Steps

9

Click OK on the Internet Options dialog to apply the changes, then close and reopen the browser.

Next, import the Certificate.



Steps

1

Open an IE browser, then log in to KX II.

2

Click More Information on the first Java™ security warning.

3

Click View Certificate Details on the More Information dialog. You are prompted to install the certificate. Follow the wizard steps.

For details see, **Example 1: Import the Certificate into the Browser** (on page 28)

Chapter 3 Working with Target Servers

In This Chapter

- KX II Interfaces32
- KX II Local Console Interface: KX II Devices33
- KX II Remote Console Interface33
- Proxy Server Configuration for Use with MPC, VKC and AKC50
- Virtual KVM Client (VKC) and Active KVM Client (AKC).....52
- Multi-Platform Client (MPC).....94

KX II Interfaces

There are several user interfaces in the KX II, providing you with easy access anytime, anywhere to targets.

These include the KX II Local Console, the KX II Remote Console, the Virtual KVM Client (VKC), the Active KVM Client (AKC), and the Multi-Platform Client (MPC).

The following table identifies these interfaces and their use for target server access and administration locally and remotely:

User interface	Local access	Admin	Remote access	Admin
KX II Local Console	✓	✓		
KX II Remote Console			✓	✓
Virtual KVM Client (VKC)			✓	
Multi-Platform Client (MPC)			✓	✓
Active KVM Client (AKC)			✓	✓

The following sections of the help contain information about using specific interfaces to access the KX II and manage targets:

- Local Console
- Remote Console
- Virtual KVM Client
- Multi-Platform Client

KX II Local Console Interface: KX II Devices

When you are located at the server rack, the KX II provides standard KVM management and administration via the KX II Local Console. The KX II Local Console provides a direct KVM (analog) connection to your connected servers; the performance is exactly as if you were directly connected to the server's keyboard, mouse, and video ports.

There are many similarities among the KX II Local Console and the KX II Remote Console graphical user interfaces. Where there are differences, they are noted in the help.

The KX II Local Console Factory Reset option is available in the KX II Local Console but not the KX II Remote Console.

KX II Remote Console Interface

The KX II Remote Console is a browser-based graphical user interface that allows you to log in to KVM target servers and serial targets connected to the KX II and to remotely administer the KX II.

The KX II Remote Console provides a digital connection to your connected KVM target servers. When you log into a KVM target server using the KX II Remote Console, a Virtual KVM Client window opens.

There are many similarities among the KX II Local Console and the KX II Remote Console graphical user interfaces, and where there are differences, they are noted in the user manual. The following options are available in the KX II Remote Console but not the KX II Local Console:

- Virtual Media
- Favorites
- Backup/Restore
- Firmware Upgrade
- SSL Certificates
- Audio

KX II Interface

Both the KX II Remote Console and the KX II Local Console interfaces provide a web-based interface for device configuration and administration, as well as target server list and selection. The options are organized into various tabs.

After a successful login, the Port Access page opens listing all ports along with their status and availability. Four tabs are provided on the page allowing you to view by port, view by group or view by search. You can sort by Port Number, Port Name, Status (Up and Down), and Availability (Idle, Connected, Busy, Unavailable, and Connecting) by clicking on the column heading. See **Port Access Page (Remote Console Display)** (on page 38) for more information.

Use the Set Scan tab to scan for up to 32 targets that are connected to the KX II. See **Scanning Ports** (on page 47).

Left Panel

The left panel of the KX II interface contains the following information.

Note that some information is conditional - meaning it is displayed based on your role, features being used and so on. Conditional information is noted here.

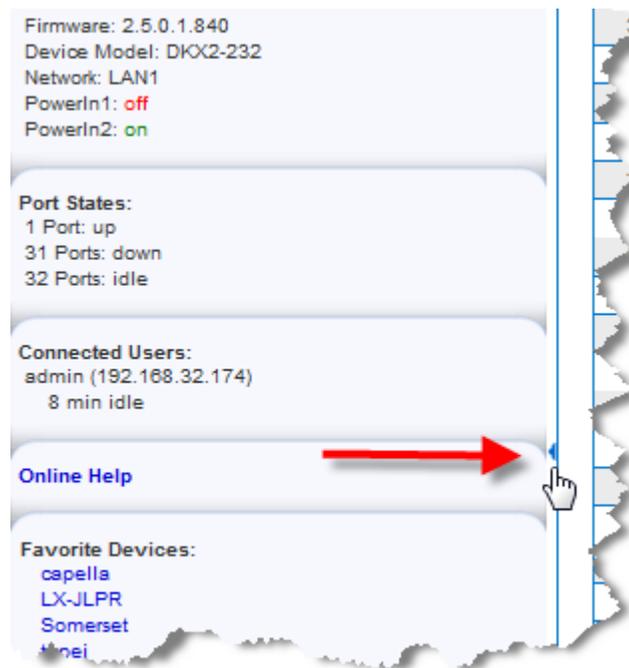
Information	Description	When displayed?
Time & Session	The date and time the current session started	Always
User	Username	Always
State	The current state of the application, either idle or active. If idle, the application tracks and displays the time the session has been idle.	Always
Your IP	The IP address used to access the KX II	Always
Last Login	The last login date and time	Always
Under CC-SG Management	The IP address of the CC-SG device managing the KX II	When the KX II is being managed by CC-SG
Device Information	Information specific to the KX II you are using	Always
Device Name	Name assigned to the device	Always
IP Address	The IP address of the KX II	Always
Firmware	Current version of firmware	Always
Device Model	Model of the KX II	Always
Serial number	Serial number of the KX II	Always
Network	The name assigned to the current network	Always
PowerIn1	Status of the power 1 outlet connection. Either on or off, or Auto-detect off	Always

Information	Description	When displayed?
PowerIn2	Status of the power 2 outlet connection. Either on or off, or Auto-detect off	Always
Configured As Base or Configured As Tiered	If you are using a tiering configuration, this indicates if the KX II you are accessing is the base device or a tiered device.	When the KX II is part of a tiered configuration
Port States	The statuses of the ports being used by the KX II	Always
Connect Users	The users, identified by their username and IP address, who are currently connected to the KX II	Always
Online Help	Links to online help	Always
FIPS Mode	FIPS Mode: Enabled SSL Certificate: FIPS Mode Compliant	When FIPS is enabled
Favorite Devices	See Managing Favorites (on page 43)	When enabled

The left panel can be collapsed in order to increase the display area of the page.

► **To collapse the left panel:**

- Click on the blue, left-facing arrow located approximately halfway down the left side of the panel. Once the panel is collapsed, click the blue arrow again to expand it.



KX II Console Navigation

The KX II Console interfaces provide many methods for navigation and making your selections.

- ▶ **To select an option (use any of the following):**
 - Click on a tab. A page of available options appears.
 - Hover over a tab and select the appropriate option from the menu.
 - Click the option directly from the menu hierarchy displayed (breadcrumbs).
- ▶ **To scroll through pages longer than the screen:**
 - Use Page Up and Page Down keys on your keyboard.
 - Use the scroll bar on the right.

Port Access Page (Remote Console Display)

After successfully logging on to the KX II remote console, the View by Port tab on the Port Access page appears. This page lists all of the KX II ports, and the target servers, port groups, and blade chassis that are connected to those ports.

The information is sorted by Port Number by default, but you can change the display to sort on any of the available columns by clicking on a column header. To increase or decrease the number of rows displayed on a tab at one time, enter the number of row in the Rows per Page field and click Set.

The following information for each port is contained on this page:

- Port Number - Numbered from 1 to the total number of ports available for the KX II device.

Note: Ports connected to power strips are not listed, resulting in gaps in the Port Number sequence.

- Port Name - The name of the KX II port. Initially, this is set to Dominion-KX2-Port# but you can change the name to something more descriptive. When you click a Port Name link, the Port Action Menu appears.

Note: Do not use apostrophes for the Port (CIM) Name.

- Type - The type of server or CIM/DCIM.

For blade chassis, the type can be Blade Chassis, Blade, BladeChassisAdmin, and BladeChassisURL.

Dual video port groups appear on the Port Access page as Dual Port types.

The primary and secondary ports that are a part of the port group appear on the Port Access page as Dual Port(P) and Dual Port(S), respectively. For example, if the CIM type is DCIM, "DCIM Dual Port (P)" is displayed.

- Status - The status of the servers - either up or down.

View By Port	View By Group	View By Search	Set Scan	
▲ No.	Name	Type	Status	Availability
1	Dominion_KX2_Port1	Not Available	down	idle
2	winXP-primary	Dual-VM Dual Port (P)	up	idle
3	Dominion_KX2_Port3	Not Available	down	idle
5	win7-secondary	DVM-HDMI Dual Port (S)	up	idle
6	Dominion_KX2_Port6	Not Available	down	idle
7	win7-primary	VM Dual Port (P)	up	idle
8	winXP-secondary	DVM-DVI Dual Port (S)	up	idle
9	Ananth	Not Available	down	idle
10	Dominion_KX2_Port10	Not Available	down	idle
11	Dominion_KX2_Port11	Not Available	down	idle
12	Dominion_KX2_Port12	Not Available	down	idle
13	Dominion_KX2_Port13	Not Available	down	idle

► **To connect to an available target server or dual monitor target server:**

1. Click on the port name. The Port Action menu opens.
2. Click Connect. Once you are connected to a target or dual monitor target server, click on the port group name and then click Disconnect to disconnect.

See **Port Action Menu** (on page 41) for details on additional available menu options.

View by Group Tab

The View by Group tab displays blade chassis, 'standard' port groups, and dual video port groups. Click the Expand Arrow icon ► next to a group to view the ports assigned to the port group.

See **Device Management** (on page 141) for information on creating each of these types of port groups.



View by Search Tab

The View by Search tab allows you to search by port name. The search feature supports the use of an asterisk (*) as a wildcard, and full and partial names.

Set Scan Tab

The port scanning feature is accessed from the Set Scan tab on the Port Access page. The feature allows you to define a set of targets to be scanned. Thumbnail views of the scanned targets are also available. Select a thumbnail to open that target in its Virtual KVM Client window.

See See Scanning Ports - Remote Console for more information.

Tiered Devices - Port Access Page

If you are using a tiered configuration in which a base KX II device is used to access multiple other tiered devices, the tiered devices are viewed on the Port Access page by clicking on the Expand Arrow icon ► to the left of the tier device name. See **Configuring and Enabling Tiering** (on page 147) for more information on tiering.

Blade Chassis - Port Access Page

The blade chassis is displayed in an expandable, hierarchical list on the Port Access page, with the blade chassis at the root of the hierarchy and the individual blades labeled and displayed below the root. Use the Expand Arrow icon ► next to the root chassis to display the individual blades.

Note: To view the blade chassis in a hierarchal order, blade-chassis subtypes must be configured for the blade server chassis.

Dual Port Video Groups - Port Access Page

Dual video port groups appear on the Port Access page as Dual Port types.

The primary and secondary ports that are a part of the port group appear on the Port Access page as Dual Port(P) and Dual Port(S), respectively. For example, if the CIM type is DCIM, "DCIM Dual Port (P)" is displayed.

When you access a dual port video group from the remote client, you connect to the primary port, which opens a KVM connection window to both the primary and secondary ports of the dual port group.

Note: The dual video primary port is defined when the port group is created.

Note: Two KVM channels are required to remotely connect to the dual video port group by clicking primary port. If two channels are not available, the Connect link is not displayed.

Note: The Action menu is not displayed when you click on a secondary port in a dual video port group.

Note: You cannot connect to the primary port and secondary port at the same time from the Local Port.

Port Action Menu

When you click a Port Name in the Port Access list, the Port Action menu appears.

Choose the desired menu option for that port to execute it. Note that only currently available options, depending on the port's status and availability, are listed in the Port Action menu.

- Connect - Creates a new connection to the target server.
For the KX II Remote Console, a new Virtual KVM Client page appears.
For the KX II Local Console, the display switches to the target server, and switches away from the local user interface.

On the local port, the KX II Local Console interface must be visible in order to perform the switch.

Hot key switching is also available from the local port.

Note: This option is not available from the KX II Remote Console for an available port if all connections are busy.

- Switch From - Switches from an existing connection to the selected port (KVM target server).

This menu item is available only for KVM targets, and only when a Virtual KVM Client is opened.

Note: This menu item is not available on the KX II Local Console.

- Disconnect - Disconnects this port and closes the Virtual KVM Client page for this target server.

This menu item is available only when the port status is up and connected, or up and busy.

Note: This menu item is not available on the KX II Local Console. The only way to disconnect from the switched target in the Local Console is to use the hot key.

- Power On - Powers on the target server through the associated outlet.

This option is visible only when there are one or more power associations to the target, and when the user has permission to operate this service.

- Power Off - Powers off the target server through the associated outlets.

This option is visible only when there are one or more power associations to the target, when the target power is on (port status is up), and when user has permission to operate this service.

- Power Cycle - Power cycles the target server through the associated outlets.

This option is visible only when there are one or more power associations to the target, and when the user has permission to operate this service.

Managing Favorites

A Favorites feature is provided so you can organize and quickly access the devices you use frequently.

The Favorite Devices section is located in the lower left side (sidebar) of the Port Access page and provides the ability to:

- Create and manage a list of favorite devices
- Quickly access frequently-used devices
- List your favorites either by Device Name, IP Address, or DNS hostname
- Discover KX II devices on its subnet (before and after login)
- Retrieve discovered KX II devices from the connected Dominion device (after login)

Enable Favorites

- Click Enable in the Favorite Devices section of the left panel of the KX II interface.

Once enabled, the Enable button becomes a Disable button.

The screenshot shows the Raritan Dominion KX II web interface. The left sidebar contains several sections: 'Time & Session' (January 01, 2000 22:52:18), 'User: admin', 'Device Information' (IP: 192.168.61.20), 'Port States' (5 up, 27 down, 32 idle), 'Connected Users' (admin active), and 'Favorite Devices' with an 'Enable' button. A red arrow points to the 'Enable' button. The main content area shows 'Port Access' options and a table of ports.

View By Port	View B
No.	Name
1	Window
2	Low Co
3	DP-Down
4	WinXP-P
5	Dominio
6	Dominio
7	Dominio
8	Dominio
9	Dominio
10	Dominio
11	Dominio
12	Dominio
13	Dominio
14	Dominio
15	Dominio
16	Dominio
17	Dominio

Access and Display Favorites

▶ **To access a favorite KX II device:**

- Click the device name (listed beneath Favorite Devices). A new browser opens to that device.

▶ **To display favorites by name:**

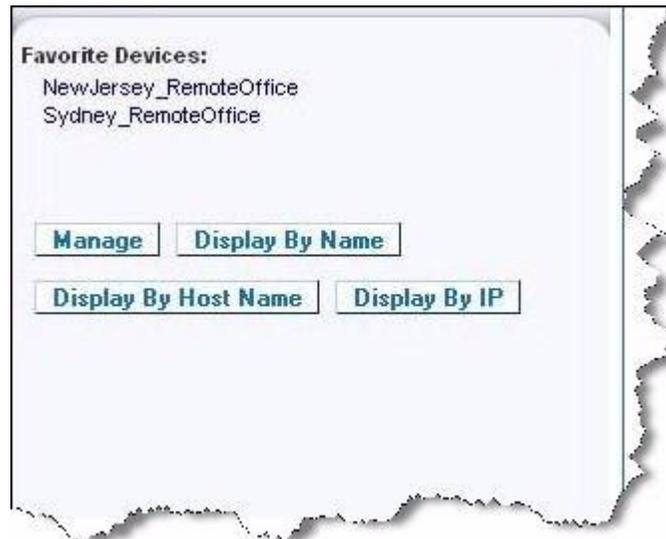
- Click Display by Name.

▶ **To display favorites by IP Address:**

- Click Display by IP.

▶ **To display favorites by the host name:**

- Click Display by Host Name.



Discovering Devices on the Local Subnet

This option discovers the devices on your local subnet, which is the subnet where the KX II Remote Console is running. These devices can be accessed directly from this page or you can add them to your list of favorites. See Favorites List Page.

▶ **To discover devices on the local subnet:**

1. Choose Manage > Discover Devices - Local Subnet. The Discover Devices - Local Subnet page appears.
2. Choose the appropriate discovery port:

- To use the default discovery port, select the Use Default Port 5000 checkbox.
- To use a different discovery port:
 - a. Deselect the Use Default Port 5000 checkbox.
 - b. Type the port number in the Discover on Port field.
 - c. Click Save.
- 3. Click Refresh. The list of devices on the local subnet is refreshed.

▶ **To add devices to your Favorites List:**

1. Select the checkbox next to the device name/IP address.
2. Click Add.

▶ **To access a discovered device:**

- Click the device name or IP address for that device. A new browser opens to that device.

Discovering Devices on the KX II Subnet

This option discovers devices on the device subnet, which is the subnet of the KX II device IP address itself. You can access these devices directly from this the Subnet page or add them to your list of favorites. See Favorites List Page.

This feature allows multiple KX II devices to interoperate and scale automatically. The KX II Remote Console automatically discovers the KX II devices, and any other Raritan device, in the subnet of the KX II.

▶ **To discover devices on the device subnet:**

1. Choose Manage > Discover Devices - KX II Subnet. The Discover Devices - KX II Subnet page appears.
2. Click Refresh. The list of devices on the local subnet is refreshed.

▶ **To add devices to your Favorites List:**

1. Select the checkbox next to the device name/IP address.
2. Click Add.

▶ **To access a discovered device:**

- Click the device name or IP address for that device. A new browser opens to that device.

Scanning Ports

The KX II provides the port scanning feature to search for selected targets, and display them in a slide show view, allowing you to monitor up to 32 targets at one time.

You can connect to targets or focus on a specific target as needed. Scans can include standard targets, blade servers, tiered Dominion devices, and KVM switch ports.

Configure scan settings from either the Virtual KVM Client (VKC) or Active KVM Client (AKC).

Note: For dual video port groups, the primary port is included in a port scan, but the secondary port is not included when connecting from a remote client. Both ports can be included in the scan from the Local Port. Dual video port groups are supported by the KX II 2.5.0 (and later).

Note: Scanning for tiered devices is not supported by the Multi-Platform Client (MPC).

When you start a scan, the Port Scan window opens.

As each target is found, it is displayed as a thumbnail in a slide show.

The slide show scrolls through the target thumbnails based on the default interval of 10 seconds or according to the interval you specify.

As the scan scrolls through the targets, the target that is the focus of the slide show displays in the center of the page.

The name of the target is displayed below its thumbnail and in the task bar at the bottom of the window.

If a target is busy, a blank screen is displayed instead of the target server access page.

The status of each target is indicated by green, yellow and red lights that are displayed below the target thumbnail and, as the target is the focus of the rotation, in the task bar.

Lights for each target are gray until they are the focus of the slide show.

The status lights indicate the following:

- Green - the target is up/idle or up/connected
- Yellow - the target is down but connected
- Red - the target is down/idle, busy, or otherwise not accessible

This feature is available from the Local Port, Virtual KVM Client (VKC), Active KVM Client (AKC) and Multi-Platform Client (MPC).

*Note: MPC uses a different method for initiating a scan than the other Raritan clients. See **Set Scan Group** in the **KVM and Serial Client Guide** for details. The scan results and scan options differ between the Remote Console and the Local Console. See **Scanning Ports - Local Console** (on page 269).*

► **To scan for targets:**

1. Click the Set Scan tab on the Port Access page.
2. Select the targets you want to include in the scan by selecting the checkbox to the left of each target, or select the checkbox at the top of the target column to select all targets.
3. Leave the Up Only checkbox selected if you only want targets that are up to be included in the scan. Deselect this checkbox if you want to include all targets, whether up or down.
4. Click Scan to begin the scan.

As each target is scanned, it is displayed in slide show view on the page.

5. Click Options > Pause to pause the slide show and stop it from moving between targets, click Options > Resume to resume the slide show.
6. Click on a target thumbnail to scan it next.
7. Connect to a target by double clicking on its thumbnail.

Using Scan Port Options

Following are options available to you while scanning targets.

With the exception of the Expand/Collapse icon, all of these options are selected from the Options menu in the upper left of the Port Scan viewer.

The options will return to their defaults when you close the window.

Note: Configure scan settings such as the display interval from either the Virtual KVM Client (VKC) or Active KVM Client (AKC). See Configuring Port Scan Settings in VKC and AKC

▶ Hide or View Thumbnails

- Use the Expand/Collapse icon  at the upper left of the window to hide or view thumbnails. Expanded is the default view.

▶ Pause the Thumbnail Slide Show

- Pause thumbnails from rotating between one target and the next by selecting Options > Pause. Rotating thumbnails is the default setting.

▶ Resume the Thumbnail Slide Show

- Resume the thumbnail rotation by selecting Options > Resume.

▶ Size the Thumbnails in the Port Scan Viewer

- Enlarge the size of the thumbnails by selecting Options > Size > 360x240.
- Minimize the size of the thumbnails by selection Options > Size > 160x120. This is the default thumbnail size.

▶ Change the Orientation of the Port Scan Viewer

- View thumbnails along the bottom of the Port Scan viewer by selecting Options > Split Orientation > Horizontal.
- View thumbnails along the right of the Port Scan viewer by selecting Options > Split Orientation > Vertical. This is the default view.



Logging Out

► **To quit the KX II:**

- Click Logout in the upper right-hand corner of the page.

Note: Logging out also closes any open Virtual KVM Client and serial client sessions.

Proxy Server Configuration for Use with MPC, VKC and AKC

When the use of a Proxy Server is required, a SOCKS proxy must also be provided and configured on the remote client PC.

Note: If the installed proxy server is only capable of the HTTP proxy protocol, you cannot connect.

► **To configure the SOCKS proxy:**

1. On the client, select Control Panel > Internet Options.
 - a. On the Connections tab, click 'LAN settings'. The Local Area Network (LAN) Settings dialog opens.
 - b. Select 'Use a proxy server for your LAN'.
 - c. Click Advanced. The Proxy Settings dialog opens.
 - d. Configure the proxy servers for all protocols. **IMPORTANT:** Do not select 'Use the same proxy server for all protocols'.

Note: The default port for a SOCKS proxy (1080) is different from HTTP proxy (3128).

2. Click OK at each dialog to apply the settings.
3. Next, configure the proxies for Java™ applets by selecting Control Panel > Java.

- e. On the General tab, click Network Settings. The Network Settings dialog opens.
- f. Select Use Proxy Server.
- g. Click Advanced. The Advanced Network Settings dialog opens.
- h. Configure the proxy servers for all protocols. **IMPORTANT:** Do not select 'Use the same proxy server for all protocols'.

Note: The default port for a SOCKS proxy (1080) is different from HTTP proxy (3128).

4. If you are using standalone MPC, you must also do the following:
 - i. Open the start.bat file in MPC directory with a text editor.
 - j. Insert the following parameters to the command line. Add them before "-classpath": -DsocksProxyHost=<socks proxy ip addr> -DsocksProxyPort=<socks proxy port>

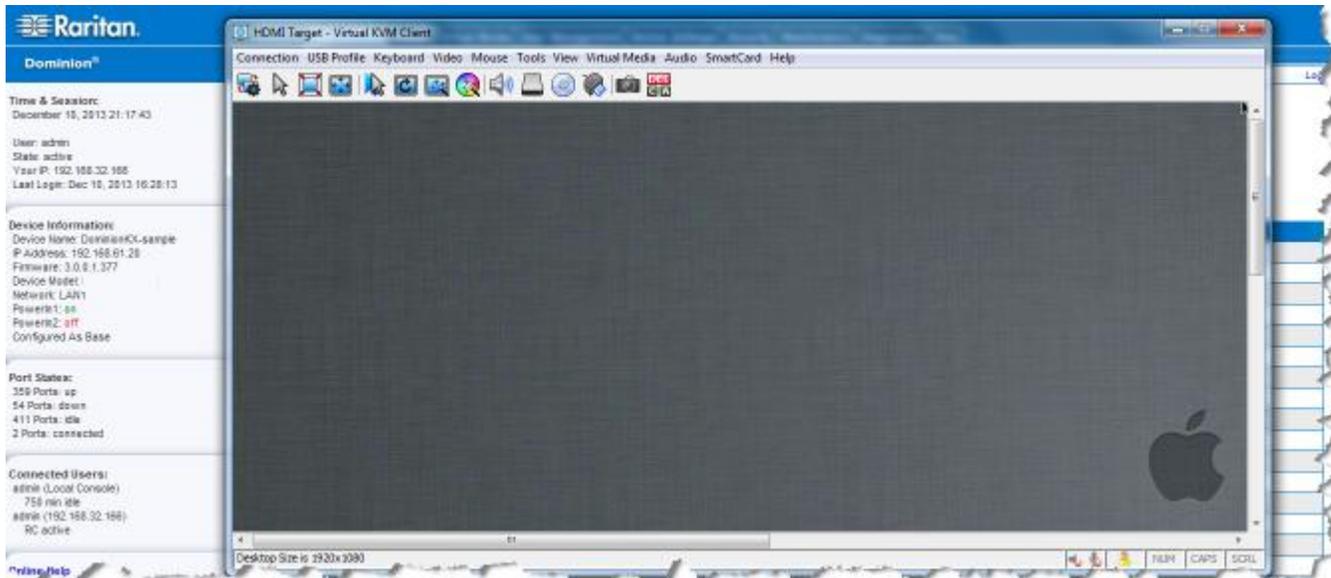
The parameters should look as follows:

```
start javaw -Xmn128M -Xmx512M -XX:MaxHeapFreeRatio=70
-XX:MinHeapFreeRatio=50 -Dsun.java2d.noddraw=true
-DsocksProxyHost=192.168.99.99 -DsocksProxyPort=1080
-classpath .\sdeploy.jar;.\sFoxtrot.jar;.\sjaws.jar;.\sMpc.jar
com.raritan.rrc.ui.RRCApplication %1
```

Virtual KVM Client (VKC) and Active KVM Client (AKC)

Overview

Whenever you access a target server from the Port Access page of KX II the Remote Console, a Virtual KVM Client (VKC) window opens.



There is one Virtual KVM Client for each target server connected.

Virtual KVM Client windows can be minimized, maximized, and moved around your computer desktop.

IMPORTANT: Refreshing your browser closes the Virtual KVM Client connection, so exercise caution.

Virtual KVM Client Java Requirements

Java™ 1.7 is required to use the Java-based Virtual VKM Client (VKC).

Virtual KVM Client (VKC) and Active KVM Client (AKC) Shared Features

The Virtual KVM Client (VKC) and Active KVM Client (AKC) are interfaces used to access remote targets.

VKC and AKC share similar features with the exception of the following:

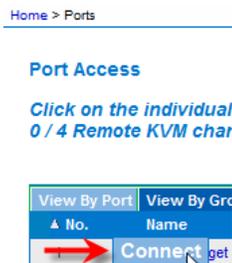
- Minimum system requirements
- Supported operating systems and browsers
- Keyboard macros created in AKC cannot be used in VKC
- Direct port access configuration (see **Enabling Direct Port Access via URL**)
- AKC server certification validation configuration (see **Prerequisites for Using AKC** (on page 93))

Connect to a Target Server

Once you have logged on to the KX II Remote Console, access target servers via the Virtual KVM Client (VKC) or Active KVM Client (AKC).

► **To connect to an available server:**

1. On the Port Access page, click on the port name of the target server you want to connect to. The Port Action menu opens.
2. Click Connect.



See Port Action Menu for details on additional available menu options.

Connection Properties

Dynamic video compression algorithms maintain KVM console usability under varying bandwidth constraints.

The devices optimize KVM output not only for LAN use, but also for WAN use.

These devices can also control color depth and limit video output, offering an optimal balance between video quality and system responsiveness for any bandwidth.

The parameters in the Properties dialog can be optimized to suit your needs for different operating environments. Connection properties are saved across subsequent connections to generation 2 devices once they are set and saved.

► To set the connection properties:

1. Choose Connection > Properties or click the Connection Properties button  in the toolbar. The Properties dialog appears.
2. Choose the Connection Speed from the drop-down list. The device can automatically detect available bandwidth and not limit bandwidth use. However, you can also adjust this usage according to bandwidth limitations.
 - Auto
 - 1G Ethernet
 - 100 Mb Ethernet
 - 10 Mb Ethernet
 - 1.5 Mb (MAX DSL/T1)
 - 1 Mb (Fast DSL/T1)
 - 512 Kb (Medium DSL/T1)
 - 384 Kb (Slow DSL/T1)
 - 256 Kb (Cable)
 - 128 Kb (Dual ISDN)
 - 56 kb (ISP Modem)
 - 33 kb (Fast Modem)
 - 24 kb (Slow Modem)

Note that these settings are an optimization for specific conditions rather than an exact speed. The client and server always attempt to deliver video as quickly as possible on the network regardless of the current network speed and encoding setting. But the system will be most responsive when the settings match the real world environment.

3. Choose the Color Depth from the drop-down list. The device can dynamically adapt the color depth transmitted to remote users in order to maximize usability in all bandwidths.
 - 15-bit RGB Color
 - 8-bit RGB Color
 - 4-bit Color
 - 4-bit Gray
 - 3-bit Gray
 - 2-bit Gray
 - Black and White

Important: For most administrative tasks (server monitoring, reconfiguring, and so on), the full 24-bit or 32-bit color spectrum made available by most modern video graphics cards is not necessary. Attempting to transmit such high color depths wastes network bandwidth.

4. Use the slider to select the desired level of Smoothing (15-bit color mode only). The level of smoothing determines how aggressively to blend screen regions with small color variation into a single smooth color. Smoothing improves the appearance of target video by reducing displayed video noise.
5. Click OK to set these properties.

Connection Information

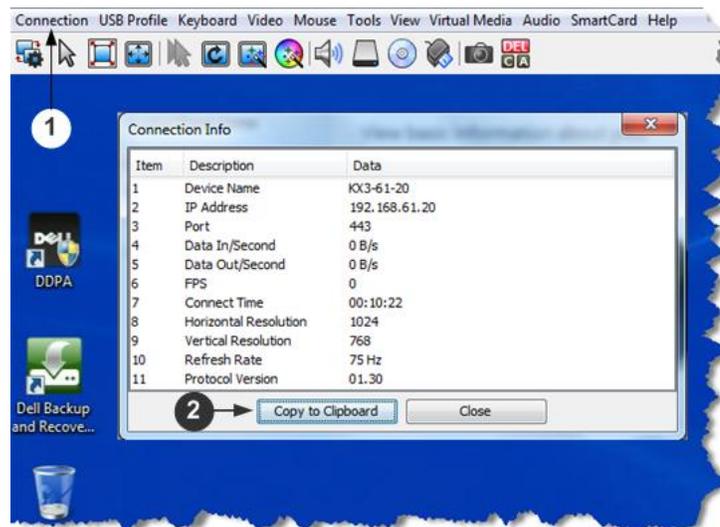
Open the Connection Information dialog for real-time connection information, and copy the information from the dialog as needed.

This is useful if, for example, you want to gather real-time information on your current connection. See [Configuring Connection Properties](#)

The following information is displayed about the current connection:

- KX III Name - The name of the KX III.
- IP Address - The IP address of the KX III.
- Port - The KVM communication TCP/IP port used to access the KX III.
- Data In/Second - Data rate received from the KX III.
- Data Out/Second - Data rate sent to the KX III.
- Connect Time - The duration of the current connection.
- FPS - Video frames per second transmitted received from the KX III.
- Horizontal Resolution - The target server horizontal resolution.
- Vertical Resolution - The target server vertical resolution.
- Refresh Rate - Refresh rate of the target server.
- Protocol Version - Raritan communications protocol version.

Access and Copy Connection Information



Steps	
1	Click Connection > Info... to open the Connection Info dialog.
2	Click Copy to Clipboard. Paste the information in a file of your choosing.

Connection Properties

Dynamic video compression algorithms maintain KVM console usability under varying bandwidth constraints.

The devices optimize KVM output not only for LAN use, but also for WAN use.

These devices can also control color depth and limit video output, offering an optimal balance between video quality and system responsiveness for any bandwidth.

The parameters in the Properties dialog can be optimized to suit your needs for different operating environments. Connection properties are saved across subsequent connections to generation 2 devices once they are set and saved.

► To set the connection properties:

1. Choose Connection > Properties or click the Connection Properties button  in the toolbar. The Properties dialog appears.
2. Choose the Connection Speed from the drop-down list. The device can automatically detect available bandwidth and not limit bandwidth use. However, you can also adjust this usage according to bandwidth limitations.
 - Auto
 - 1G Ethernet
 - 100 Mb Ethernet
 - 10 Mb Ethernet
 - 1.5 Mb (MAX DSL/T1)
 - 1 Mb (Fast DSL/T1)
 - 512 Kb (Medium DSL/T1)
 - 384 Kb (Slow DSL/T1)
 - 256 Kb (Cable)
 - 128 Kb (Dual ISDN)
 - 56 kb (ISP Modem)

- 33 kb (Fast Modem)
- 24 kb (Slow Modem)

Note that these settings are an optimization for specific conditions rather than an exact speed. The client and server always attempt to deliver video as quickly as possible on the network regardless of the current network speed and encoding setting. But the system will be most responsive when the settings match the real world environment.

3. Choose the Color Depth from the drop-down list. The device can dynamically adapt the color depth transmitted to remote users in order to maximize usability in all bandwidths.
 - 15-bit RGB Color
 - 8-bit RGB Color
 - 4-bit Color
 - 4-bit Gray
 - 3-bit Gray
 - 2-bit Gray
 - Black and White

Important: For most administrative tasks (server monitoring, reconfiguring, and so on), the full 24-bit or 32-bit color spectrum made available by most modern video graphics cards is not necessary. Attempting to transmit such high color depths wastes network bandwidth.

4. Use the slider to select the desired level of Smoothing (15-bit color mode only). The level of smoothing determines how aggressively to blend screen regions with small color variation into a single smooth color. Smoothing improves the appearance of target video by reducing displayed video noise.
5. Click OK to set these properties.

Toolbar Buttons and Status Bar Icons

Button	Button name	Description
	Connection Properties	Opens the Modify Connection Properties dialog from which you can manually adjust bandwidth options (such as connection speed, color depth, smoothing, and so forth).
	Video Settings	Opens the Video Settings dialog, allowing you to manually adjust video conversion parameters.
	Color Calibration	Adjusts color settings to reduce excess color noise.

Button	Button name	Description
		Same as choosing Video > Color Calibrate.
	Target Screenshot	Click to take a screenshot of the target server and save it to a file of your choosing.
	Audio	Opens a dialog that allows you to select from a list of audio devices connected to a client PC. Once audio devices have been connected to the target, select to disconnect the devices.
	Synchronize Mouse	Dual-mouse mode forces the realignment of the target server mouse pointer with the mouse pointer. Note: Not available if Absolute Mouse mode is selected.
	Refresh Screen	Forces a refresh of the video screen.
	Auto-sense Video Settings	Forces a refresh of the video settings (resolution, refresh rate).
	Smart Card	Opens a dialog that allows you to select from a list of smart card readers connected to a client PC.
	Send Ctrl+Alt+Del	Sends a Ctrl+Alt+Del hot key combination to the target server.
	Single Cursor Mode	Starts Single Cursor mode in which the local mouse pointer no longer appears onscreen. Press Ctrl+Alt+O to exit this mode.
	Full Screen Mode	Maximizes the screen real estate to view the target server desktop.
	Scaling	Increases or reduces the target video size so you can view the entire contents of the target server window without using the scroll bar.

Audio is supported by KX II 2.4.0 (and later). Audio capture is supported by KX II 2.5.0 (and later).

Audio icons	Icon name	Description
	Speaker	<p>These icons are located in status bar at the bottom of the client window.</p> <p>Green, blinking waves indicate an audio playback session is currently streaming.</p> <p>A black speaker icon is displayed when the session is muted.</p> <p>The icon is grayed out when no audio is connected.</p>
	Microphone	<p>These icons are located in the status bar at the bottom of the client window.</p> <p>Red, blinking waves indicate an audio capture session is currently underway.</p> <p>The Speaker icon, indicating a playback session is streaming, is also displayed when a session is underway.</p> <p>A black Microphone icon is displayed when the session is muted.</p> <p>When the Microphone icon is grayed out, no audio is connected.</p>

Keyboard Options

Keyboard Macros

Keyboard macros ensure that keystroke combinations intended for the target server are sent to and interpreted only by the target server. Otherwise, they might be interpreted by the computer on which the Virtual KVM Client is running (your client PC).

Macros are stored on the client PC and are PC-specific. Therefore, if you use another PC, you cannot see your macros.

In addition, if another person uses your PC and logs in under a different name, that user will see your macros since they are computer-wide.

Keyboard macros created in the Virtual KVM Client are available in Multi-Platform Client (MPC) and vice versa. However, keyboard macros created in Active KVM Client (AKC) cannot be used in VKC or MPC, and vice versa.

Import/Export Keyboard Macros

Macros exported from Active KVM Client (AKC) cannot be imported into Multi-Platform Client (MPC) or Virtual KVM Client (VKC). Macros exported from MPC or VKC cannot be imported into AKC.

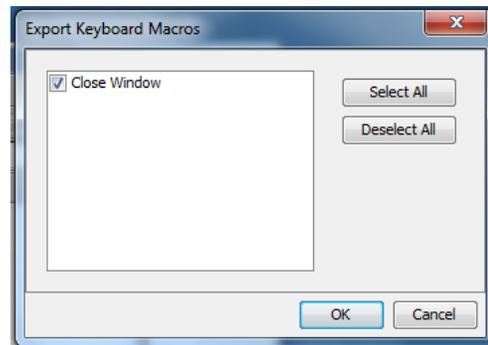
► To import macros:

1. Choose Keyboard > Import Keyboard Macros to open the Import Macros dialog. Browse to the folder location of the macro file.
2. Click on the macro file and click Open to import the macro.
 - a. If too many macros are found in the file, an error message is displayed and the import terminates once OK is selected.
 - b. If the import fails, an error dialog appears and a message regarding why the import failed is displayed. Select OK to continue the import without importing the macros that cannot be imported.
3. Select the macros to be imported by checking their corresponding checkbox or using the Select All or Deselect All options.
4. Click OK to begin the import.
 - a. If a duplicate macro is found, the Import Macros dialog appears. Do one of the following:
 - Click Yes to replace the existing macro with the imported version.
 - Click Yes to All to replace the currently selected and any other duplicate macros that are found.
 - Click No to keep the original macro and proceed to the next macro
 - Click No to All keep the original macro and proceed to the next macro. Any other duplicates that are found are skipped as well.
 - Click Cancel to stop the import.
 - Alternatively, click Rename to rename the macro and import it. If Rename is selected, the Rename Macro dialog appears. Enter a new name for the macro in the field and click OK. The dialog closes and the process proceeds. If the name that is entered is a duplicate of a macro, an alert appears and you are required to enter another name for the macro.
 - b. If during the import process the number of allowed, imported macros is exceeded, a dialog appears. Click OK to attempt to continue importing macros or click Cancel to stop the import process.

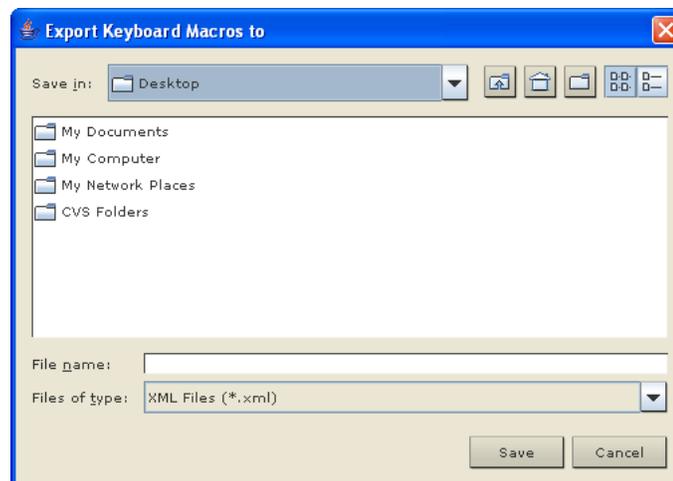
The macros are then imported. If a macro is imported that contains a hot key that already exists, the hot key for the imported macro is discarded.

► **To export macros:**

1. Choose Tools > Export Macros to open the Select Keyboard Macros to Export dialog.



2. Select the macros to be exported by checking their corresponding checkbox or using the Select All or Deselect All options.
3. Click Ok. An "Export Keyboard Macros to" dialog is displayed. Locate and select the macro file. By default, the macro exists on your desktop.
4. Select the folder to save the macro file to, enter a name for the file and click Save. If the macro already exists, you receive an alert message.
5. Select Yes to overwrite the existing macro or No to close the alert without overwriting the macro.



Building a Keyboard Macro

► **To build a macro:**

1. Click Keyboard > Keyboard Macros. The Keyboard Macros dialog appears.
2. Click Add. The Add Keyboard Macro dialog appears.
3. Type a name for the macro in the Keyboard Macro Name field. This name appears in the Keyboard menu after it is created.
4. From the Hot-Key Combination field, select a keyboard combination from the drop-down list. This allows you to execute the macro with a predefined keystroke. **Optional**
5. In the Keys to Press drop-down list, select each key you would like to use to emulate the keystrokes that is used to perform the command. Select the keys in the order by which they are to be pressed. After each selection, select Add Key. As each key is selected, it appears in the Macro Sequence field and a Release Key command is automatically added after each selection.

For example, create a macro to close a window by selecting Left Ctrl + Esc. This appears in the Macro Sequence box as follows:

Press Left Alt

Press F4

Esc

Release F4

Esc

Release Left Alt

6. Review the Macro Sequence field to be sure the macro sequence is defined correctly.
 - a. To remove a step in the sequence, select it and click Remove.
 - b. To change the order of steps in the sequence, click the step and then click the up or down arrow buttons to reorder them as needed.
7. Click OK to save the macro. Click Clear to clear all field and start over. When you click OK, the Keyboard Macros dialog appears and lists the new keyboard macro.
8. Click Close to close the Keyboard Macros dialog. The macro now appears on the Keyboard menu in the application.

9. Select the new macro on the menu to run it or use the keystrokes you assigned to the macro.



► **To use the Send Text to Target function for the macro:**

1. Click the Keyboard > Send Text to Target. The Send Text to Target dialog appears.
2. Enter the text you want sent to the target.

Note: Non-English characters are not supported by the Send Text to Target function.

3. If the target uses a US/International keyboard layout, select the "Target system is set to the US/International keyboard layout" checkbox.
4. Click OK.

Running a Keyboard Macro

Once you have created a keyboard macro, execute it using the keyboard macro you assigned to it or by choosing it from the Keyboard menu.

Run a Macro from the Menu Bar

When you create a macro, it appears under the Keyboard menu. Execute the keyboard macro by clicking on it in the Keyboard menu.

Run a Macro Using a Keyboard Combination

If you assigned a keyboard combination to a macro when building it, you can execute the macro by pressing its assigned keystrokes. For example, press the keys Ctrl+Alt+0 simultaneously to minimize all windows on a Windows target server.

Modifying and Removing Keyboard Macros

► To modify a macro:

1. Choose Keyboard > Keyboard Macros. The Keyboard Macros dialog appears.
2. Choose the macro from among those listed.
3. Click Modify. The Add/Edit Macro dialog appears.
4. Make your changes.
5. Click OK.

► To remove a macro:

1. Choose Keyboard > Keyboard Macros. The Keyboard Macros dialog appears.
2. Choose the macro from among those listed.
3. Click Remove. The macro is deleted.

Ctrl+Alt+Del Macro

Due to its frequent use, a Ctrl+Alt+Delete macro is preprogrammed.

Selecting Keyboard > Send Ctrl+Alt+Del, or clicking on the

Ctrl+Alt+Delete button  in the toolbar sends this key sequence to the server or to the KVM switch to which you are currently connected.

In contrast, if you were to physically press the Ctrl+Alt+Del keys, the command would first be intercepted by your own PC due to the structure of the Windows operating system, instead of sending the key sequence to the target server as intended.

Setting CIM Keyboard/Mouse Options

► To access the DCIM-USBG2 setup menu:

1. Put the mouse focus on a window such as Note Pad (Windows® operating system) or an equivalent.
2. Select Set CIM Keyboard/Mouse options. This is the equivalent of sending the Left-Control and Num Lock to the target. The CIM setup menu options are then displayed.
3. Set the language and mouse settings.
4. Exit the menu to return to normal CIM functionality.

Video Properties

Refreshing the Screen

The Refresh Screen command forces a refresh of the video screen. Video settings can be refreshed automatically in several ways:

- The Refresh Screen command forces a refresh of the video screen.
- The Auto-sense Video Settings command automatically detects the target server's video settings.
- The Calibrate Color command calibrates the video to enhance the colors being displayed.

In addition, you can manually adjust the settings using the Video Settings command.

► **To refresh the video settings, do one of the following:**

- Choose Video > Refresh Screen, or click the Refresh Screen button  in the toolbar.

Auto-Sense Video Settings

The Auto-sense Video Settings command forces a re-sensing of the video settings (resolution, refresh rate) and redraws the video screen.

► **To automatically detect the video settings, do the following:**

- Choose Video > Auto-sense Video Settings, or click the Auto-Sense Video Settings button  in the toolbar.
A message stating that the auto adjustment is in progress appears.

Calibrating Color

Use the Calibrate Color command to optimize the color levels (hue, brightness, saturation) of the transmitted video images. The color settings are on a target server-basis.

Note: The Calibrate Color command applies to the current connection only.

► **To calibrate the color, do the following:**

- Choose Video > Calibrate Color, or click the Calibrate Color button  in the toolbar.

The target device screen updates its color calibration.

Adjusting Video Settings

Use the Video Settings command to manually adjust the video settings.

► **To change the video settings:**

1. Choose Video > Video Settings to open the Video Settings dialog.
2. Adjust the following settings as required. As you adjust the settings the effects are immediately visible:

- a. PLL Settings

Clock - Controls how quickly video pixels are displayed across the video screen. Changes made to clock settings cause the video image to stretch or shrink horizontally. Odd number settings are recommended. Under most circumstances this setting should not be changed because the autodetect is usually quite accurate.

Phase - Phase values range from 0 to 31 and will wrap around. Stop at the phase value that produces the best video image for the active target server.

- b. Brightness: Use this setting to adjust the brightness of the target server display.
- c. Brightness Red - Controls the brightness of the target server display for the red signal.
- d. Brightness Green - Controls the brightness of the green signal.
- e. Brightness Blue - Controls the brightness of the blue signal.
- f. Contrast Red - Controls the red signal contrast.
- g. Contrast Green - Controls the green signal.
- h. Contrast Blue - Controls the blue signal.

If the video image looks extremely blurry or unfocused, the settings for clock and phase can be adjusted until a better image appears on the active target server.

Warning: Exercise caution when changing the Clock and Phase settings. Doing so may result in lost or distorted video and you may not be able to return to the previous state. Contact Raritan Technical Support before making any changes.

- i. Horizontal Offset - Controls the horizontal positioning of the target server display on your monitor.
 - j. Vertical Offset - Controls the vertical positioning of the target server display on your monitor.
3. Select Automatic Color Calibration to enable this feature.
 4. Select the video sensing mode:

- Best possible video mode

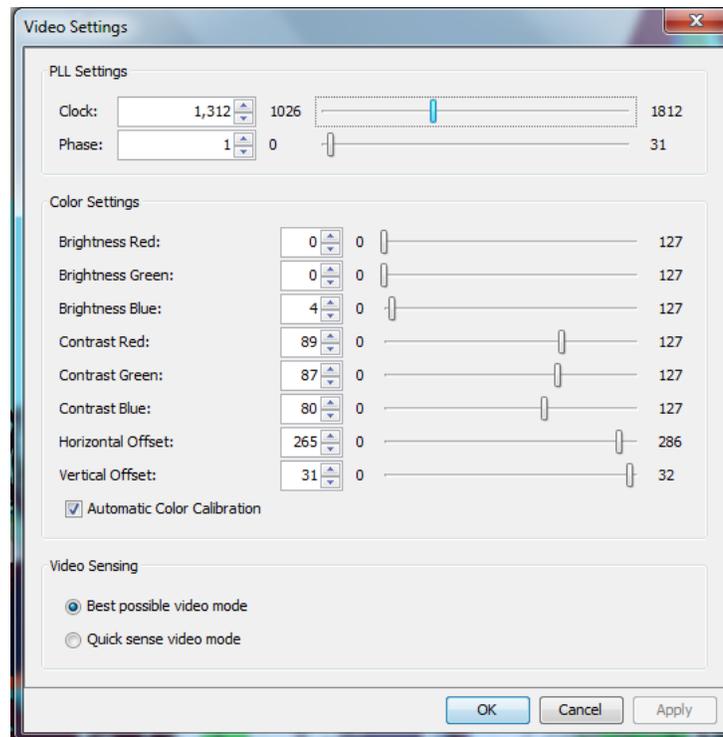
The device will perform the full Auto Sense process when switching targets or target resolutions. Selecting this option calibrates the video for the best image quality.

- Quick sense video mode

With this option, the device will use a quick video Auto Sense in order to show the target's video sooner. This option is especially useful for entering a target server's BIOS configuration right after a reboot.

5. Click OK to apply the settings and close the dialog. Click Apply to apply the settings without closing the dialog.

Note: Some Sun background screens, such as screens with very dark borders, may not center precisely on certain Sun servers. Use a different background or place a lighter colored icon in the upper left corner of the screen.



Screenshot from Target Command (Target Screenshot)

You are able to take a screenshot of a target server using the Screenshot from Target server command. If needed, save this screenshot to a file location of your choosing as a bitmap, JPEG or PNG file.

▶ To take a screenshot of the target server:

1. Select Video > Screenshot from Target, or click the Target Screenshot button  on the toolbar.
2. In the Save dialog, choose the location to save the file, name the file, and select a file format from the 'Files of type' drop-down.
3. Click Save to save the screenshot.

Changing the Maximum Refresh Rate

If the video card you are using on the target uses custom software, and you are accessing the target through the Virtual KVM Client (VKC) or Multi-Platform Client (MPC), you may need to change the maximum refresh rate of the monitor in order for the refresh rate to take effect on the target.

▶ To adjust the monitor refresh rate:

1. In Windows®, select Display Properties > Settings > Advanced to open the Plug and Play dialog.
2. Click on the Monitor tab.
3. Set the 'Screen refresh rate'.
4. Click OK and then OK again to apply the setting.

Mouse Options

When in dual mouse mode, and provided the option is properly configured, the mouse cursors align.

In dual mouse mode, when controlling a target server, the Remote Console displays two mouse cursors: one belonging to your KX II client workstation, and the other belonging to the target server.

You can operate in either single mouse mode or dual mouse mode.

When there are two mouse cursors, the device offers several mouse modes:

- Absolute (Mouse Synchronization)
- Intelligent (Mouse Mode)
- Standard (Mouse Mode)

When the mouse pointer lies within the KVM Client target server window, mouse movements and clicks are directly transmitted to the connected target server.

While in motion, the client mouse pointer slightly leads the target mouse pointer due to mouse acceleration settings.

On fast LAN connections, you can use single mouse mode, and view only the target server's pointer.

You can toggle between these two modes (single mouse and dual mouse).

Mouse Pointer Synchronization

When remotely viewing a target server that uses a mouse, two mouse cursors are displayed: one belonging to your remote client workstation and the other belonging to the target server.

When the mouse pointer lies within the Virtual KVM Client target server window, mouse movements and clicks are directly transmitted to the connected target server.

While in motion, the client mouse pointer slightly leads the target mouse pointer due to mouse acceleration settings.

On fast LAN connections, you can disable the Virtual KVM Client mouse pointer and view only the target server's pointer.

You can toggle between these two modes (single mouse and dual mouse).

Mouse Synchronization Tips

If you have an issue with mouse synchronization:

1. Verify that the selected video resolution and refresh rate are among those supported by the device. The KVM Client Connection Info dialog displays the actual values that the device is seeing.
2. For KX II and LX devices, verify that the cable length is within the specified limits for the selected video resolution.
3. Force an auto-sense by clicking the KVM Client auto-sense button.
4. If that does not improve the mouse synchronization (for Linux, UNIX, and Solaris KVM target servers):
 - a. Open a terminal window.
 - b. Enter the following command: `xset mouse 1 1`
 - c. Close the terminal window.
5. Click the "KVM Client mouse synchronization" button .

Additional Notes for Intelligent Mouse Mode

- Be sure that there are no icons or applications in the upper left section of the screen since that is where the synchronization routine takes place.
- Do not use an animated mouse.
- Disable active desktop on KVM target servers.

Synchronize Mouse

In dual mouse mode, the Synchronize Mouse command forces realignment of the target server mouse pointer with Virtual KVM Client mouse pointer.

▶ **To synchronize the mouse, do one of the following:**

- Choose Mouse > Synchronize Mouse or click the Synchronize Mouse button  in the toolbar.

Note: This option is available only in Standard and Intelligent mouse modes.

Standard Mouse Mode

Standard Mouse mode uses a standard mouse synchronization algorithm using relative mouse positions. Standard Mouse mode requires that mouse acceleration is disabled and other mouse parameters are set correctly in order for the client and server mouse to stay synchronized.

▶ **To enter Standard Mouse mode:**

- Choose Mouse > Standard.

Intelligent Mouse Mode

In Intelligent Mouse mode, the device can detect the target mouse settings and synchronize the mouse cursors accordingly, allowing mouse acceleration on the target. Intelligent mouse mode is the default for non-VM targets.

During synchronization, the mouse cursor does a “dance” in the top left corner of the screen and calculates the acceleration. For this mode to work properly, certain conditions must be met.

► **To enter intelligent mouse mode:**

- Choose Mouse > Intelligent.

Intelligent Mouse Synchronization Conditions

The Intelligent Mouse Synchronization command, available on the Mouse menu, automatically synchronizes mouse cursors during moments of inactivity. For this to work properly, however, the following conditions must be met:

- The active desktop should be disabled on the target.
- No windows should appear in the top left corner of the target page.
- There should not be an animated background in the top left corner of the target page.
- The target mouse cursor shape should be normal and not animated.
- The target mouse speeds should not be set to very slow or very high values.
- Advanced mouse properties such as “Enhanced pointer precision” or “Snap mouse to default button in dialogs” should be disabled.
- Choose “Best Possible Video Mode” in the Video Settings window.
- The edges of the target video should be clearly visible (that is, a black border should be visible between the target desktop and the remote KVM console window when you scroll to an edge of the target video image).
- When using the intelligent mouse synchronization function, having a file icon or folder icon located in the upper left corner of your desktop may cause the function not to work properly. To be sure to avoid any problems with this function, Raritan recommends you do not have file icons or folder icons in the upper left corner of your desktop.

After autosensing the target video, manually initiate mouse synchronization by clicking the Synchronize Mouse button on the toolbar. This also applies when the resolution of the target changes if the mouse cursors start to desync from each other.

If intelligent mouse synchronization fails, this mode will revert to standard mouse synchronization behavior.

Please note that mouse configurations will vary on different target operating systems. Consult your OS guidelines for further details. Also note that intelligent mouse synchronization does not work with UNIX targets.

Absolute Mouse Mode

In this mode, absolute coordinates are used to keep the client and target cursors in synch, even when the target mouse is set to a different acceleration or speed.

This mode is supported on servers with USB ports and is the default mode for Virtual Media CIMs.

Absolute Mouse Mode requires the use of a virtual media CIM:

- D2CIM-VUSB
- D2CIM-DVUSB
- D2CIM-DVUSB-DVI
- D2CIM-DVUSB-HDMI
- D2CIM-DVUSB-DP

▶ **To enter Absolute Mouse Synchronization:**

- Choose Mouse > Absolute.

Note: For KX II, Absolute Mouse Synchronization is available for use with the virtual media-enabled USB CIMs (D2CIM-VUSB and D2CIM-DVUSB) and digital CIMs only.

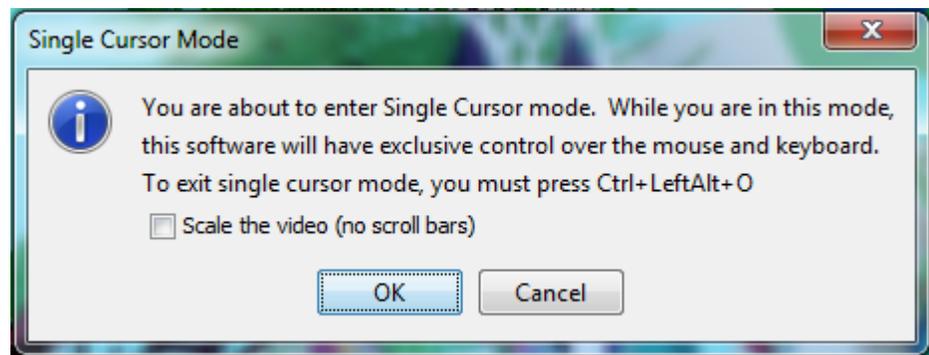
Single Mouse Mode

Single Mouse mode uses only the target server mouse cursor and the local mouse pointer no longer appears onscreen.

Note: Single mouse mode does not work on Windows or Linux targets when client is running on a Virtual Machine.

► **To enter single mouse mode, do one the following:**

- Choose Mouse > Single Mouse Cursor.
- Click the Single/Double Mouse Cursor button  in the toolbar.



► **To exit single mouse mode:**

- Press Ctrl+Alt+O on your keyboard to exit single mouse mode.

Tool Options

General Settings

► **To set the tools options:**

1. Click Tools > Options. The Options dialog appears.
2. Select the Enable Logging checkbox only if directed to by Technical Support.

This option creates a log file in your home directory.

3. Choose the Keyboard Type from the drop-down list (if necessary).

The options include:

- US/International
- French (France)
- German (Germany)
- Japanese

- United Kingdom
- Korean (Korea)
- French (Belgium)
- Norwegian (Norway)
- Portuguese (Portugal)
- Danish (Denmark)
- Swedish (Sweden)
- German (Switzerland)
- Hungarian (Hungary)
- Spanish (Spain)
- Italian (Italy)
- Slovenian
- Translation: French - US
- Translation: French - US International

In AKC, the keyboard type defaults to the local client, so this option does not apply.

4. Configure hotkeys:

- Exit Full Screen Mode - Hotkey.

When you enter Full Screen mode, the display of the target server becomes full screen and acquires the same resolution as the target server.

This is the hot key used for exiting this mode.

- Exit Single Cursor Mode - Hotkey.

When you enter single cursor mode, only the target server mouse cursor is visible.

This is the hot key used to exit single cursor mode and bring back the client mouse cursor.

- Disconnect from Target - Hotkey.

Enable this hotkey to allow users to quickly disconnect from the target.

For hotkey combinations, the application does not allow you to assign the same hotkey combination to more than one function.

For example, if Q is already applied to the Disconnect from Target function, it won't be available for the Exit Full Screen Mode function.

Further, if a hotkey is added to the application due to an upgrade and the default value for the key is already in use, the next available value is applied to the function instead.

- Click OK.

Keyboard Limitations

Turkish Keyboards

If using a Turkish keyboard, you must connect to a target server through the Active KVM Client (AKC). It is not supported by other Raritan clients.

Slovenian Keyboards

The < key does not work on Slovenian keyboards due to a JRE limitation.

Language Configuration on Linux

Because the Sun JRE on Linux has problems generating the correct Key Events for foreign-language keyboards configured using System Preferences, Raritan recommends that you configure foreign keyboards using the methods described in the following table.

Language	Configuration method
US Intl	Default
French	Keyboard Indicator
German	System Settings (Control Center)
Japanese	System Settings (Control Center)
UK	System Settings (Control Center)
Korean	System Settings (Control Center)
Belgian	Keyboard Indicator
Norwegian	Keyboard Indicator
Danish	Keyboard Indicator
Swedish	Keyboard Indicator
Hungarian	System Settings (Control Center)
Spanish	System Settings (Control Center)
Italian	System Settings (Control Center)
Slovenian	System Settings (Control Center)
Portuguese	System Settings (Control Center)

Note: The Keyboard Indicator should be used on Linux systems using Gnome as a desktop environment.

Client Launch Settings

KX II users can configure client launch settings that allow you to define the screen settings for a KVM session.

► **To configure client launch settings:**

1. Click Tools > Options. The Options dialog appears.
2. Click on the Client Launch Settings tab.
 - To configure the target window settings:
 - a. Select 'Standard - sized to target Resolution' to open the window using the target's current resolution. If the target resolution is greater than the client resolution, the target window covers as much screen area as possible and scroll bars are added (if needed).
 - b. Select 'Full Screen' to open the target window in full screen mode.
 - To configure the monitor on which the target viewer is launched:
 - a. Select 'Monitor Client Was Launched From' if you want the target viewer to be launched using the same display as the application that is being used on the client (for example, a web browser or applet).
 - b. Use 'Select From Detected Monitors' to select from a list of monitors that are currently detected by the application. If a previously selected monitor is no longer detected, 'Currently Selected Monitor Not Detected' is displayed.
 - To configure additional launch settings:
 - a. Select 'Enable Single Cursor Mode' to enable single mouse mode as the default mouse mode when the server is accessed.
 - b. Select 'Enable Scale Video' to automatically scale the display on the target server when it is accessed.
 - c. Select 'Pin Menu Toolbar' if you want the toolbar to remain visible on the target when it is in Full Screen mode. By default, while the target is in Full Screen mode, the menu is only visible when you hover your mouse along the top of the screen.
3. Click OK.

Configure Scan Settings in VKC and AKC

The KX II provides the port scanning feature to search for selected targets, and display them in a slide show view, allowing you to monitor up to 32 targets at one time.

You can connect to targets or focus on a specific target as needed. Scans can include standard targets, blade servers, tiered Dominion devices, and KVM switch ports.

Configure scan settings from either the Virtual KVM Client (VKC) or Active KVM Client (AKC). See Scanning Ports - Remote Console

Use the Scan Settings tab to customize the scan interval and default display options.

▶ To set scan settings:

1. Click Tools > Options. The Options dialog appears.
2. Select the Scan Settings tab.
3. In the "Display Interval (10-255 sec):" field, specify the number of seconds you want the target that is in focus to display in the center of the Port Scan window.
4. In the "Interval Between Ports (10 - 255 sec):" field, specify the interval at which the device should pause between ports.
5. In the Display section, change the default display options for the thumbnail size and split orientation of the Port Scan window.
6. Click OK.

View Options

View Toolbar

You can use the Virtual KVM client with or without the toolbar display.

▶ To toggle the display of the toolbar (on and off):

- Choose View > View Toolbar.

View Status Bar

By default, the status bar is displayed at the bottom of the target window.

▶ **To hide the status bar:**

- Click View > Status Bar to deselect it.

▶ **To restore the status bar:**

- Click View > Status Bar to select it.

Scaling

Scaling your target window allows you to view the entire contents of the target server window.

This feature increases or reduces the size of the target video to fit the Virtual KVM Client window size, and maintains the aspect ratio so that you see the entire target server desktop without using the scroll bar.

▶ **To toggle scaling (on and off):**

- Choose View > Scaling.

Full Screen Mode

When you enter Full Screen mode, the target's full screen is displayed and acquires the same resolution as the target server.

The hot key used for exiting this mode is specified in the Options dialog, see **Tool Options** (on page 75).

While in Full Screen mode, moving your mouse to the top of the screen displays the Full Screen mode menu bar.

If you want the menu bar to remain visible while in Full Screen mode, enable the Pin Menu Toolbar option from the Tool Options dialog. See **Tool Options** (on page 75).

▶ To enter full screen mode:

- Choose View > Full Screen, or click the Full Screen button .

▶ To exit full screen mode:

- Press the hot key configured in the Tool's Options dialog. The default is Ctrl+Alt+M.

If you want to access the target in full screen mode at all times, you can make Full Screen mode the default.

▶ To set Full Screen mode as the default mode:

1. Click Tools > Options to open the Options dialog.
2. Select Enable Launch in Full Screen Mode and click OK.

Digital Audio

The KX II supports end-to-end, bidirectional, digital audio connections for digital audio playback and capture devices from a remote client to a target server.

The audio devices are accessed over a USB connection.

Current device firmware is required.

One of the following CIMs must be used:

- D2CIM-DVUSB
- D2CIM-DVUSB-DVI
- D2CIM-DVUSB-HDMI
- D2CIM-DVUSB-DP

The digital audio feature supports:

- **Saving Audio Settings** (on page 83)
- **Connecting to Multiple Targets from a Single Remote Client** (on page 83)
- **Connecting to a Single Target Server from Multiple Remote Clients** (on page 85)
- **Connecting and Disconnecting a Digital Audio Device** (on page 86)
- **Adjusting Capture and Playback Buffer Size (Audio Settings)** (on page 88)

Windows®, Linux® and Mac® operating systems are supported. The Virtual KVM Client (VKC) and Active KVM Client (AKC) support connections to audio devices.

Note: Audio CDs are not supported by virtual media so they do not work with the audio feature.

Before you begin using the audio feature, Raritan recommends you review the audio related information documented in the following sections of Help:

- **Supported Audio Device Formats** (on page 305)
- **Recommendations for Dual Port Video** (on page 318)
- **Supported Mouse Modes** (see "**Dual Video Port Group Supported Mouse Modes**" on page 318)
- **CIMs Required for Dual Video Support** (on page 319)
- **Informational Notes** (on page 337), **Audio** (on page 351)

Saving Audio Settings

Audio device settings are applied on a per KX II device basis.

Once the audio devices settings are configured and saved on the KX II, the same settings are applied to it.

For example, you can configure a Windows® audio device to use a stereo, 16 bit, 44.1K format.

When you connect to different targets and use that Windows audio device, the stereo, 16 bit, 44.1K format is applied to each target server.

For both playback and recording devices, the device type, device format, and the buffer settings applied to the device are saved.

See [Connecting and Disconnecting from a Digital Audio Device](#) for information on connecting to and configuring an audio device, and [Adjusting Capture and Playback Buffer Size \(Audio Settings\)](#) (on page 88) for information on audio device buffer settings.

If you are using the audio feature while running PC Share mode and VM Share mode so multiple users can access the same audio device on a target at once, the audio device settings of the user who initiates the session are applied to all users who join the session.

So, when a user joins an audio session, the target machine settings are used. See [Connecting to Multiple Targets from a Single Remote Client](#).

Connecting to Multiple Targets from a Single Remote Client

KX II 2.5.0 (and later) allows you to listen to audio on up to four (4) target servers at the same time from a single, remote client.

See [Connecting and Disconnecting a Digital Audio Device](#) (on page 86) for information on connecting to audio devices.

Note: When an audio session is underway, be sure to keep the session active or change the KX II's idle timeout time so the audio session does not time out.

Review the table shown here to see which Raritan client works with audio playback/capture for each operating system:

Operating system	Audio playback and capture supported by:
Windows®	<ul style="list-style-type: none"> Active KVM Client (AKC) Virtual KVM Client (VKC) Multi-Platform Client (MPC)
Linux®	<ul style="list-style-type: none"> Virtual KVM Client (VKC) Multi-Platform Client (MPC)

Operating system	Audio playback and capture supported by:
Mac®	<ul style="list-style-type: none">• Virtual KVM Client (VKC)• Multi-Platform Client (MPC)

A Speaker icon  is displayed in the status bar at the bottom of the client window. It is grayed out when no audio is being used. When the Speaker icon and Microphone icon  are displayed in the status bar, the session is being captured as it is streamed.

Connecting to a Single Target Server from Multiple Remote Clients

KX II 2.5.0 (and later) allows up to eight (8) users on different remote clients to connect to the same target server at the same time in order to listen in on audio playback.

In order to use this feature, PC Share mode and VM Share mode must be enabled for the target. See **Encryption & Share** (on page 227) for information on enabling PC Share and VM Share modes.

*Note: If you are using the audio feature while running PC Share mode and VM Share mode, see **Audio Playback and Capture Recommendations and Requirements** (on page 305) for important information.*

When users join an audio session on the same target, the audio device settings of the person who initiated the session are used. For example, if the user who originally configured the audio device applied a stereo, 16 bit, 44.1K format to the audio device, that is the format used each time users access the target server audio device during a shared session.

These settings are configured for the target when the audio device was originally added and cannot be changed by the users. However, users can adjust the capture and playback buffer settings in order to accommodate their specific network configuration. For example, users can increase the buffer size so the audio quality is improved. See **Adjusting Capture and Playback Buffer Size (Audio Settings)** (on page 88).

Each user who is part of the session connects to the target via either VKC, AKC or MPC in the same way they connect to audio devices. See **Connecting and Disconnecting a Digital Audio Device** (on page 86).

A Speaker icon  is displayed in the status bar at the bottom of the client window. It is grayed out when no audio is being used. When the Speaker icon and Microphone icon  are displayed in the status bar, the session is being captured as it is streamed.

Note: When an audio session is underway, be sure to keep the session active or change the KX II's idle timeout time so the audio session does not time out.

Connecting and Disconnecting a Digital Audio Device

Audio device settings are applied on a per KX II device basis.

Once the audio devices settings are configured and saved on the KX II, the same settings are applied to it. See **Saving Audio Settings** (on page 83) for more information.

*Note: If you are using the audio feature while running PC Share mode and VM Share mode, see **Audio Playback and Capture Recommendations and Requirements** (on page 305) for important information. See also **Connecting to a Single Target Server from Multiple Remote Clients** (on page 85).*

*Note: If you are connecting to multiple target server audio devices at the same time from a single remote client, review which Raritan client work with audio playback/capture for each type of operating system. See **Connecting to Multiple Targets from a Single Remote Client** (on page 83).*

Note: When an audio session is underway, be sure to keep the session active or change the KX II's idle timeout time so the audio session does not time out.

► To connect to an audio device:

1. Connect the audio device to the remote client PC prior to launching the browser connection to the KX II.
2. Connect to the target from the Port Access page.
3. Once connected, click the Audio icon  in the toolbar. The Connect Audio Device dialog appears. A list of available audio device connected to the remote client PC is displayed.

Note: If there are no available audio devices connected to the remote client PC, the Audio icon is grayed out.

4. Check Connect Playback Device if you are connecting to a playback device.
5. Select the device that you wish to connect from the drop-down list.
6. Select the audio format for the playback device from the Format: drop-down.

Note: Select the format that you wish to use based on the available network bandwidth. Formats with lower sampling rates consume less bandwidth and may tolerate more network congestion.

7. Check Connect Recording Device if you are connecting a recording device.

Note: The device names listed in the Connect Recording Device drop-down are truncated to a maximum of 30 characters for Java clients.

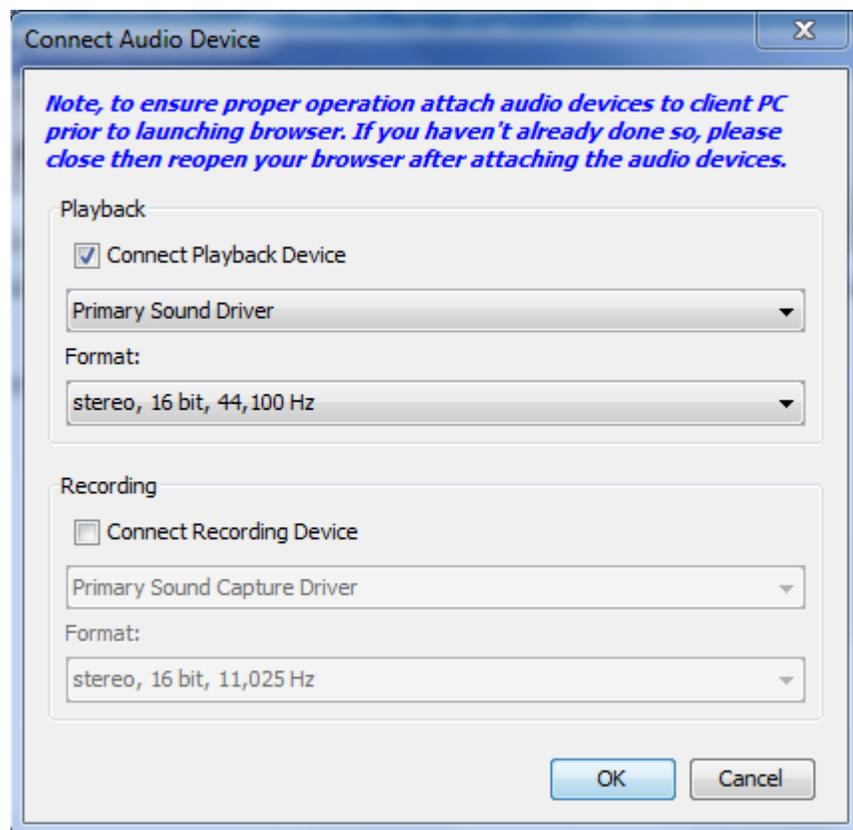
8. Select the device that you wish to connect from the drop-down list.
9. Select the audio format for the recording device from the Format: drop-down.
10. Click OK. If the audio connection is established, a confirmation message appears. Click OK.

If the connection was not established, an error message appears.

Once an audio connection is established, the Audio menu is changed to Disconnect Audio. Additionally, the settings for the audio device are saved and applied to the audio device.

A Speaker icon  is displayed in the status bar at the bottom of the client window. It is grayed out when no audio is being used.

When the Speaker icon and Microphone icon  are displayed in the status bar, the session is being captured as it is streamed.



► **To disconnect from the audio device:**

- Click the Audio icon  in the toolbar and select OK when you are prompted to confirm the disconnect. A confirmation message appears. Click OK.

Adjusting Capture and Playback Buffer Size (Audio Settings)

Once an audio device is connected, the capture and playback buffer size can be adjusted as needed.

This feature is useful for controlling the quality of the audio, which may be impacted by bandwidth limitations or network spikes.

Increasing the buffer size improves the audio quality but may impact the delivery speed.

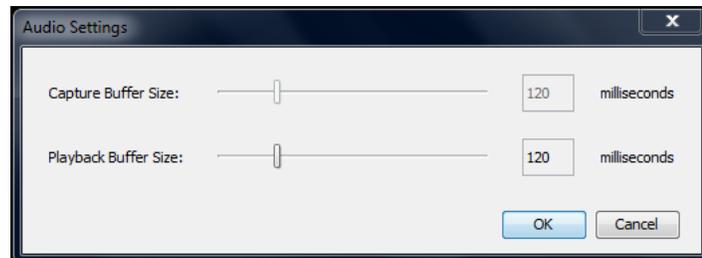
The maximum available buffer size is 400 milliseconds since anything higher than that greatly impacts audio quality.

The buffer size can be adjusted whenever needed, including during an audio session.

Audio settings are configured in the AKC, VKC or MPC clients.

► **To adjust audio settings:**

1. Select Audio Settings from the Audio menu. The Audio Settings dialog opens.
2. Adjust the capture and/or playback buffer size as needed. Click OK.



Smart Cards

Using the KX II, you are able to mount a smart card reader onto a target server to support smart card authentication and related applications.

For a list of supported smart cards, smart card readers, and additional system requirements, see Smart Card Minimum System Requirements, CIMs and Supported/Unsupported Smart Card Readers.

Note: The USB Smart Card token (eToken NG-OTP) is only supported from the remote client.

When accessing a server remotely, you can select an attached smart card reader and mount it onto the server.

Smart card authentication is used with the target server, it is not used to log into the device. Therefore, changes to smart card PIN and credentials do not require updates to device accounts.

When mounted onto the target server, the card reader and smart card will cause the server to behave as if they had been directly attached.

Removal of the smart card or smart card reader will cause the user session to be locked or you will be logged out depending on how the card removal policy has been setup on the target server OS.

When the KVM session is terminated, either because it has been closed or because you switch to a new target, the smart card reader will be automatically unmounted from the target server.

When PC-Share mode is enabled on the device, multiple users can share access to a target server.

However, when a smart card reader is connected to a target, the device will enforce privacy regardless of the PC-Share mode setting.

In addition, if you join a shared session on a target server, the smart card reader mounting will be disabled until exclusive access to the target server becomes available.

After a KVM session is established with a target server, a Smart Card menu and button are available in Virtual KVM Client (VKC) and Active KVM Client (AKC).

Once the Smart Card button is selected or Smart Card is selected from the menu, the smart card readers that are detected as attached to the remote client are displayed in a dialog.

From this dialog you can attach additional smart card readers, refresh the list of smart card readers attached to the target, and detach smart card readers.

You are also able to remove or reinsert a smart card. This function can be used to provide notification to a target server OS that requires a removal/reinsertion in order to display the appropriate login dialog. Using this function allows the notification to be sent to a single target without affecting other active KVM sessions.

► **To mount a smart card reader:**

1. Click the Smart Card menu and then select Smart Card Reader.

Alternatively, click the Smart Card button  in the toolbar.

2. Select the smart card reader from the Select Smart Card Reader dialog.
3. Click Mount.
4. A progress dialog will open. Check the 'Mount selected card reader automatically on connection to targets' checkbox to mount the smart card reader automatically the next time you connect to a target. Click OK to begin the mounting process.

► **To update the smart card in the Select Smart Card Reader dialog:**

- Click Refresh List if a new smart card reader has been attached to the client PC.

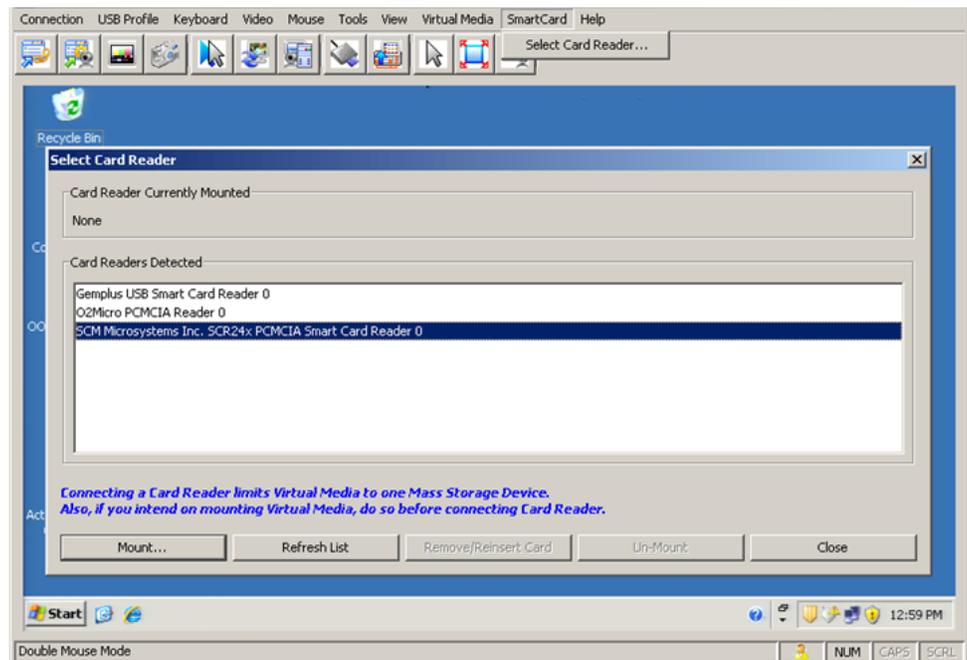
► **To send smart card remove and reinsert notifications to the target:**

- Select the smart card reader that is currently mounted and click the Remove/Reinsert button.

► **To unmount a smart card reader:**

- Select the smart card reader to be unmounted and click the Unmount button.

Smart card reader mounting is also supported from the Local Console. See **Local Console Smart Card Access** (on page 270).



Version Information - Virtual KVM Client

This menu command provides version information about the Virtual KVM Client, in case you require assistance from Raritan Technical Support.

► **To obtain version information:**

1. Choose Help > About Raritan Virtual KVM Client.

2. Use the Copy to Clipboard button to copy the information contained in the dialog to a clipboard file so it can be accessed later when dealing with support (if needed).

About the Active KVM Client

Active KVM Client (AKC) is based on Microsoft Windows .NET technology and allows you to run the client in Windows environments without the use of the Java Runtime Environment™ (JRE), which is required to run Raritan's Virtual KVM Client (VKC) and Multi-Platform Client (MPC).

AKC also works with CC-SG.

Note: If you are using direct port access with AKC, you must open a new browser window or browser tab for each target you want to access. If you try to access another target by entering the DPA URL into the same browser window or browser tab you are currently accessing a target from, you will not be able to connect and may receive an error.

AKC Supported .NET Framework, Operating Systems and Browsers

Microsoft .NET Framework

Microsoft .NET® 3.5 (or later) is required to use KX II with the Microsoft Windows®-based Active KVM Client (AKC).

Operating Systems

AKC is compatible with the following platforms:

- Windows XP® operating system
- Windows Vista® operating system (up to 64 bit)
- Windows 7® operating system (up to 64 bit)
- Windows 8® operating system (up to 64 bit)

Note: You must be using Windows 7 if WINDOWS PC FIPs is turned on and you are accessing a target using AKC and a smartcard.

Since .NET is required to run AKC, if you do not have .NET installed or you have an unsupported version of .NET installed, you will receive a message instructing you to check the .NET version.

Note: Raritan recommends Windows XP® operating system users verify you have a working version of .NET 3.5 or 4.0 already installed before you launch AKC. If you do not verify your .NET version is working, you may be prompted to download a file versus receiving the default message to check your .NET version.

Browser

- Internet Explorer® 8 (and later)

If you attempt to open AKC from a browser other than Internet Explorer 8 (and later), you will receive an error message instructing you to check your browser and to switch to Internet Explorer.

Prerequisites for Using AKC

In order to use Active KVM Client (AKC):

- Ensure the cookies from the IP address of the device that is being accessed are not currently being blocked.
- Windows Vista, Windows 7 and Windows 2008 server users should ensure that the IP address of the device being accessed is included in their browser's Trusted Sites Zone and that Protected Mode is not on when accessing the device.

Enable AKC Download Server Certificate Validation

If the device (or CC-SG) administrator has enabled the Enable AKC Download Server Certificate Validation option:

- Administrators must upload a valid certificate to the device or generate a self-signed certificate on the device. The certificate must have a valid host designation.
- Each user must add the CA certificate (or a copy of self-signed certificate) to the Trusted Root CA store in their browser.

When launching AKC from the CC-SG Admin Client, you must have JRE™ 1.6.0_10 (or later).

Multi-Platform Client (MPC)

Raritan Multi-Platform Client (MPC) is a graphical user interface for the Raritan product lines, providing remote access to target servers connected to Raritan KVM over IP devices. For details on using MPC, see the **KVM and Serial Access Clients Guide** available on Raritan's website on the same page as the user guide. Instructions on launching MPC are provided there.

Please note this client is used by various Raritan products. As such, references to other products may appear in this section of help.

Launching MPC from a Web Browser

Important: Regardless of the browser you use, you must allow pop-ups from the Dominion device's IP address in order to open MPC.

Important: Only Macs with an Intel® processor can run JRE 1.6 and, therefore, be used as a client. Mac 10.5.8 does not support MPC as a standalone client.

1. To open MPC from a client running any supported browser, type `http://IP-ADDRESS/mpc` into the address line, where IP-ADDRESS is the IP address of your Raritan device. MPC opens in a new window.

Note: The Alt+Tab command toggles between windows only on the local system.

When MPC opens, the Raritan devices that were automatically detected and which are found on your subnet are displayed in the Navigator in tree format.

2. If your device is not listed by name in the navigator, add it manually:
 - a. Choose Connection > New Profile. The Add Connection window opens.
 - b. In the Add Connection window, type a device Description, specify a Connection Type, add the device IP address, and click OK. These specifications can be edited later.
3. In the Navigator panel on the left of the page, double-click the icon that corresponds to your Raritan device to connect to it.

Note: Depending on your browser and browser security settings, you may see various security and certificate check and warning messages. It is necessary to accept the options in order to open MPC.

Note: If you are using Firefox 3.0.3, you may experience problems launching the application. If this occurs, clear the browser cache and launch the application again.

Launching MPC on Mac Lion Clients

If you are using Mac® Lion on your client, Raritan's Multi-Platform Client (MPC) does not launch. Use the following workaround to launch MPC.

Delete the JavaApplicationStub from the install, and create a link from the correct JavaApplicationStub.

- `rm /Applications/Raritan/Raritan Multi-Platform Client/<MPC Version>/Raritan Multi-Platform Client.app/Contents/MacOS/JavaApplicationStub`
- `ln -s /System/Library/Frameworks/JavaVM.framework/Resources/MacOS/JavaApplicationStub /Applications/Raritan/Raritan Multi-Platform Client/<MPC Version>/Raritan Multi-Platform Client.app/Contents/MacOS/JavaApplicationStub`

To run, use:

- `/Applications/Raritan/Raritan Multi-Platform Client/<MPC Version>/Raritan Multi-Platform Client.app/Contents/MacOS/JavaApplicationStub`

Chapter 4 Virtual Media

All KX II models support virtual media. Virtual media extends KVM capabilities by enabling target servers to remotely access media from a client PC and network file servers.

With this feature, media mounted on client PCs and network file servers are essentially "mounted virtually" by the target server. The target server can then read from and write to that media as if it were physically connected to the target server itself.

Each KX II comes equipped with virtual media to enable remote management tasks using the widest variety of CD, DVD, USB, audio playback and record devices, internal and remote drives, and images.

Virtual media sessions are secured using 128 or 256 bit AES, or RC4 encryption.

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Prerequisites for Using Virtual Media

KX II Virtual Media Prerequisites

- For users requiring access to virtual media, the KX II permissions must be set to allow access to the relevant ports, as well as virtual media access (VM Access port permission) for those ports. Port permissions are set at the group-level.
- A USB connection must exist between the device and the target server.
- If you want to use PC-Share, Security Settings must also be enabled in the Security Settings page. **Optional**
- You must choose the correct USB profile for the KVM target server you are connecting to.

Remote PC VM Prerequisites

- Certain virtual media options require administrative privileges on the remote PC (for example, drive redirection of complete drives).

Note: If you are using Microsoft Vista or Windows 7, disable User Account Control or select Run as Administrator when starting Internet Explorer. To do this, click the Start Menu, locate IE, right-click and select Run as Administrator.

Target Server VM Prerequisites

- KVM target servers must support USB connected drives.
- USB 2.0 ports are faster and preferred.

CIMs Required for Virtual Media

You must use one of the following CIMs is to use virtual media:

- D2CIM-VUSB
- D2CIM-DVUSB
- D2CIM-DVUSB-DVI
- D2CIM-DVUSB-HDMI
- D2CIM-DVUSB-DP

Note that the black connector on the DVUSB CIMs are used for the keyboard and mouse. The gray connector is used for virtual media.

Keep both plugs of the CIM connected to the device. The device may not operate properly if both plugs are not connected to the target server.

Mounting Local Drives

This option mounts an entire drive, which means the entire disk drive is mounted virtually onto the target server.

Use this option for hard drives and external drives only. It does not include network drives, CD-ROM, or DVD-ROM drives.

Notes on Mounting Local Drives

KVM target servers running the Windows XP® operating system may not accept new mass storage connections after an NTFS-formatted partition (for example, the local C drive) has been redirected to them.

If this occurs, close the Remote Console and reconnect before redirecting another virtual media device. If other users are connected to the same target server, they must also close their connections to the target server.

Supported Tasks Via Virtual Media

Virtual media provides the ability to perform tasks remotely, such as:

- Transferring files
- Running diagnostics
- Installing or patching applications
- Complete installation of the operating system
- Record and playback of digital audio

Supported Virtual Media Types

The following virtual media types are supported for Windows®, Mac® and Linux™ clients:

- Internal and external hard drives
- Internal and USB-mounted CD and DVD drives
- USB mass storage devices
- PC hard drives
- ISO images (disk images)
- Digital audio devices*

Note: ISO9660 is the standard supported by Raritan. However, other ISO standards can be used.

Conditions when Read/Write is Not Available

Virtual media Read/Write is not available in the following situations:

- For Linux® and Mac® clients
- When the drive is write-protected
- When the user does not have Read/Write permission:
 - Port Permission Access is set to None or View
 - Port Permission VM Access is set to Read-Only or Deny

Supported Virtual Media Operating Systems

The following client operating systems are supported:

- Windows® 7 operating system
- Windows 8 operating system
- Windows XP® operating system
- openSUSE® 11.4 Celadon (x86_64)
- Fedora® 18
- RHEL® 6.4
- OSX Mountain Lion® 10.7 (and later)
- Solaris® 10

The Active KVM Client (AKC) can be used to mount virtual media types but only for Windows operating systems.

Number of Supported Virtual Media Drives

With the virtual media feature, you can mount up to two drives (of different types) that are supported by the USB profile currently applied to the target. These drives are accessible for the duration of the KVM session.

For example, you can mount a specific CD-ROM, use it, and then disconnect it when you are done. The CD-ROM virtual media “channel” will remain open, however, so that you can virtually mount another CD-ROM. These virtual media “channels” remain open until the KVM session is closed as long as the USB profile supports it.

To use virtual media, connect/attach the media to the client or network file server that you want to access from the target server.

This need not be the first step, but it must be done prior to attempting to access this media.

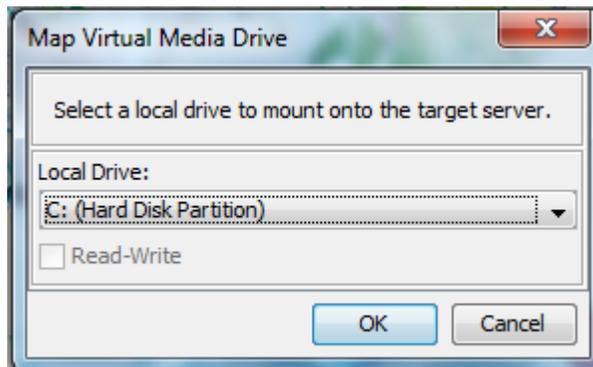
Connecting and Disconnecting from Virtual Media

Access a Virtual Media Drive on a Client Computer

► **To access a virtual media drive on the client computer:**

1. From the Virtual KVM Client, choose Virtual Media > Connect Drive,

or click the Connect Drive... button . The Map Virtual Media Drive dialog appears.



2. Choose the drive from the Local Drive drop-down list.

If you want Read and Write capabilities, select the Read-Write checkbox.

This option is disabled for nonremovable drives. See the **Conditions when Read/Write is Not Available** (on page 98) for more information.

When checked, you will be able to read or write to the connected USB disk.

WARNING: Enabling Read/Write access can be dangerous! Simultaneous access to the same drive from more than one entity can result in data corruption. If you do not require Write access, leave this option unselected.

3. Click OK. The media will be mounted on the target server virtually. You can access the media just like any other drive.

Mounting CD-ROM/DVD-ROM/ISO Images

This option mounts CD-ROM, DVD-ROM, and ISO images.

Note: ISO9660 format is the standard supported by Raritan. However, other CD-ROM extensions may also work.

► **To access a CD-ROM, DVD-ROM, or ISO image:**

1. From the Virtual KVM Client, choose Virtual Media > Connect CD-ROM/ISO Image, or click the Connect CD ROM/ISO button . The Map Virtual Media CD/ISO Image dialog appears.
2. For internal and external CD-ROM or DVD-ROM drives:
 - a. Choose the Local CD/DVD Drive option.
 - b. Choose the drive from the Local CD/DVD Drive drop-down list. All available internal and external CD and DVD drive names will be populated in the drop-down list.
 - c. Click Connect.
3. For ISO images:
 - a. Choose the ISO Image option. Use this option when you want to access a disk image of a CD, DVD, or hard drive. ISO format is the only format supported.
 - b. Click Browse.
 - c. Navigate to the path containing the disk image you want to use and click Open. The path is populated in the Image Path field.
 - d. Click Connect.
4. For remote ISO images on a file server:
 - a. Choose the Remote Server ISO Image option.
 - b. Choose Hostname and Image from the drop-down list. The file servers and image paths available are those that you configured using the File Server Setup page. Only items you configured using the File Server Setup page will be in the drop-down list.
 - c. File Server Username - User name required for access to the file server. The name can include the domain name such as mydomain/username.
 - d. File Server Password - Password required for access to the file server (field is masked as you type).
 - e. Click Connect.

The media will be mounted on the target server virtually. You can access the media just like any other drive.

Note: If you are working with files on a Linux® target, use the Linux Sync command after the files are copied using virtual media in order to view the copied files. Files may not appear until a sync is performed.

Note: If you are using the Windows 7® operating system®, Removable Disk is not displayed by default in the Window's My Computer folder when you mount a Local CD/DVD Drive or Local or Remote ISO Image. To view the Local CD/DVD Drive or Local or Remote ISO Image in this folder, select Tools > Folder Options > View and deselect "Hide empty drives in the Computer folder".

Note: You cannot access a remote ISO image via virtual media using an IPv6 address due to third-party software technical limitations.

Disconnect from Virtual Media Drives

▶ **To disconnect the virtual media drives:**

- For local drives, choose Virtual Media > Disconnect Drive.
- For CD-ROM, DVD-ROM, and ISO images, choose Virtual Media > Disconnect CD-ROM/ISO Image.

Note: In addition to disconnecting the virtual media using the Disconnect command, simply closing the KVM connection closes the virtual media as well.

Virtual Media in a Windows XP Environment

If you are running the Virtual KVM Client or Active KVM Client in a Windows® XP environment, users must have Administrator privileges to access any virtual media type other than CD-ROM connections, ISOs and ISO images.

Virtual Media in a Linux Environment

Active System Partitions

You cannot mount active system partitions from a Linux client.

Linux Ext3/4 drive partitions need to be unmounted via `umount /dev/<device label>` prior to a making a virtual media connection.

Drive Partitions

The following drive partition limitations exist across operating systems:

- Windows® and Mac targets are not able to read Linux formatted partitions
- Windows and Linux cannot read Mac formatted partitions
- Only Windows Fat partitions are supported by Linux

Root User Permission Requirement

Your virtual media connection can be closed if you mount a CD ROM from a Linux client to a target and then unmount the CD ROM.

To avoid these issues, you must be a root user.

Virtual Media in a Mac Environment

Active System Partition

You cannot use virtual media to mount active system partitions for a Mac client.

Drive Partitions

The following drive partition limitations exist across operating systems:

- Windows® and Mac targets are not able to read Linux formatted partitions
- Windows cannot read Mac formatted partitions
- Windows FAT and NTFS are supported by Mac
- Mac users must unmount any devices that are already mounted in order to connect to a target server. Use `>diskutil unmount /dev/disk1s1` to unmount the device and `diskutil mount /dev/disk1s1` to remount it.

Virtual Media File Server Setup (File Server ISO Images Only)

This feature is only required when using virtual media to access file server ISO images. ISO9660 format is the standard supported by Raritan. However, other CD-ROM extensions may also work.

Note: SMB/CIFS support is required on the file server.

Use the Remote Console File Server Setup page to designate the files server(s) and image paths that you want to access using virtual media. File server ISO images specified here are available for selection in the Remote Server ISO Image Hostname and Image drop-down lists in the Map Virtual Media CD/ISO Image dialog. See **Mounting CD-ROM/DVD-ROM/ISO Images** (on page 101).

► **To designate file server ISO images for virtual media access:**

1. Choose Virtual Media from the Remote Console. The File Server Setup page opens.
2. Check the Selected checkbox for all media that you want accessible as virtual media.
3. Enter information about the file server ISO images that you want to access:
 - IP Address/Host Name - Host name or IP address of the file server.
 - Image Path - Full path name of the location of the ISO image. For example, /sharename0/path0/image0.iso, \sharename1\path1\image1.iso, and so on.

Note: The host name cannot exceed 232 characters in length.

4. Click Save. All media specified here are now available for selection in the Map Virtual Media CD/ISO Image dialog.

Note: If you are connecting to a Windows 2003® server and attempt to load an ISO image from the server, you may receive an error stating "Virtual Media mounting on port failed. Unable to connect to the file server or incorrect File Server username and password". If this occurs, disable "Microsoft Network Server: Digitally Sign Communications" option on the server under the Domain Controllers policies.

Chapter 5 Rack PDU (Power Strip) Outlet Control

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Overview

The KX II allows you to control Raritan PX and RPC series rack PDU (power strip) outlets connected to the KX II through a D2CIM-PWR.

Once a PX or RPC series is setup and then attached to the KX II, the rack PDU and its outlets can be controlled from the Powerstrip page in the KX II interface. This page is accessed by clicking on the Power menu at the top of the page.

The Powerstrip page will display rack PDUs attached to the KX II for which the user has been granted appropriate port access permissions. In the case of tiered configurations, the Powerstrip page will display both rack PDUs attached to the base and tiered KX IIs, for which the user has been granted appropriate port access permissions.

*Note: For information on setting up a PX, see the **Raritan PX User Guide**.*

From the Powerstrip page, you are able to turn the outlets on and off, as well as cycle their power. You are also able to view the following power strip and outlet information:

- Powerstrip Device Information:
 - Name
 - Model
 - Temperature
 - Current Amps
 - Maximum Amps
 - Voltage
 - Power in Watts
 - Power in Volts Ampere
- Outlet Display Information:
 - Name - Named assigned to the outlet when it was configured.
 - State - On or Off status of the outlet.

- Control - Turn outlets on or off, or cycle their power.
- Association - The ports associated with the outlet.

Initially, when you open the Powerstrip page, the power strips that are currently connected to the KX II are displayed in the Powerstrip drop-down. Additionally, information relating to the currently selected power strip is displayed. If no power strips are connected to the KX II, a message stating "No powerstrips found" will be displayed in the Powerstrip Device section of the page.

The screenshot shows a web interface for controlling power strips. At the top, it says "Home > Powerstrip" and "Operation completed successfully." Below this is a "Powerstrip Device" section with a dropdown menu set to "rk-power" and a "Refresh" button. A status bar displays: Name: rk-power, Model: PCR8, Temperature: 29 °C, CurrentAmps: 0 A, MaxAmps: 0 A, Voltage: 118 V, PowerInWatt: 3 W, PowerInVA: 0 VA. Below the status bar is a table with columns for Name, State, Control, and Associations.

Name	State	Control	Associations
Outlet 1	on	On Off Cycle	Dominion_Port9
Outlet 2	on	On Off Cycle	
Outlet 3	on	On Off Cycle	
Outlet 4	on	On Off Cycle	
Outlet 5	on	On Off Cycle	
Outlet 6	on	On Off Cycle	
Outlet 7	on	On Off Cycle	
Outlet 8	on	On Off Cycle	Dominion_Port2

Turning Outlets On/Off and Cycling Power

► To turn an outlet on:

1. Click the Power menu to access the Powerstrip page.
2. From the Powerstrip drop-down, select the PX rack PDU (power strip) you want to turn on.
3. Click Refresh to view the power controls.
4. Click On next to the outlet you want to power on.
5. Click OK to close the Power On confirmation dialog. The outlet will be turned on and its state will be displayed as 'on'.

► To turn an outlet off:

1. Click Off next to the outlet you want to power off.

2. Click OK on the Power Off dialog.
 3. Click OK on the Power Off confirmation dialog. The outlet will be turned off and its state will be displayed as 'off'.
- ▶ **To cycle the power of an outlet:**
1. Click Cycle next to the outlet you want to cycle. The Power Cycle Port dialog opens.
 2. Click OK. The outlet will then cycle (note that this may take a few seconds).
 3. Once the cycling is complete the dialog will open. Click OK to close the dialog.

Chapter 6 USB Profiles

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Overview

To broaden the KX II's compatibility with different KVM target servers, Raritan provides a standard selection of USB configuration profiles for a wide range of operating system and BIOS-level server implementations.

The Generic (default) USB profile meets the needs of the vast majority of deployed KVM target server configurations.

Additional profiles are provided to meet the specific needs of other commonly deployed server configurations (for example, Linux® and Mac OS X®).

There are also a number of profiles (designated by platform name and BIOS revision) to enhance virtual media function compatibility with the target server, for example, when operating at the BIOS level.

USB profiles are configured on the Device Settings > Port Configuration > Port page of the KX II Remote and Local Consoles.

Administrators configure the port with the USB profiles that best meet the needs of the user, and the target server configuration.

A user connecting to a KVM target server chooses among these preselected profiles in the Virtual KVM Client, depending on the operational state of the KVM target server.

For example, if the server is running Windows® operating system, it would be best to use the Generic profile.

To change settings in the BIOS menu or boot from a virtual media drive, depending on the target server model, a BIOS profile may be more appropriate.

Should none of the standard USB profiles provided by Raritan work with a given KVM target, please contact Raritan Technical Support for assistance.

CIM Compatibility

In order to make use of USB profiles, you must use a virtual media CIM with updated firmware. For a list of virtual media CIMs, see **Supported Computer Interface Module (CIMs) Specifications** (on page 289).

A CIM that has not had its firmware upgraded supports a broad range of configurations (keyboard, mouse, CD-ROM, and removable drive), but will not be able to make use of profiles optimized for particular target configurations. Given this, existing CIMs should be upgraded with latest firmware in order to access USB profiles.

Until existing CIMs are upgraded, they will be able to provide functionality equivalent to the 'Generic' USB profile.

CIM firmware is automatically upgraded during a firmware upgrade, but CIMs that have not had their firmware upgraded can be upgraded as described in **Upgrading CIMs** (on page 245).

Available USB Profiles

The current release of the KX II comes with the selection of USB profiles described in the following table. New profiles are included with each firmware upgrade provided by Raritan. As new profiles are added, they will be documented in the help.

USB profile	Description
BIOS Dell® PowerEdge® 1950/2950/2970/6950/R200	Dell PowerEdge 1950/2950/2970/6950/R200 BIOS Use either this profile or 'Generic' profile for Dell PowerEdge 1950/2950/2970/6950/R200 BIOS. Restrictions: <ul style="list-style-type: none"> ▪ None
BIOS Dell OptiPlex™ Keyboard and Mouse Only	Dell OptiPlex BIOS Access (Keyboard and Mouse Only) Use this profile to have keyboard functionality for the Dell OptiPlex BIOS when using D2CIM-VUSB. When using the new D2CIM-DVUSB, use 'Generic' profile. Notice: <ul style="list-style-type: none"> ▪ Optiplex 210L/280/745/GX620 requires D2CIM-DVUSB with 'Generic' profile to support virtual media Restrictions: <ul style="list-style-type: none"> ▪ USB bus speed limited to full-speed (12 MBit/s) ▪ No virtual media support
BIOS Dell Optiplex 790	Use this profile for Dell Optiplex 790 during BIOS operations. Warning:

USB profile	Description
	<ul style="list-style-type: none"> ▪ USB enumeration will trigger whenever Virtual Media is connected or disconnected <p>Restrictions:</p> <ul style="list-style-type: none"> ▪ USB bus speed limited to full-speed (12 MBit/s) ▪ Absolute mouse synchronization not supported ▪ Virtual CD-ROM and disk drives cannot be used simultaneously
BIOS Dell Optiplex 790 Keyboard Only	<p>Use this profile for Dell Optiplex 790 when using Keyboard Macros during BIOS operations. Only keyboard is enabled with this profile.</p> <p>Restrictions:</p> <ul style="list-style-type: none"> ▪ Mouse is disabled. ▪ Virtual CD-ROM and disk drives are disabled.
BIOS DellPowerEdge Keyboard and Mouse Only	<p>Dell PowerEdge BIOS Access (Keyboard and Mouse Only)</p> <p>Use this profile to have keyboard functionality for the Dell PowerEdge BIOS when using D2CIM-VUSB. When using the new D2CIM-DVUSB, use 'Generic' profile.</p> <p>Notice:</p> <ul style="list-style-type: none"> ▪ PowerEdge 650/1650/1750/2600/2650 BIOS do not support USB CD-ROM and disk drives as a bootable device ▪ PowerEdge 750/850/860/1850/2850/SC1425 BIOS requires D2CIM-DVUSB with 'Generic' profile to support virtual media ▪ Use 'BIOS Dell PowerEdge 1950/2950/2970/6950/R200' or 'Generic' profile for PowerEdge 1950/2950/2970/6950/R200 when operating in the BIOS <p>Restrictions:</p> <ul style="list-style-type: none"> ▪ USB bus speed limited to full-speed (12 MBit/s) ▪ Absolute mouse synchronization™ not supported ▪ No virtual media support
BIOS ASUS P4C800 Motherboard	<p>Use this profile to access BIOS and boot from Virtual Media on Asus P4C800-based systems.</p> <p>Restrictions:</p> <ul style="list-style-type: none"> ▪ USB bus speed limited to full-speed (12 MBit/s) ▪ Virtual CD-ROM and disk drives cannot be used simultaneously

USB profile	Description
BIOS Generic	<p>BIOS Generic</p> <p>Use this profile when Generic OS profile does not work on the BIOS.</p> <p>WARNING: USB enumeration will trigger whenever virtual media is connected or disconnected.</p> <p>Restrictions:</p> <ul style="list-style-type: none"> ▪ USB bus speed limited to full-speed (12 MBit/s) ▪ Absolute mouse synchronization™ not supported ▪ Virtual CD-ROM and disk drives cannot be used simultaneously
BIOS HP® Proliant™ DL145	<p>HP Proliant DL145 PhoenixBIOS</p> <p>Use this profile for HP Proliant DL145 PhoenixBIOS during OS installation.</p> <p>Restrictions:</p> <ul style="list-style-type: none"> ▪ USB bus speed limited to full-speed (12 MBit/s)
BIOS HP Compaq® DC7100/DC7600	<p>BIOS HP Compaq DC7100/DC7600</p> <p>Use this profile to boot the HP Compaq DC7100/DC7600 series desktops from virtual media.</p> <p>Restrictions:</p> <ul style="list-style-type: none"> ▪ Virtual CD-ROM and disk drives cannot be used simultaneously
BIOS IBM ThinkCentre Lenovo	<p>IBM Thinkcentre Lenovo BIOS</p> <p>Use this profile for the IBM® Thinkcentre Lenovo system board (model 828841U) during BIOS operations.</p> <p>Restrictions:</p> <ul style="list-style-type: none"> ▪ USB bus speed limited to full-speed (12 MBit/s) ▪ Virtual CD-ROM and disk drives cannot be used simultaneously
IBM BladeCenter H with Advanced Management Module	<p>Use this profile to enable virtual media functionality when D2CIM-VUSB or D2CIM-DVUSB is connected to the Advanced Management Module.</p> <p>Restrictions:</p> <ul style="list-style-type: none"> ▪ Virtual CD-ROM and disk drives cannot be used simultaneously

USB profile	Description
BIOS Lenovo ThinkPad T61 & X61	<p>BIOS Lenovo ThinkPad T61 and X61 (boot from virtual media)</p> <p>Use this profile to boot the T61 and X61 series laptops from virtual media.</p> <p>Restrictions:</p> <ul style="list-style-type: none"> USB bus speed limited to full-speed (12 MBit/s)
Generic	<p>The generic USB profile resembles the behavior of the original KX3 release. Use this for Windows 2000® operating system, Windows XP® operating system, Windows Vista® operating system and later.</p> <p>Restrictions:</p> <ul style="list-style-type: none"> None
HP Proliant DL360/DL380 G4 (HP SmartStart CD)	<p>HP Proliant DL360/DL380 G4 (HP SmartStart CD)</p> <p>Use this profile for the HP Proliant DL360/DL380 G4 series server when installing OS using HP SmartStart CD.</p> <p>Restrictions:</p> <ul style="list-style-type: none"> USB bus speed limited to full-speed (12 MBit/s) Absolute mouse synchronization™ not supported
HP Proliant DL360/DL380 G4 (Windows 2003® Server Installation)	<p>HP Proliant DL360/DL380 G4 (Windows 2003 Server Installation)</p> <p>Use this profile for the HP Proliant DL360/DL380 G4 series server when installing Windows 2003 Server without the help of HP SmartStart CD.</p> <p>Restrictions:</p> <ul style="list-style-type: none"> USB bus speed limited to full-speed (12 MBit/s)
Linux®	<p>Generic Linux profile</p> <p>This is the generic Linux profile; use it for Redhat Enterprise Linux, SuSE Linux Enterprise Desktop and similar distributions.</p> <p>Restrictions:</p> <ul style="list-style-type: none"> Absolute mouse synchronization™ not supported
BIOS Mac®	<p>BIOS Mac</p> <p>Use this profile for Mac BIOS.</p> <p>Restrictions:</p> <ul style="list-style-type: none"> Absolute mouse synchronization™ is not supported Virtual CD-ROM and disk drives cannot be used simultaneously <p>If you use this USB profile, see Mouse Modes when Using the Mac Boot Menu (on page 115) for information mouse modes</p>

USB profile	Description
	when using the Mac Boot Menu
MAC OS X® 10.4.9 (and later)	<p>Mac OS X version 10.4.9 (and later)</p> <p>This profile compensates the scaling of mouse coordinates introduced in recent versions of Mac OS X. Select this if the remote and local mouse positions get out of sync near the desktop borders.</p> <p>Restrictions:</p> <ul style="list-style-type: none"> ▪ Virtual CD-ROM and disk drives cannot be used simultaneously
RUBY Industrial Mainboard (AwardBIOS)	<p>RUBY Industrial Mainboard (AwardBIOS)</p> <p>Use this profile for the RUBY-9715VG2A series industrial mainboards with Phoenix/AwardBIOS v6.00PG.</p> <p>Restrictions:</p> <ul style="list-style-type: none"> ▪ USB bus speed limited to full-speed (12 MBit/s) ▪ Virtual CD-ROM and disk drives cannot be used simultaneously
Supermicro Mainboard Phoenix (AwardBIOS)	<p>Supermicro Mainboard Phoenix AwardBIOS</p> <p>Use this profile for the Supermicro series mainboards with Phoenix AwardBIOS.</p> <p>Restrictions:</p> <ul style="list-style-type: none"> ▪ Virtual CD-ROM and disk drives cannot be used simultaneously
Suse 9.2	<p>SuSE Linux 9.2</p> <p>Use this for SuSE Linux 9.2 distribution.</p> <p>Restrictions:</p> <ul style="list-style-type: none"> ▪ Absolute mouse synchronization™ not supported ▪ USB bus speed limited to full-speed (12 MBit/s)
Troubleshooting 1	<p>Troubleshooting Profile 1</p> <ul style="list-style-type: none"> ▪ Mass Storage first ▪ Keyboard and Mouse (Type 1) ▪ USB bus speed limited to full-speed (12 MBit/s) ▪ Virtual CD-ROM and disk drives cannot be used simultaneously <p style="background-color: #e0e0e0; padding: 5px;">WARNING: USB enumeration will trigger whenever virtual media is connected or disconnected.</p>
Troubleshooting 2	Troubleshooting Profile 2

USB profile	Description
	<ul style="list-style-type: none"> ▪ Keyboard and Mouse (Type 2) first ▪ Mass Storage ▪ USB bus speed limited to full-speed (12 MBit/s) ▪ Virtual CD-ROM and disk drives cannot be used simultaneously <p>WARNING: USB enumeration will trigger whenever virtual media is connected or disconnected.</p>
Troubleshooting 3	<p>Troubleshooting Profile 3</p> <ul style="list-style-type: none"> ▪ Mass Storage first ▪ Keyboard and Mouse (Type 2) ▪ USB bus speed limited to full-speed (12 MBit/s) ▪ Virtual CD-ROM and disk drives cannot be used simultaneously <p>WARNING: USB enumeration will trigger whenever virtual media is connected or disconnected.</p>
Use Full Speed for Virtual Media CIM	<p>Use Full Speed for virtual media CIM</p> <p>This profile resembles the behavior of the original KX3 release with Full Speed for virtual media CIM option checked. Useful for BIOS that cannot handle High Speed USB devices.</p> <p>Restrictions:</p> <ul style="list-style-type: none"> ▪ USB bus speed limited to full-speed (12 MBit/s)
Use Full Speed for Keyboard and Mouse USB	<p>This profile will set the Keyboard and Mouse USB interface on the Dual-VM CIM to Full Speed. Useful for devices that cannot operate properly with the Low Speed USB settings.</p> <p>Restrictions:</p> <ul style="list-style-type: none"> ▪ USB bus speed set to full-speed (12 MBit/s) on Keyboard and Mouse USB interface

Mouse Modes when Using the Mac Boot Menu

When working with USB profiles in, to use the Mouse in the Mac Boot Menu, you must use Single Mouse mode since Absolute Mouse Mode is not supported in the BIOS.

► **To configure the mouse to work at the Boot menu:**

1. Reboot the Mac and press the Option key during the reboot to open the Boot menu. The mouse will not respond at this point.
2. Select Single Mouse mode. The mouse now responds.

Note: Mouse speed may be slow while in Single Mouse mode.

3. Once you are out of the Boot menu and back to the OS X, exit Single Mouse mode and switch back to Absolute Mouse mode.

Selecting Profiles for a KVM Port

The KX II comes with a set of USB profiles that you can assign to a KVM port based on the characteristics of the KVM target server it connects to. You assign USB profiles to a KVM port in the Device Settings > Port Configuration > Port page in either the KX II Remote or Local Console.

It is the administrator that designates the profiles that are most likely to be needed for a specific target. These profiles are then available for selection via Multi-Platform Client (MPC), Active KVM Client (AKC) and Virtual KVM Client (VKC).. If a profile has not been made available, you can access any of the available profiles by selecting USB Profile > Other Profiles.

Assigning USB profiles to a KVM port makes those profiles available to a user when connected to a KVM target server. If required, the user can select a USB profile from the USB Profile menu in Multi-Platform Client (MPC), Active KVM Client (AKC) and Virtual KVM Client (VKC)..

For information about assigning USB profiles to a KVM port, see **Configuring USB Profiles (Port Page)** (on page 204).

Chapter 7 User Management

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User Groups

The KX II stores an internal list of all user and group names to determine access authorization and permissions. This information is stored internally in an encrypted format. There are several forms of authentication and this one is known as local authentication. All users have to be authenticated. If the KX II is configured for LDAP/LDAPS or RADIUS, that authentication is processed first, followed by local authentication.

Every KX II is delivered with three default user groups. These groups cannot be deleted:

User	Description
Admin	Users that are members of this group have full administrative privileges. The original, factory-default user is a member of this group and has the complete set of system privileges. In addition, the Admin user must be a member of the Admin group.
Unknown	This is the default group for users who are authenticated externally using LDAP/LDAPS or RADIUS or who are unknown to the system. If the external LDAP/LDAPS or RADIUS server does not identify a valid user group, the Unknown group is used. In addition, any newly created user is automatically put in this group until assigned to another group.
Individual Group	An individual group is essentially a “group” of one. That is, the specific user is in its own group, not affiliated with other real groups. Individual groups can be identified by the “@” in the Group Name. The individual group allows a user account to have the same rights as a group.

Up to 254 user groups can be created in the KX II. Up to 254 user groups can be created in the KX II.

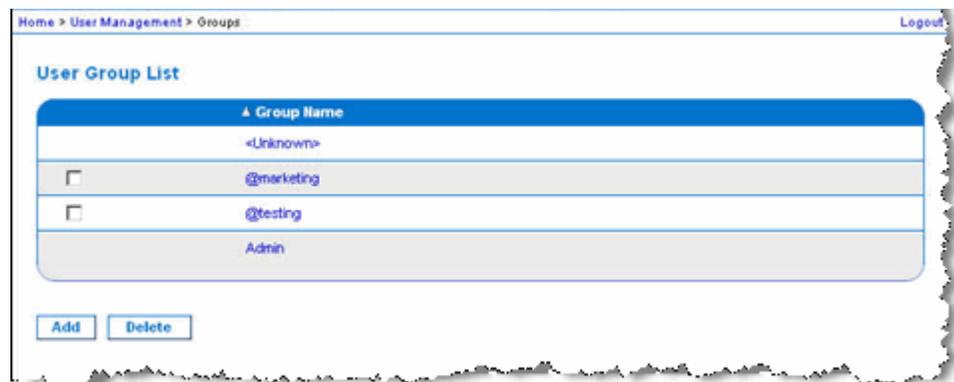
User Group List

User groups are used with local and remote authentication (via RADIUS or LDAP/LDAPS). It is a good idea to define user groups before creating individual users since, when you add a user, you must assign that user to an existing user group.

The User Group List page displays a list of all user groups, which can be sorted in ascending or descending order by clicking on the Group Name column heading. From the User Group List page, you can also add, modify, or delete user groups.

► To list the user groups:

- Choose User Management > User Group List. The User Group List page opens.



Relationship Between Users and Groups

Users belong to a group and groups have privileges. Organizing the various users of your KX II into groups saves time by allowing you to manage permissions for all users in a group at once, instead of managing permissions on a user-by-user basis.

You may also choose not to associate specific users with groups. In this case, you can classify the user as “Individual.”

Upon successful authentication, the device uses group information to determine the user's permissions, such as which server ports are accessible, whether rebooting the device is allowed, and other features.

Adding a New User Group

► To add a new user group:

1. Select User Management > Add New User Group or click Add on the User Group List page.

2. Type a descriptive name for the new user group into the Group Name field (up to 64 characters).
3. Select the checkboxes next to the permissions you want to assign to all of the users belonging to this group. See Setting Permissions.
4. Specify the server ports and the type of access for each user belonging to this group. See **Setting Port Permissions** (on page 121)
5. Set the IP ACL. This feature limits access to the KX II device by specifying IP addresses. It applies only to users belonging to a specific group, unlike the IP Access Control list feature that applies to all access attempts to the device (and takes priority). See **Group-Based IP ACL (Access Control List)** (on page 122)
Optional
6. Click OK.

Note: Several administrative functions are available within and from the KX II Local Console. These functions are available only to members of the default Admin group.

Home > User Management > Group

Group

Group Name *

Permissions

- Device Access While Under CC-SG Management
- Device Settings
- Diagnostics
- Maintenance
- Modem Access
- PC-Share
- Security
- User Management

Port Permissions

Port

- 1: BC_Port1_R8_from_KX
- 1-1: BC_Port1_Slot1_To_Local_Port
- 1-2: Blade_Chassis_Port1_Slot2
- 1-3: Blade_Chassis_Port1_Slot3
- 1-4: Blade_Chassis_Port1_Slot4
- 1-5: Blade_Chassis_Port1_Slot5
- 1-6: Blade_Chassis_Port1_Slot6
- 1-7: Blade_Chassis_Port1_Slot7
- 1-8: Blade_Chassis_Port1_Slot8
- 1-9: Blade_Chassis_Port1_Slot9
- 1-10: Blade_Chassis_Port1_Slot10
- 1-11: Blade_Chassis_Port1_Slot11
- 1-12: Blade_Chassis_Port1_Slot12
- 1-13: Blade_Chassis_Port1_Slot13
- 1-14: Blade_Chassis_Port1_Slot14
- 1-15: Blade_Chassis_Port1_Slot15
- 1-16: Blade_Chassis_Port1_Slot16
- 2: KX2_Port2_R9_from_CC
- 3: KX2_Port2_R9_from_CC

Access

- Deny

VM Access

- Deny

Power Control

- Deny

- Set All to Deny
- Set All VM Access to Deny
- Set All Power to Deny
- Set All to View
- Set All VM Access to Read-Only
- Set All Power to Access
- Set All to Control
- Set All VM Access to Read-Write

IP ACL

Rule #	Starting IP	Ending IP	Action
<input type="text"/>	<input type="text"/>	<input type="text"/>	ACCEPT <input type="button" value="v"/>

Setting Permissions

Important: Selecting the User Management checkbox allows the members of the group to change the permissions of all users, including their own. Carefully consider granting these permissions.

Permission	Description
Device Access While Under CC-SG Management	<p>Allows users and user groups with this permission to directly access the KX II using an IP address when Local Access is enabled for the device in CC-SG. The device can be accessed from the Virtual KVM Client (VKC), Active KVM Client (AKC) and Multi-Platform Client (MPC).</p> <p>When a device is accessed directly while it is under CC-SG management, access and connection activity is logged on the KX II. User authentication is performed based on KX II authentication settings.</p> <hr/> <p><i>Note: The Admin user group has this permission by default.</i></p>
Device Settings	Network settings, date/time settings, port configuration (channel names, power associations), event management (SNMP, Syslog), virtual media file server setups.
Diagnostics	Network interface status, network statistics, ping host, trace route to host, KX II diagnostics.
Maintenance	Backup and restore database, firmware upgrade, factory reset, reboot.
Modem	Permission to use the modem to connect to the KX II device.
PC-Share	<p>Simultaneous access to the same target by multiple users.</p> <p>If you are using a tiered configuration in which a base KX II device is used to access multiple other tiered devices, all devices must share the same PC-Share setting.</p>
Security	SSL certificate, security settings (VM Share, PC-Share), IP ACL.
User Management	User and group management, remote, authentication (LDAP/LDAPS/RADIUS), login

Permission	Description
	<p>settings.</p> <p>If you are using a tiered configuration in which a base KX II device is used to access multiple other tiered devices, user, user group and remote authentication settings must be consistent across all devices.</p>

Setting Port Permissions

For each server port, you can specify the access type the group has, as well as the type of port access to the virtual media and the power control. Please note that the default setting for all permissions is Deny.

Port access	
option	Description
Deny	Denied access completely
View	View the video (but not interact with) the connected target server.
Control	<p>Control the connected target server. Control must be assigned to the group if VM and power control access will also be granted.</p> <p>In order for all users in a user group to see KVM switches that are added, each user must be granted Control access. If they don't have this permission and a KVM switch is added at a later time, they will not be able to see the switches.</p> <p>Control access must be granted for audio or smart card related controls to be active.</p>

VM access	
option	Description
Deny	Virtual media permission is denied altogether for the port.
Read-Only	Virtual media access is limited to read access only.
Read-Write	Complete access (read, write) to virtual media.

VM access**Power control access**

option	Description
Deny	Deny power control to the target server
Access	Full permission to power control on a target server

For blade chassis, the port access permission will control access to the URLs that have been configured for that blade chassis. The options are Deny or Control. In addition, each blade housed within the chassis has its own independent Port Permissions setting.

If you are using a tiered configuration in which a base KX II device is used to access multiple other tiered devices, the tiered device enforces individual port control levels. See ***Configuring and Enabling Tiering*** (on page 147) for more information on tiering.

Setting Permissions for an Individual Group▶ **To set permissions for an individual user group:**

1. Locate the group from among the groups listed. Individual groups can be identified by the @ in the Group Name.
2. Click the Group Name. The Group page opens.
3. Select the appropriate permissions.
4. Click OK.

Group-Based IP ACL (Access Control List)

Important: Exercise caution when using group-based IP access control. It is possible to be locked out of your KX II if your IP address is within a range that has been denied access.

This feature limits access to the KX II device by users in the selected group to specific IP addresses. This feature applies only to users belonging to a specific group, unlike the IP Access Control List feature that applies to all access attempts to the device, is processed first, and takes priority.

Important: The IP address 127.0.0.1 is used by the KX II Local Port and cannot be blocked.

Use the IP ACL section of the Group page to add, insert, replace, and delete IP access control rules on a group-level basis.

Rule #	Starting IP	Ending IP	Action
<input type="text"/>	<input type="text"/>	<input type="text"/>	ACCEPT <input type="button" value="v"/>

► **To add (append) rules:**

1. Type the starting IP address in the Starting IP field.
2. Type the ending IP address in the Ending IP field.
3. Choose the action from the available options:
 - Accept - IP addresses set to Accept are allowed access to the KX II device.
 - Drop - IP addresses set to Drop are denied access to the KX II device.
4. Click Append. The rule is added to the bottom of the rules list. Repeat steps 1 through 4 for each rule you want to enter.

► **To insert a rule:**

1. Enter a rule number (#). A rule number is required when using the Insert command.
2. Enter the Starting IP and Ending IP fields.
3. Choose the action from the Action drop-down list.
4. Click Insert. If the rule number you just typed equals an existing rule number, the new rule is placed ahead of the existing rule and all rules are moved down in the list.

► **To replace a rule:**

1. Specify the rule number you want to replace.
2. Type the Starting IP and Ending IP fields.
3. Choose the Action from the drop-down list.
4. Click Replace. Your new rule replaces the original rule with the same rule number.

► **To delete a rule:**

1. Specify the rule number you want to delete.

2. Click Delete.
3. When prompted to confirm the deletion, click OK.

Important: ACL rules are evaluated in the order in which they are listed. For instance, in the example shown here, if the two ACL rules were reversed, Dominion would accept no communication at all.

Rule 1, Starting IP = 192.168.50.1, Ending IP = 192.168.55.255, Action = ACCEPT

Rule 2, Starting IP = 0.0.0.0, Ending IP = 255.255.255.255, Action = DROP

Tip: The rule numbers allow you to have more control over the order in which the rules are created.

Modifying an Existing User Group

Note: All permissions are enabled for the Admin group and cannot be changed.

► **To modify an existing user group:**

1. From the Group page, change the appropriate fields and set the appropriate permissions.
2. Set the Permissions for the group. Select the checkboxes before the permissions you want to assign to all of the users belonging to this group. See [Setting Permissions](#).
3. Set the Port Permissions. Specify the server ports that can be accessed by users belonging to this group (and the type of access). See [Setting Port Permissions](#) (on page 121).
4. Set the IP ACL (optional). This feature limits access to the KX II device by specifying IP addresses. See [Group-Based IP ACL \(Access Control List\)](#) (on page 122).
5. Click OK.

► **To delete a user group:**

Important: If you delete a group with users in it, the users are automatically assigned to the <unknown> user group.

Tip: To determine the users belonging to a particular group, sort the User List by User Group.

1. Choose a group from among those listed by checking the checkbox to the left of the Group Name.

2. Click Delete.
3. When prompted to confirm the deletion, click OK.

Users

Users must be granted user names and passwords to gain access to the KX II. This information is used to authenticate users attempting to access your KX II.

Up to 254 users can be created for each user group.

If you are using a tiered configuration in which a base KX II device is used to access multiple other tiered devices, users will need permission to access the base device and permissions to access each individual tiered device (as needed).

When users log on to the base device, each tiered device is queried and the user can access each target server they have permissions to. See **Configuring and Enabling Tiering** (on page 147) for more information on tiering.

Adding a New User

It is a good idea to define user groups before creating KX II users because, when you add a user, you must assign that user to an existing user group. See **Adding a New User Group** (on page 117).

From the User page, you can add new users, modify user information, and reactivate users that have been deactivated.

*Note: A user name can be deactivated when the number of failed login attempts has exceeded the maximum login attempts set in the Security Settings page. See **Security Settings** (on page 221).*

► To add a new user:

1. Select User Management > Add New User or click Add on the User List page.
2. Type a unique name in the Username field, up to 16 characters.
3. Type the person's full name in the Full Name field, up to 64 characters.
4. Type a password in the Password field and retype the password in the Confirm Password field, up to 64 characters.
5. Choose the group from the User Group drop-down list.

If you do not want to associate this user with an existing User Group, select Individual Group from the drop-down list. For more information about permissions for an Individual Group, see **Setting Permissions for an Individual Group** (on page 122).

- To activate the new user, leave the Active checkbox selected. Click OK.

View the KX II Users List

The User List page displays a list of all users including their user name, full name, and user group. The list can be sorted on any of the columns by clicking on the column name. From the User List page, you can add, modify, or delete users.

KX II users with User Management privileges can disconnect users from ports or log them off (force log off) as needed. See **Disconnecting Users from Ports** (on page 127) and **Logging Users Off the KX II (Force Logoff)** (on page 127) respectively.

To view the target ports each user is connected to, see **View Users by Port** (on page 126).

► **To view the list of users:**

- Choose User Management > User List. The User List page opens.



View Users by Port

The User By Ports page lists all authenticated local and remote users and ports they are being connected to. Only permanent connections to ports are listed. Ports being accessed when scanning for ports are not listed.

If the same user is logged on from more than one client, their username appears on the page for each connection they have made. For example, if a user has logged on from two (2) different clients, their name is listed twice.

This page contains the following user and port information:

- Port Number - port number assigned to the port the user is connected to
- Port Name - port name assigned to the port the user is connected to

Note: If user is not connected to a target, 'Local Console' or 'Remote Console' is displayed under the Port Name.

- Username - username for user logins and target connections
 - Access From - IP address of client PC accessing the KX II
 - Status - current Active or Inactive status of the connection
- ▶ **To view users by port:**
- Choose User Management > User by Port. The Users by Port page opens.

Disconnecting Users from Ports

Disconnecting users disconnects them from the target port without logging them off of the KX II.

*Note: Logging users off disconnects the user from the target port and logs them off of the KX II. See **Logging Users Off the KX II (Force Logoff)** (on page 127) for information on forcibly logging users off.*

- ▶ **To disconnect users from port:**
1. Choose User Management > Users by Port. The Users by Port page opens.
 2. Select the checkbox next to the username of the person you want to disconnect from the target.
 3. Click Disconnect User from Port.
 4. Click OK on the confirmation message to disconnect the user.
 5. A confirmation message is displayed to indicate that the user was disconnected.

Logging Users Off the KX II (Force Logoff)

If you are an administrator, you are able to log off any authenticated user who is logged on to the KX II. Users can also be disconnected at the port level. See **Disconnecting Users from Ports** (on page 127).

- ▶ **To log a user off the KX II:**
1. Choose User Management > Users by Port. The Users by Port page opens.
 2. Select the checkbox next to the username of the person you want to disconnect from the target.
 3. Click Force User Logoff.
 4. Click OK on the Logoff User confirmation message.

Modifying an Existing User

► **To modify an existing user:**

1. Open the User List page by choosing User Management > User List.
2. Locate the user from among those listed on the User List page.
3. Click the user name. The User page opens.
4. On the User page, change the appropriate fields. See **Adding a New User** (on page 125) for information about how to get access the User page.
5. To delete a user, click Delete. You are prompted to confirm the deletion.
6. Click OK.

Authentication Settings

Authentication is the process of verifying that a user is who he says he is. Once a user is authenticated, the user's group is used to determine his system and port permissions. The user's assigned privileges determine what type of access is allowed. This is called authorization.

When the KX II is configured for remote authentication, the external authentication server is used primarily for the purposes of authentication, not authorization.

If you are using a tiered configuration in which a base KX II device is used to access multiple other tiered devices, the base device and the tiered devices must use the same authentication settings.

From the Authentication Settings page you can configure the type of authentication used for access to your KX II.

Note: When remote authentication (LDAP/LDAPS or RADIUS) is selected, if the user is not found, the local authentication database will also be checked.

► **To configure authentication:**

1. Choose User Management > Authentication Settings. The Authentication Settings page opens.
2. Choose the option for the authentication protocol you want to use (Local Authentication, LDAP/LDAPS, or RADIUS). Choosing the LDAP option enables the remaining LDAP fields; selecting the RADIUS option enables the remaining RADIUS fields.
3. If you choose Local Authentication, proceed to step 6.

4. If you choose LDAP/LDAPS, read the section entitled Implementing LDAP Remote Authentication for information about completing the fields in the LDAP section of the Authentication Settings page.
5. If you choose RADIUS, read the section entitled Implementing RADIUS Remote Authentication for information about completing the fields in the RADIUS section of the Authentication Settings page.
6. Click OK to save.

► **To return to factory defaults:**

- Click Reset to Defaults.

Implementing LDAP/LDAPS Remote Authentication

Lightweight Directory Access Protocol (LDAP/LDAPS) is a networking protocol for querying and modifying directory services running over TCP/IP. A client starts an LDAP session by connecting to an LDAP/LDAPS server (the default TCP port is 389). The client then sends operation requests to the server, and the server sends responses in turn.

Reminder: Microsoft Active Directory functions natively as an LDAP/LDAPS authentication server.

► **To use the LDAP authentication protocol:**

1. Click User Management > Authentication Settings to open the Authentication Settings page.
2. Select the LDAP radio button to enable the LDAP section of the page.
3. Click the  icon to expand the LDAP section of the page.

Server Configuration

4. In the Primary LDAP Server field, type the IP address or DNS name of your LDAP/LDAPS remote authentication server (up to 256 characters). When the Enable Secure LDAP option is selected and the Enable LDAPS Server Certificate Validation option is selected, the DNS name must be used to match the CN of LDAP server certificate.
5. In the Secondary LDAP Server field, type the IP address or DNS name of your backup LDAP/LDAPS server (up to 256 characters). When the Enable Secure LDAP option is selected, the DNS name must be used. Note that the remaining fields share the same settings with the Primary LDAP Server field. **Optional**
6. Type of External LDAP Server.
7. Select the external LDAP/LDAPS server. Choose from among the options available:
 - Generic LDAP Server.

- Microsoft Active Directory. Active Directory is an implementation of LDAP/LDAPS directory services by Microsoft for use in Windows environments.
8. Type the name of the Active Directory Domain if you selected Microsoft Active Directory. For example, *acme.com*. Consult your Active Directory Administrator for a specific domain name.
 9. In the User Search DN field, enter the Distinguished Name of where in the LDAP database you want to begin searching for user information. Up to 64 characters can be used. An example base search value might be: *cn=Users,dc=raritan,dc=com*. Consult your authentication server administrator for the appropriate values to enter into these fields.
 10. Enter the Distinguished Name of the Administrative User in the DN of Administrative User field (up to 64 characters). Complete this field if your LDAP server only allows administrators to search user information using the Administrative User role. Consult your authentication server administrator for the appropriate values to type into this field. An example DN of Administrative User value might be: *cn=Administrator,cn=Users,dc=testradius,dc=com*.

Optional

11. If you entered a Distinguished Name for the Administrative User, you must enter the password that will be used to authenticate the Administrative User's DN against the remote authentication server. Enter the password in the Secret Phrase field and again in the Confirm Secret Phrase field (up to 128 characters).

Authentication Settings

Local Authentication
 LDAP
 RADIUS

LDAP

Server Configuration

Primary LDAP Server

Secondary LDAP Server (optional)

Type of External LDAP Server

Active Directory Domain

User Search DN

DN of Administrative User (optional)

Secret Phrase of Administrative User

Confirm Secret Phrase

LDAP/LDAP Secure

12. Select the Enable Secure LDAP checkbox if you would like to use SSL. This will enable the Enable LDAPS Server Certificate Validation checkbox. Secure Sockets Layer (SSL) is a cryptographic protocol that allows KX II to communicate securely with the LDAP/LDAPS server.
13. The default Port is 389. Either use the standard LDAP TCP port or specify another port.
14. The default Secure LDAP Port is 636. Either use the default port or specify another port. This field is only used when the Enable Secure LDAP checkbox is selected.

15. Select the Enable LDAPS Server Certificate Validation checkbox to use the previously uploaded root CA certificate file to validate the certificate provided by the server. If you do not want to use the previously uploaded root CA certificate file, leave this checkbox deselected. Disabling this function is the equivalent of accepting a certificate that has been signed by an unknown certifying authority. This checkbox is only available when the Enable Secure LDAP checkbox has been enabled.

Note: When the Enable LDAPS Server Certificate Validation option is selected, in addition to using the Root CA certificate for validation, the server hostname must match the common name provided in the server certificate.

16. If needed, upload the Root CA Certificate File. This field is enabled when the Enable Secure LDAP option is selected. Consult your authentication server administrator to get the CA certificate file in Base64 encoded X-509 format for the LDAP/LDAPS server. Use Browse to navigate to the certificate file. If you are replacing a certificate for the LDAP/LDAPS server with a new certificate, you must reboot the KX II in order for the new certificate to take effect.



LDAP / Secure LDAP

Enable Secure LDAP

Port

Secure LDAP Port

Enable LDAPS Server Certificate Validation

Root CA Certificate File

Note: Reboot device after certificate file is uploaded.

Test LDAP Server Access

17. The KX II provides you with the ability to test the LDAP configuration from the Authentication Settings page due to the complexity sometimes encountered with successfully configuring the LDAP server and KX II for remote authentication. To test the LDAP configuration, enter the login name and password in the "Login for testing" field and the "Password for testing" field respectively. This is the username and password you entered to access the KX II and that the LDAP server will use to authenticate you. Click Test.

Once the test is completed, a message will be displayed that lets you know the test was successful or, if the test failed, a detailed error message will be displayed. It will display successful result or detail error message in failure case. It also can display group information retrieved from remote LDAP server for the test user in case of success.

The image shows a dialog box titled "Test LDAP Server Access". Inside the dialog, there are two text input fields. The first is labeled "Login for testing" and the second is labeled "Password for testing". Below these fields is a button labeled "Test".

Returning User Group Information from Active Directory Server

The KX II supports user authentication to Active Directory® (AD) without requiring that users be defined locally on the KX II. This allows Active Directory user accounts and passwords to be maintained exclusively on the AD server. Authorization and AD user privileges are controlled and administered through the standard KX II policies and user group privileges that are applied locally to AD user groups.

IMPORTANT: If you are an existing Raritan, Inc. customer, and have already configured the Active Directory server by changing the AD schema, the KX II still supports this configuration and you do not need to perform the following operations. See *Updating the LDAP Schema* (on page 330) for information about updating the AD LDAP/LDAPS schema.

► **To enable your AD server on the KX II:**

1. Using the KX II, create special groups and assign proper permissions and privileges to these groups. For example, create groups such as KVM_Admin and KVM_Operator.
2. On your Active Directory server, create new groups with the same group names as in the previous step.
3. On your AD server, assign the KX II users to the groups created in step 2.
4. From the KX II, enable and configure your AD server properly. See *Implementing LDAP/LDAPS Remote Authentication* (on page 129).

Important Notes

- Group Name is case sensitive.
- The KX II provides the following default groups that cannot be changed or deleted: Admin and <Unknown>. Verify that your Active Directory server does not use the same group names.
- If the group information returned from the Active Directory server does not match the KX II group configuration, the KX II automatically assigns the group of <Unknown> to users who authenticate successfully.
- If you use a dialback number, you must enter the following case-sensitive string: *msRADIUSCallbackNumber*.
- Based on recommendations from Microsoft, Global Groups with user accounts should be used, not Domain Local Groups.

Implementing RADIUS Remote Authentication

Remote Authentication Dial-in User Service (RADIUS) is an AAA (authentication, authorization, and accounting) protocol for network access applications.

► To use the RADIUS authentication protocol:

1. Click User Management > Authentication Settings to open the Authentication Settings page.
2. Click the RADIUS radio button to enable the RADIUS section of the page.
3. Click the  icon to expand the RADIUS section of the page.
4. In the Primary Radius Server and Secondary Radius Server fields, type the IP address of your primary and optional secondary remote authentication servers, respectively (up to 256 characters).
5. In the Shared Secret fields, type the server secret used for authentication (up to 128 characters).

The shared secret is a character string that must be known by both the KX II and the RADIUS server to allow them to communicate securely. It is essentially a password.
6. The Authentication Port default is port is 1812 but can be changed as required.
7. The Accounting Port default port is 1813 but can be changed as required.
8. The Timeout is recorded in seconds and default timeout is 1 second, but can be changed as required.

The timeout is the length of time the KX II waits for a response from the RADIUS server before sending another authentication request.

9. The default number of retries is 3 Retries.

This is the number of times the KX II will send an authentication request to the RADIUS server.

10. Choose the Global Authentication Type from among the options in the drop-down list:
- PAP - With PAP, passwords are sent as plain text. PAP is not interactive. The user name and password are sent as one data package once a connection is established, rather than the server sending a login prompt and waiting for a response.
 - CHAP - With CHAP, authentication can be requested by the server at any time. CHAP provides more security than PAP.

Home > User Management > Authentication Settings

Authentication Settings

Local Authentication
 LDAP
 RADIUS

▶ LDAP

▼ RADIUS

Primary RADIUS Server

Shared Secret

Authentication Port

Accounting Port

Timeout (in seconds)

Retries

Secondary RADIUS Server

Shared Secret

Authentication Port

Accounting Port

Timeout (in seconds)

Retries

Global Authentication Type
 ▼

Cisco ACS 5.x for RADIUS Authentication

If you are using a Cisco ACS 5.x server, after you have configured the KX II for RADIUS authentication, complete the following steps on the Cisco ACS 5.x server.

Note: The following steps include the Cisco menus and menu items used to access each page. Please refer to your Cisco documentation for the most up to date information on each step and more details on performing them.

- Add the KX II as a AAA Client (**Required**) - Network Resources > Network Device Group > Network Device and AAA Clients
- Add/edit users (**Required**) - Network Resources > Users and Identity Stores > Internal Identity Stores > Users
- Configure Default Network access to enable CHAP Protocol (**Optional**) - Policies > Access Services > Default Network Access
- Create authorization policy rules to control access (**Required**) - Policy Elements > Authorization and Permissions > Network Access > Authorization Profiles
 - Dictionary Type: RADIUS-IETF
 - RADIUS Attribute: Filter-ID
 - Attribute Type: String
 - Attribute Value: Raritan:G{KVM_Admin} (where KVM_Admin is group name created locally on Dominion KVM Switch). Case sensitive.
- Configure Session Conditions (Date and Time) (**Required**) - Policy Elements > Session Conditions > Date and Time
- Configure/create the Network Access Authorization Policy (**Required**) - Access Policies > Access Services > Default Network Access>Authorization

Returning User Group Information via RADIUS

When a RADIUS authentication attempt succeeds, the KX II determines the permissions for a given user based on the permissions of the user's group.

Your remote RADIUS server can provide these user group names by returning an attribute, implemented as a RADIUS FILTER-ID. The FILTER-ID should be formatted as follows: Raritan:G{*GROUP_NAME*} where *GROUP_NAME* is a string denoting the name of the group to which the user belongs.

```
Raritan:G{GROUP_NAME}:D{Dial Back Number}
```

where *GROUP_NAME* is a string denoting the name of the group to which the user belongs and Dial Back Number is the number associated with the user account that the KX II modem will use to dial back to the user account.

RADIUS Communication Exchange Specifications

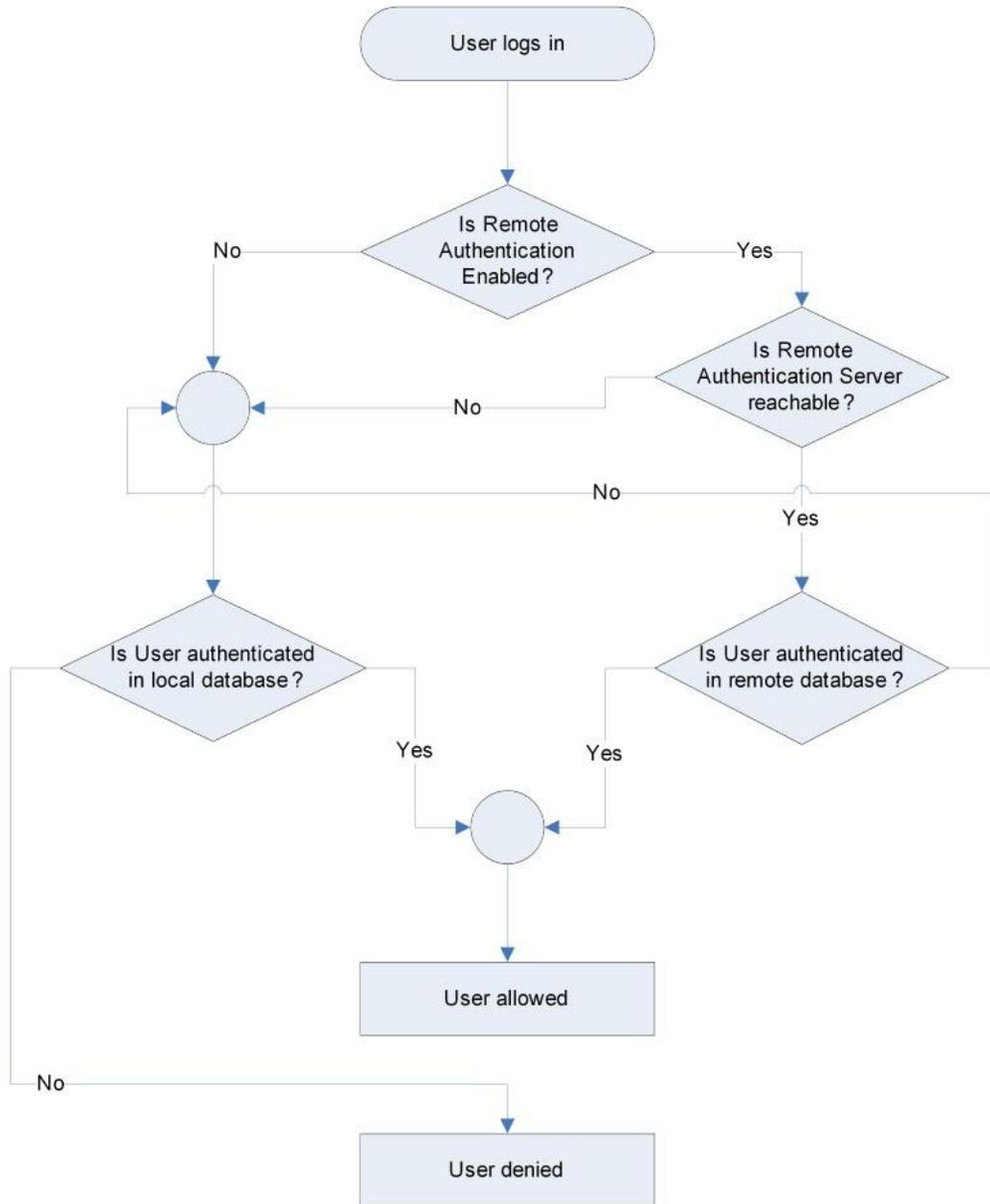
The KX II sends the following RADIUS attributes to your RADIUS server:

Attribute	Data
Log in	
Access-Request (1)	
NAS-Port-Type (61)	VIRTUAL (5) for network connections.
NAS-IP-Address (4)	The IP address for the KX II.
User-Name (1)	The user name entered at the login screen.
Acct-Session-ID (44)	Session ID for accounting.
User-Password(2)	The encrypted password.
Accounting-Request(4)	
Acct-Status (40)	Start(1) - Starts the accounting.
NAS-Port-Type (61)	VIRTUAL (5) for network connections.
NAS-Port (5)	Always 0.
NAS-IP-Address (4)	The IP address for the KX II.
User-Name (1)	The user name entered at the login screen.
Acct-Session-ID (44)	Session ID for accounting.
Log out	
Accounting-Request(4)	

Attribute	Data
Acct-Status (40)	Stop(2) - Stops the accounting
NAS-Port-Type (61)	VIRTUAL (5) for network connections.
NAS-Port (5)	Always 0.
NAS-IP-Address (4)	The IP address for the KX II.
User-Name (1)	The user name entered at the login screen.
Acct-Session-ID (44)	Session ID for accounting.

User Authentication Process

Remote authentication follows the process specified in the flowchart below:



Changing a Password

► **To change your KX II password:**

1. Choose User Management > Change Password. The Change Password page opens.
2. Type your current password in the Old Password field.
3. Type a new password in the New Password field. Retype the new password in the Confirm New Password field. Passwords can be up to 64 characters in length and can consist of English alphanumeric characters and special characters.
4. Click OK.
5. You will receive confirmation that the password was successfully changed. Click OK.

*Note: If strong passwords are in use, this page displays information about the format required for the passwords. For more information about passwords and strong passwords, see **Strong Passwords** (on page 224) in online help.*

Home > User Management > Change Password

Change Password

Old Password

New Password

Confirm New Password

Chapter 8 Device Management

In This Chapter

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Network Settings

Use the Network Settings page to customize the network configuration (for example, the IP address, discovery port, and LAN interface parameters) for your KX II.

There are two options available to set up your IP configuration:

- None (default) - This is the recommended option (static IP). Since the KX II is part of your network infrastructure, you most likely do not want its IP address to change frequently. This option allows you to set the network parameters.
- DHCP - With this option, the IP address is automatically assigned by a DHCP server.

► **To change the network configuration:**

1. Choose Device Settings > Network. The Network Settings page opens.
2. Update the Network Basic Settings. See Network Basic Settings.
3. Update the LAN Interface Settings. See **LAN Interface Settings** (on page 144).
4. Click OK to set these configurations. If your changes require rebooting the device, a reboot message appears.

► **To reset to factory defaults:**

- Click Reset to Defaults.

Network Basic Settings

These procedures describe how to assign an IP address on the Network Settings page. For complete information about all of the fields and the operation of this page, see **Network Settings** (on page 141).

Assign the KX II an IP Address

► **To assign an IP address to the KX II:**

1. Choose Device Settings > Network. The Network Settings page opens.
2. Specify a meaningful Device Name for your KX II device.
Up to 32 alphanumeric and valid special characters, no spaces between characters.
3. Next, configure the IPv4, IPv6 and DNS settings.

Configure the IPv4 Settings

1. In the IPv4 section, enter or select the appropriate IPv4-specific network settings:
 - a. Enter the IP Address if needed. The default IP address is 192.168.0.192.
 - b. Enter the Subnet Mask. The default subnet mask is 255.255.255.0.
 - c. Enter the Default Gateway if None is selected from the IP Auto Configuration drop-down.
 - d. Enter the Preferred DHCP Host Name if DHCP is selected from the IP Auto Configuration drop-down.
 - e. Select the IP Auto Configuration. The following options are available:
 - None (Static IP) - This option requires you manually specify the network parameters.

This is the recommended option because the KX II is an infrastructure device, and its IP address should not change.

Select this option if you want to ensure redundant failover capabilities should the primary Ethernet port (or the switch/router to which it is connected) fail. If it fails, KX III fails over to the secondary network port with the same IP address, ensuring there is not interruption.
 - DHCP - Dynamic Host Configuration Protocol is used by networked computers (clients) to obtain unique IP addresses and other parameters from a DHCP server.

With this option, network parameters are assigned by the DHCP server.

If DHCP is used, enter the Preferred host name (DHCP only). Up to 63 characters.
2. Next, configure IPv6 and/or DNS settings.

Configure the IPv6 Settings

1. If using IPv6, enter or select the appropriate IPv6-specific network settings in the IPv6 section:
 - a. Select the IPv6 checkbox to activate the fields in the section and enable IPv6 on the device.
 - b. Enter a Global/Unique IP Address. This is the IP address assigned to the KX II.
 - c. Enter the Prefix Length. This is the number of bits used in the IPv6 address.
 - d. Enter the Gateway IP Address.
 - e. Link-Local IP Address. This address is automatically assigned to the device, and is used for neighbor discovery or when no routers are present. **Read-Only**
 - f. Zone ID. Identifies the device the address is associated with. **Read-Only**
 - g. Select an IP Auto Configuration option:
 - None (Static IP) - this option requires you manually specify the network parameters.
 This is the recommended option because the KX II is an infrastructure device, and its IP address should not change.
 Select this option if you want to ensure redundant failover capabilities should the primary Ethernet port (or the switch/router to which it is connected) fail. If it fails, KX III switches to the secondary network port with the same IP address, ensuring there is no interruption.
 If None is selected, the following Network Basic Settings fields are enabled: Global/Unique IP Address, Prefix Length, and Gateway IP Address allowing you to manually set the IP configuration.
 - Router Discovery - use this option to automatically assign IPv6 addresses that have Global or Unique Local significance beyond that of the Link Local, which only applies to a directly connected subnet.
2. Next, configure DNS settings.

Configure the DNS Settings

1. Select Obtain DNS Server Address Automatically if DHCP is selected and Obtain DNS Server Address is enabled. When Obtain DNS Server Address Automatically, the DNS information provided by the DHCP server will be used.

2. If Use the Following DNS Server Addresses is selected, whether or not DHCP is selected, the addresses entered in this section is used to connect to the DNS server.

Enter the following information if the Following DNS Server Addresses is selected. These addresses are the primary and secondary DNS addresses used if the primary DNS server connection is lost due to an outage.

- a. Primary DNS Server IP Address
 - b. Secondary DNS Server IP Address
3. When finished, click OK.

Your KX II device is now network accessible.

LAN Interface Settings

The current parameter settings are identified in the Current LAN interface parameters field.

1. Choose Device Settings > Network. The Network Settings page opens.
2. Choose the LAN Interface Speed & Duplex from the following options:
 - Autodetect (default option)
 - 10 Mbps/Half - Both LEDs blink
 - 10 Mbps/Full - Both LEDs blink
 - 100 Mbps/Half - Yellow LED blinks
 - 100 Mbps/Full - Yellow LED blinks
 - 1000 Mbps/Full (gigabit) - Green LED blinks
 - Half-duplex provides for communication in both directions, but only one direction at a time (not simultaneously).
 - Full-duplex allows communication in both directions simultaneously.

Note: Occasionally there are problems running at 10 Mbps in either half or full duplex. If you are experiencing problems, try another speed and duplex setting.

See **Network Speed Settings** (on page 300) for more information.

3. Select the Enable Automatic Failover checkbox to allow the KX II to automatically recover its network connection using a second network port if the active network port fails.

Note: Because a failover port is not activated until after a failover has actually occurred, Raritan recommends that you not monitor the port or monitor it only after a failover occurs.

When this option is enabled, the following two fields are used:

- Ping Interval (seconds) - Ping interval determines how often the KX II checks the status of the network path to the designated gateway. The default ping interval is 30 seconds.
- Timeout (seconds) - Timeout determines how long a designated gateway remains unreachable via the network connection before a fail over occurs.

Note: The ping interval and timeout can be configured to best meet the local network conditions. The timeout should be set to allow for at least two or more ping requests to be transmitted and responses returned. For example, if a high rate of failover is observed due to high network utilization, the timeout should be extended to 3 or 4 times the ping interval.

4. Select the Bandwidth.
5. Click OK to apply the LAN settings.

Device Services

The Device Services page allows you to configure the following functions:

- Enable SSH access
- Configure HTTP and HTTPS port settings
- Enable tiering for the base KX II
- Enter the discovery port
- Enable direct port access
- Enable the AKC Download Server Certificate Validation feature if you are using AKC

Enabling SSH

Enable SSH access to allow administrators to access the KX II via the SSH v2 application.

► **To enable SSH access:**

1. Choose Device Settings > Device Services. The Device Service Settings page opens.
2. Select Enable SSH Access.

3. Enter the SSH Port information. The standard SSH TCP port number is 22 but the port number can be changed to provide a higher level of security operations.
4. Click OK.

HTTP and HTTPS Port Settings

You are able to configure HTTP and/or HTTPS ports used by the KX II. For example, if you are using the default HTTP port 80 for another purpose, changing the port will ensure the device does not attempt to use it.

► **To change the HTTP and/or HTTPS port settings:**

1. Choose Device Settings > Device Services. The Device Service Settings page opens.
2. Enter the new ports in the HTTP Port and/or HTTPS Port fields.
3. Click OK.

Entering the Discovery Port

The KX II discovery occurs over a single, configurable TCP Port. The default is Port 5000, but you can configure it to use any TCP port except 80 and 443. To access the KX II from beyond a firewall, your firewall settings must enable two-way communication through the default Port 5000 or a non-default port configured here.

► **To enable the discovery port:**

1. Choose Device Settings > Device Services. The Device Service Settings page opens.
2. Enter the Discovery Port.
3. Click OK.

Configuring and Enabling Tiering

The tiering feature allows you to access KX II targets and PDUs through one base KX II device. This feature is available for standard KX II devices as well as KX2-808, KX2-832 and KX2-864 devices.

Note: Base and tiered devices must all be operating with the same firmware revision.

Note: Dual Video port targets attached to a tier device should only be connected via the tier device, not through the tier base device. See [Creating Dual Port Video Groups](#).

Devices can be added and removed from a tiering configuration as needed up to a maximum of two tiered levels.

When setting up the devices, you will use specific CIMS for specific configurations.

See ***Tiering - Target Types, Supported CIMS and Tiering Configurations*** (on page 149) for a description of the targets that can be included in a tiered configuration, CIM compatibility and device configuration information.

Before adding tiered devices, you must enable tiering for the base device, and the tiered devices.

Enable base devices on the Device Settings page. Enable tiered devices on the Local Port Settings page.

Once devices are enabled and configured, they appear on the Port Access page.

When the KX II is configured to function as a base device or tiered device, they will be displayed as:

- 'Configured As Base Device' in the Device Information section of the left panel of the KX II interface for base devices.
- 'Configured As Tier Device' in the Device Information section of the left panel of the KX II interface for tiered devices.
- The base device will be identified as 'Base' in the left panel of the tiered device's interface under Connect User.
- Target connections to a tier port from the base will be displayed as 2 ports connected.

The base device provides remote and local access over a consolidated port list from the Port Access page.

Tiered devices provide remote access from their own port lists.

Local access is not available on the tiered devices when Tiering is enabled.

Port configuration, including changing the CIM name, must be done directly from each device. It cannot be done from the base device for tiered target ports.

Tiering also supports the use of KVM switches to switch between servers. See **Configuring KVM Switches** (on page 174).

Enabling Tiering

A	
B	
C	
D	
1	▪ ▪
2	▪ ▪

► **To enable tiering:**

1. From the base KX II tier device, select Device Settings > Device Services to open the Device Service Settings page.
2. Select Enable Tiering as Base.
3. In the Base Secret field, enter the secret shared between the base and the tiered devices. This secret is required for the tiered devices to authenticate the base device. Enter the same secret word for the tiered device. Click OK.
4. Enable the tiered devices. From the tiered device, choose Device Settings > Local Port Settings.
5. In the Enable Local Ports section of the page, select Enable Local Port Device Tiering.

6. In the Tier Secret field, enter the same secret word you entered for the base device on the Device Settings page. Click OK.

Tiering - Target Types, Supported CIMS and Tiering Configurations

Blade Chassis

Blade chassis that attached directly to the base are accessible.

Power Control

You can power on and off targets that are a part of the tiered configuration. These targets are accessed from the Port Access page.

KX II PDU outlets can be accessed and controlled via a tiered configuration with either the KX II or KX2-808, KX2-832 and KX2-864 models. If targets and outlets are associated, power control is available from the Port Access page.

Targets and PDU outlet associations are limited to those attached to the same KX II.

PDUs attached to the base or tiered KX IIs are displayed on the Power page drop-down along with the statistics for the selected powerstrip.

Outlet level control is available as well.

Specifically, you can power off outlets that are currently on but you cannot power cycle outlets that are currently off.

KX II to KX II or KX2-8xx Local Port Configuration - Compatible CIMS

The following CIMS are compatible when you are configuring a base KX II to access and control either additional KX II, or KX2-808, KX2-832 and KX2-864 models, as well as KX II PDUs and blade chassis.

If you are using a KX II to KX II configuration, the D2CIM-DVUSB must be used. If you are using a KX II to KX2-8xx configuration, only the extended local port can be used.

If you are using a configuration that consists of a KX II and KX2-808, KX2-832 or KX2-864, each device must be using the same firmware version. Where blade chassis are a part of a configuration, each blade chassis counts as one target port.

Unsupported and Limited Features on Tiered Targets

The following features are not supported on tiered targets:

- Blade chassis on tiered devices
- Audio on tiered devices
- Smart cards on tiered devices
- Virtual media tiered devices
- MCCAT as a tiered device
- Port group management is limited to creating port groups of members directly attached to the base

Cabling Example in Tiered Configurations

The following diagram illustrates the cabling configurations between a KX II tiered device and a KX II base device.

A	
B	
C	
D	
1	▪ ▪
2	▪ ▪

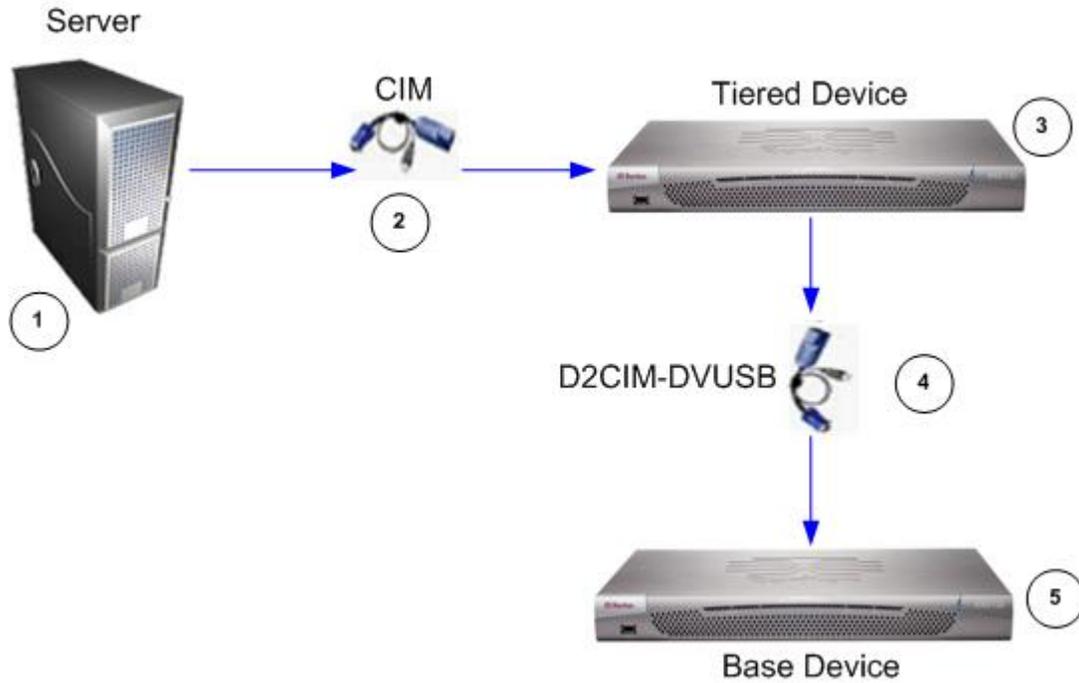


Diagram key	
1	Target server
2	CIM from target server to the KX II tiered device
3	KX II tiered device
4	D2CIM-DVUSB CIM from the KX II tiered device to the KX II base device
5	KX II base device

Enabling Direct Port Access via URL

Direct port access allows users to bypass having to use the device's Login dialog and Port Access page.

This feature also provides the ability to enter a username and password directly to proceed to the target, if the username and password is not contained in the URL.

Direct Port Access URL Syntax for the Virtual KVM Client (VKC)

If you are using the Virtual KVM Client (VKC) and direct port access, use one of the following syntaxes for standard ports:

- `https://IPaddress/dpa.asp?username=username&password=password&port=port number`

Or

- `https://IPaddress/dpa.asp?username=username&password=password&portname=port name`

For blade chassis, the port must be designated by both the port number or name, and slot number.

- `https://IPaddress/dpa.asp?username=username&password=password&port=port number-slot number`

For example, port number-slot number is 1-2 where the blade chassis is connected to port 1, slot 2

- `https://IPaddress/dpa.asp?username=username&password=password&port=port name-slot number`

For example, port name-slot number is Port1-2 where the blade chassis is connected to port 1, slot 2

Username and password are optional.

If username and password are not provided, a login dialog will be displayed and, after being authenticated, the user will be directly connected to the target.

The port may be a port number or port name.

If you are using a port name, the name must be unique or an error is reported.

If the port is omitted altogether, an error is reported.

If you are accessing a target that is part of a dual port video group, direct port access uses the primary port to launch both the primary and secondary ports.

Direct port connections to the secondary port are denied, and usual permission rules apply.

For information on the dual port video group feature, see **Creating a Dual Video Port Group** (on page 218) .

Direct Port Access URL Syntax for the Active KVM Client (AKC)

If you are using the Active KVM Client (AKC) and direct port access, use:

- `https://IPaddress/dpa.asp?username=username&password=password&port=port number&client=akc`

Or

- `https://IPaddress/dpa.asp?username=username&password=password&port=port name&client=akc`

For blade chassis, the port must be designated by both the port number or name, and slot number.

- `https://IPaddress/dpa.asp?username=username&password=password&port=port number-slot number=akc`

For example, port number-slot number is 1-2 where the blade chassis is connected to port 1, slot 2

- `https://IPaddress/dpa.asp?username=username&password=password&port=port name-slot number=akc`

For example, port name-slot number is Port1-2 where the blade chassis is connected to port 1, slot 2

Username and password are optional.

If username and password are not provided, a login dialog will be displayed and, after being authenticated, the user will be directly connected to the target.

The port may be a port number or port name.

If you are using a port name, the name must be unique or an error is reported.

If the port is omitted altogether, an error is reported.

Client=akc is optional unless you are using the AKC client.

If client=akc is not included, the Virtual KVM Client (VKC) is used as the client.

If you are accessing a target that is part of a dual port video group, direct port access uses the primary port to launch both the primary and secondary ports.

Direct port connections to the secondary port are denied, and usual permission rules apply.

For information on the dual port video group feature, see **Creating a Dual Video Port Group** (on page 218) .

Enable Direct Port Access

▶ **To enable direct port access:**

1. Choose Device Settings > Device Services. The Device Service Settings page opens.
2. Select Enable Direct Port Access via URL if you would like users to have direct access to a target via the Dominion device by passing in the necessary parameters in the URL.
3. Click OK.

Enabling the AKC Download Server Certificate Validation

If you are using the AKC client, you can choose to use the Enable AKC Download Server Certificate Validation feature or opt not to use this feature.

Note: When operating in IPv4 and IPv6 dual stack mode with 'Enable AKC Download Server Certificate Validation' feature, Microsoft® ClickOnce® requires that the server certificate CN should not contain a zero compressed form of IPv6 address.

If it does you will not be able to successfully download and launch AKC.

However, this may conflict with browser preferences for the form of the IPv6 address.

Use the server hostname in the common name (CN) or include compressed and uncompressed forms of the IPv6 address in the certificate's Subject Alternative Name.

Option 1: Do Not Enable AKC Download Server Certificate Validation (default setting)

If you do not enable AKC Download Server Certificate Validation, all Dominion device users and CC-SG Bookmark and Access Client users must:

- Ensure the cookies from the IP address of the device that is being accessed are not currently being blocked.
- Windows Vista, Windows 7 and Windows 2008 server users should ensure that the IP address of the device being accessed is included in their browser's Trusted Sites Zone and that Protected Mode is not on when accessing the device.

Option 2: Enable AKC Download Server Certificate Validation

If you do enable AKC Download Server Certificate Validation:

- Administrators must upload a valid certificate to the device or generate a self-signed certificate on the device. The certificate must have a valid host designation.
- Each user must add the CA certificate (or a copy of self-signed certificate) to the Trusted Root CA store in their browser.
- When using CC-SG neighborhoods, you must enable AKC on each neighborhood member.

► **To install the self-signed certificate when using Windows Vista® operating system and Windows 7® operating system:**

1. Include the KX II IP address in the Trusted Site zone and ensure 'Protected Mode' is off.

2. Launch Internet Explorer® using the KX II IP address as the URL. A Certificate Error message will be displayed.
3. Select View Certificates.
4. On the General tab, click Install Certificate. The certificate is then installed in the Trusted Root Certification Authorities store.
5. After the certificate is installed, the KX II IP address should be removed from the Trusted Site zone.

► **To enable AKC download server certificate validation:**

1. Choose Device Settings > Device Services. The Device Service Settings page opens.
2. Select the Enable AKC Download Server Certificate Validation checkbox or you can leave the feature disabled (default).
3. Click OK.

If you are connecting to a KX II standalone device and support for AKC download server certificate validation is enabled, the valid IPv6 format to generate the certificate is either:

- CN =[fd07:02fa:6cff:2500:020d:5dff:fe00:01c0] when there is a leading 0
- or
- CN =[fd07:02fa:6cff:2500:020d:5dff:0000:01c0] when there is no zero compression

Configuring SNMP Agents

SNMP-compliant devices, called agents, store data about themselves in Management Information Bases (MIBs) and return this data to the SNMP managers. See **Viewing the KX II MIB** (on page 167) for information on viewing the KX II MIB.

KX II supports SNMP logging for SNMP v1/v2c and/or v3. SNMP v1/v2c defines message formats and protocol operations when SNMP logging is enabled. SNMP v3 is a security extension of SNMP that provides user authentication, password management and encryption.

► **To configure SNMP agents:**

1. Choose Device Settings > Device Services. The Device Service Settings page opens.
2. Provide the following SNMP agent identifier information for the MIB-II System Group objects:
 - a. System Name - the SNMP agent's name/device name
 - b. System Contact - the contact name related to the device
 - c. System Location - the location of the device

3. Select either or both Enable SNMP v1/v2c and Enable SNMP v3. At least one option must be selected. **Required**
4. Complete the following fields for SNMP v1/v2c (if needed):
 - a. Community - the device's community string
 - b. Community Type - grant either Read-Only or Read-Write access to the community users

Note: An SNMP community is the group to which devices and management stations running SNMP belong. It helps define where information is sent. The community name is used to identify the group. The SNMP device or agent may belong to more than one SNMP community.

5. Complete the following fields for SNMP v3 (if needed):
 - a. Select Use Auth Passphrase if one is needed. If the Privacy Passphrase is required, the 'Use Auth Passphrase' allows you to have the same passphrase for both without having to re-enter the Auth Passphrase.
 - b. Security Name - the username or service account name of the entity communicating with the SNMP agent (up to 32 characters)
 - c. Authentication Protocol - the MD5 or SHA authentication protocol used by the SNMP v3 agent
 - d. Authentication Passphrase - the passphrase required to access the SNMP v3 agent (up to 64 characters)
 - e. Privacy Protocol - if applicable, the AES or DES algorithm used to encrypt PDU and context data
 - f. Privacy Passphrase - the passphrase used to access the privacy protocol algorithm (up to 64 characters)
6. Click OK to start the SNMP agent service.

Configure SNMP traps on the Event Management - Settings page, which can be quickly accessed by clicking the SNMP Trap Configuration link. See **Configuring SNMP Traps** (on page 162) for information on creating SNMP traps and **List of KX II SNMP Traps** (on page 165) for a list of available KX II SNMP traps.

The events that are captured once an SNMP trap is configured are selected on the Event Management - Destination page. See **Configuring Event Management - Destinations** (on page 169).

► **To reset to factory defaults:**

- Click Reset To Defaults. All items on the page are set back to their defaults.

WARNING: When using SNMP traps over UDP, it is possible for the KX II and the router that it is attached to fall out of synchronization when the KX II is rebooted, preventing the reboot completed SNMP trap from being logged.

Configuring Modem Settings

► **To configure modem settings:**

1. Click Device Settings > Modem Settings to open the Modem Settings page.
2. Select the Enable Modem checkbox. This will enable the Serial Line Speed and Modem Init String field.
3. The Serial Line Speed of the modem is set to 115200.
4. Enter the initial modem string in the Modem Init String field. If the modem string is left blank, the following string is sent to the modem by default: ATZ OK AT OK.

This information is used to configure modem settings. Because different modems have different ways of settings these values, this document does not specify how to set these values, rather the user should refer to the modem to create the appropriate modem-specific string.

- a. Modem Settings:
 - Enable RTS/CTS flow control
 - Send data to the computer on receipt of RTS
 - CTS should be configured to only drop if required by flow control.
 - DTR should be configured for Modem resets with DTR toggle.
 - DSR should be configured as always on.
 - DCD should be configured as enabled after a carrier signal is detected. (that is, DCD should only be enabled when modem connection is established with the remote side)
5. Enter the IPv4 modem server address in the Modem Server IPv4 Address field and the client modem address in the Modem Client IPv4 Address field.

Note: The modem client and server IP addresses must be on the same subnet and cannot overlap the device's LAN subnet.

6. Click OK to commit your changes or click Reset to Defaults to return the settings to their defaults.

Modem Settings

Enable Modem

Serial Line Speed
115200 bits/s

Modem Init String
ATQ0&D3&C1

Modem Server IPv4 Address
10.0.0.1

Modem Client IPv4 Address
10.0.0.2

OK Reset To Defaults Cancel

See **Certified Modems** (on page 307) for information on certified modems that work with the KX II.

For information on settings that will give you the best performance when connecting to the KX II via modem, see **Creating, Modifying and Deleting Profiles in MPC - Generation 2 Devices** in the **KVM and Serial Access Clients Guide**.

Note: Modem access directly to the KX II HTML interface is not supported. You must use standalone MPC to access the KX II via modem.

Note: To use a modem with the KX II, users must be members of the Admin group.

Configuring Date/Time Settings

Use the Date/Time Settings page to specify the date and time for the KX II. There are two ways to do this:

- Manually set the date and time.
- Synchronize the date and time with a Network Time Protocol (NTP) server.

► To set the date and time:

1. Choose Device Settings > Date/Time. The Date/Time Settings page opens.
2. Choose your time zone from the Time Zone drop-down list.
3. Adjust for daylight savings time by checking the "Adjust for daylight savings time" checkbox.
4. Choose the method to use to set the date and time:
 - User Specified Time - use this option to input the date and time manually. For the User Specified Time option, enter the date and time. For the time, use the hh:mm format (using a 24-hour clock).
 - Synchronize with NTP Server - use this option to synchronize the date and time with the Network Time Protocol (NTP) Server.
5. For the Synchronize with NTP Server option:
 - a. Enter the IP address of the Primary Time server.
 - b. Enter the IP address of the Secondary Time server. **Optional**

Note: If DHCP is selected for the Network Settings on the Network page, the NTP server IP address is automatically retrieved from the DHCP server by default. Manually enter the NTP server IP address by selecting the Override DHCP checkbox.

6. Click OK.

Event Management

The KX II Event Management feature allows you enable and disable the distribution of system events to SNMP Managers, the Syslog and the audit log. These events are categorized, and for each event you can determine whether you want the event sent to one or several destinations.

Configuring Event Management - Settings

Configure SNMP traps and the syslog configuration from the Event Management - Settings page. See **Configuring SNMP Traps** (on page 162).

Once configured, enable the SNMP traps on the Event Management - Destinations page. See **Configuring Event Management - Destinations** (on page 169).

Configuring SNMP Traps

Simple Network Management Protocol (SNMP) is a protocol governing network management and the monitoring of network devices and their functions.

SNMP traps are sent out over a network to gather information.

The traps are configured on the Event Management - Settings page. See **List of KX II SNMP Traps** (on page 165) for a list of KX II SNMP traps.

SNMP-compliant devices, called agents, store data about themselves in Management Information Bases (MIBs) and respond to the SNMP trap.

SNMP agents are configured on the Device Services page. See **Configuring SNMP Agents** (on page 157) for information on configuring SNMP agents and **Viewing the KX II MIB** (on page 167) for information on viewing the KX II MIB.

► To configure SNMP (enable SNMP logging):

1. Choose Device Settings > Event Management - Settings. The Event Management - Settings page opens.
2. Select the SNMP Logging Enabled checkbox to enable to remaining checkboxes in the section. **Required**
3. Select either or both SNMP v1/v2c Traps Enabled and SNMP Trap v3 Enabled. At least one option must be selected.

Once selected, all related fields are enabled. **Required**

4. Complete the following fields for SNMP v1/v2c (if needed):

- a. Destination IP/Hostname - the IP or hostname of the SNMP manager. Up to five (5) SNMP managers can be created

Note: IPv6 addresses cannot exceed 80 characters in length for the host name.

- b. Port Number - the port number used by the SNMP manager
- c. Community - the device's community string

Note: An SNMP community is the group to which devices and management stations running SNMP belong. It helps define where information is sent. The community name is used to identify the group. The SNMP device or agent may belong to more than one SNMP community.

5. If it is not already, select the SNMP Trap v3 Enabled checkbox to enable the following fields. Complete the following fields for SNMP v3 (if needed):

- a. Destination IP/Hostname - the IP or hostname of the SNMP manager. Up to five (5) SNMP managers can be created

Note: IPv6 addresses cannot exceed 80 characters in length for the host name.

- b. Port Number - the port number used by the SNMP manager
- c. Security Name - the username or service account name of the entity communicating with the SNMP agent (up to 32 characters)
- d. Authentication Protocol - the MD5 or SHA authentication protocol used by the SNMP v3 agent
- e. Authentication Passphrase - the passphrase required to access the SNMP v3 agent (up to 64 characters)
- f. Privacy Protocol - if applicable, the AES or DES algorithm used to encrypt PDU and context data
- g. Privacy Passphrase - the passphrase used to access the privacy protocol algorithm (up to 64 characters)

*Note: If you are accessing the Event Management - Settings page from the local console and are using a screen resolution lower than 1280x1024, the Privacy Passphrase column may not be displayed on the page. If this occurs, hide the KX II's left panel. See **Left Panel** (on page 35)*

6. Click OK to create the SNMP traps.

Use the Link to SNMP Agent Configuration link to quickly navigate to the Devices Services page from the Event Management - Settings page.

The events that are captured once an SNMP trap is configured are selected on the Event Management - Destination page. See **Configuring Event Management - Destinations** (on page 169).

KX II supports SNMP logging for SNMP v1/v2c and/or v3. SNMP v1/v2c defines message formats and protocol operations when SNMP logging is enabled. SNMP v3 is a security extension of SNMP that provides user authentication, password management and encryption.

► **To edit existing SNMP traps:**

1. Choose Device Settings > Event Management - Settings. The Event Management - Settings page opens.
2. Make changes as needed and click OK to save the changes.

Note: If you disable SNMP settings at any time, the SNMP information is retained so you do not have to reenter if you re-enable the settings.

► **To delete SNMP traps:**

- Clear all of the SNMP trap fields and save.

[Home > Device Settings > Event Management - Settings](#)

SNMP Traps Configuration

SNMP Logging Enabled SNMP v1/v2c Traps Enabled SNMP Trap v3 Enabled

SNMP v1/v2 Trap

Destination IP/Hostname	Port #	Community
	162	public

SNMP v3 Trap

Engine ID: 80001f8803000d5d03ca3b

Destination IP/Hostname	Port #	Security Name	Auth Protocol	Auth Passphrase	Privacy Protocol	Privacy Passphrase
	162		MD5		None	
	162		MD5		None	
	162		MD5		None	
	162		MD5		None	
	162		MD5		None	

[Link to SNMP Agent Configuration](#)

[Click here to view the Dominion KX2 SNMP MIB](#)

Use the reset to factory defaults feature to remove the SNMP configuration and set the KX II to its original factory default.

► **To reset to factory defaults:**

- Click Reset To Defaults.

WARNING: When using SNMP traps over UDP, it is possible for the KX II and the router that it is attached to fall out of synchronization when the KX II is rebooted, preventing the reboot completed SNMP trap from being logged.

List of KX II SNMP Traps

SNMP provides the ability to send traps, or notifications, to advise an administrator when one or more conditions have been met.

The following table lists the KX II SNMP traps:

Trap Name	Description
bladeChassisCommError	A communications error with blade chassis device connected to this port was detected.
cimConnected	The CIM is connected.
cimDisconnected	The CIM is disconnected.
cimUpdateStarted	The CIM update start is underway.
cimUpdateCompleted	The CIM update is complete.
configBackup	The device configuration has been backed up.
configRestore	The device configuration has been restored.
deviceUpdateFailed	Device update has failed.
deviceUpgradeCompleted	The KX II has completed update via an RFP file.
deviceUpgradeStarted	The KX II has begun update via an RFP file.
factoryReset	The device has been reset to factory defaults.
firmwareFileDiscarded	Firmware file was discarded.
firmwareUpdateFailed	Firmware update failed.
firmwareValidationFailed	Firmware validation failed.
groupAdded	A group has been added to the KX II system.
groupDeleted	A group has been deleted from the system.
groupModified	A group has been modified.
ipConflictDetected	An IP Address conflict was detected.
ipConflictResolved	An IP Address conflict was resolved.

Trap Name	Description
networkFailure	An Ethernet interface of the product can no longer communicate over the network.
networkParameterChanged	A change has been made to the network parameters.
passwordSettingsChanged	Strong password settings have changed.
portConnect	A previously authenticated user has begun a KVM session.
portConnectionDenied	A connection to the target port was denied.
portDisconnect	A user engaging in a KVM session closes the session properly.
portStatusChange	The port has become unavailable.
powerNotification	The power outlet status notification: 1=Active, 0=Inactive.
powerOutletNotification	Power strip device outlet status notification.
rebootCompleted	The KX II has completed its reboot.
rebootStarted	The KX II has begun to reboot, either through cycling power to the system or by a warm reboot from the OS.
scanStarted	A target server scan has started.
scanStopped	A target server scan has stopped.
securityBannerAction	Security banner was accepted or rejected.
securityBannerChanged	A change has been made to the security banner.
securityViolation	Security violation.
setDateTime	The date and time for the device has been set.
setFIPSMode	FIPS mode has been enabled.
startCCManagement	The device has been put under CommandCenter Management.
stopCCManagement	The device has been removed from CommandCenter Management.
userAdded	A user has been added to the system.
userAuthenticationFailure	A user attempted to log in without a correct username and/or password.
userConnectionLost	A user with an active session has experienced an abnormal session termination.
userDeleted	A user account has been deleted.

Trap Name	Description
userForcedLogout	A user was forcibly logged out by Admin
userLogin	A user has successfully logged into the KX II and has been authenticated.
userLogout	A user has successfully logged out of the KX II properly.
userModified	A user account has been modified.
userPasswordChanged	This event is triggered if the password of any user of the device is modified.
userSessionTimeout	A user with an active session has experienced a session termination due to timeout.
userUploadedCertificate	A user uploaded a SSL certificate.
vmImageConnected	User attempted to mount either a device or image on the target using Virtual Media. For every attempt on device/image mapping (mounting) this event is generated.
vmImageDisconnected	User attempted to unmount a device or image on the target using Virtual Media.

**Note: Not supported by the KX II-101 or LX.*

****Note:** FIPS is not supported by the LX.

Viewing the KX II MIB

► To view the KX II MIB:

1. Choose Device Settings > Event Management - Settings. The Event Management - Settings page opens.
2. Click the 'Click here to view the Dominion KX2SNMP MIB' link. The MIB file opens in a browser window.

Note: If you have Read-Write privileges to the MIB file, use a MIB editor to make changes to the file.

```
-- This is a common MIB for Dominion KX/KSX G1 and KX/KSX G2 and LX traps

-- 12/20/11 H.
-- notifications updated
-- Added new traps for userDisconnectedFromPort

-- 07/08/11 H.
-- Corrected description for portStatusChange

-- 12/20/10 H.
-- notifications updated
-- Added new traps for scanStarted, scanStopped
-- Also added defn for portList

-- 03/09/10 H.
-- notifications updated
-- Added new traps for securityBannerChanged, securityBannerAction
-- Also added defn for bannerChanges, bannerAction

-- 09/08/09 H.
-- notifications updated
-- Added new traps for setDateAndTime, setFIPSMODE
-- Also added defn for sysDateAndTime, fipsModeStatus

-- 10/14/08 H.
-- notifications updated
-- Added new traps for userForcedLogout, userUploadedCertificate
-- and bladeChassisCommError
-- Also added defn for certificateAuthorityName
```

SysLog Configuration

► **To configure the Syslog (enable Syslog forwarding):**

1. Select Enable Syslog Forwarding to log the device's messages to a remote Syslog server.
2. Type the IP Address/Hostname of your Syslog server in the IP Address field.
3. Click OK.

Note: IPv6 addresses cannot exceed 80 characters in length for the host name.

Use the reset to defaults feature to remove the syslog configuration.

Configuring Event Management - Destinations

System events, if enabled, generate SNMP notification events (traps), or can be logged to the syslog or audit log. Use the Event Management - Destinations page to select the system events to track and where to send this information.

*Note: SNMP traps are generated only if the SNMP Logging Enabled option is selected. Syslog events are generated only if the Enable Syslog Forwarding option is selected. Both of these options are in the Event Management - Settings page. See **Configuring Event Management - Settings** (on page 162).*

▶ **To select events and their destinations:**

1. Choose Device Settings > Event Management - Destinations. The Event Management - Destinations page opens.

System events are categorized by Device Operation, Device Management, Security, User Activity, and User Group Administration.

2. Select the checkboxes for those event line items you want to enable or disable, and where you want to send the information.

Tip: Enable or disable entire Categories by checking or clearing the Category checkboxes, respectively.

3. Click OK.

▶ **To reset to factory defaults:**

- Click Reset To Defaults.

WARNING: When using SNMP traps over UDP, it is possible for the KX II and the router that it is attached to fall out of synchronization when the KX II is rebooted, preventing the reboot completed SNMP trap from being logged.

Power Supply Setup

The KX II provides dual power supplies, and can automatically detect and provide notification regarding the status of these power supplies. Use the Power Supply Setup page to specify whether you are using one or both of the power supplies. Proper configuration ensures that the KX II sends the appropriate notifications should a power supply fail. For example, if power supply number one fails, the power LED at the front of the unit will turn red.

► **To enable automatic detection for the power supplies in use:**

1. Choose Device Settings > Power Supply Setup. The Power Supply Setup page opens.



2. If you are plugging power input into power supply number one (left-most power supply at the back of the unit), then select the PowerIn1 Auto Detect option.
3. If you are plugging power input into power supply number two (right-most power supply at the back of the unit), then select the PowerIn2 Auto Detect option.
4. Click OK.

Note: If either of these checkboxes is selected and power input is not actually connected, the power LED at the front of the unit turns red.

▶ **To turn off the automatic detection:**

- Deselect the checkbox for the appropriate power supply.

▶ **To reset to factory defaults:**

- Click Reset To Defaults.

Note: The KX II does NOT report power supply status to CommandCenter. Dominion I (generation 1), however, does report power supply status to CommandCenter.

Configuring Ports

The Port Configuration page displays a list of the KX II ports.

Ports connected to KVM target servers (blades and standard servers) and rack PDUs (power strips) are displayed in blue, and can be edited.

Ports with no CIM connected or with a blank CIM name, a default port name of Dominion-KX2_Port# is assigned, where Port# is the number of the KX II physical port.

When a port's status is down, Not Available is displayed as its status. A port may be down when the port's CIM is removed or powered down.

Note: For blade chassis, the blade chassis name can be changed but its blade slot names cannot be changed.

After you have renamed the port, use the Reset to Default function at any time to return it to its default port name.

When you reset a port name to its default, any existing power associations are removed and, if the port is a part of a port group, it is removed from the group.

▶ **To access a port configuration:**

1. Choose Device Settings > Port Configuration. The Port Configuration Page opens.

This page is initially displayed in port number order, but can be sorted on any of the fields by clicking on the column heading.

- Port Number - Numbered from 1 to the total number of ports available for the KX II device
- Port Name - The name assigned to the port

Alternatively, rename ports that are currently not connected to the KX II via a CIM and, as such, have a status of Not Available. To rename a port with a status of Not Available, do one of the following:

- Rename the port. When a CIM is attached the CIM name will be used.
- Rename the port, and select 'Persist name on Next CIM Insertion'. When a CIM is attached the name that has been assigned will be copied into the CIM.
- Reset the port, including the name, to factory defaults by selecting 'Reset to Defaults'. When a CIM is attached the CIM name will be used.

Note: Do not use apostrophes for the Port (CIM) Name.

- Port Type:
 - DCIM - Dominion CIM
 - TierDevice - Tier device
 - Not Available - No CIM connected
 - PCIM - Paragon CIM
 - PowerStrip (rack PDU) - Power strip connected
 - Dual - VM - Virtual media CIM (D2CIM-VUSB and D2CIM-DVUSB)
 - Blade Chassis - Blade chassis and the blades associated with that chassis (displayed in a hierarchical order)
 - KVM Switch - Generic KVM Switch connection
 - DVM-DP - Display Port
 - DVM-HDMI - HDMI CIM
 - DVM-DVI - DVI CIM
2. Click the Port Name for the port you want to edit.
- For KVM ports, the Port page for KVM and blade chassis ports is opened.
 - For rack PDUs, the Port page for rack PDUs (power strips) is opened. From this page, you can name the rack PDUs and their outlets.

Configuring Standard Target Servers

► **To name the target servers:**

1. Connect all of the target servers if you have not already done so. See **Step 3: Connect the Equipment** (on page 16) for a description of connecting the equipment.
2. Choose Device Settings > Port Configuration. The Port Configuration page opens.
3. Click the Port Name of the target server you want to rename. The Port Page opens.
4. Select Standard KVM Port as the subtype for the port.
5. Assign a name to identify the server connected to that port. The name can be up to 32 characters, and alphanumeric and special characters are allowed.
6. In the Target Settings section, select 720x400 Compensation if you are experiencing display issues when the target is using this resolution.
7. Select 'Use international keyboard for scan code set 3' if connecting to the target with a DCIM-PS2 and require the use of scan code set 3 with an international keyboard.

- Click OK.

Port 9

Type: Dual-VM

Sub Type: Standard KVM Port
 Blade Chassis
 KVM Switch

Name:

Power Association

Power Strip Name	Outlet Name
None ▼	--- ▼

Target Settings

720x400 Compensation

Configuring KVM Switches

The KX II also supports use of hot key sequences to switch between targets. In addition to using hot key sequences with standard servers, KVM switching is supported by blade chassis and in tiered configurations.

Important: In order for user groups to see the KVM switch that you create, you must first create the switch and then create the group. If an existing user group needs to see the KVM switch you are creating, you must recreate the user group.

► **To configure KVM switches:**

- Choose Device Settings > Port Configuration. The Port Configuration page opens.
- Click the Port Name of the target server you want to rename. The Port Page opens.
- Select KVM Switch.
- Select the KVM Switch Model.

Note: Only one switch will appear in the drop-down.

5. Select KVM Switch Hot Key Sequence.
6. Enter the Maximum Number of Target Ports (2-32).
7. In the KVM Switch Name field, enter the name you want to use to refer to this port connection.
8. Activate the targets that the KVM switch hot key sequence will be applied to. Indicate the KVM switch ports have targets attached by selecting 'Active' for each of the ports.
9. In the KVM Managed Links section of the page, you are able to configure the connection to a web browser interface if one is available.
 - a. Active - To activate the link once it is configured, select the Active checkbox. Leave the checkbox deselected to keep the link inactive. Entering information into the link fields and saving can still be done even if Active is not selected. Once Active is selected, the URL field is required. The username, password, username field and password field are optional depending on whether single sign-on is desired or not.
 - b. URL Name - Enter the URL to the interface.
 - c. Username - Enter the username used to access the interface.
 - d. Password - Enter the password used to access the interface.
 - e. Username Field - Enter the username parameter that will be used in the URL. For example *username=admin*, where *username* is the username field.
 - f. Password Field - Enter the password parameter that will be used in the URL. For example *password=raritan*, where *password* is the password field.
10. Click OK.

► **To change the active status of a KVM switch port or URL:**

1. Choose Device Settings > Port Configuration. The Port Configuration page opens.
2. Click the Port Name of the target server you want to rename. The Port Page opens.
3. Deselect the Active checkbox next to the KVM switch target port or URL to change its active status.
4. Click OK.

Configuring CIM Ports

The KX II supports the use of standard and virtual media CIMs to connect a server to the KX II.

► To access a CIM to configure:

1. Choose Device Settings > Port Configuration. The Port Configuration page opens.
2. Click the Port Name of the target server you want to rename. The Port Page opens.

Configure the CIM Settings

1. Select Standard KVM Port as the subtype for the port.
2. Assign a name to identify the server connected to that port. The name can be up to 32 characters, and alphanumeric and special characters are allowed.

Port 1

Type: DVM-DVI

Sub Type: Standard KVM Port
 Blade Chassis
 KVM Switch

Name:

Configure the CIM Power Associations

1. In the Power Association section, associate a power strip with the port, if needed.

Power Association

Power Strip Name	Outlet Name
None ▼	--- ▼

Configure the CIM Target Settings

1. In the Target Settings section, select 720x400 Compensation if you are experiencing display issues when the target is using this resolution.
2. For digital CIMs, to set the target's video resolution to match your monitor's native display resolution, select the resolution from the Display Native Resolution drop-down.

If you are using an HDMI CIM, some operating system/video card combinations may offer a limited range of RGB values. Improve the colors by selecting the DVI Compatibility Mode checkbox.

Target Settings

720x400 Compensation

Display Native Resolution: 1600x1200@60 ▼

Apply Selected Profiles to Other CIMs

1. Apply the profile to other CIMs by selecting them from the list in the Apply Selected Profiles to Other Ports section of the Port Configuration page.

▼ Apply Selected Profiles to Other Ports

Apply	Port Number	Port Name	Selected USB Profiles
<input checked="" type="checkbox"/>	1	Dominion - Win7	Generic
<input type="checkbox"/>	2	Dominion_Port2	Generic
<input type="checkbox"/>	3	Dominion - Win7	Generic
<input type="checkbox"/>	4	- Win7	Generic
<input type="checkbox"/>	7	HP Compaq - Win7	Generic

Apply a Native Display Resolution to Other CIMs

1. Apply the native display resolution to CIM to other CIMs of the same type by selecting the ports other CIMs are connected to from the list in the Apply Native Resolutions to Other Ports section of the Port Configuration page.

▼ Apply Native Resolution to Other Ports

Apply	Port Number	Port Name	Native Resolution
<input checked="" type="checkbox"/>	1	Dominion - Win7	1600x1200@60

Configuring Rack PDU (Power Strip) Targets

The KX II allows you to connect rack PDUs (power strips) to KX II ports. KX II rack PDU configuration is done from the KX II Port Configuration page.

Note: Raritan recommends no more than eight (8) rack PDUs (power strips) be connected to a KX II at once since performance may be affected.

Connecting a Rack PDU

Raritan PX series rack PDUs (power strips) are connected to the Dominion device using the D2CIM-PWR CIM.

► **To connect the rack PDU:**

1. Connect the male RJ-45 of the D2CIM-PWR to the female RJ-45 connector on the serial port of the rack PDU.
2. Connect the female RJ-45 connector of the D2CIM-PWR to any of the available female system port connectors on the KX II using a straight through Cat5 cable.
3. Attach an AC power cord to the target server and an available rack PDU outlet.
4. Connect the rack PDU to an AC power source.
5. Power on the device.



Naming the Rack PDU (Port Page for Power Strips)

Note: PX rack PDUs (power strips) can be named in the PX as well as in the KX II.

Once a Raritan remote rack PDU is connected to the KX II, it will appear on the Port Configuration page. Click on the power port name on that page to access it. The Type and the Name fields are prepopulated.

Note: The (CIM) Type cannot be changed.

The following information is displayed for each outlet on the rack PDU: [Outlet] Number, Name, and Port Association.

Use this page to name the rack PDU and its outlets. Names can be up to 32 alphanumeric characters and can include special characters.

Note: When a rack PDU is associated with a target server (port), the outlet name is replaced by the target server name, even if you assigned another name to the outlet.

► **To name the rack PDU and outlets:**

Note: CommandCenter Secure Gateway does not recognize rack PDU names containing spaces.

1. Enter the Name of the rack PDU (if needed).
2. Change the [Outlet] Name if desired. (Outlet names default to the outlet #.)

3. Click OK.

Home > Device Settings > Port Configuration > Port

Port 17

Type:
PowerStrip

Name:

Outlets

Number	Name	Port Association
1	<input type="text" value="Dominion-Port1(1)"/>	Dominion- Port7
2	<input type="text" value="Outlet 2"/>	
3	<input type="text" value="Outlet 3"/>	
4	<input type="text" value="Outlet 4"/>	
5	<input type="text" value="Outlet 5"/>	
6	<input type="text" value="Outlet 6"/>	
7	<input type="text" value="Outlet 7"/>	
8	<input type="text" value="Outlet 8"/>	

Associating Outlets with Target Servers

The Port page opens when you click on a port on the Port Configuration page. From this page, you can make power associations, change the port name to something more descriptive, and update target server settings if you are using the D2CIM-VUSB CIM. The (CIM) Type and the (Port) Name fields are prepopulated; note that the CIM type cannot be changed.

A server can have up to four power plugs and you can associate a different rack PDU (power strip) with each. From this page, you can define those associations so that you can power on, power off, and power cycle the server from the Port Access page.

To use this feature, you will need:

- Raritan remote rack PDU(s)
- Power CIMs (D2CIM-PWR)

► **To make power associations (associate rack PDU outlets to KVM target servers):**

Note: When a rack PDU is associated to a target server (port), the outlet name is replaced by the target server name (even if you assigned another name to the outlet).

1. On the Port Configuration page, select the target server you are associating the PDU with.
2. Choose the rack PDU from the Power Strip Name drop-down list.
3. For that rack PDU, choose the outlet from the Outlet Name drop-down list.
4. Repeat steps 1 and 2 for all desired power associations.
5. Click OK. A confirmation message is displayed.

► **To change the port name:**

1. Type something descriptive in the Name field. For example, the name of the target server would be a likely candidate. The name can be up to 32 alphanumeric characters and can include special characters.
2. Click OK.

Removing Power Associations

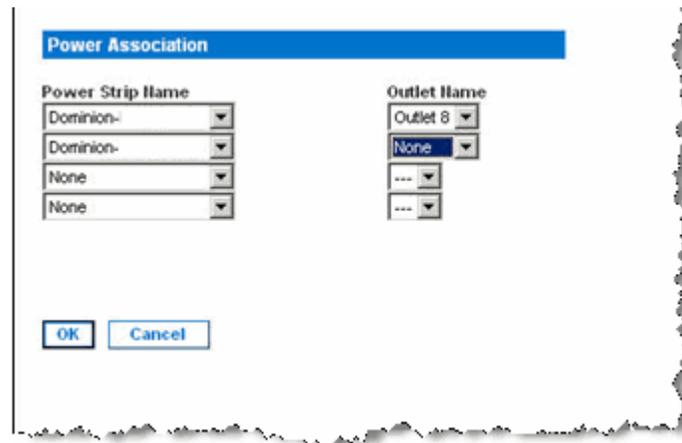
When disconnecting target servers and/or rack PDUs from the device, all power associations should first be deleted. When a target has been associated with a rack PDU and the target is removed from the device, the power association remains. When this occurs, you are not able to access the Port Configuration for that disconnected target server in Device Settings so that the power association can be properly remove.

► **To remove a rack PDU association:**

1. Select the appropriate rack PDU from the Power Strip Name drop-down list.
2. For that rack PDU, select the appropriate outlet from the Outlet Name drop-down list.
3. From the Outlet Name drop-down list, select None.
4. Click OK. That rack PDU/outlet association is removed and a confirmation message is displayed.

► **To remove a rack PDU association if the rack PDU has been removed from the target:**

1. Click Device Settings > Port Configuration and then click on the active target.
2. Associate the active target to the disconnected power port. This will break the disconnected target's power association.
3. Finally, associate the active target to the correct power port.



Configuring Blade Chassis

In addition to standard servers and rack PDUs (power strips), you can control blade chassis that are plugged into the KX II device port. Up to eight blade chassis can be managed at a given time.

The blade chassis must be configured as a blade chassis subtype.

If the blade chassis type is supported, it is automatically detected once they are connected. If the type is not supported, the blade must be configured manually.

When a blade server chassis is detected, a default name is assigned to it and it is displayed on the Port Access page along with standard target servers and rack PDUs. See **Port Access Page (Remote Console Display)** (on page 38).

The blade chassis is displayed in an expandable, hierarchical list on the Port Access page, with the blade chassis at the root of the hierarchy and the individual blades labeled and displayed below the root. Use the Expand Arrow icon ► next to the root chassis to display the individual blades.

Note: To view the blade chassis in a hierarchal order, blade-chassis subtypes must be configured for the blade server chassis.

With the exception of HP and Cisco® UCS blade chassis, the generic, IBM® and Dell® blade chassis are configured on the Port page.

The port connected to the blade chassis must be configured with the blade chassis model. The specific information you are able to configure for a blade server will depend on the brand of blade server you are working with. For specific information on each of these supported blade chassis, see their corresponding topics in this section of the help.

The following blade chassis are supported:

- IBM BladeCenter® Models E and H
- Dell PowerEdge® 1855, 1955 and M1000e

A Generic option allows you to configure a blade chassis that is not included in the above list. HP BladeSystem c3000 and c7000, and Cisco UCS blade servers are supported via individual connections from the Dominion device to each blade. The ports are 'grouped' together into a chassis representation using the Port Group Management feature.

Note: Dell PowerEdge 1855/1955 blades also provide the ability to connect from each individual blade to a port on the Dominion device. When connected in that manner, they can also be grouped to create blade server groups.

Two modes of operation are provided for blade chassis: manual configuration and auto-discovery, depending on the blade chassis capabilities. If a blade chassis is configured for auto-discovery, the Dominion device tracks and updates the following:

- When a new blade server is added to the chassis.
- When an existing blade server is removed from the chassis.

Note: In the case of IBM Blade Center Models E and H, the KX II only supports auto-discovery for AMM[1] as the acting primary management module.

The use of hot key sequences to switch KVM access to a blade chassis is also supported. For blade chassis that allow users to select a hot key sequence, those options will be provided on the Port Configuration page. For blade chassis that come with predefined hot key sequences, those sequences will be prepopulated on the Port Configuration page once the blade chassis is selected. For example, the default hot key sequence to switch KVM access to an IBM BladeCenter H is NumLock + NumLock + SlotNumber, so this hot key sequence is applied by default when IBM BladeCenter H is selected during the configuration. See your blade chassis documentation for hot key sequence information.

You are able to configure the connection to a blade chassis web browser interface if one is available. At the chassis level, up to four links can be defined. The first link is reserved for connection to the blade chassis administrative module GUI. For example, this link may be used by technical support to quickly verify a chassis configuration.

Blade chassis can be managed from the Virtual KVM Client (VKC), the Active KVM Client (AKC), Raritan's , and CC-SG. Managing blade servers via VKC, AKC and MPC is the same as managing standard target servers. See **Working with Target Servers** (on page 32) and the **CC-SG Administrators Guide** for more information. Any changes made to the blade chassis configuration in will be propagated to these client applications.

Important: When the CIM connecting the blade chassis to the Dominion device is powered down or disconnected from the Dominion device, all established connections to the blade chassis will be dropped. When the CIM is reconnected or powered up you will need to re-establish the connection(s).

Important: If you move a blade chassis from one Dominion device port to another Dominion device port, interfaces that were added to the blade chassis node in CC-SG will be lost in CC-SG. All other information will be retained.

Generic Blade Chassis Configuration

The Generic Blade Chassis' selection provides only a manual configuration mode of operation. See **Supported Blade Chassis Models** (on page 198), **Supported CIMs for Blade Chassis** (on page 199), and **Required and Recommended Blade Chassis Configurations** (on page 201) for important, additional information when configuring the blade chassis. See **Dell Chassis Cable Lengths and Video Resolutions** (on page 301) for information on cable lengths and video resolutions when using Dell® chassis with the KX II.

► To configure a chassis:

1. Connect the blade chassis to the KX II. See **Step 3: Connect the Equipment** (on page 16) for details.
2. Select Device Settings > Port Configuration to open the Port Configuration page.
3. On the Port Configuration page, click on the name of the blade chassis you want to configure. The Port page will open.
4. Select the Blade Chassis radio button. The page will then display the necessary fields to configure a blade chassis.
5. Select Generic from the Blade Server Chassis Model drop-down.
6. Configure the blade chassis as applicable.
 - a. Switch Hot Key Sequence - Define the hot key sequence that will be used to switch from KVM to the blade chassis. The Switch Hot Key Sequence must match the sequence used by the KVM module in the blade chassis.
 - b. Administrative Module Primary IP Address/Host Name - Not applicable.
 - c. Maximum Number of Slots - Enter the default maximum number of slots available on the blade chassis.
 - d. Port Number - The default port number for the blade chassis is 22. Not applicable.
 - e. Username - Not applicable.
 - f. Password - Not applicable.
7. Change the blade chassis name if needed.
8. Indicate the blades that are installed in the blade chassis by checking the Installed checkbox next to each slot that has a blade installed. Alternatively, use the Select All checkbox. If needed, change the blade server names.

9. In the Blade Chassis Managed Links section of the page, you are able to configure the connection to a blade chassis web browser interface if one is available. Click the Blade Chassis Managed Links icon  to expand the section on the page.

The first URL link is intended for use to connect to the blade chassis Administration Module GUI.

Note: Access to the URL links entered in this section of the page is governed by the blade chassis port permissions.

- a. Active - To activate the link once it is configured, select the Active checkbox. Leave the checkbox deselected to keep the link inactive. Entering information into the link fields and saving can still be done even if Active is not selected. Once Active is selected, the URL field is required. The username, password, username field and password field are optional depending on whether single sign-on is desired or not.
- b. URL - Enter the URL to the interface. **Required**
- c. Username - Enter the username used to access the interface. **Optional**
- d. Password - Enter the password used to access the interface. **Optional**

Note: Leave the username and password fields blank for DRAC, ILO, and RSA web applications or the connection will fail.

- e. The Username Field and Password Field, which are both optional, contain the labels that are expected to be associated with the username and password entries. It is in these fields you should enter the field names for the username and password fields used on the login screen for the web application. You can view the HTML source of the login screen to find the field *names*, not the field labels. See **Tips for Adding a Web Browser Interface** (on page 195) for tips on adding a web browser interface. **Optional**
10. USB profile information does not apply to a generic configuration.
 11. In the Target Settings section, select 720x400 Compensation if you are experiencing display issues when the target is using this resolution.
 12. Select 'Use international keyboard for scan code set 3' if connecting to the target with a DCIM-PS2 and require the use of scan code set 3 with an international keyboard.

13. Select the CIMs native, display resolution from the Display Native Resolution drop-down. This is the preferred resolution and timing mode of the digital CIM. Once a resolution is selected, it is applied to the CIM.

If no selection is made, the default 1024x1280@60Hz resolution is used.

14. Click OK to save the configuration.

Dell Blade Chassis Configuration

See **Supported Blade Chassis Models** (on page 198), **Supported CIMs for Blade Chassis** (on page 199), and **Required and Recommended Blade Chassis Configurations** (on page 201) for important, additional information when configuring the blade chassis. See **Dell Chassis Cable Lengths and Video Resolutions** (on page 301) for information on cable lengths and video resolutions when using Dell® chassis with the KX II.

► To add a blade chassis:

1. Connect the blade chassis to the KX II. See **Step 3: Connect the Equipment** (on page 16) for details.
2. Select Device Settings > Port Configuration to open the Port Configuration page.
3. On the Port Configuration page, click on the name of the blade chassis you want to configure. The Port page will open.
4. Select the Blade Chassis radio button. The page will then display the necessary fields to configure a blade chassis.
5. Select the Dell blade chassis model from the Blade Server Chassis Model drop-down.

► To configure a Dell PowerEdge M1000e:

1. If you selected Dell PowerEdge™ M1000e, auto-discovery is available. Configure the blade chassis as applicable. Prior to configuring a blade chassis that can be auto-discovered, it must be configured to enable SSH connections on the designated port number (see **Device Services** (on page 145)). Additionally, a user account with the corresponding authentication credentials must be previously created on the blade chassis.
 - a. Switch Hot Key Sequence - Select the hot key sequence that will be used to switch from KVM to the blade server. The Switch Hot Key Sequence must match the sequence used by the KVM module in the blade chassis.
 - b. Maximum Number of Slots - The default maximum number of slots available on the blade chassis is automatically entered.

- c. Administrative Module Primary IP Address/Host Name - Enter the primary IP address for the blade chassis. **Required for auto-discovery mode**
 - d. Port Number - The default port number for the blade chassis is 22. Change the port number if applicable. **Required for auto-discovery mode**
 - e. Username - Enter the username used to access the blade chassis. **Required for auto-discovery mode**
 - f. Password - Enter the password used to access the blade chassis. **Required for auto-discovery mode**
2. If you want the KX II to auto-discover the chassis blades, select the Blade Auto-Discovery checkbox and then click Discover Blades on Chassis Now. Once the blades are discovered, they will be displayed on the page.
 3. Change the blade chassis name if needed. If the chassis is already named, that information automatically populates this field. If it is not already named, the KX II assigns the chassis a name. The default naming convention for the blade chassis by the KX II is Blade_Chassis_Port#.
 4. If operating in Manual mode, indicate the blades that are installed in the blade chassis by checking the Installed checkbox next to each slot that has a blade installed. Alternatively, use the Select All checkbox. If needed, change the blade server names

If operating in Auto-discovery mode, the Installed box will display the slots containing blades during discovery.

5. In the Blade Chassis Managed Links section of the page, you are able to configure the connection to a blade chassis web browser interface if one is available. Click the Blade Chassis Managed Links icon  to expand the section on the page.

The first URL link is intended for use to connect to the blade chassis Administration Module GUI.

Note: Access to the URL links entered in this section of the page is governed by the blade chassis port permissions.

- a. Active - To activate the link once it is configured, select the Active checkbox. Leave the checkbox deselected to keep the link inactive. Entering information into the link fields and saving can still be done even if Active is not selected. Once Active is selected, the URL field is required. The username, password, username field and password field are optional depending on whether single sign-on is desired or not.

- b. URL - Enter the URL to the interface. See **Blade Chassis Sample URL Formats** (on page 203) for sample configurations for the Dell M1000e.
- c. Username - Enter the username used to access the interface.
- d. Password - Enter the password used to access the interface.

Note: Leave the username and password fields blank for DRAC, ILO, and RSA web applications or the connection will fail.

- 6. The Username Field and Password Field, which are both optional, contain the labels that are expected to be associated with the username and password entries. It is in these fields you should enter the field names for the username and password fields used on the login screen for the web application. You can view the HTML source of the login screen to find the field *names*, not the field labels. See **Tips for Adding a Web Browser Interface** (on page 195) for tips on adding a web browser interface.
- 7. USB profiles do not apply to Dell chassis.
- 8. In the Target Settings section, select 720x400 Compensation if you are experiencing display issues when the target is using this resolution.
- 9. Select 'Use international keyboard for scan code set 3' if connecting to the target with a DCIM-PS2 and require the use of scan code set 3 with an international keyboard.
- 10. Select the CIMs native, display resolution from the Display Native Resolution drop-down. This is the preferred resolution and timing mode of the digital CIM. Once a resolution is selected, it is applied to the CIM.

If no selection is made, the default 1024x1280@60Hz resolution is used.
- 11. Click OK to save the configuration.

► **To configure a Dell PowerEdge 1855/1955:**

- 1. If you selected Dell 1855/1955, auto-discovery *is not available*. Configure the blade chassis as applicable.
 - a. Switch Hot Key Sequence - Select the hot key sequence that will be used to switch from KVM to the blade server. For Dell 1855/1955 models, KX II blocks all existing hot key sequences. If you apply a Generic configuration to the Dell 1855, only one existing hot key is blocked.
 - b. Maximum Number of Slots - The default maximum number of slots available on the blade chassis is automatically entered.
 - c. Administrative Module Primary IP Address/Host Name - Not applicable.

- d. Port Number - The default port number for the blade chassis is 22. Not applicable.
 - e. Username - Not applicable.
 - f. Password - Not applicable.
2. Change the blade chassis name if needed.
 3. Indicate the blades that are installed in the blade chassis by checking the Installed checkbox next to each slot that has a blade installed. Alternatively, use the Select All checkbox. If needed, change the blade server names.
 4. In the Blade Chassis Managed Links section of the page, you are able to configure the connection to a blade chassis web browser interface if one is available. Click the Blade Chassis Managed Links icon  to expand the section on the page.

The first URL link is intended for use to connect to the blade chassis Administration Module GUI.

Note: Access to the URL links entered in this section of the page is governed by the blade chassis port permissions.

- a. Active - To activate the link once it is configured, select the Active checkbox. Leave the checkbox deselected to keep the link inactive. Entering information into the link fields and saving can still be done even if Active is not selected. Once Active is selected, the URL field is required. The username, password, username field and password field are optional depending on whether single sign-on is desired or not.
- b. URL - Enter the URL to the interface. See Blade Chassis Sample URL Formats for sample configurations for the Dell PowerEdge 1855/1955.
- c. Username - Enter the username used to access the interface.
- d. Password - Enter the password used to access the interface.

Note: Leave the username and password fields blank for DRAC, ILO, and RSA web applications or the connection will fail.

- e. The Username Field and Password Field, which are both optional, contain the labels that are expected to be associated with the username and password entries. It is in these fields you should enter the field names for the username and password fields used on the login screen for the web application. You can view the HTML source of the login screen to find the field *names*, not the field labels. See **Tips for Adding a Web Browser Interface** (on page 195) for tips on adding a web browser interface.

5. USB profiles do not apply to Dell chassis.
6. Click OK to save the configuration.

IBM Blade Chassis Configuration

See **Supported Blade Chassis Models** (on page 198), **Supported CIMs for Blade Chassis** (on page 199), and **Required and Recommended Blade Chassis Configurations** (on page 201) for important, additional information when configuring the blade chassis. See **Dell Chassis Cable Lengths and Video Resolutions** (on page 301) for information on cable lengths and video resolutions when using Dell® chassis with the KX II.

► To add a blade chassis:

1. Connect the blade chassis to the KX II. See **Step 3: Connect the Equipment** (on page 16) for details.
2. Select Device Settings > Port Configuration to open the Port Configuration page.
3. On the Port Configuration page, click on the name of the blade chassis you want to configure. The Port page will open.
4. Select the Blade Chassis radio button. The page will then display the necessary fields to configure a blade chassis.
5. Select the IBM® blade chassis model from the Blade Server Chassis Model drop-down.

► To configure a IBM BladeCenter H and E:

1. If you selected IBM BladeCenter® H or E, auto-discovery is available. Configure the blade chassis as applicable. Prior to configuring a blade chassis that can be auto-discovered, it must be configured to enable SSH connections on the designated port number (see **Device Services** (on page 145)). Additionally, a user account with the corresponding authentication credentials must be previously created on the blade chassis. The KX II only supports auto-discovery for AMM[1].
 - a. Switch Hot Key Sequence - Predefined.
 - b. Maximum Number of Slots - The default maximum number of slots available on the blade chassis is automatically entered.
 - c. Administrative Module Primary IP Address/Host Name - Enter the primary IP address for the blade chassis. **Required for auto-discovery mode**
 - d. Port Number - The default port number for the blade chassis is 22. Change the port number if applicable. **Required for auto-discovery mode**
 - e. Username - Enter the username used to access the blade chassis. **Required for auto-discovery mode**

- f. Password - Enter the password used to access the blade chassis. **Required for auto-discovery mode**
2. If you want the KX II to auto-discover the chassis blades, select the Blade Auto-Discovery checkbox and then click Discover Blades on Chassis Now. Once the blades are discovered, they will be displayed on the page.
3. Change the blade chassis name if needed. If the chassis is already named, that information automatically populates this field. If it is not already named, the KX II assigns the chassis a name. The default naming convention for the blade chassis by the KX II is Blade_Chassis_Port#.
4. If operating in Manual mode, indicate the blades that are installed in the blade chassis by checking the Installed checkbox next to each slot that has a blade installed. Alternatively, use the Select All checkbox. If needed, change the blade server names

If operating in Auto-discovery mode, the Installed box will display the slots containing blades during discovery.

5. In the Blade Chassis Managed Links section of the page, you are able to configure the connection to a blade chassis web browser interface if one is available. Click the Blade Chassis Managed Links icon  to expand the section on the page.

The first URL link is intended for use to connect to the blade chassis Administration Module GUI.

Note: Access to the URL links entered in this section of the page is governed by the blade chassis port permissions.

- a. Active - To activate the link once it is configured, select the Active checkbox. Leave the checkbox deselected to keep the link inactive. Entering information into the link fields and saving can still be done even if Active is not selected. Once Active is selected, the URL field is required. The username, password, username field and password field are optional depending on whether single sign-on is desired or not.
- b. URL - Enter the URL to the interface. See **Blade Chassis Sample URL Formats** (on page 203) for sample configurations for the IBM BladeCenter.
- c. Username - Enter the username used to access the interface.
- d. Password - Enter the password used to access the interface.

Note: Leave the username and password fields blank for DRAC, ILO, and RSA web applications or the connection will fail.

- e. The Username Field and Password Field, which are both optional, contain the labels that are expected to be associated with the username and password entries. It is in these fields you should enter the field names for the username and password fields used on the login screen for the web application. You can view the HTML source of the login screen to find the field *names*, not the field labels. See **Tips for Adding a Web Browser Interface** (on page 195) for tips on adding a web browser interface.
6. If applicable, define the USB profile for the blade chassis or select an existing USB profile. Click the USB Profiles Select USB Profiles for Port icon  or the Apply Select Profiles to Other Ports icon  to expand these sections of the page. See **Configuring USB Profiles (Port Page)** (on page 204).
7. Click OK to save the configuration.

▶ **To configure a IBM BladeCenter (Other):**

1. If you selected IBM BladeCenter (Other), auto-discovery *is not* available. Configure the blade chassis as applicable.
 - a. Switch Hot Key Sequence - Select the hot key sequence that will be used to switch from KVM to the blade server.
 - b. Administrative Module Primary IP Address/Host Name - Enter the primary IP address for the blade chassis. Not applicable.
 - c. Maximum Number of Slots - Enter the default maximum number of slots available on the blade chassis.
 - d. Port Number - The default port number for the blade chassis is 22. Not applicable.
 - e. Username - Not applicable.
 - f. Password - Not applicable.
2. Change the blade chassis name if needed.
3. Indicate the blades that are installed in the blade chassis by checking the Installed checkbox next to each slot that has a blade installed. Alternatively, use the Select All checkbox. If needed, change the blade server names. If it is not already named, the KX II assigns a name to the blade server. The default blade server naming convention is Blade_Chassis_Port#_Slot#.
4. In the Blade Chassis Managed Links section of the page, you are able to configure the connection to a blade chassis web browser interface if one is available. Click the Blade Chassis Managed Links icon  to expand the section on the page.

The first URL link is intended for use to connect to the blade chassis Administration Module GUI.

Note: Access to the URL links entered in this section of the page is governed by the blade chassis port permissions.

- a. Active - To activate the link once it is configured, select the Active checkbox. Leave the checkbox deselected to keep the link inactive. Entering information into the link fields and saving can still be done even if Active is not selected. Once Active is selected, the URL field is required. The username, password, username field and password field are optional depending on whether single sign-on is desired or not.
- b. URL - Enter the URL to the interface. See **Blade Chassis Sample URL Formats** (on page 203) for sample configurations for the IBM BladeCenter.
- c. Username - Enter the username used to access the interface.
- d. Password - Enter the password used to access the interface.

Note: Leave the username and password fields blank for DRAC, ILO, and RSA web applications or the connection will fail.

- e. The Username Field and Password Field, which are both optional, contain the labels that are expected to be associated with the username and password entries. It is in these fields you should enter the field names for the username and password fields used on the login screen for the web application. You can view the HTML source of the login screen to find the field *names*, not the field labels. See **Tips for Adding a Web Browser Interface** (on page 195) for tips on adding a web browser interface.
5. USB profiles are not used by IBM (Other) configurations.
 6. In the Target Settings section, select 720x400 Compensation if you are experiencing display issues when the target is using this resolution.
 7. Select 'Use international keyboard for scan code set 3' if connecting to the target with a DCIM-PS2 and require the use of scan code set 3 with an international keyboard.

Select the CIMs native, display resolution from the Display Native Resolution drop-down. This is the preferred resolution and timing mode of the digital CIM. Once a resolution is selected, it is applied to the CIM.

1. If no selection is made, the default 1024x1280@60Hz resolution is used.
2. Click OK to save the configuration.

Tips for Adding a Web Browser Interface

You can add a Web Browser Interface to create a connection to a device with an embedded web server. A Web Browser interface can also be used to connect to any web application, such as the web application associated with an RSA, DRAC or ILO Processor card.

You must have DNS configured or URLs will not resolve. You do not need to have DNS configured for IP addresses.

► To add a web browser interface:

1. The default name for a Web Browser Interface is provided. If needed, change the name in the Name field.
2. Enter the URL or domain name for the web application in the URL field. You must enter the URL at which the web application expects to read the username and password.

Follow these examples for correct formats:

- `http(s)://192.168.1.1/login.asp`
- `http(s)://www.example.com/cgi/login`
- `http(s)://example.com/home.html`

3. Enter the username and password that will allow access to this interface. **Optional**
4. If username and password were entered, in the Username Field and Password Field, type the field names for the username and password fields that are used in the login screen for the web application. You must view the HTML source of the login screen to find the field names, not the field labels.

Tip for locating field names:

- In the HTML source code for the login page of the web application, search for the field's label, such as Username and Password.
- When you find the field label, look in the adjacent code for a tag that looks like this: `name="user"`. The word in quotes is the field name.

HP and Cisco UCS Blade Chassis Configuration (Port Group Management)

The KX II supports the aggregation of ports connected to certain types of blades into a group representing the blade chassis. Specifically, Cisco® UCS, HP® BladeServer blades and Dell® PowerEdge™ 1855/1955 blades when the Dell PowerEdge 1855/1955 is connected from each individual blade to a port on the KX II.

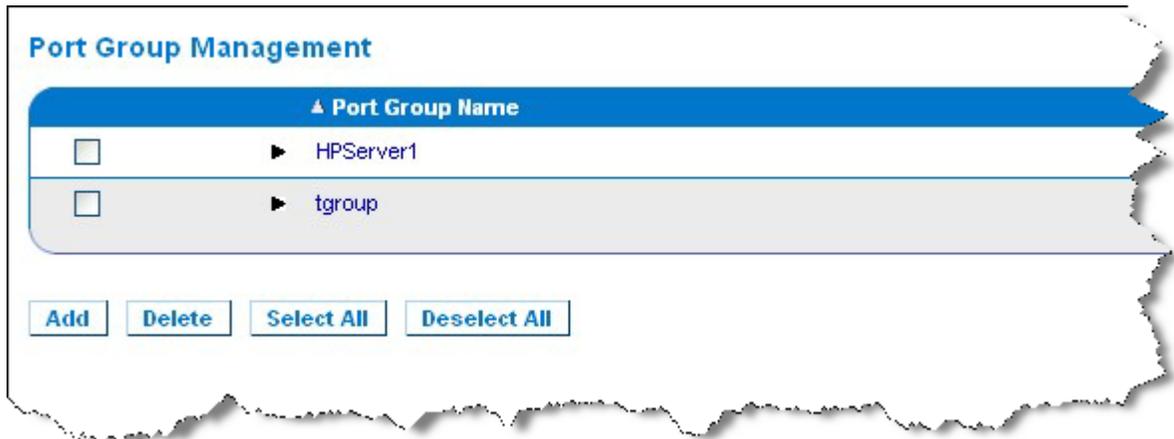
The chassis is identified by a Port Group Name and the group is designated as a Blade Server Group on the Port Group Management page. Port Groups consist solely of ports configured as standard KVM ports, not ports configured as blade chassis. A port may only be a member of a single group.

Ports connected to integrated KVM modules in a blade chassis are configured as blade chassis subtypes. These ports are eligible to be included in port groups.

When KX II ports are connected to integrated KVM modules in a blade chassis and not to individual blades, the ports are configured as blade chassis subtypes. These ports are not eligible to be included in port groups and will not appear in the Select Port for Group, Available list.

If a standard KVM port has been included in a port group, and then is subsequently repurposed for use as a blade chassis subtype, it must first be removed from the port group.

Port Groups are restored using the Backup and Restore option (see **Backup and Restore** (on page 242)).



▶ **To add a port group:**

1. Click Device Settings > Port Group Management to open the Port Group Management page.
2. Click Add to open the Port Group page.

3. Enter a Port Group Name. The port group name is not case sensitive and can contain up to 32 characters.
4. Select the Blade Server Group checkbox.

If you want to designate that these ports are attached to blades housed in a blade chassis (for example, HP c3000 or Dell PowerEdge 1855), select the Blade Server Group checkbox.

Note: This is especially important to CC-SG users who want HP blades to be organized on a chassis basis, although each blade has its own connection to a port on the KX II.

5. Click on a port in the Available box in the Select Ports for Group section. Click Add to add the port to the group. The port will be moved to the Selected box.
6. Click OK to add the port group.

► **To edit port group information:**

1. On the Port Group Management page, click on the link of the port group you want to edit. The Port Group page opens.
2. Edit the information as needed.
3. Click OK to save the changes.

► **To delete a port group:**

1. Click on the Port Group Management page, select the checkbox of the port group you want to delete.
2. Click Delete.
3. Click OK on the warning message.

Supported Blade Chassis Models

This table contains the blade chassis models that are supported by the KX II and the corresponding profiles that should be selected per chassis model when configuring them in the KX II application. A list of these models can be selected on the Port Configuration page from the Blade Server Chassis Model drop-down, which appears when the Blade Chassis radio button is selected. For details on how to configure each blade chassis model, see their corresponding topics in this section of the help.

Blade chassis model	KX II Profile
Cisco® UCS	Configure using Port Group Management functions. See <i>HP and Cisco UCS Blade Chassis Configuration (Port Group Management)</i> (on page 196)
Dell® PowerEdge™ 1855/1955	Dell PowerEdge 1855/1955
Dell PowerEdge M1000e	Dell PowerEdge M1000e
IBM® BladeCenter® S	IBM (Other)
IBM BladeCenter H	IBM BladeCenter H
IBM BladeCenter T	IBM (Other)
IBM BladeCenter HT	IBM (Other)
IBM BladeCenter E	IBM BladeCenter E
HP®	Configure using Port Group Management functions. See <i>HP and Cisco UCS Blade Chassis Configuration (Port Group Management)</i> (on page 196)

Supported CIMs for Blade Chassis

The following CIMs are supported for blade chassis being managed through the KX II:

- DCIM-PS2
- DCIM-USBG2
- D2CIM-VUSB
- D2CIM-DVUSB

Following is a table containing supported CIMs for each blade chassis model that the KX II supports.

Blade chassis	Connection method	Recommended CIM(s)
Generic	If a D2CIM-VUSB or D2CIM-DVUSB is used when connecting to a blade-chassis configured as Generic, you will be able to select the USB profiles from the Port Configuration page and the client's USB Profile menu. However, virtual media is not supported for generic blade chassis and the Virtual Media menu is disabled on the client.	<ul style="list-style-type: none"> • DCIM-PS2 • DCIM-USBG2
Cisco® UCS Server Chassis	The Cisco KVM cable (N20-BKVM) enables you to perform server blade administration, configuration, and diagnostic procedures by connecting video and USB devices directly to the server blade. Source: <i>Cisco UCS 5108 Server Chassis Installation Guide</i>	<ul style="list-style-type: none"> • DCIM-USBG2 • D2CIM-VUSB • D2CIM-DVUSB
Dell® PowerEdge™ 1855	Includes one of the three KVM modules : <ul style="list-style-type: none"> • Analog KVM Ethernet switch module (standard) • Digital Access KVM switch module (optional) • KVM switch module (standard on systems sold prior to April, 2005) <p>These switches provide a custom connector that allows two PS/2 and one video device to be connected to the system.</p> <p>Source: <i>Dell PowerEdge 1855 User Guide</i></p>	<ul style="list-style-type: none"> • DCIM-PS2
Dell PowerEdge 1955	One of two types of KVM modules may be installed: <ul style="list-style-type: none"> • Analog KVM switch module • Digital Access KVM switch module 	<ul style="list-style-type: none"> • DCIM-PS2

Blade chassis	Connection method	Recommended CIM(s)
	<p>Both modules enable you to connect a PS/2-compatible keyboard, mouse and video monitor to the system (using a custom cable provided with the system).</p> <p>Source: <i>Dell PowerEdge 1955 Owner's Manual</i></p>	
Dell PowerEdge M1000e	<p>The KVM Switch Module (iKVM) is Integrated with this chassis.</p> <p>The iKVM is compatible with the following peripherals:</p> <ul style="list-style-type: none"> • USB keyboards, USB pointing devices • VGA monitors with DDC support. <p>Source: <i>Dell Chassis Management Controller, Firmware Version 1.0, User Guide</i></p>	<ul style="list-style-type: none"> • DCIM-USBG2
HP® BladeSystem c3000	<p>The HP c-Class Blade SUV Cable enables you to perform blade chassis administration, configuration, and diagnostic procedures by connecting video and USB devices directly to the server blade.</p> <p>Source: <i>HP ProLiant™ BL480c Server Blade Maintenance and Service Guide</i></p>	<ul style="list-style-type: none"> • DCIM-USBG2 • D2CIM-VUSB • D2CIM-DVUSB (for standard KVM port operation without a KVM option)
HP BladeSystem c7000	<p>The HP c-Class Blade SUV Cable enables you to perform server blade administration, configuration, and diagnostic procedures by connecting video and USB devices directly to the server blade.</p> <p>Source: <i>HP ProLiant BL480c Server Blade Maintenance and Service Guide</i></p>	<ul style="list-style-type: none"> • DCIM-USBG2 • D2CIM-VUSB • D2CIM-DVUSB (for standard KVM port operation)
IBM® BladeCenter® S	<p>The Advanced Management Module (AMM) provides system management functions and keyboard/video/mouse (KVM) multiplexing for all blade chassis.</p> <p>The AMM connections include: a serial port, video connection, remote management port (Ethernet), and two USB v2.0 ports for a keyboard and mouse.</p> <p>Source: <i>Implementing the IBM BladeCenter S Chassis</i></p>	<ul style="list-style-type: none"> • DCIM-USBG2
IBM BladeCenter H	<p>The BladeCenter H chassis ships standard with one Advanced Management Module.</p> <p>Source: <i>IBM BladeCenter Products and</i></p>	<ul style="list-style-type: none"> • DCIM-USBG2 • D2CIM-DVUSB

Blade chassis	Connection method <i>Technology</i>	Recommended CIM(s)
IBM BladeCenter E	The current model BladeCenter E chassis (8677-3Rx) ships standard with one Advanced Management Module. <i>Source: IBM BladeCenter Products and Technology</i>	<ul style="list-style-type: none"> • DCIM-USBG2 • D2CIM-DVUSB
IBM BladeCenter T	The BladeCenter T chassis ships standard with one Advanced Management Module. In contrast to the standard BladeCenter chassis, the KVM module and the Management Module in the BladeCenter T chassis are separate components. The front of the Management Module only features the LEDs for displaying status. All Ethernet and KVM connections are fed through to the rear to the LAN and KVM modules. The KVM module is a hot swap module at the rear of the chassis providing two PS/2 connectors for keyboard and mouse, a systems-status panel, and a HD-15 video connector. <i>Source: IBM BladeCenter Products and Technology</i>	<ul style="list-style-type: none"> • DCIM-PS2
IBM BladeCenter HT	The BladeCenter HT chassis ships standard with one Advanced Management Module. This module provides the ability to manage the chassis as well as providing the local KVM function. <i>Source: IBM BladeCenter Products and Technology</i>	<ul style="list-style-type: none"> • DCIM-USBG2

Note: In order to support Auto-discovery, IBM BladeCenter Models H and E must use AMM with firmware version BPET36K or later.

Note: In the case of IBM Blade Center Models E and H, the KX II only supports auto-discovery for AMM[1] as the acting primary management module.

Note: Audio is disabled for all KVM switch targets.

Required and Recommended Blade Chassis Configurations

This table contains information on limitations and constraints that apply to configuring blade chassis to work with the KX II. Raritan recommends that all of the information below is followed.

Blade chassis	Required/recommended action
Dell® PowerEdge™ M1000e	<ul style="list-style-type: none"> ▪ Disable the iKVM GUI screensaver. An authorize dialog will appear, preventing iKVM from working correctly, if this is not done. ▪ Exit the iKVM GUI menu before attaching Dell's chassis to a Raritan CIM. iKVM may not work correctly if this is not done. ▪ Configure the iKVM GUI Main menu to select target blades by Slot, not by Name. iKVM may not work correctly if this is not done. ▪ <i>Do not</i> designate any slots for scan operations in the iKVM GUI Setup Scan menu. iKVM may not work correctly otherwise. ▪ <i>Do not</i> designate any slots for broadcast keyboard/mouse operations in the iKVM GUI Setup Broadcast menu. iKVM may not work correctly otherwise. ▪ Designate a single key sequence to invoke the iKVM GUI. This key sequence must also be identified during KX II port configuration. Otherwise, indiscriminate iKVM operation may occur as a result of client key entry. ▪ Ensure that Front Panel USB/Video Enabled is <i>not</i> selected during iKVM configuration via the Dell CMC GUI. Otherwise, connections made at the front of chassis will take precedence over the KX II connection at the rear, preventing proper iKVM operation. A message will be displayed stating 'User has been disabled as front panel is currently active.' ▪ Ensure that 'Allow access to CMC CLI from iKVM' is <i>not</i> selected during iKVM configuration via the Dell CMC GUI. ▪ To avoid having the iKVM GUI display upon connecting to the blade chassis, set the Screen Delay Time to 8 seconds. ▪ Recommend that 'Timed' and 'Displayed' be selected during iKVM GUI Flag Setup. This will allow you to visually confirm the connection to the desired blade slot.
Dell PowerEdge 1855/1955	<ul style="list-style-type: none"> ▪ Disable the iKVM GUI screensaver. An Authorize dialog will appear if this is not done and will prevent the iKVM from operating correctly. ▪ Exit the iKVM GUI menu before attaching Dell's chassis to a Raritan CIM. iKVM may not work correctly if this is not done. ▪ Configure the iKVM GUI Main menu to select target blades by Slot, not by Name. iKVM may not work correctly if this is not done.

Blade chassis	Required/recommended action
	<ul style="list-style-type: none"> Do not designate any slots for scan operations in the iKVM GUI Setup Scan menu or the iKVM may not work properly. To avoid having the iKVM GUI display upon connecting to the blade chassis, set the Screen Delay Time to 8 seconds. Recommend that 'Timed' and 'Displayed' be selected during iKVM GUI Flag Setup. This will allow you to visually confirm the connection to the desired blade slot.
IBM®/Dell® Auto-Discovery	<ul style="list-style-type: none"> It is recommended that Auto-Discovery be enabled when applying blade level access permissions. Otherwise, set access permissions on a blade-chassis wide basis. Secure Shell (SSH) must be enabled on the blade chassis management module. The SSH port configured on the blade chassis management module and the port number entered on the Port Configuration page must match.
IBM KX2 Virtual Media	<ul style="list-style-type: none"> Raritan KX II virtual media is supported only on IBM BladeCenter® Models H and E. This requires the use of the D2CIM-DVUSB. The black D2CIM-DVUSB Low-Speed USB connector is attached to the Administrative Management Module (AMM) at the rear of the unit. The gray D2CIM-DVUSB High-Speed USB connector is attached to the Media Tray (MT) at the front of the unit. This will require a USB extension cable.
Cisco® UCS Server Chassis	<ul style="list-style-type: none"> The Cisco KVM cable (N20-BKVM) enables you to perform server blade administration, configuration, and diagnostic procedures by connecting video and USB devices directly to the server blade. Source: <i>Cisco UCS 5108 Server Chassis Installation Guide-DCIM-USBG2, D2CIM-VUSB, D2CIM-DVUSB</i>

Note: All IBM BladeCenters that use AMM must use AMM firmware version BPET36K or later to work with the KX II.

Note: In the case of IBM Blade Center Models E and H, the KX II only supports auto-discovery for AMM[1] as the acting primary management module.

Blade Chassis Sample URL Formats

This table contains sample URL formats for blade chassis being configured in the KX II.

Blade chassis	Sample URL format
Dell® M1000e	<ul style="list-style-type: none"> URL: https://192.168.60.44/cgi-bin/webcgi/login Username: root Username Field: user

Blade chassis	Sample URL format
	<ul style="list-style-type: none"> • Password: calvin • Password Field: password
Dell 1855	<ul style="list-style-type: none"> • URL: https://192.168.60.33/Forms/f_login • Username: root • Username Field: TEXT_USER_NAME • Password: calvin • Password Field: TEXT_PASSWORD
IBM® BladeCenter® E or H	<ul style="list-style-type: none"> • http://192.168.84.217/private/welcome.ssi

Configuring USB Profiles (Port Page)

You choose the available USB profiles for a port in the Select USB Profiles for Port section of the Port page. The USB profiles chosen in the Port page become the profiles available to the user in VKC when connecting to a KVM target server from the port. The default is the Windows 2000® operating system, Windows XP® operating system, Windows Vista® operating system profile. For information about USB profiles, see **USB Profiles** (on page 108).

*Note: To set USB profiles for a port, you must have a digital CIM, VM-CIM or Dual VM-CIM connected with firmware compatible with the current firmware version of the KX II. See **Upgrading CIMs** (on page 245).*

The profiles available to assign to a port appear in the Available list on the left. The profiles selected for use with a port appear in the Selected list on the right. When you select a profile in either list, a description of the profile and its use appears in the Profile Description field.

In addition to selecting a set of profiles to make available for a KVM port, you can also specify the preferred profile for the port and apply the settings from one port to other KVM ports.

*Note: See **Mouse Modes when Using the Mac Boot Menu** (on page 115) for information on using the Mac OS-X® USB profile if you are using a DCIM-VUSB or DCIM-DVUSB virtual media CIM.*

► **To open the Port page:**

1. Choose Device Settings > Port Configuration. The Port Configuration page opens.

- Click the Port Name for the KVM port you want to edit. The Port page opens.

► **To select the USB profiles for a KVM port:**

- In the Select USB Profiles for Port section, select one or more USB profiles from the Available list.
 - Shift-Click and drag to select several continuous profiles.
 - Ctrl-Click to select several discontinuous profiles.
- Click Add. The selected profiles appear in the Selected list. These are the profiles that can be used for the KVM target server connected to the port.

► **To specify a preferred USB profile:**

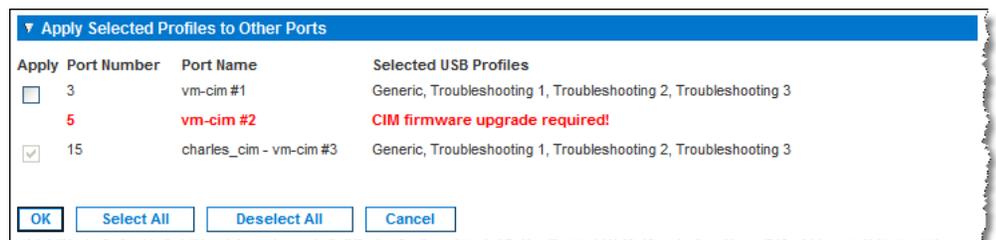
- After selecting the available profiles for a port, choose one from the Preferred Profile for Port menu. The default is Generic. The selected profile is used when connecting to the KVM target server. You can change to any other USB profile as necessary.
- If check box Set Active Profile As Preferred Profile is selected, this preferred USB is also used as active profile.

► **To remove selected USB profiles:**

- In the Select USB Profiles for Port section, select one or more profiles from the Selected list.
 - Shift-Click and drag to select several continuous profiles.
 - Ctrl-Click to select several discontinuous profiles.
- Click Remove. The selected profiles appear in the Available list. These profiles are no longer available for a KVM target server connected to this port.

► **To apply a profile selection to multiple ports:**

- In the Apply Selected Profiles to Other Ports section, select the Apply checkbox for each KVM port you want to apply the current set of selected USB profiles to.



- To select all KVM ports, click Select All.
- To deselect all KVM ports, click Deselect All.

Configuring KX II Local Port Settings

From the Local Port Settings page, you can customize many settings for the KX II Local Console including keyboard, hot keys, video switching delay, power save mode, local user interface resolution settings, and local user authentication. Further, you can change a USB profile from the local port.

For the KX2-808, KX2-832 and KX2-864, you are also able to configure the extended local port from the Local Port Settings page. The extended local port may be connected to a Paragon switch or User Station to extend the reach of the Local port. Like the standard local port, you are able to configure keyboard, hot keys, video switching delay, power save mode, local user interface resolution settings, and local user authentication settings. The extended local port can be configured from both the Remote Console and the Local Console. See **KX2-808, KX2-832 and KX2-864 Standard and Extended Local Port Settings** (on page 210) for more information on the standard local port and extended local port.

Note: If the extended local port is enabled on the KX2-808, KX2-832 and KX2-864 and nothing is connected to the port, you will experience a delay of 2-3 seconds when switching to a target via the local port.

Note: Some changes you make to the settings on the Local Port Settings page restart the browser you are working in. If a browser restart occurs when a setting is changed, it is noted in the steps provided here.

► To configure the local port settings:

1. Choose Device Settings > Local Port Settings. The Local Port Settings page opens.
2. Select the checkbox next to the Enable Standard Local Port to enable it. Deselect the checkbox to disable it. By default, the standard local port is enabled but can be disabled as needed. The browser will be restarted when this change is made. If you are using the tiering feature, this feature will be turned off since both features cannot be used at the same time.
3. If you are using a KX2-808, KX2-832 or KX2-864 device, select the checkbox next to the Extended Local Port to enable it. Deselect the checkbox(s) to disable it. If you are using the smart card feature, the extended local port must be disabled. The browser will be restarted when this change is made.

If both the standard local port and extended local port are disabled, the local ports cannot be accessed. If you attempt to access a KX2-808, KX2-832 or KX2-864 through a disabled local port, a message will be displayed indicating that the device is under remote management and that the login is disabled.

Note: If you are using KX2-808, KX2-832 and KX2-864 as tiered devices, you must connect them to the base KX II via the extended local port.

4. If you are using the tiering feature, select the Enable Local Port Device Tiering checkbox and enter the tiered secret word in the Tier Secret field. In order to configure tiering, you must also configure the base device on the Device Services page. See **Configuring and Enabling Tiering** (on page 147) for more information on tiering.
5. If needed, configure the Local Port Scan Mode settings. These settings apply to Scan Settings feature, which is accessed from the Port page. See **Scanning Ports** (on page 47).
 - In the "Display Interval (10-255 sec):" field, specify the number of seconds you want the target that is in focus to display in the center of the Port Scan window.
 - In the "Interval Between Ports (10 - 255 sec):" field, specify the interval at which the device should pause between ports.
6. Choose the appropriate keyboard type from among the options in the drop-down list.

The browser will be restarted when this change is made.

- US
- US/International
- United Kingdom
- French (France)
- German (Germany)
- JIS (Japanese Industry Standard)
- Simplified Chinese
- Traditional Chinese
- Dubeolsik Hanguk (Korean)
- German (Switzerland)
- Portuguese (Portugal)
- Norwegian (Norway)
- Swedish (Sweden)
- Danish (Denmark)
- Belgian (Belgium)
- Hungarian
- Spanish
- Italian
- Slovenian

Note: Keyboard use for Chinese, Japanese, and Korean is for display only. Local language input is not supported at this time for KX II Local Console functions.

Note: If using a Turkish keyboard, you must connect to a target server through the Active KVM Client (AKC). It is not supported by other Raritan clients.

7. Choose the local port hotkey. The local port hotkey is used to return to the KX II Local Console interface when a target server interface is being viewed. The default is to Double Click Scroll Lock, but you can select any key combination from the drop-down list:

Hot key:	Take this action:
Double Click Scroll Lock	Press Scroll Lock key twice quickly
Double Click Num Lock	Press Num Lock key twice quickly
Double Click Caps Lock	Press Caps Lock key twice quickly
Double Click Left Alt key	Press the left Alt key twice quickly
Double Click Left Shift key	Press the left Shift key twice quickly
Double Click Left Ctrl key	Press the left Ctrl key twice quickly

8. Select the Local Port Connect key. Use a connect key sequence to connect to a target and switch to another target.

You can then use the hot key to disconnect from the target and return to the local port GUI.

Once the local port connect key is created, it will appear in the Navigation panel of the GUI so you can use it as a reference. See **Connect Key Examples** (on page 273) for examples of connect key sequences.
9. The connect key works for both standard servers and blade chassis.
10. Set the Video Switching Delay from between 0 - 5 seconds, if necessary. Generally 0 is used unless more time is needed (certain monitors require more time to switch the video).
11. If you would like to use the power save feature:
 - a. Select the Power Save Mode checkbox.
 - b. Set the amount of time (in minutes) in which Power Save Mode will be initiated.
12. Choose the resolution for the KX II Local Console from the drop-down list. The browser will be restarted when this change is made.
 - 800x600
 - 1024x768

- 1280x1024
13. Choose the refresh rate from the drop-down list. The browser will be restarted when this change is made.
- 60 Hz
 - 75 Hz
14. Choose the type of local user authentication.
- Local/LDAP/RADIUS. This is the recommended option. For more information about authentication, see Remote Authentication.
 - None. There is no authentication for Local Console access. This option is recommended for secure environments only.
 - Select the "Ignore CC managed mode on local port" checkbox if you would like local user access to the KX II even when the device is under CC-SG management.

Note: If you initially choose not to ignore CC Manage mode on the local port but later want local port access, you will have to remove the device from under CC-SG management (from within CC-SG). You will then be able to check this checkbox.

Note: In order to use the standard local port and extended local port while the KX II is under CC-SG management, "Ignore CC managed mode on local port" option must be selected. Select the "Ignore CC managed mode on local port" checkbox if you would like local user access, via the standard or extended local port, to the KX II when the device is under CC-SG management. Alternatively, use the direct device access while under CC-SG management feature.

15. Click OK.

KX2-808, KX2-832 and KX2-864 Standard and Extended Local Port Settings

The KX2-808, KX2-832 and KX2-864 provide you with two local port options: the standard local port and the extended local port. Each of these port options is enabled and disabled from the Remote Console or from the Local Console on the Local Port Settings page. For more information, see **Configuring KX II Local Port Settings** (on page 206).

By default, the standard local port is enabled and the extended local port is disabled. If you would like to extend the reach of the local port, enable the extended local port and use a Cat5/5e/6 cable to connect to the KX2-808, KX2-832 or KX2-864 from a Paragon II UMT, EUST, UST or URKVMG.

Note: If the extended local port is enabled on the KX2-808, KX2-832 and KX2-864 and nothing is connected to the port, you will experience a delay of 2-3 seconds when switching to a target via the Local port.

You must have Administrator privileges to configure these options. To access a port, you only need to enter your username and password once. You do not have to enter these credentials for each port you access.

See the **Specifications** (on page 287) section for details on the devices supported by the extended local port, as well as distance specifications and supported CIMs.

KX2-808, KX2-832 and KX2-864 Connection Limitations

The standard and extended local ports share access to a target. When both are enabled, the keyboard, video and mouse are shared between the standard and extended local ports. Both will be connected to or disconnected from the target.

When either the standard or extended local ports is disabled, the keyboard, video and mouse for the ports will be disabled and a message is displayed you that the local ports have been disabled.

Connect and Disconnect Scripts

The KX II provides the ability to execute key macro scripts when connecting to or disconnecting from a target.

You can create and edit your own scripts on the Connection Script page to perform additional actions when connecting to or disconnecting from targets.

Alternatively, you can import existing connection scripts in XML file format. Scripts that you create in KX II can also be exported in XML file format.

A total of 16 scripts can be accommodated on the KX II.

Home > Device Settings > Connection Scripts

Logout

Manage Scripts

Available Connection Scripts

Ctrl-Alt-De_ OnExit (Disconnect)	<input type="button" value="Add"/> <input type="button" value="Modify"/> <input type="button" value="Remove"/>
AKC-PrtScr (Connect)	

Apply Selected Scripts to Ports

Apply	No.	Name	Scripts Currently in Use
<input checked="" type="checkbox"/>	5	SE-KX2-232-LP-ChangedName	
<input checked="" type="checkbox"/>	6	Japanese Target	
<input checked="" type="checkbox"/>	8	se-ksx2-188-local-port	On Disconnect: Ctrl-Alt-De_ OnExit
<input checked="" type="checkbox"/>	9	W2K3 Server	
<input checked="" type="checkbox"/>	18	Win XP 2.4GHz P4 504MB	

Applying and Removing Scripts

► To apply a script to targets:

1. Click Device Settings > Connection Scripts. The Connection Scripts page opens.
2. In the Available Connection Scripts section, select the script to be applied to the target(s). One 'On Connect' and one 'On Disconnect' script may be applied to a target.

Note: Only one script can be added to the targets at a time.

3. In the Apply Selected Scripts to Ports section, select the target(s) you want to apply the script to using Select All or clicking on the checkbox to the left of each target to apply the script to only select targets.
4. Click Apply Scripts. Once the script is added to the target, it appears under the Scripts Currently in Use column in the Apply Selected Scripts to Ports section.

► **To remove a script from targets:**

1. In the Apply Selected Scripts to Ports section, select the target(s) you want to remove the scripts from using Select All or clicking on the checkbox to the left of each target to remove the script from only select targets.
2. Click Remove Connect Scripts to remove connect scripts or click Remove Disconnect Scripts to remove disconnect scripts.

Adding Scripts

*Note: You can also add scripts that were created outside of KX II and import them as XML files. See **Importing and Exporting Scripts** (on page 215).*

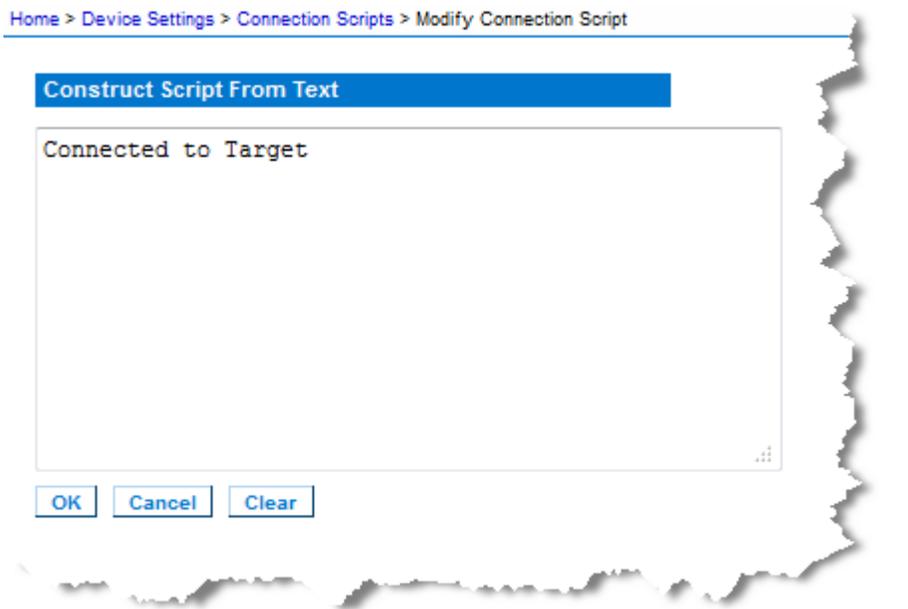
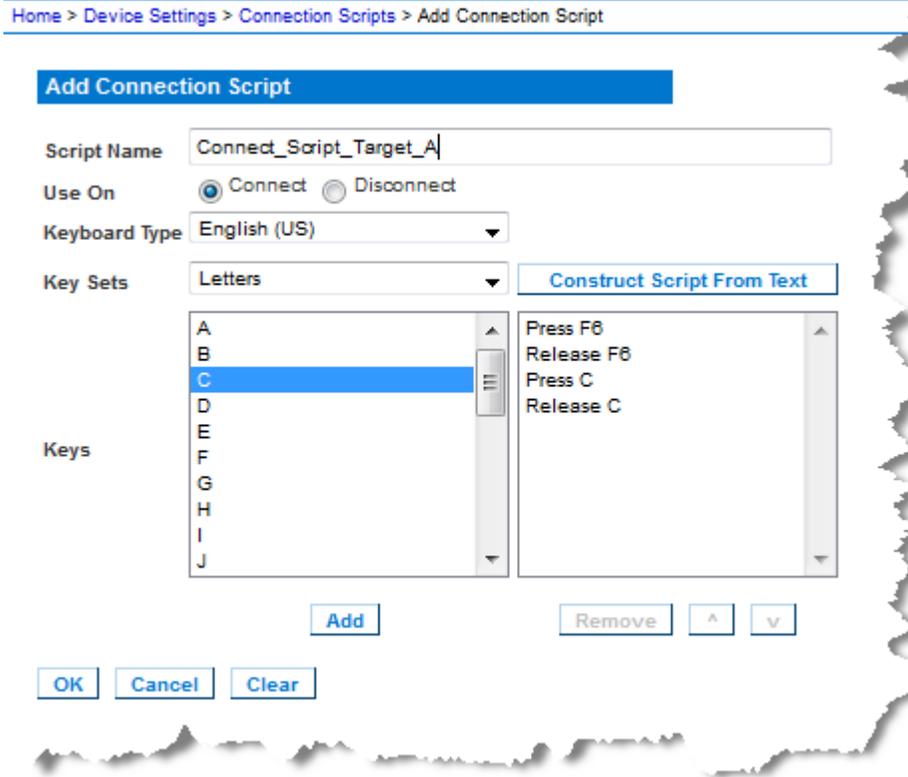
► **To create script:**

1. Click Device Settings > Connection Scripts. The Connection Scripts page opens.
2. In the Available Connection Scripts section, click Add. The Add Connection Script page opens.
3. Enter a name for the script up to 32 characters in length. This name is displayed in the Available Connection Scripts section of the Configure Scripts page once the script is created.
4. Select either Connect or Disconnect as the type of script you are creating. Connect scripts are used on a new connection or when switching to a target.
5. Select the keyboard type required for the target you are using.
6. From the Key Sets drop-down, choose the keyboard key set you want to use to create the script. Once selected, the Add box below the Key Sets drop-down is populated with the selected key set options.
7. Select a key from the Add box and click Add to move it to Script box. Remove a key from Script box by selecting it clicking Remove. Reorder keys by selecting them and using the Up and Down icons.

The script can consist of one or more keys. Additionally, you can mix and match the keys to be used in the script.

For example, select F1-F16 to display the function key set in the Add box. Select a function key and add it to the Script box. Next, select Letters from the Key Set drop-down and add a letter key to the script.

8. Optionally, add text that will display when the script is executed.
 - a. Click Construct Script from Text to open the Construct Script From Text page.
 - b. Enter the script in the text box. For example, enter "Connected to Target".
 - c. Click OK Construct Script From Text page.
9. Click OK to create the script.



Modifying Scripts

► To modify existing scripts:

1. Click Device Settings > Connection Scripts. The Connection Scripts page opens.
2. In the Available Connection Scripts section, select the script you want to modify and click Modify. The page is then in Edit mode.
3. Make changes as needed. Click OK when finished.

Importing and Exporting Scripts

You are able to import and export connect and disconnect scripts that are in XML file format. Keyboard macros cannot be imported or exported.

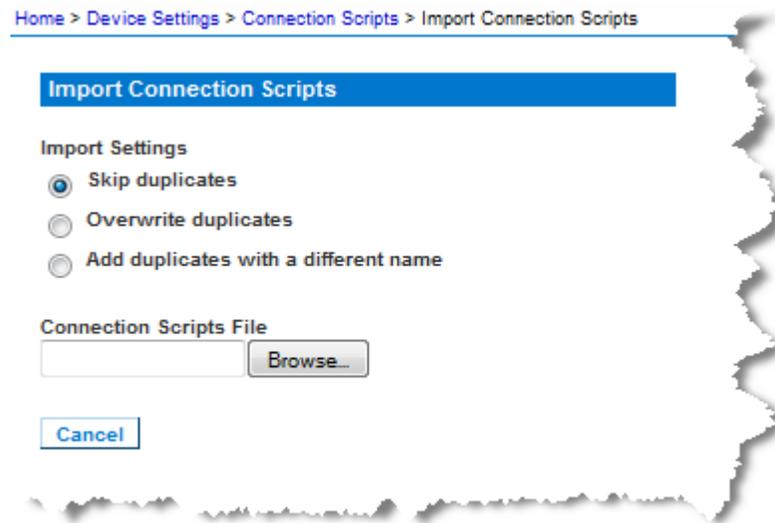
Note: The import and export feature is not available from the Local Console.

Imported scripts can be edited in KX II using the Modify feature. However, once an imported script is associated with a port, it cannot be modified. Remove the script from the port to modify it. See **Applying and Removing Scripts** (on page 211).

► To import a script:

1. Click Device Settings > Connection Scripts. The Connection Scripts page opens.
2. In the Available Connection Scripts section, click Import. The Import Connection Scripts page opens.
3. Select the import setting.
 - Skip duplicates - Scripts that already exist in KX II are not included in the import.
 - Overwrite duplicates - Scripts that already exists in KX II are overwritten by the new, imported script.
 - Add duplicates with a different name - Duplicate scripts will be renamed during the import and will not overwrite existing scripts. KX II assigns a number to the file name to distinguish it from the original.
4. Use the browse function to locate the XML script files to import.

5. Click Import. The Configuration Scripts page opens and the imported scripts are displayed.



► **To export a disconnect script:**

1. Click Device Settings > Configuration Scripts. The Configuration Scripts page opens.
2. In the Available Connection Scripts section, select the script you want to export and click Export. A dialog prompting you to open or save the XML file appears.
3. Save the XML file or open it in an XML editor. If you save the XML file, it is saved to your default Download folder.

Port Group Management

Port group management refers to the following:

- Blade Server Group - the aggregation of ports connected to certain types of blades into a group representing the blade chassis. See *HP and Cisco UCS Blade Chassis Configuration (Port Group Management)* (on page 196) for details.
- Dual Video Port Group - the creation of port groups that provide extended desktop configurations on target servers. See *Creating a Dual Video Port Group* (on page 218).
- Port Group - the creation of 'standard' port groups where settings applying to a primary port are applied to all secondary ports in the group. See *Creating Port Groups* (on page 217).

Creating Port Groups

The KX II supports the aggregation of multiple ports into a single port group. Port groups consist solely of ports configured as standard KVM ports.

A port may only be a member of a single group.

Ports that are available to be included in a port group are displayed in the Select Port for Group > Available list.

Once a port is added to a port group, it is not available to add to another port group. Remove the port from its existing port group to use it in a new one.

A maximum of 8 port groups can be created. The Add button is disabled once this limit is reached.

Connect and disconnect actions performed from the primary port are applied to the secondary ports in the group with the exception of power control.

Port Groups are restored using the Backup and Restore option (see **Backup and Restore** (on page 242)).

*Note: See **HP and Cisco UCS Blade Chassis Configuration (Port Group Management)** (on page 196) for information on creating port groups for blade chassis, and **Creating Dual Port Video Groups** for information on creating dual video port groups.*

► To create a port group:

1. Select Device Settings > Port Group Management. The Port Group Management page opens. Any existing port groups are displayed.
2. Click Add. The page refreshes and displays all of the port group options available.
3. Select the Port Group radio button.
4. Select the ports to add to the group by clicking on them in the Available text box, and then clicking Add to add it to the Selected text box.
5. Click OK to create the port group. The port group now appears on the Port Group Management page.

Creating a Dual Video Port Group

The dual video port groups feature allows you to group two video ports into one group.

Use this feature when you need to connect to a server with two video cards/ports, and you want to access both ports from the same remote client at the same time.

Note: Dual port video groups are not supported by models with only one KVM channel such as KX3-108 and KX3-116 models.

Note: Once a dual video port group is created, it is available from the local console as well as the remote client. However, extended desktop is not supported at the local console.

Dual video port groups appear on the Port Access page as Dual Port types.

The primary and secondary ports that are a part of the port group appear on the Port Access page as Dual Port(P) and Dual Port(S), respectively. For example, if the CIM type is DCIM, "DCIM Dual Port (P)" is displayed.

Each group must contain a primary port and a secondary port.

The configuration applied to the primary port is applied to all secondary ports in the group. If a port is removed from the group, it is considered an independent port and a new configuration can be applied to it.

When you access a dual port video group from the remote client, you connect to the primary port, which opens a KVM connection window to both the primary and secondary ports of the dual port group.

The sessions can be launched and viewed from the remote client on one or multiple monitors as needed.

The orientation setting configured on the device for the target must match the actual configuration on the target operating system.

It is recommended that the connecting client have the same screen orientation whenever possible.

Important: Review the information in the *Dual Video Port Groups* (on page 317) section for restrictions, recommendations, and so on that may impact your specific environment.

► **To create a dual port video group:**

1. Select Device Settings > Port Group Management. The Port Group Management page opens. Any existing port groups are displayed.
2. Click Add. The Port Group page opens, and all available ports are displayed in the Select Ports for Group section.

Note: If a port is already a part of blade server port group, another dual video port group, or 'standard' port group, the port is not an option since ports can only belong to a single port group at a time.

3. Select the Dual Video Port Group radio button.
4. From the Select Ports for Group section, click on the port you are designating as the primary port, then click Add to add it to the Selected text box. Be sure to add the primary port first.

*Note: Ideally, the permissions applied to each port in the port group should be the same. If they are not, the permissions of the port with the most restrictive permissions is applied to the port group. For example, if VM Access Deny is applied to one port and VM Access Read-Write is applied to another port, VM Access Deny is applied to the port group. See **Permissions and Dual Video Port Group Access** (on page 320) for information on how port permissions affect dual video port groups.*

5. Click on the port that you are designating as the secondary port and click Add to add it to the Selected text box.
6. Select the orientation of the page. The orientation you select depends on what works best with your monitor setup.
7. Click OK to create the port group.

Dual video port groups appear on the Port Access page as Dual Port types.

The primary and secondary ports that are a part of the port group appear on the Port Access page as Dual Port(P) and Dual Port(S), respectively. For example, if the CIM type is DCIM, "DCIM Dual Port (P)" is displayed.

Note: Dual Video port targets attached to a tier device should only be connected via the tier device, not through the tier base device.

Changing the Default GUI Language Setting

The KX II GUI defaults to English, but also supports the following localized languages:

- Japanese
- Simplified Chinese
- Traditional Chinese

► To change the GUI language:

1. Select Device Settings > Language. The Language Settings page opens.
2. From the Language drop-down, select the language you want to apply to the GUI.

3. Click Apply. Click Reset Defaults to change back to English.

Note: Once you apply a new language, the online help is also localized to match your language selection.

Chapter 9 Security Management

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Security Settings

From the Security Settings page, you can specify login limitations, user blocking, password rules, and encryption and share settings.

Raritan SSL certificates are used for public and private key exchanges, and provide an additional level of security. Raritan web server certificates are self-signed. Java applet certificates are signed by a VeriSign certificate. Encryption guarantees that your information is safe from eavesdropping and these certificates ensure that you can trust that the entity is Raritan, Inc.

► **To configure the security settings:**

1. Choose Security > Security Settings. The Security Settings page opens.
2. Update the **Login Limitations** (on page 222) settings as appropriate.
3. Update the **Strong Passwords** (on page 224) settings as appropriate.
4. Update the **User Blocking** (on page 225) settings as appropriate.
5. Update the Encryption & Share settings as appropriate.
6. Click OK.

► **To reset back to defaults:**

- Click Reset to Defaults.

Login Limitations	User Blocking
<input type="checkbox"/> Enable Single Login Limitation <input type="checkbox"/> Enable Password Aging Password Aging Interval (days) <input type="text" value="60"/> <input type="checkbox"/> Log Out Idle Users After (1-365 minutes) <input type="text" value="1"/>	<input checked="" type="radio"/> Disabled <input type="radio"/> Timer Lockout Attempts <input type="text" value="3"/> Lockout Time <input type="text" value="5"/> <input type="radio"/> Deactivate User-ID Failed Attempts <input type="text" value="3"/>
Strong Passwords	Encryption & Share
<input type="checkbox"/> Enable Strong Passwords Minimum length of strong password <input type="text" value="8"/> Maximum length of strong password <input type="text" value="16"/> <input checked="" type="checkbox"/> Enforce at least one lower case character <input checked="" type="checkbox"/> Enforce at least one upper case character <input checked="" type="checkbox"/> Enforce at least one numeric character <input checked="" type="checkbox"/> Enforce at least one printable special character Number of restricted passwords based on history <input type="text" value="5"/>	Encryption Mode Auto ▾ <input checked="" type="checkbox"/> Apply Encryption Mode to KVM and Virtual Media (Forced in FIPS 140-2 Mode) <input type="checkbox"/> Enable FIPS 140-2 Mode (Changes are activated on reboot only) Current FIPS status: Inactive PC Share Mode PC-Share ▾ <input checked="" type="checkbox"/> VM Share Mode Local Device Reset Mode Enable Local Factory Reset ▾
<input type="button" value="OK"/> <input type="button" value="Reset To Defaults"/> <input type="button" value="Cancel"/>	

Login Limitations

Using login limitations, you can specify restrictions for single login, password aging, and the logging out idle users.

Limitation	Description
Enable single login limitation	When selected, only one login per user name is allowed at any time. When deselected, a given user name/password combination can be connected into the device from several client workstations simultaneously.
Enable password aging	When selected, all users are required to change their passwords periodically based on the number of days specified in Password Aging Interval field. This field is enabled and required when the Enable Password Aging checkbox is selected.

Limitation	Description
	Enter the number of days after which a password change is required. The default is 60 days.
Log out idle users, After (1-365 minutes)	<p>Select the "Log off idle users" checkbox to automatically disconnect users after the amount of time you specify in the "After (1-365 minutes)" field. If there is no activity from the keyboard or mouse, all sessions and all resources are logged out. If a virtual media session is in progress, however, the session does not timeout.</p> <p>The After field is used to set the amount of time (in minutes) after which an idle user will be logged out. This field is enabled when the Log Out Idle Users option is selected. Up to 365 minutes can be entered as the field value</p>

Login Limitations

Enable Single Login Limitation

Enable Password Aging

Password Aging Interval (days)

60

Log Out Idle Users

Idle Timeout (minutes)

30

Strong Passwords

Strong passwords provide more secure local authentication for the system. Using strong passwords, you can specify the format of valid KX II local passwords such as minimum and maximum length, required characters, and password history retention.

Strong passwords require user-created passwords to have a minimum of 8 characters with at least one alphabetical character and one nonalphabetical character (punctuation character or number). In addition, the first four characters of the password and the user name cannot match.

When selected, strong password rules are enforced. Users with passwords not meeting strong password criteria will automatically be required to change their password on their next login. When deselected, only the standard format validation is enforced. When selected, the following fields are enabled and required:

Field	Description
Minimum length of strong password	Passwords must be at least 8 characters long. The default is 8, but administrators can change the minimum to 63 characters.
Maximum length of strong password	The default minimum length is 8, but administrators can set the maximum to a default of 16 characters. The maximum length of strong passwords is 63 characters.
Enforce at least one lower case character	When checked, at least one lower case character is required in the password.
Enforce at least one upper case character	When checked, at least one upper case character is required in the password.
Enforce at least one numeric character	When checked, at least one numeric character is required in the password.
Enforce at least one printable special character	When checked, at least one special character (printable) is required in the password.
Number of restricted passwords based on history	This field represents the password history depth. That is, the number of prior passwords that cannot be repeated. The range is 1-12 and the default is 5.

Strong Passwords

Enable Strong Passwords

Minimum length of strong password

8

Maximum length of strong password

16

Enforce at least one lower case character

Enforce at least one upper case character

Enforce at least one numeric character

Enforce at least one printable special character

Number of restricted passwords based on history

5

User Blocking

The User Blocking options specify the criteria by which users are blocked from accessing the system after the specified number of unsuccessful login attempts.

The three options are mutually exclusive:

Option	Description
Disabled	The default option. Users are not blocked regardless of the number of times they fail authentication.

Option	Description
Timer Lockout	<p>Users are denied access to the system for the specified amount of time after exceeding the specified number of unsuccessful login attempts. When selected, the following fields are enabled:</p> <ul style="list-style-type: none"> ▪ Attempts - The number of unsuccessful login attempts after which the user will be locked out. The valid range is 1 - 10 and the default is 3 attempts. ▪ Lockout Time - The amount of time for which the user will be locked out. The valid range is 1 - 1440 minutes and the default is 5 minutes. <hr/> <p><i>Note: Users in the role of Administrator are exempt from the timer lockout settings.</i></p>
Deactivate User-ID	<p>When selected, this option specifies that the user will be locked out of the system after the number of failed login attempts specified in the Failed Attempts field:</p> <ul style="list-style-type: none"> ▪ Failed Attempts - The number of unsuccessful login attempts after which the user's User-ID will be deactivated. This field is enabled when the Deactivate User-ID option is selected. The valid range is 1 - 10. <p>When a user-ID is deactivated after the specified number of failed attempts, the administrator must change the user password and activate the user account by selecting the Active checkbox on the User page.</p>

User Blocking

Disabled

Timer Lockout

Attempts

Lockout Time

Deactivate User-ID

Failed Attempts

Encryption & Share

Using the Encryption & Share settings you can specify the type of encryption used, PC and VM share modes, and the type of reset performed when the KX II Reset button is pressed.

WARNING: If you select an encryption mode that is not supported by your browser, you will not be able to access the KX II from your browser.

Note that performance may be impacted once encryption is applied. The extent of the performance impact varies based on the encryption mode.

► To configure encryption and share:

1. Choose one of the options from the Encryption Mode drop-down list.

When an encryption mode is selected, a warning appears, stating that if your browser does not support the selected mode, you will not be able to connect to the KX II.

The warning states "When the Encryption Mode is specified please ensure that your browser supports this encryption mode; otherwise you will not be able to connect to the KX II."

Encryption mode	Description
Auto	This is the recommended option. The KX II autonegotiates to the highest level of encryption possible. You <i>must</i> select Auto in order for the device and client to successfully negotiate the use of FIPS compliant algorithms.
RC4	Secures user names, passwords and KVM data, including video transmissions using the RSA RC4 encryption method. This is a 128-bit Secure Sockets Layer (SSL) protocol that provides a private communications channel between the KX II device and the Remote PC during initial connection authentication. If you enable FIPS 140-2 mode and RC4 has been selected, you will receive an error message. RC4 is not available while in FIPS 140-2 mode.
AES-128	The Advanced Encryption Standard (AES) is a National Institute of Standards and Technology specification for the encryption of electronic data. 128 is the key length. When AES-128 is specified, be certain that your

Encryption mode	Description
	browser supports it, otherwise you will not be able to connect. See Checking Your Browser for AES Encryption (on page 229) for more information.
AES-256	The Advanced Encryption Standard (AES) is a National Institute of Standards and Technology specification for the encryption of electronic data. 256 is the key length. When AES-256 is specified, be certain that your browser supports it, otherwise you will not be able to connect. See Checking Your Browser for AES Encryption (on page 229) for more information.

Note: MPC will always negotiate to the highest encryption and will match the Encryption Mode setting if not set to Auto.

Note: If you are running Windows XP® operating system with Service Pack 2, Internet Explorer® 7 cannot connect remotely to the KX II using AES-128 encryption.

2. Apply Encryption Mode to KVM and Virtual Media. When selected, this option applies the selected encryption mode to both KVM and virtual media. After authentication, KVM and virtual media data is also transferred with 128-bit encryption.
3. For government and other high security environments, enable FIPS 140-2 Mode by selecting the Enable FIPS 140-2 checkbox. See **Enabling FIPS 140-2** (on page 230) for information on enabling FIPS 140-2.
4. PC Share Mode - Determines global concurrent remote KVM access, enabling up to eight remote users to simultaneously log into one KX II and concurrently view and control the same target server through the device. Click the drop-down list to select one of the following options:
 - Private - No PC share. This is the default mode. Each target server can be accessed exclusively by only one user at a time.
 - PC-Share - KVM target servers can be accessed by up to eight users (administrator or non-administrator) at one time. Each remote user has equal keyboard and mouse control, however, note that uneven control will occur if one user does not stop typing or moving the mouse.
5. If needed, select VM Share Mode. This option is enabled only when PC-Share mode is enabled. When selected, this option permits the sharing of virtual media among multiple users, that is, several users can access the same virtual media session. The default is disabled.

6. If needed, select Local Device Reset Mode. This option specifies which actions are taken when the hardware Reset button (at the back of the device) is depressed. For more information, see **Resetting the KX II Using the Reset Button** (on page 285). Choose one of the following options:

Local device reset mode	Description
Enable Local Factory Reset (default)	Returns the KX II device to the factory defaults.
Enable Local Admin Password Reset	Resets the local administrator password only. The password is reset to raritan.
Disable All Local Resets	No reset action is taken.

Note: When using the P2CIM-AUSBDUAL or P2CIM-APS2DUAL to attach a target to two KX IIs, if Private access to the targets is required, both KVM switches must have Private set as their PC Share Mode.

See **Supported Paragon CIMS and Configurations** (see "Supported Paragon II CIMS and Configurations" on page 296) for additional information on using Paragon CIMS with the KX II.

Checking Your Browser for AES Encryption

If you do not know if your browser uses AES, check with the browser manufacturer or navigate to the <https://www.fortify.net/sslcheck.html> website using the browser with the encryption method you want to check. This website detects your browser's encryption method and displays a report.

AES 256-bit encryption is supported on the following web browsers:

- Firefox®
- Internet Explorer®

In addition to browser support, AES 256-bit encryption requires the installation of Java™ Cryptography Extension® (JCE®) Unlimited Strength Jurisdiction Policy Files.

Jurisdiction files for various JREs™ are available at the "other downloads" section of the following link:

- JRE1.7 - javase/downloads/jce-7-download-432124.html

Enabling FIPS 140-2

For government and other high security environments, enabling FIPS 140-2 mode may be required.

The KX II uses an embedded FIPS 140-2-validated cryptographic module running on a Linux® platform per FIPS 140-2 Implementation Guidance section G.5 guidelines.

Once this mode is enabled, the private key used to generate the SSL certificates must be internally generated; it cannot be downloaded or exported.

Note that performance may be impacted once FIPS 140-2 mode is enabled.

► To enable FIPS 140-2:

1. Access the Security Settings page.
2. Enable FIPS 140-2 Mode by selecting the Enable FIPS 140-2 checkbox in the Encryption & Share section of the Security Settings page.

You will utilize FIPS 140-2 approved algorithms for external communications once in FIPS 140-2 mode.

The FIPS cryptographic module is used for encryption of KVM session traffic consisting of video, keyboard, mouse, virtual media and smart card data.

3. Reboot the KX II. **Required**

Once FIPS mode is activated, 'FIPS Mode: Enabled' will be displayed in the Device Information section in the left panel of the screen.

For additional security, you can also create a new Certificate Signing Request once FIPS mode is activated. This will be created using the required key ciphers. Upload the certificate after it is signed or create a self-signed certificate. The SSL Certificate status will updated from 'Not FIPS Mode Compliant' to 'FIPS Mode Compliant'.

When FIPS mode is activated, key files cannot be downloaded or uploaded. The most recently created CSR will be associated internally with the key file. Further, the SSL Certificate from the CA and its private key are not included in the full restore of the backed-up file. The key cannot be exported from KX II.

FIPS 140-2 Support Requirements

The KX II supports the use of FIPS 140-2 approved encryption algorithms. This allows an SSL server and client to successfully negotiate the cipher suite used for the encrypted session when a client is configured for FIPS 140-2 only mode.

Following are the recommendations for using FIPS 140-2 with the KX II:

KX II

- Set the Encryption & Share to Auto on the Security Settings page. See **Encryption & Share** (on page 227).

Microsoft Client

- FIPS 140-2 should be enabled on the client computer and in Internet Explorer.

► To enable FIPS 140-2 on a Windows client:

1. Select Control Panel > Administrative Tools > Local Security Policy to open the Local Security Settings dialog.
2. From the navigation tree, select Select Local Policies > Security Options.
3. Enable "System Cryptography: Use FIPS compliant algorithms for encryption, hashing and signing".
4. Reboot the client computer.

► To enable FIPS 140-2 in Internet Explorer:

1. In Internet Explorer, select Tools > Internet Options and click on the Advanced tab.
2. Select the Use TLS 1.0 checkbox.
3. Restart the browser.

Configuring IP Access Control

Using IP access control, you control access to your KX II. Note that IP access control restricts traffic of any kind from accessing the KX II, so NTP servers, RADIUS hosts, DNS hosts and so on must be granted access to the KX II.

By setting a global Access Control List (ACL) you are ensuring that your device does not respond to packets being sent from disallowed IP addresses. The IP access control is global, affecting the KX II as a whole, but you can also control access to your device at the group level. See **Group-Based IP ACL (Access Control List)** (on page 122) for more information about group-level control.

Important: IP address 127.0.0.1 is used by the KX II local port. When creating an IP Access Control list, 127.0.0.1 should not be within the range of IP addresses that are blocked or you will not have access to the KX II local port.

► **To use IP access control:**

1. Select Security > IP Access Control to open the IP Access Control page.
2. Select the Enable IP Access Control checkbox and the remaining fields on the page.
3. Choose the Default Policy. This is the action taken for IP addresses that are not within the ranges you specify.
 - Accept - IP addresses are allowed access to the KX II device.
 - Drop - IP addresses are denied access to the KX II device.

► **To add (append) rules:**

1. Type the IP address and subnet mask in the IPv4/Mask or IPv6/Prefix Length field.

Note: The IP address should be entered using CIDR (Classless Inter-Domain Routing notation, in which the first 24 bits are used as a network address).

2. Choose the Policy from the drop-down list.
3. Click Append. The rule is added to the bottom of the rules list.

► **To insert a rule:**

1. Type a rule #. A rule # is required when using the Insert command.
2. Type the IP address and subnet mask in the IPv4/Mask or IPv6/Prefix Length field.

3. Choose the Policy from the drop-down list.
4. Click Insert. If the rule # you just typed equals an existing rule #, the new rule is placed ahead of the existing rule and all rules are moved down in the list.

Tip: The rule numbers allow you to have more control over the order in which the rules are created.

► **To replace a rule:**

1. Specify the rule # you want to replace.
2. Type the IP address and subnet mask in the IPv4/Mask or IPv6/Prefix Length field.
3. Choose the Policy from the drop-down list.
4. Click Replace. Your new rule replaces the original rule with the same rule #.

► **To delete a rule:**

1. Specify the rule # you want to delete.
2. Click Delete.
3. You are prompted to confirm the deletion. Click OK.

Home > Security > IP Access Control

IP Access Control

Enable IP Access Control

Default policy
ACCEPT ▾

Rule #	IPv4/Mask or IPv6/Prefix Length	Policy
1	192.168.59.192/32	ACCEPT
2	192.168.61.0/24	ACCEPT
3	255.255.0.0/16	ACCEPT

ACCEPT ▾

SSL Certificates

The KX II uses the Secure Socket Layer (SSL) protocol for any encrypted network traffic between itself and a connected client.

When establishing a connection, the KX II has to identify itself to a client using a cryptographic certificate.

It is possible to generate a Certificate Signing Request (CSR) and install a certificate signed by the Certificate Authority (CA) on the KX II.

The CA verifies the identity of the originator of the CSR.

The CA then returns a certificate containing its signature to the originator. The certificate, bearing the signature of the well-known CA, is used to vouch for the identity of the presenter of the certificate.

Important: Make sure your KX II date/time is set correctly.

When a self-signed certificate is created, the KX II date and time are used to calculate the validity period. If the KX II date and time are not accurate, the certificate's valid from - to date range may be incorrect, causing certificate validation to fail. See **Configuring Date/Time Settings** (on page 161).

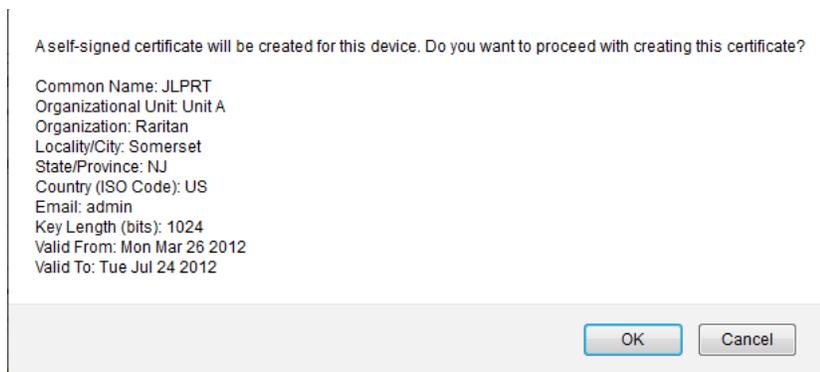
Note: The CSR must be generated on the KX II.

Note: When upgrading firmware, the active certificate and CSR are not replaced.

► **To create and install a SSL certificate:**

1. Select Security > Certificate.
2. Complete the following fields:
 - a. Common name - The network name of the KX II once it is installed on your network (usually the fully qualified domain name). The common name is identical to the name used to access the KX II with a web browser, but without the prefix "http://". In case the name given here and the actual network name differ, the browser displays a security warning when the KX II is accessed using HTTPS.
 - b. Organizational unit - This field is used for specifying to which department within an organization the KX II belongs.
 - c. Organization - The name of the organization to which the KX II belongs.
 - d. Locality/City - The city where the organization is located.
 - e. State/Province - The state or province where the organization is located.

- f. Country (ISO code) - The country where the organization is located. This is the two-letter ISO code, e.g. DE for Germany, or US for the U.S.
 - g. Challenge Password - Some certification authorities require a challenge password to authorize later changes on the certificate (e.g. revocation of the certificate). Applicable when generating a CSR for CA Certification.
 - h. Confirm Challenge Password - Confirmation of the Challenge Password. Applicable when generating a CSR for CA Certification.
 - i. Email - The email address of a contact person that is responsible for the KX II and its security.
 - j. Key length - The length of the generated key in bits. 1024 is the default.
3. To generate, do one of the following:
- To generate self-signed certificate, do the following:
 - a. Select the Create a Self-Signed Certificate checkbox if you need to generate a self-signed certificate. When you select this option, the KX II generates the certificate based on your entries, and acts as the signing certificate authority. The CSR does not need to be exported and used to generate a signed certificate.
 - b. Specify the number of days for the validity range. Ensure the KX II date and time are correct, otherwise an invalid date may be used to create the certificate's valid from and to range.
 - c. Click Create.
 - d. A confirmation dialog is displayed. Click OK to close it.



- e. Reboot the KX II to activate the self-signed certificate.
 - To generate a CSR to send to the CA for certification:
 - a. Click Create.

- b. A message containing all of the information you entered appears.

Certificate Signing Request (CSR)	Certificate Upload
<p>The following CSR is pending:</p> <pre>countryName = US stateOrProvinceName = DC localityName = Washington organizationName = ACME Corp. organizationalUnitName = Marketing Dept. commonName = John Doe emailAddress = johndoe@acme.com</pre>	<p>SSL Certificate File</p> <input type="text"/> <input type="button" value="Browse..."/>
<input type="button" value="Download"/> <input type="button" value="Delete"/>	<input type="button" value="Upload"/>

- c. The CSR and the file containing the private key used when generating it can be downloaded by clicking Download CSR.
- d. Send the saved CSR to a CA for certification. You will get the new certificate from the CA.

Note: The CSR and the private key file are a matched set and should be treated accordingly. If the signed certificate is not matched with the private key used to generate the original CSR, the certificate will not be useful. This applies to uploading and downloading the CSR and private key files.

- Once you get the certificate from the CA, upload it to the KX II by clicking Upload.
- Reboot the KX II to activate the certificate.

After completing these steps the KX II has its own certificate that is used for identifying the card to its clients.

Important: If you destroy the CSR on the KX II there is no way to get it back! In case you deleted it by mistake, you have to repeat the three steps as described above. To avoid this, use the download function so you will have a copy of the CSR and its private key.

Security Banner

KX II provides you with the ability to add a security banner to the KX II login process. This feature requires users to either accept or decline a security agreement before they can access the KX II. The information provided in a security banner will be displayed in a Restricted Service Agreement dialog after users access KX II using their login credentials.

The security banner heading and wording can be customized, or the default text can be used. Additionally, the security banner can be configured to require that a user accepts the security agreement before they are able to access the KX II or it can just be displayed following the login process. If the accept or decline feature is enabled, the user's selection is logged in the audit log.

► **To configure a security banner:**

1. Click Security > Banner to open the Banner page.
2. Select Display Restricted Service Banner to enable the feature.
3. If you want to require users to acknowledge the banner prior to continuing the login process, select Require Acceptance of Restricted Service Banner. In order to acknowledge the banner, users will select a checkbox. If you do not enable this setting, the security banner will only be displayed after the user logs in and will not require users acknowledge it.
4. If needed, change the banner title. This information will be displayed to users as part of the banner. Up to 64 characters can be used.
5. Edit the information in the Restricted Services Banner Message text box. Up to 6000 characters can be entered or uploaded from a text file. To do this, do one of the following:
 - a. Edit the text by manually typing in the text box. Click OK.
 - b. Upload the information from .txt file by selecting the Restricted Services Banner File radio button and using the Browse feature to locate and upload the file. Click OK. Once the file is uploaded, the text from the file will appear in the Restricted Services Banner Message text box.

Note: You cannot upload a text file from the local port.

The screenshot shows a web browser window with the address bar displaying "Home > Security > Banner". The page title is "Banner". The configuration options are as follows:

- Display Restricted Service Banner**
- Require Acceptance of Restricted Service Banner**

Banner Title
Restricted Service Agreement

Restricted Service Banner Message:

```
Unauthorized access prohibited, all
access and activities not explicitly
authorized by management are
unauthorized. All activities are
monitored and logged. There is no privacy
on this system. Unauthorized access and
activities or any criminal activity will
be reported to appropriate authorities.
```

Restricted Service Banner File:

Chapter 10 Maintenance

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Audit Log

A log is created of the KX II system events. The audit log can contain up to approximately 2K worth of data before it starts overwriting the oldest entries. To avoid losing audit log data, export the data to a syslog server or SNMP manager. Configure the syslog server or SNMP manager from the Device Settings > Event Management page. See **Events Captured in the Audit Log and Syslog** (on page 316) for information on what is captured in the audit log and syslog.

► **To view the audit log for your KX II:**

1. Choose Maintenance > Audit Log. The Audit Log page opens.

The Audit Log page displays events by date and time (most recent events listed first). The Audit Log provides the following information:

- Date - The date and time that the event occurred based on a 24-hour clock.
- Event - The event name as listed in the Event Management page.
- Description - Detailed description of the event.

► **To save the audit log:**

Note: Saving the audit log is available only on the KX II Remote Console, not on the Local Console.

1. Click Save to File. A Save File dialog appears.
2. Choose the desired file name and location and click Save. The audit log is saved locally on your client machine with the name and location specified.

- ▶ **To page through the audit log:**
 - Use the [Older] and [Newer] links.

Device Information

The Device Information page provides detailed information about your KX II device and the CIMs in use. This information is helpful should you need to contact Raritan Technical Support.

- ▶ **To view information about your KX II and CIMs:**
 - Choose Maintenance > Device Information. The Device Information page opens.

The following information is provided about the KX II:

- Model
- Hardware Revision
- Firmware Version
- Serial Number
- MAC Address

The following information is provided about the CIMs in use:

- Port (number)
- Name
- Type of CIM - DCIM, PCIM, Rack PDU, VM, DVM-DP, DVM-HDMI, DVM-DVI
- Firmware Version
- Serial Number of the CIM - this number is pulled directly from the supported CIMs.
 - P2CIM-PS2
 - P2CIM-APS2DUAL
 - P2CIM-AUSBDUAL
 - P2CIM-AUSB
 - P2CIM-SUN
 - P2CIM-SUSB
 - P2CIM-SER
 - DCIM-PS2
 - DCIM-USB
 - DCIM-USBG2
 - DCIM-SUN

- DCIM-SUSB
- D2CIM-VUSB
- D2CIM-DVUSB
- D2CIM-DVUSB-DVI
- D2CIM-DVUSB-HDMI
- D2CIM-DVUSB

Note: Only the numeric portion of the serial numbers are displayed for the DCIM-USB, DCIM-PS2 and DCIM-USB G2 CIMs. For example, XXX1234567 is displayed. The serial number prefix GN is displayed for CIMs that have field configured serial numbers.

Device Information	
Model:	DKX2-232
Hardware Revision:	0x48
Firmware Version:	2.4.0.3.399
Serial Number:	HKB7500230
MAC Address:	00:0d:5d:03:cc:b5

CIM Information

▲ Port	Name	Type	Firmware Version	Serial Number
5	SE-KX2-232-LP.	PCIM	N/A	XXX9900169
6	Target Win XP	Dual-VM	3A86	PQ20304596
9	W2K3 Server	Dual-VM	3A86	PQ28350007
18	Win XP 2.4GHz P4 504MB	VM	2A7E	HUW7553560

Backup and Restore

From the Backup/Restore page, you can backup and restore the settings and configuration for your KX II.

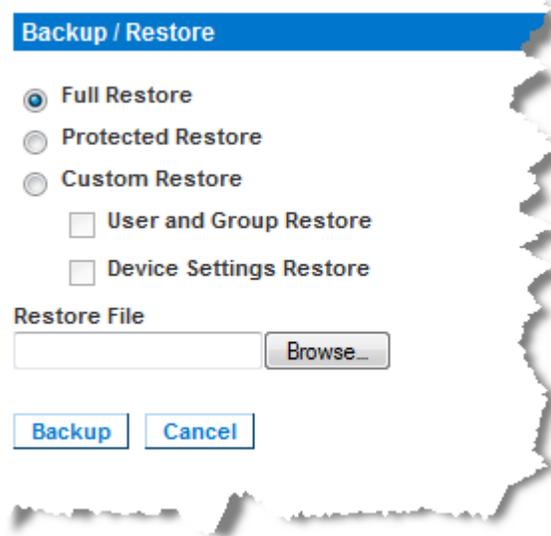
In addition to using backup and restore for business continuity purposes, you can use this feature as a time-saving mechanism.

For instance, you can quickly provide access to your team from another KX II by backing up the user configuration settings from the KX II in use and restoring those configurations to the new KX II.

You can also set up one KX II and copy its configuration to multiple KX II devices.

► **To access the Backup/Restore page:**

- Choose Maintenance > Backup/Restore. The Backup/Restore page opens.



Note: Backups are always complete system backups. Restores can be complete or partial depending on your selection.

► **If you are using Internet Explorer 7 or later, to back up your KX II:**

1. Click Backup. A File Download dialog appears that contains an Open button. Do not click Open.

In IE 7 (and later), IE is used as the default application to open files, so you are prompted to open the file versus save the file. To avoid this, you must change the default application that is used to open files to WordPad®.

2. To do this:
 - a. Save the backup file. The backup file is saved locally on your client machine with the name and location specified.
 - b. Once saved, locate the file and right-click on it. Select properties.
 - c. In general tab, click Change and select WordPad.

► **To restore your KX II:**

WARNING: Exercise caution when restoring your KX II to an earlier version. Usernames and password in place at the time of the backup will be restored. If you do not remember the old administrative usernames and passwords, you will be locked out of the KX II.

In addition, if you used a different IP address at the time of the backup, that IP address will be restored as well. If the configuration uses DHCP, you may want to perform this operation only when you have access to the local port to check the IP address after the update.

1. Choose the type of restore you want to run:
 - Full Restore - A complete restore of the entire system. Generally used for traditional backup and restore purposes.
 - Protected Restore - Everything is restored except device-specific information such as IP address, name, and so forth. With this option, you can setup one KX II and copy the configuration to multiple KX II devices.
 - Custom Restore - With this option, you can select User and Group Restore, Device Settings Restore, or both:
 - User and Group Restore - This option includes only user and group information. This option *does not* restore the certificate and the private key files. Use this option to quickly set up users on a different KX II.
 - Device Settings Restore - This option includes only device settings such as power associations, USB profiles, blade chassis related configuration parameters, and Port Group assignments. Use this option to quickly copy the device information.
2. Click Browse. A Choose File dialog appears.
3. Navigate to and select the appropriate backup file and click Open. The selected file is listed in the Restore File field.
4. Click Restore. The configuration (based on the type of restore selected) is restored.

USB Profile Management

From the USB Profile Management page, you can upload custom profiles provided by Raritan tech support. These profiles are designed to address the needs of your target server's configuration, in the event that the set of standard profiles does not already address them. Raritan tech support will provide the custom profile and work with you to verify the solution for your target server's specific needs.

► **To access the USB Profile Management page:**

- Choose > Maintenance > USB Profile Management. The USB Profile Management page opens.

Home > Maintenance > USB Profile Management Logout

Profile successfully uploaded.

USB Profile File:

Selected	Active	Profile	Profile Key
<input type="checkbox"/>	No	Dell Dimension 1 Custom Profile for Dell Dimension/n- Force full-speed is ON - Order: HID interface first, Mass Storage second - CDROM and removable drive cannot be used simultaneously	40000300

Deleting an active profile may be disruptive to sessions in progress.

► **To upload a custom profile to your KX II:**

1. Click Browse. A Choose File dialog appears.
2. Navigate to and select the appropriate custom profile file and click Open. The file selected is listed in the USB Profile File field.
3. Click Upload. The custom profile will be uploaded and displayed in the Profile table.

Note: If an error or warning is displayed during the upload process (for example, overwriting an existing custom profile), you may continue with the upload by clicking Upload or cancel it by clicking on Cancel.

► **To delete a custom profile to your KX II:**

1. Check the box corresponding to the row of the table containing the custom profile to be deleted.
2. Click Delete. The custom profile will be deleted and removed from the Profile table.

As noted, you may delete a custom profile from the system while it is still designated as an active profile. Doing so will terminate any virtual media sessions that were in place.

Handling Conflicts in Profile Names

A naming conflict between custom and standard USB profiles may occur when a firmware upgrade is performed. This may occur if a custom profile that has been created and incorporated into the list of standard profiles has the same name as a new USB profile that is downloaded as part of the firmware upgrade.

Should this occur, the preexisting custom profile will be tagged as 'old_'. For example, if a custom profile called GenericUSBProfile5 has been created and a profile with the same name is downloaded during a firmware upgrade, the existing file will then be called 'old_GenericUSBProfile5'.

You can delete the existing profile if needed. See **USB Profile Management** (on page 244) for more information.

Upgrading CIMs

Use this procedure to upgrade CIMs using the firmware versions stored in the memory of your KX II device. In general, all CIMs are upgraded when you upgrade the device firmware using the Firmware Upgrade page.

► **To upgrade CIMs using the KX II memory:**

1. Choose Maintenance > CIM Firmware Upgrade. The CIM Upgrade from page opens.
The Port (number), Name, Type, Current CIM Version, and Upgrade CIM Version are displayed for easy identification of the CIMs.
2. Check the Selected checkbox for each CIM you want to upgrade.
3. Click Upgrade. You are prompted to confirm the upgrade.
4. Click OK to continue the upgrade. Progress bars are displayed during the upgrade. Upgrading takes approximately 2 minutes or less per CIM.

Upgrading Firmware

Use the Firmware Upgrade page to upgrade the firmware for your KX II and all attached CIMs. This page is available in the KX II Remote Console only.

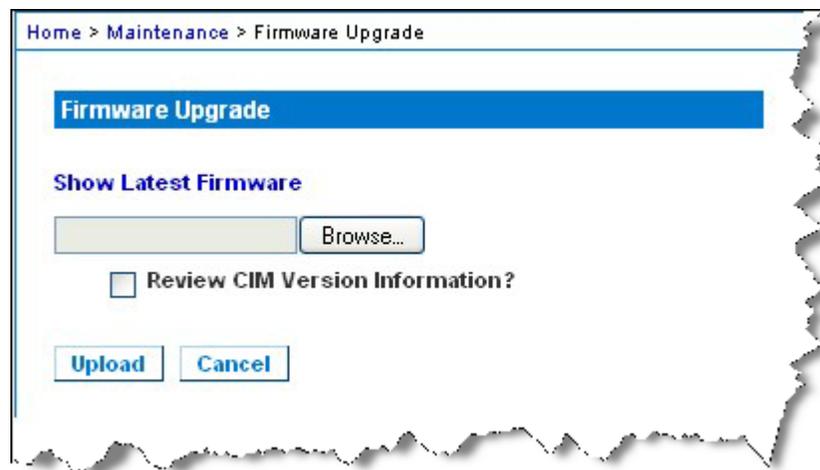
Important: Do not turn off your KX II unit or disconnect CIMs while the upgrade is in progress - doing so will likely result in damage to the unit or CIMs.

► **To upgrade your KX II unit:**

1. Locate the appropriate Raritan firmware distribution file (*.RFP) on the **Raritan website** <http://www.raritan.com> on the Firmware Upgrades web page.
2. Unzip the file. Please read all instructions included in the firmware ZIP files carefully before upgrading.

Note: Copy the firmware update file to a local PC before uploading. Do not load the file from a network drive.

3. Choose Maintenance > Firmware Upgrade. The Firmware Upgrade page opens.



4. Click Browse to navigate to the directory where you unzipped the upgrade file.
5. Select the Review CIM Version Information? checkbox if you would like information displayed about the versions of the CIMs in use.
6. Click Upload from the Firmware Upgrade page. Information about the upgrade and version numbers is displayed for your confirmation (if you opted to review CIM information, that information is displayed as well):

Note: At this point, connected users are logged out, and new login attempts are blocked.

7. Click Upgrade. Please wait for the upgrade to complete. Status information and progress bars are displayed during the upgrade. Upon completion of the upgrade, the unit reboots (1 beep sounds to signal that the reboot has completed).

As prompted, close the browser and wait approximately 5 minutes before logging in to the KX II again. For information about upgrading the device firmware using the Multi-Platform Client, see **Upgrading Device Firmware** in the **KVM and Serial Access Clients Guide**.

Note: Firmware upgrades are not supported via modem.

Note: If you are using a tiered configuration in which a base KX II device is used to access multiple other tiered devices, you may receive a low memory error during a firmware upgrade if you have a large number of user groups. If you receive this error, reboot the device and then perform the upgrade again. If you continue to receive this error after rebooting, disable tiering on the base device and perform the upgrade again.

Note: When upgrading firmware, the active certificate and CSR are not replaced.

Upgrade History

The KX II provides information about upgrades performed on the KX II and attached CIMS.

► To view the upgrade history:

- Choose Maintenance > Upgrade History. The Upgrade History page opens.

Information is provided about the KX II upgrade(s) that have been run, the final status of the upgrade, the start and end times, and the previous and current firmware versions. Information is also provided about the CIMS, which can be obtained by clicking the show link for an upgrade. The CIM information provided is:

- Type - The type of CIM
- Port - The port where the CIM is connected
- User - The user who performed the upgrade
- IP - IP address firmware location
- Start Time - Start time of the upgrade
- End Time - end time of the upgrade
- Previous Version - Previous CIM firmware version
- Upgrade Version - Current CIM firmware version
- CIMS - Upgraded CIMS
- Result - The result of the upgrade (success or fail)

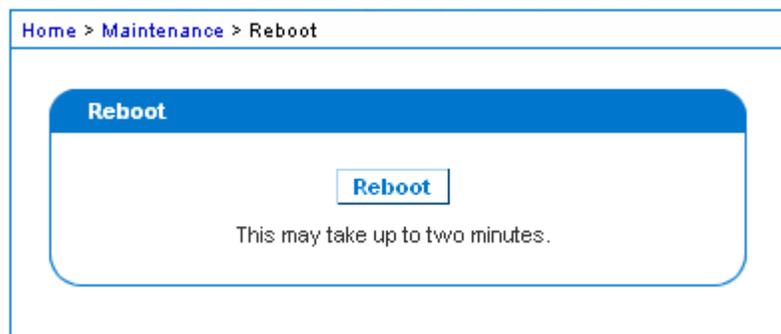
Rebooting the KX II

The Reboot page provides a safe and controlled way to reboot your KX II. This is the recommended method for rebooting.

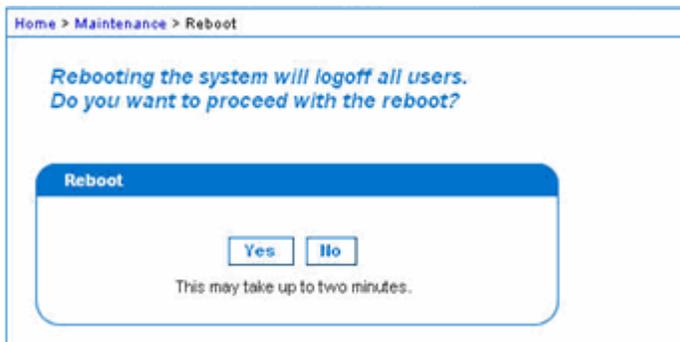
Important: All KVM and serial connections will be closed and all users will be logged off.

► **To reboot your KX II:**

1. Choose Maintenance > Reboot. The Reboot page opens.



2. Click Reboot. You are prompted to confirm the action. Click Yes to proceed with the reboot.



Stopping CC-SG Management

While the KX II is under CC-SG management, if you try to access the device directly, you are notified that it the device is under CC-SG management.

If you are managing the KX II through CC-SG and connectivity between CC-SG and the KX II is lost after the specified timeout interval (typically 10 minutes), you are able to end the CC-SG management session from the KX II console.

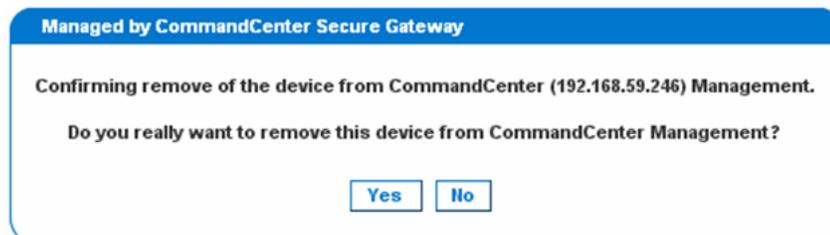
Note: You must have the appropriate permissions to end CC-SG management of the KX II. Additionally, the Stop CC-SG Management option will not be provided unless you are currently using CC-SG to manage the KX II.

► **To stop CC-SG management of the KX II:**

1. Click Maintenance > Stop CC-SG Management. A message indicating that the device is being managed by CC-SG will be displayed. An option to remove the device from CC-SG management will also be displayed.



2. Click Yes to begin the processing of removing the device from CC-SG management. A confirmation message will then displayed asking you to confirm that you want the remove the device from CC-SG management.



3. Click Yes to remove the device CC-SG management. Once CC-SG management has ended, a confirmation will be displayed.



Chapter 11 Diagnostics

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Network Interface Page

The KX II provides information about the status of your network interface.

▶ **To view information about your network interface:**

- Choose Diagnostics > Network Interface. The Network Interface page opens.

The following information is displayed:

- Whether the Ethernet interface is up or down.
- Whether the gateway is pingable or not.
- The LAN port that is currently active.

▶ **To refresh this information:**

- Click Refresh.

Network Statistics Page

The KX II provides statistics about your network interface.

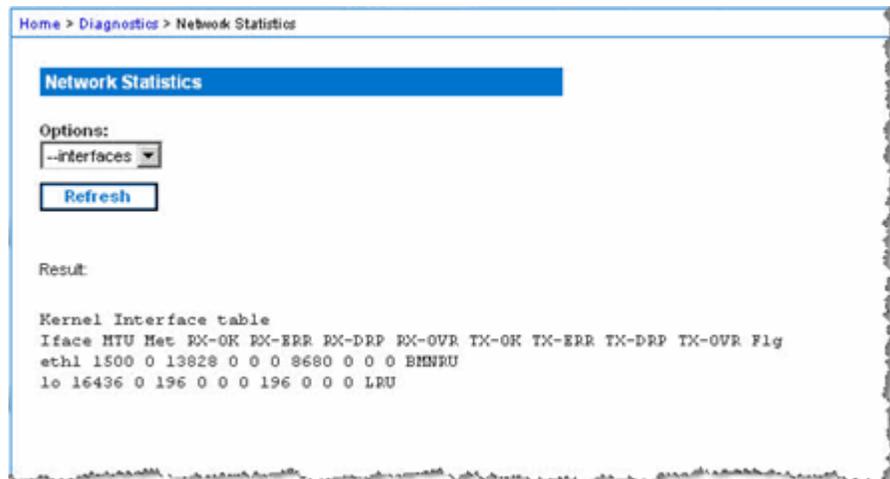
▶ **To view statistics about your network interface:**

1. Choose Diagnostics > Network Statistics. The Network Statistics page opens.
2. Choose the appropriate option from the Options drop-down list:

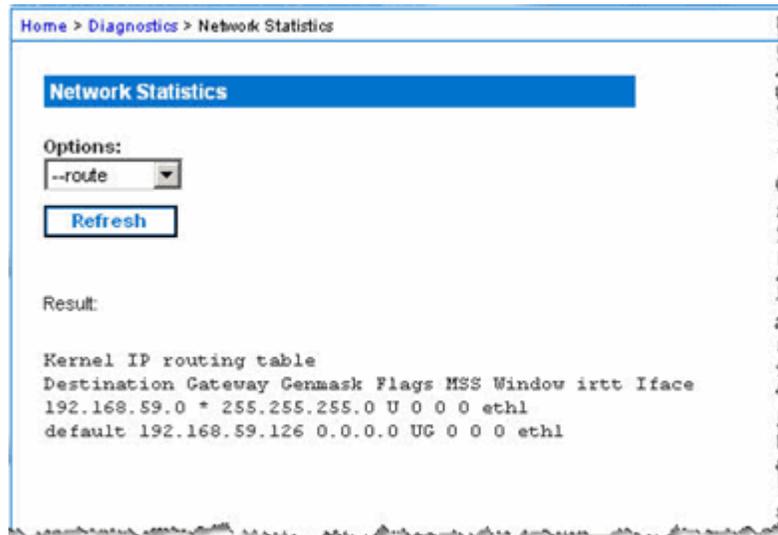
- Statistics - Produces a page similar to the one displayed here.



- Interfaces - Produces a page similar to the one displayed here.



- Route - Produces a page similar to the one displayed here.



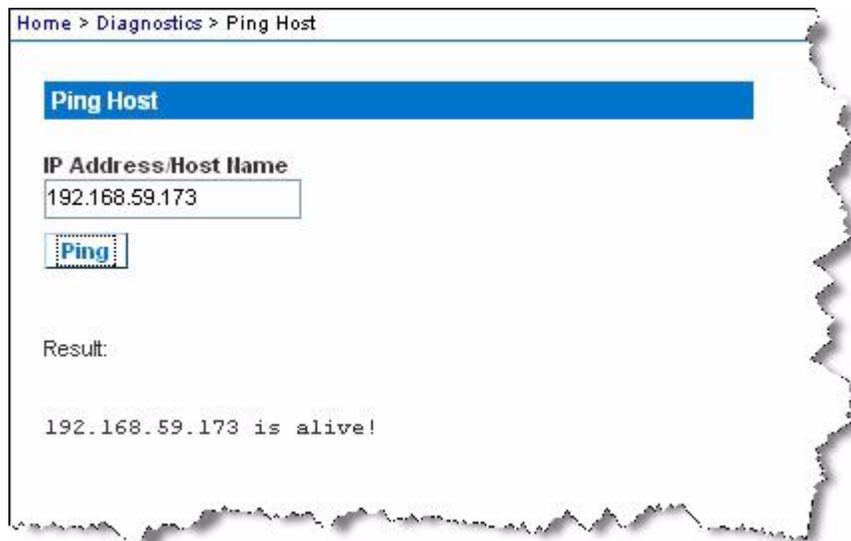
3. Click Refresh. The relevant information is displayed in the Result field.

Ping Host Page

Ping is a network tool used to test whether a particular host or IP address is reachable across an IP network. Using the Ping Host page, you can determine if a target server or another KX II is accessible.

► To ping the host:

1. Choose Diagnostics > Ping Host. The Ping Host page appears.



2. Type either the hostname or IP address into the IP Address/Host Name field.

Note: The host name cannot exceed 232 characters in length.

3. Click Ping. The results of the ping are displayed in the Result field.

Trace Route to Host Page

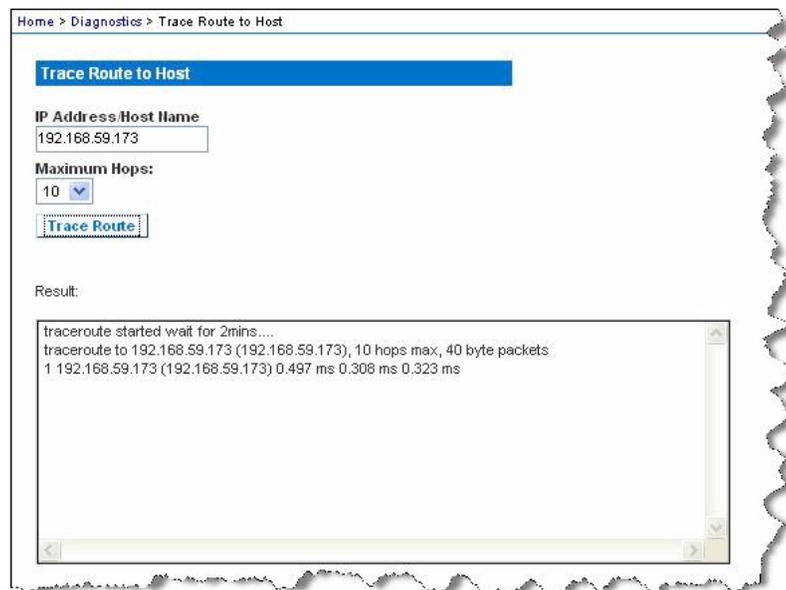
Trace route is a network tool used to determine the route taken to the provided hostname or IP address.

► **To trace the route to the host:**

1. Choose Diagnostics > Trace Route to Host. The Trace Route to Host page opens.
2. Type either the IP address or host name into the IP Address/Host Name field.

Note: The host name cannot exceed 232 characters in length.

3. Choose the maximum hops from the drop-down list (5 to 50 in increments of 5).
4. Click Trace Route. The trace route command is executed for the given hostname or IP address and the maximum hops. The output of trace route is displayed in the Result field.



Device Diagnostics

Note: This page is for use by Raritan Field Engineers or when you are directed by Raritan Technical Support.

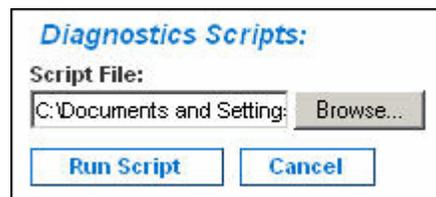
Device diagnostics downloads the diagnostics information from the KX II to the client machine. Two operations can be performed on this page:

- Execute a special diagnostics script provided by Raritan Technical Support during a critical error debugging session. The script is uploaded to the device and executed. Once this script has been executed, you can download the diagnostics messages using the Save to File function.
- Download the device diagnostic log for a snapshot of diagnostics messages from the KX II device to the client. This encrypted file is then sent to Raritan Technical Support. Only Raritan can interpret this file.

Note: This page is accessible only by users with administrative privileges.

► To run the KX II System diagnostics:

1. Choose Diagnostics > KX II Diagnostics. The KX II Diagnostics page opens.
2. To execute a diagnostics script file emailed to you from Raritan Technical Support:
 - a. Retrieve the diagnostics file supplied by Raritan and unzip as necessary.
 - b. Click Browse. A Choose File dialog box opens.
 - c. Navigate to and select the diagnostic file.
 - d. Click Open. The file is displayed in the Script File field.



- e. Click Run Script. Send this file to Raritan Technical Support.
3. To create a diagnostics file to send to Raritan Technical Support:

- a. Click Save to File. The File Download dialog opens.



- b. Click Save. The Save As dialog box opens.
- c. Navigate to the desired directory and click Save.
- d. Email this file as directed by Raritan Technical Support.

Chapter 12 Command Line Interface (CLI)

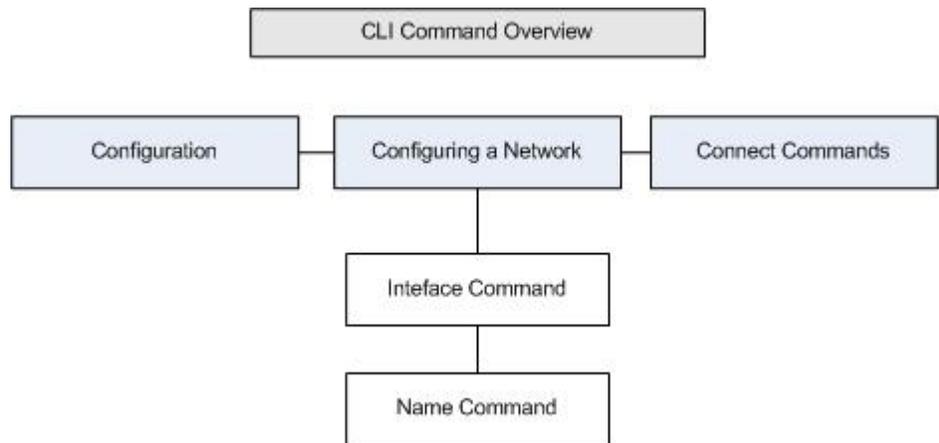
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Overview

The Command Line Interface (CLI) can be used to configure the KX II network interface and perform diagnostic functions provided you have the appropriate permissions to do so.

The following figures describe an overview of the CLI commands. See **CLI Commands** (on page 262) for a list of all the commands, which include definitions and links to the sections in this chapter that give examples of these commands.



The following common commands can be used from all levels of the CLI to the preceding figure: top, history, log off, quit, show, and help.

Accessing the KX II Using CLI

Access the KX II by using one of the following methods:

- SSH (Secure Shell) via IP connection

A number of SSH clients are available and can be obtained from the following locations:

- Putty - <http://www.chiark.greenend.org.uk/~sgtatham/putty/>
<http://www.chiark.greenend.org.uk/~sgtatham/putty/>
- SSH Client from ssh.com - www.ssh.com <http://www.ssh.com>
- Applet SSH Client - www.netbeans.org/ssh
<http://www.netbeans.org/ssh>
- OpenSSH Client - www.openssh.org <http://www.openssh.org>

SSH Connection to the KX II

Use any SSH client that supports SSHv2 to connect to the KX II. You must enable SSH access from the Devices Services page.

Note: For security reasons, SSH V1 connections are not supported by the KX II.

SSH Access from a Windows PC

► **To open an SSH session from a Windows® PC:**

1. Launch the SSH client software.
2. Enter the IP address of the KX II server. For example, 192.168.0.192.
3. Choose SSH, which uses the default configuration port 22.
4. Click Open.

The `login as:` prompt appears.

See **Logging In** (on page 259).

SSH Access from a UNIX/Linux Workstation

► **To open an SSH session from a UNIX®/Linux® workstation and log in as the user admin, enter the following command:**

```
ssh -l admin 192.168.30.222
```

The Password prompt appears.

See **Logging In** (on page 259).

Logging In

► **To log in, enter the user name admin as shown:**

1. Log in as `admin`
2. The Password prompt appears. Enter the default password: `raritan`
The welcome message displays. You are now logged on as an administrator.

After reviewing the following **Navigation of the CLI** (on page 259) section, perform the Initial Configuration tasks.

Navigation of the CLI

Before using the CLI, it is important to understand CLI navigation and syntax. There are also some keystroke combinations that simplify CLI use.

Completion of Commands

The CLI supports the completion of partially-entered commands. After entering the first few characters of an entry, press the Tab key. If the characters form a unique match, the CLI will complete the entry.

- If no match is found, the CLI displays the valid entries for that level.
- If multiple matches are found, the CLI displays all valid entries.

Enter additional text to make the entry unique and press the Tab key to complete the entry.

CLI Syntax -Tips and Shortcuts

Tips

- Commands are listed in alphabetical order.
- Commands are not case sensitive.
- Parameter names are single word without underscore.
- Commands without arguments default to show current settings for the command.
- Typing a question mark (?) after a command produces help for that command.
- A pipe symbol (|) indicates a choice within an optional or required set of keywords or arguments.

Shortcuts

- Press the Up arrow key to display the last entry.
- Press Backspace to delete the last character typed.
- Press Ctrl + C to terminate a command or cancel a command if you typed the wrong parameters.
- Press Enter to execute the command.
- Press Tab to complete a command. For example, `Admin Port >` `Conf.` The system then displays the `Admin Port > Config >` prompt.

Common Commands for All Command Line Interface Levels

Following are the commands that are available at all CLI levels. These commands also help navigate through the CLI.

Commands	Description
top	Return to the top level of the CLI hierarchy, or the “username” prompt.
history	Display the last 200 commands the user entered into the KX II CLI.
help	Display an overview of the CLI syntax.
quit	Places the user back one level.
logout	Logs out the user session.

Initial Configuration Using CLI

*Note: These steps, which use the CLI, are optional since the same configuration can be done via KVM. See **Getting Started** (on page 12) for more information.*

KX II devices come from the factory with default factory settings. When you first power up and connect to the device, you must set the following basic parameters so the device can be accessed securely from the network:

1. Reset the administrator password. All KX II devices are shipped with the same default password. Therefore, to avoid security breaches it is imperative that you change the admin password from raritan to one customized for the administrators who will manage the KX II device.
2. Assign the IP address, subnet mask, and gateway IP address to allow remote access.

Setting Parameters

To set parameters, you must be logged on with administrative privileges. At the top level, you will see the "Username" > prompt, which for the initial configuration is "admin". Enter the top command to return to the top menu level.

Note: If you have logged on with a different user name, that user name will appear instead of admin.

Setting Network Parameters

Network parameters are configured using the interface command.

```
admin > Config > Network > interface ipauto none ip
192.168.151.12 mask 255.255.255.0 gw 192.168.151.1 mode
auto
```

When the command is accepted, the device automatically drops the connection. You must reconnect to the device using the new IP address and the user name and password you created in the resetting factory default password section.

Important: If the password is forgotten, the KX II will need to be reset to the factory default from the Reset button on the back of the KX II. The initial configuration tasks will need to be performed again if this is done.

The KX II now has the basic configuration and can be accessed remotely via SSH, GUI, or locally using the local serial port. The administrator needs to configure the users and groups, services, security, and serial ports to which the serial targets are attached to the KX II.

CLI Prompts

The Command Line Interface prompt indicates the current command level. The root portion of the prompt is the login name. For a direct admin serial port connection with a terminal emulation application, Admin Port is the root portion of a command.

```
admin >
```

CLI Commands

- Enter `admin > help`.

Command	Description
config	Change to config sub menu.
diagnostics	Change to diag sub menu.
help	Display overview of commands.
history	Display the current session's command line history.
listports	List accessible ports.
logout	Logout of the current CLI session.
top	Return to the root menu.
userlist	List active user sessions.

- Enter `admin > config > network`.

Command	Description
help	Display overview of commands.
history	Display the current session's command line history.
interface	Set/get network parameters.
ipv6_interface	Set/get IPv6 network parameters.
logout	Logout of the current CLI session.
name	Device name configuration.
quit	Return to previous menu.
stop	Return to the root menu.

Security Issues

Elements to consider when addressing security for console servers:

- Encrypting the data traffic sent between the operator console and the KX II device.
- Providing authentication and authorization for users.
- Security profile.

The KX II supports each of these elements; however, they must be configured prior to general use.

Administering the KX II Console Server Configuration Commands

Note: CLI commands are the same for SSH and Local Port access sessions.

The Network command can be accessed in the Configuration menu for the KX II.

Configuring Network

The network menu commands are used to configure the KX II network adapter.

Commands	Description
interface	Configure the KX II device network interface.
name	Network name configuration

Commands	Description
ipv6	Set/get IPv6 network parameters.

Interface Command

The Interface command is used to configure the KX II network interface. The syntax of the interface command is:

```
interface [ipauto <none|dhcp>] [ip <ipaddress>] [mask
<subnetmask>] [gw <ipaddress>] [mode <mode>]

Set/Get ethernet parameters

ipauto <none|dhcp> IP auto configuration (none/dhcp)
ip <ipaddress> IP Address
mask <subnetmask> Subnet Mask
gw <ipaddress> Gateway IP Address
mode <mode> Set Ethernet Mode
(auto/10hdx/10fdx/100hdx/100fdx/1000fdx)
```

Interface Command Example

The following command enables the interface number 1, sets the IP address, mask, and gateway addresses, and sets the mode to auto detect.

```
Admin > Config > Network > interface ipauto none ip
192.16.151.12 mask 255.255.255.0 gw 192.168.51.12 mode
auto
```

Name Command

The name command is used to configure the network name. The syntax of the name is:

```
name [devicename <devicename>] [hostname <hostname>]
```

Device name configuration

```
devicename <devicename>    Device Name
hostname <hostname>        Preferred host name (DHCP
only)
```

Name Command Example

The following command sets the network name:

```
Admin > Config > Network > name devicename My-KSX2
```

IPv6 Command

Use the IPv6_command to set IPv6 network parameters and retrieve existing IPv6 parameters.

```
Ipv6_interface mode enable ipauto none ip
2001:db8:290c:1291::17 prefixlen 128 gw
2001:db8:290c:1291::1
```

Chapter 13 KX II Local Console

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Overview

The KX II provides at-the-rack access and administration via its local port, which features a browser-based graphical user interface for quick, convenient switching between servers.

The KX II Local Console provides a direct analog connection to your connected servers, which provides the same performance as if you were directly connected to the server's keyboard, mouse, and video ports. The KX II Local Console provides the same administrative functionality as the KX II Remote Console.

Simultaneous Users

The KX II Local Console provides an independent access path to the connected KVM target servers.

Using the Local Console does not prevent other users from simultaneously connecting over the network. And even when remote users are connected to the KX II, you can still simultaneously access your servers from the rack via the Local Console.

KX II Local Console Interface: KX II Devices

When you are located at the server rack, the KX II provides standard KVM management and administration via the KX II Local Console. The KX II Local Console provides a direct KVM (analog) connection to your connected servers; the performance is exactly as if you were directly connected to the server's keyboard, mouse, and video ports.

There are many similarities among the KX II Local Console and the KX II Remote Console graphical user interfaces. Where there are differences, they are noted in the help.

The KX II Local Console Factory Reset option is available in the KX II Local Console but not the KX II Remote Console.

Security and Authentication

In order to use the KX II Local Console, you must first authenticate with a valid username and password. The KX II provides a fully-integrated authentication and security scheme, whether your access is via the network or the local port. In either case, the KX II allows access only to those servers to which a user has access permissions. See **User Management** (on page 116) for additional information on specifying server access and security settings.

If your KX II has been configured for external authentication services (LDAP/LDAPS, RADIUS, or Active Directory), authentication attempts at the Local Console also are authenticated against the external authentication service.

Note: You can also specify no authentication for Local Console access; this option is recommended only for secure environments.

► To use the KX II Local Console:

1. Connect a keyboard, mouse, and video display to the local ports at the back of the KX II.
2. Start the KX II. The KX II Local Console interface displays.

Available Resolutions

The KX II Local Console provides the following resolutions to support various monitors:

- 800x600
- 1024x768
- 1280x1024

Each of these resolutions supports a refresh rate of 60Hz and 75Hz.

Port Access Page (Local Console Server Display)

After you login to the KX II Local Console, the Port Access page opens. This page lists all of the KX II ports, and the target servers, port groups, and blade chassis that are connected to those ports.

The Port Access page contains the same information whether accessed from the remote console or local console. Additionally, you navigate the page and access targets and port groups in the same way. See **Port Access Page (Remote Console Display)** (on page 38) for details.

Port Access

Click on the individual port name to see allowable operations.
1 / 4 Remote KVM channels currently in use.

View By Port	View By Group	View By Search	Set Scan	
▲ No.	Name	Type	Status	Availability
1	Dominion_KX2_Port1	Not Available	down	idle
2	Dominion_KX2_Port2	Not Available	down	idle
3	Dominion_KX2_Port3	Not Available	down	idle
4	Dominion_KX2_Port4	Not Available	down	idle
5	fc11	Dual-VM	up	idle
6	Dominion_KX2_Port6	Not Available	down	idle
7	Dominion_KX2_Port7	Not Available	down	idle
8	laptop	Dual-VM	up	connected
9	Dominion_KX2_Port9	Not Available	down	idle
10	Dominion_KX2_Port10	Not Available	down	idle
11	Dominion_KX2_Port11	Not Available	down	idle
13	Dominion_KX2_Port13	Not Available	down	idle
14	beteck-pcr8	Not Available	down	idle
15	Dominion_KX2_Port15	Not Available	down	idle
16	DVDPlayer	Dual-VM	up	idle
17	Dominion_KX2_Port17	Not Available	down	idle

16 Rows per Page **Set**

Accessing a Target Server

► **To access a target server:**

1. Click the Port Name of the target you want to access. The Port Action Menu is displayed.
2. Choose Connect from the Port Action menu. The video display switches to the target server interface.

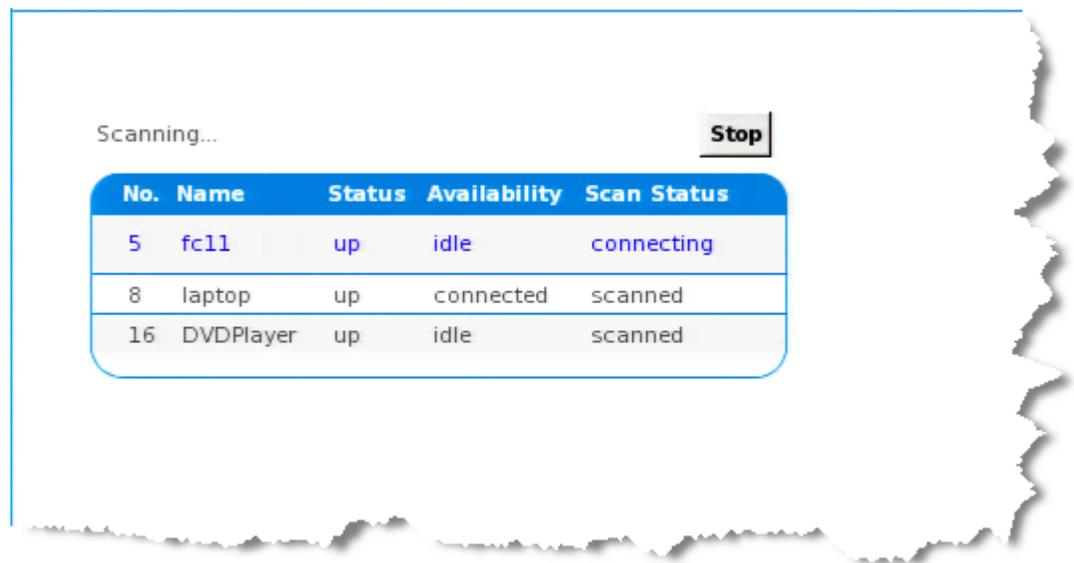
Scanning Ports - Local Console

The KX II scanning feature is supported by the Local Console.

The targets that are found during the scan are displayed on the Scan page one at a time, which is different from the Remote Console port slide show.

Each target is displayed on the page for 10 seconds by default, allowing you to view the target and connect to it.

Use the Local Port ConnectKey sequence to connect to a target when it is displayed and the DisconnectKey sequence to disconnect from the target.



► To scan for targets:

1. From the Local Console, click the Set Scan tab on the Port Access page.
2. Select the targets you want to include in the scan by selecting the checkbox to the left of each target, or select the checkbox at the top of the target column to select all targets.
3. Leave the Up Only checkbox selected if you only want targets that are up to be included in the scan. Deselect this checkbox if you want to include all targets, whether up or down.
4. Click Scan to begin the scan. A Port Scan window opens. As each target is found, it is displayed in the window.
5. Connect to a target when it is displayed by using the ConnectKey sequence.
6. Click Stop Scan to stop the scan.

Local Port Scan Mode

Following are options available to you to change scan options on local port.

► **To configure the Local Console scan port settings:**

1. On the Local Console, select Device Settings.
2. In the Local Port Settings section, select Local Port Scan Mode.
3. Change the display interval as needed:
 - Display Interval - changes the scan display interval.
 - Interval Between Ports - change interval between switching different port during scan.

Local Console Smart Card Access

To use a smart card to access a server at the Local Console, plug a USB smart card reader into the KX II using one of the USB ports located on the KX II.

Once a smart card reader is plugged in or unplugged from the KX II, the KX II autodetects it.

For a list of supported smart cards and additional system requirements, see **Supported and Unsupported Smart Card Readers** (on page 303) and **Smart Card Minimum System Requirements** (on page 301).

When mounted onto the target server, the card reader and smart card will cause the server to behave as if they had been directly attached.

Removal of the smart card or smart card reader will cause the user session to be locked or you will be logged out depending on how the card removal policy has been setup on the target server OS.

When the KVM session is terminated, either because it has been closed or because you switch to a new target, the smart card reader will be automatically unmounted from the target server.

► **To mount a smart card reader onto a target via the KX II Local console:**

1. Plug a USB smart card reader into the KX II using one of the USB ports located on the device. Once attached, the smart card reader will be detected by the KX II.
2. From the Local Console, click Tools.
3. Select the smart card reader from the Card Readers Detected list. Select None from the list if you do not want a smart card reader mounted.

4. Click OK. Once the smart card reader is added, a message will appear on the page indicating you have completed the operation successfully. A status of either Selected or Not Selected will appear in the left panel of the page under Card Reader.

► **To update the Card Readers Detected list:**

- Click Refresh if a new smart card has been mounted. The Card Readers Detected list will be refreshed to reflect the newly added smart card reader.

Select Card Reader

Card Readers Detected



OK Refresh Cancel

Smart Card Access in KX2 8xx Devices

If you are using a smart card reader to access a server from the Local Console through a KX2-808, KX2-832 or KX2-864 device, the extended local port (Local Port Settings page) must be disabled. The extended local port does not support smart card authentication.

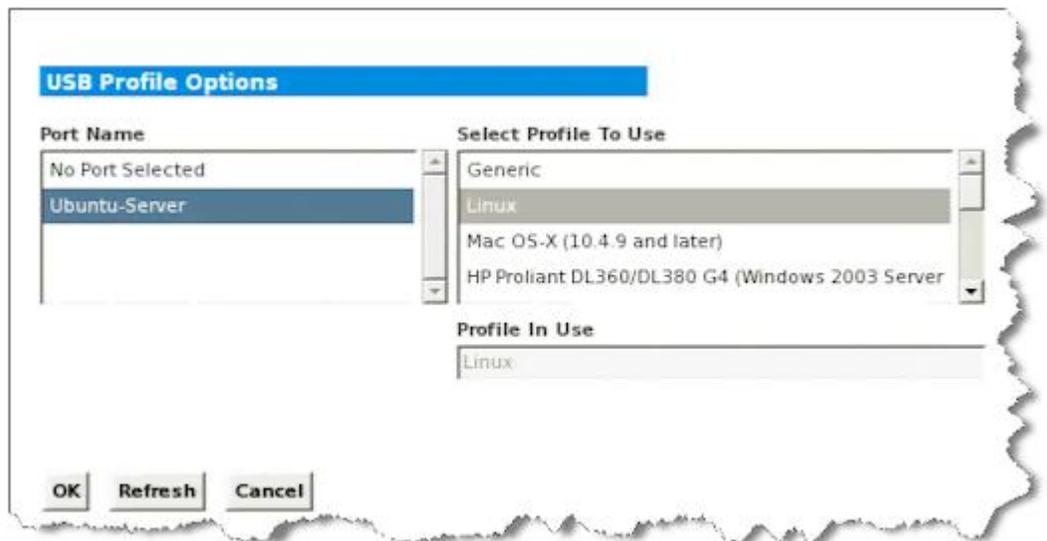
Local Console USB Profile Options

From the USB Profile Options section of the Tools page, you can choose from the available USB profiles.

The ports that can be assigned profiles are displayed in the Port Name field and the profiles that are available for a port appear in the Select Profile To Use field after the port is selected. The profiles selected for use with a port appear in the Profile In Use field.

► **To apply a USB profile to a local console port:**

1. In the Port Name field, select the port you want to apply the USB profile to.
2. In the Select Profile To Use field, select the profile to use from among those available for the port.
3. Click OK. The USB profile will be applied to the local port and will appear in the Profile In Use field.



Hot Keys and Connect Keys

Because the KX II Local Console interface is completely replaced by the interface for the target server you are accessing, a hot key is used to disconnect from a target and return to the local port GUI.

A connect key is used to connect to a target or switch between targets.

The Local Port hot key allows you to rapidly access the KX II Local Console user interface when a target server is currently being viewed.

See **Configuring KX II Local Console Local Port Settings** (on page 275) for more information.

Connect Key Examples

Standard servers	
Connect key action	Key sequence example
Access a port from the local port GUI	Access port 5 from the local port GUI: <ul style="list-style-type: none"> Press Left ALT > Press and Release 5 > Release Left ALT
Switch between ports	Switch from target port 5 to port 11: <ul style="list-style-type: none"> Press Left ALT > Press and Release 1 > Press and Release 1 > Release Left ALT
Disconnect from a target and return to the local port GUI	Disconnect from target port 11 and return to the local port GUI (the page from which you connected to target): <ul style="list-style-type: none"> Double Click Scroll Lock
Blade chassis	
Connect key action	Key sequence example
Access a port from the local port GUI	Access port 5, slot 2: <ul style="list-style-type: none"> Press Left ALT > Press and Release 5 > Press and Release - > Press and Release 2 > Release Left ALT
Switch between ports	Switch from target port 5, slot 2 to port 5, slot 11: <ul style="list-style-type: none"> Press Left ALT > Press and Release 5 > Press and Release - > Press and Release 1 > Press and Release 1 > Release Left ALT

Standard servers	
Connect key action	Key sequence example
Disconnect from a target and return to the local port GUI	Disconnect from target port 5, slot 11 and return to the local port GUI (the page from which you connected to target): <ul style="list-style-type: none"> • Double Click Scroll Lock

Special Sun Key Combinations

The following key combinations for Sun™ Microsystems server's special keys operate on the local port. These special are available from the Keyboard menu when you connect to a Sun target server:

Sun key	Local port key combination
Again	Ctrl+ Alt +F2
Props	Ctrl + Alt +F3
Undo	Ctrl + Alt +F4
Stop A	Break a
Front	Ctrl + Alt + F5
Copy	Ctrl + Alt + F6
Open	Ctrl + Alt + F7
Find	Ctrl + Alt + F9
Cut	Ctrl + Alt + F10
Paste	Ctrl + Alt + F8
Mute	Ctrl + Alt + F12
Compose	Ctrl+ Alt + KPAD *
Vol +	Ctrl + Alt + KPAD +
Vol -	Ctrl + Alt + KPAD -
Stop	No key combination
Power	No key combination

Returning to the KX II Local Console Interface

Important: The KX II Local Console default hot key is to press the Scroll Lock key twice rapidly.

This key combination can be changed in the Local Port Settings page. See *Configuring KX II Local Port Settings from the Local Console (on page 279)* in online help.

► **To return to the KX II Local Console from the target server:**

- Press the hot key twice rapidly (the default hot key is Scroll Lock).

The video display switches from the target server interface to the KX II Local Console interface.

Local Port Administration

The KX II can be managed by either the KX II Local Console or the KX II Remote Console. Note that the KX II Local Console also provides access to:

- Factory Reset
- Local Port Settings (available in the Remote Console, as well)

Note: Only users with administrative privileges can access these functions.

Configuring KX II Local Console Local Port Settings

From the Local Port Settings page, you can customize many settings for the KX II Local Console including keyboard, hot keys, video switching delay, power save mode, local user interface resolution settings, and local user authentication.

Note: Only users with administrative privileges can access these functions.

Note: Some changes you make to the settings on the Local Port Settings page restart the browser you are working in. If a browser restart occurs when a setting is changed, it is noted in the steps provided here.

► **To configure the local port settings:**

1. Choose Device Settings > Local Port Settings. The Local Port Settings page opens.
2. Choose the appropriate keyboard type from among the options in the drop-down list.

The browser will be restarted when this change is made.

- US
- US/International
- United Kingdom
- French (France)
- German (Germany)
- JIS (Japanese Industry Standard)
- Simplified Chinese
- Traditional Chinese
- Dubeolsik Hangul (Korean)
- German (Switzerland)
- Portuguese (Portugal)
- Norwegian (Norway)
- Swedish (Sweden)
- Danish (Denmark)
- Belgian (Belgium)
- Hungarian
- Spanish
- Italian
- Slovenian

Note: Keyboard use for Chinese, Japanese, and Korean is for display only. Local language input is not supported at this time for KX II Local Console functions.

Note: If using a Turkish keyboard, you must connect to a target server through the Active KVM Client (AKC). It is not supported by other Raritan clients.

3. Choose the local port hotkey. The local port hotkey is used to return to the KX II Local Console interface when a target server interface is being viewed. The default is to Double Click Scroll Lock, but you can select any key combination from the drop-down list:

Hot key:	Take this action:
Double Click Scroll Lock	Press Scroll Lock key twice quickly
Double Click Num Lock	Press Num Lock key twice quickly
Double Click Caps Lock	Press Caps Lock key twice quickly
Double Click Left Alt key	Press the left Alt key twice quickly
Double Click Left Shift key	Press the left Shift key twice quickly

Hot key:	Take this action:
Double Click Left Ctrl key	Press the left Ctrl key twice quickly

4. Select the Local Port Connect key. Use a connect key sequence to connect to a target and switch to another target.

You can then use the hot key to disconnect from the target and return to the local port GUI.

Once the local port connect key is created, it will appear in the Navigation panel of the GUI so you can use it as a reference. See **Connect Key Examples** (on page 273) for examples of connect key sequences.
5. The connect key works for both standard servers and blade chassis.
6. Set the Video Switching Delay from between 0 - 5 seconds, if necessary. Generally 0 is used unless more time is needed (certain monitors require more time to switch the video).
7. If you would like to use the power save feature:
 - a. Select the Power Save Mode checkbox.
 - b. Set the amount of time (in minutes) in which Power Save Mode will be initiated.
8. Choose the resolution for the KX II Local Console from the drop-down list. The browser will be restarted when this change is made.
 - 800x600
 - 1024x768
 - 1280x1024
9. Choose the refresh rate from the drop-down list. The browser will be restarted when this change is made.
 - 60 Hz
 - 75 Hz
10. Choose the type of local user authentication.
 - Local/LDAP/RADIUS. This is the recommended option. For more information about authentication, see Remote Authentication.
 - None. There is no authentication for Local Console access. This option is recommended for secure environments only.
 - Select the "Ignore CC managed mode on local port" checkbox if you would like local user access to the KX II even when the device is under CC-SG management.

Note: If you initially choose not to ignore CC Manage mode on the local port but later want local port access, you will have to remove the device from under CC-SG management (from within CC-SG). You will then be able to check this checkbox.

11. Click OK.

Home > Device Settings > Local Port Settings

Enable Local Ports

Note: Any changes to the Local Port Settings will restart the browser.

Enable Standard Local Port

Local Port Settings

Keyboard Type
US

Local Port Hotkey
Double Click Scroll Lock

Local Port Connectkey
Disabled

Video Switching Delay (in secs)
0

Power Save Mode

Power Save Mode Timeout (in minutes)
10

Resolution
1024x768

Refresh Rate (Hz)
60 Hz

Local User Authentication
 Local LDAP/RADIUS
 None
 Ignore CC managed mode on local port

OK Reset To Defaults Cancel

Configuring KX II Local Port Settings from the Local Console

The standard local port and the extended local port can be configured from the Remote Console on the Port Configuration page, or from the Local Console on the Local Port Settings page.

See **Configuring KX II Local Port Settings** (on page 206) for details on configuring these ports.

KX II Local Console Factory Reset

Note: This feature is available only on the KX II Local Console.

Note: It is recommended that you save the audit log prior to performing a factory reset.

*The audit log is deleted when a factory reset is performed and the reset event is not logged in the audit log. For more information about saving the audit log, see **Audit Log** (on page 239).*

► **To perform a factory reset:**

1. Choose Maintenance > Factory Reset. The Factory Reset page opens.
2. Choose the appropriate reset option from the following options:
 - Full Factory Reset - Removes the entire configuration and resets the device completely to the factory defaults. Note that any management associations with CommandCenter will be broken. Because of the complete nature of this reset, you will be prompted to confirm the factory reset.
 - Network Parameter Reset - Resets the network parameters of the device back to the default values (click Device Settings > Network Settings to access this information):

- IP auto configuration
 - IP address
 - Subnet mask
 - Gateway IP address
 - Primary DNS server IP address
 - Secondary DNS server IP address
 - Discovery port
 - Bandwidth limit
 - LAN interface speed & duplex
 - Enable automatic failover
 - Ping interval (seconds)
 - Timeout (seconds)
3. Click Reset to continue. You will be prompted to confirm the factory reset because all network settings will be permanently lost.
 4. Click OK proceed. Upon completion, the KX II device is automatically restarted.

Connect and Disconnect Scripts

The KX II provides the ability to execute key macro scripts when connecting to or disconnecting from a target.

You can create and edit your own scripts on the Connection Script page to perform additional actions when connecting to or disconnecting from targets.

Alternatively, you can import existing connection scripts in XML file format. Scripts that you create in KX II can also be exported in XML file format.

A total of 16 scripts can be accommodated on the KX II.

Home > Device Settings > Connection Scripts

Logout

Manage Scripts

Available Connection Scripts

Ctrl-Alt-De_ OnExit (Disconnect)	<input type="button" value="Add"/> <input type="button" value="Modify"/> <input type="button" value="Remove"/>
AKC-PrtScr (Connect)	

Apply Selected Scripts to Ports

Apply	No.	Name	Scripts Currently in Use
<input checked="" type="checkbox"/>	5	SE-KX2-232-LP-ChangedName	
<input checked="" type="checkbox"/>	6	Japanese Target	
<input checked="" type="checkbox"/>	8	se-ksx2-188-local-port	On Disconnect: Ctrl-Alt-De_ OnExit
<input checked="" type="checkbox"/>	9	W2K3 Server	
<input checked="" type="checkbox"/>	18	Win XP 2.4GHz P4 504MB	

Applying and Removing Scripts

► To apply a script to targets:

1. Click Device Settings > Connection Scripts. The Connection Scripts page opens.
2. In the Available Connection Scripts section, select the script to be applied to the target(s). One 'On Connect' and one 'On Disconnect' script may be applied to a target.

Note: Only one script can be added to the targets at a time.

3. In the Apply Selected Scripts to Ports section, select the target(s) you want to apply the script to using Select All or clicking on the checkbox to the left of each target to apply the script to only select targets.
4. Click Apply Scripts. Once the script is added to the target, it appears under the Scripts Currently in Use column in the Apply Selected Scripts to Ports section.

► **To remove a script from targets:**

1. In the Apply Selected Scripts to Ports section, select the target(s) you want to remove the scripts from using Select All or clicking on the checkbox to the left of each target to remove the script from only select targets.
2. Click Remove Connect Scripts to remove connect scripts or click Remove Disconnect Scripts to remove disconnect scripts.

Adding Scripts

*Note: You can also add scripts that were created outside of KX II and import them as XML files. See **Importing and Exporting Scripts** (on page 215).*

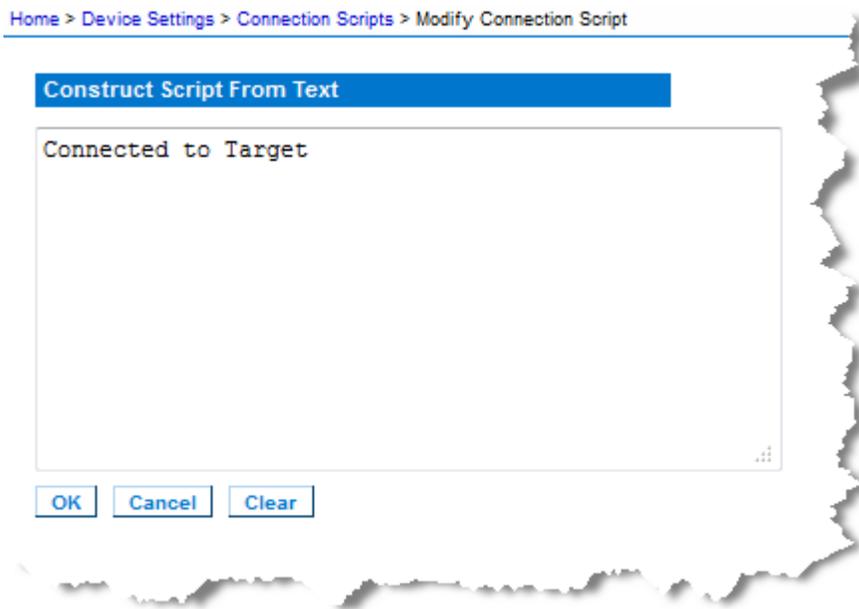
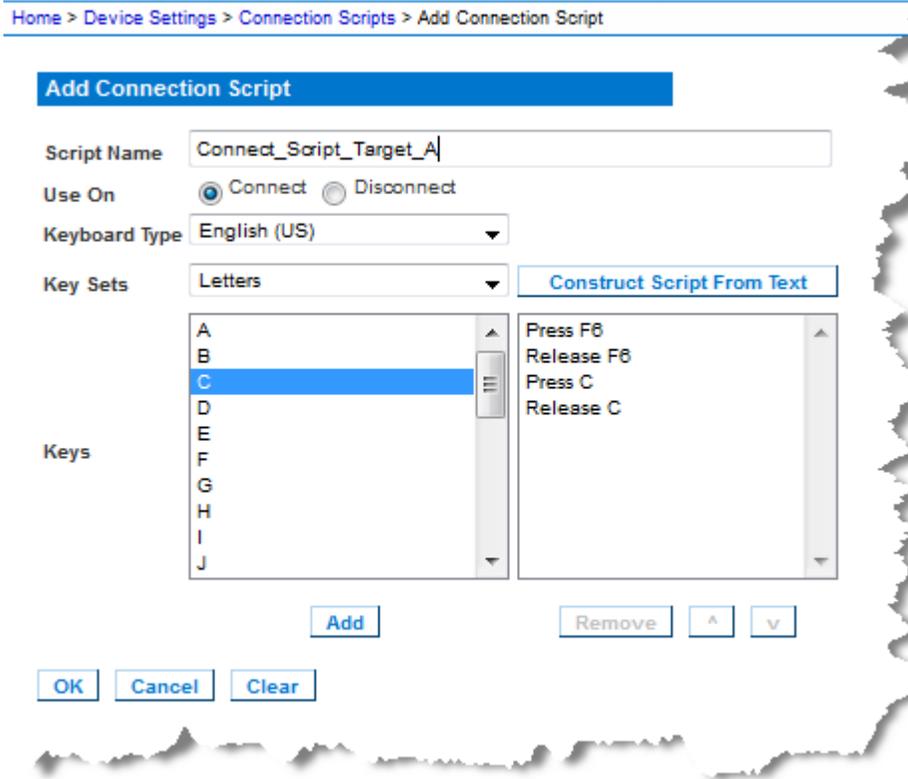
► **To create script:**

1. Click Device Settings > Connection Scripts. The Connection Scripts page opens.
2. In the Available Connection Scripts section, click Add. The Add Connection Script page opens.
3. Enter a name for the script up to 32 characters in length. This name is displayed in the Available Connection Scripts section of the Configure Scripts page once the script is created.
4. Select either Connect or Disconnect as the type of script you are creating. Connect scripts are used on a new connection or when switching to a target.
5. Select the keyboard type required for the target you are using.
6. From the Key Sets drop-down, choose the keyboard key set you want to use to create the script. Once selected, the Add box below the Key Sets drop-down is populated with the selected key set options.
7. Select a key from the Add box and click Add to move it to Script box. Remove a key from Script box by selecting it clicking Remove. Reorder keys by selecting them and using the Up and Down icons.

The script can consist of one or more keys. Additionally, you can mix and match the keys to be used in the script.

For example, select F1-F16 to display the function key set in the Add box. Select a function key and add it to the Script box. Next, select Letters from the Key Set drop-down and add a letter key to the script.

8. Optionally, add text that will display when the script is executed.
 - a. Click Construct Script from Text to open the Construct Script From Text page.
 - b. Enter the script in the text box. For example, enter "Connected to Target".
 - c. Click OK Construct Script From Text page.
9. Click OK to create the script.



Modifying Scripts

▶ **To modify existing scripts:**

1. Click Device Settings > Connection Scripts. The Connection Scripts page opens.
2. In the Available Connection Scripts section, select the script you want to modify and click Modify. The page is then in Edit mode.
3. Make changes as needed. Click OK when finished.

Resetting the KX II Using the Reset Button

On the back panel of the device, there is a Reset button. It is recessed to prevent accidental resets (you need a pointed object to press this button).

The actions that are performed when the Reset button is pressed are defined on the Encryption & Share page. See **Encryption & Share** (on page 227)

*Note: It is recommended that you save the audit log prior to performing a factory reset. The audit log is deleted when a factory reset is performed and the reset event is not logged on the audit log. For more information about saving the audit log, see **Audit Log** (on page 239).*

▶ **To reset the device:**

1. Power off the KX II.
2. Use a pointed object to press and hold the Reset button.
3. While continuing to hold the Reset button, power the KX II device back on.

4. Continue holding the Reset button for 10 seconds. Once the device has been reset, two short beeps signal its completion.



Appendix A Specifications

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Hardware

KX II Physical Specifications

DKX2-832 - Dual Power AC 100V/240V, Local USB Ports, Modem Port, Extended Local Port, Dual 10/100/1000 Ethernet Access, Local Port VGA, 32 KVM Ports UTP cabling (Cat5/5e/6)

DKX2-864 - Dual Power AC 100V/240V, Local USB Ports, Modem Port, Extended Local Port, Dual 10/100/1000 Ethernet Access, Local Port VGA, 64 KVM Ports UTP cabling (Cat5/5e/6)

Dominion KX II model	Description	Dimensions (WxDxH)	Weight	Power and heat dissipation
DKX2-864	64 server ports, 8 remote users, 1 local port + extended local port	17.3" x 13.8" x 3.5"; 439 x 360 x 88mm	12.88lbs; 5.8kg	Dual Power 100V/240V 47/63Hz 1.2A 67W 58 KCAL
DKX2-832	32 server ports, 8 remote users, 1 local port + extended local port	17.3" x 13.8" x 1.75"; 439 x 360 x 44mm	10.40lbs; 4.7kg	Dual Power 100V/240V 47/63Hz 1A 55W 47 KCAL
DKX2-808	8 server ports, 8 remote users, 1 local port + extended local port	17.3" x 13.8" x 1.75"; 439 x 360 x 44mm	10.40lbs; 4.7kg	Dual Power 100V/240V 47/63Hz 1A 55W 47 KCAL
DKX2-464	64 server ports, 4 remote users, 1 local port for use at the rack	17.3" x 11.4" x 3.5"; 439 x 290 x 90mm	13.73lbs; 6.24kg	Dual Power 100V/240V 47/63Hz 1.5A 64W 55 KCAL
DKX2-432	32 server ports, 4 remote users, 1 local port for use at the rack	17.3" x 11.4" x 1.75"; 439 x 290 x 44mm	9.48lbs; 4.3kg	Dual Power 100V/240V 47/63Hz 1A 63W 54 KCAL
DKX2-416	16 server ports, 4	17.3" x 11.4" x	9.04lbs;	Dual Power 100V/240V

Dominion KX II model	Description	Dimensions (WxDxH)	Weight	Power and heat dissipation
	remote users, 1 local port for use at the rack	1.75"; 439 x 290 x 44mm	4.1kg	47/63Hz 1A 63W 54 KCAL
DKX2-232	32 server ports, 2 remote users, 1 local port for use at the rack	17.3" x 11.4" x 1.75"; 439 x 290 x 44mm	9.0lbs; 4.1kg	Dual Power 100V/240V 47/63Hz 0.6A 63W 54 KCAL
DKX2-216	16 server ports, 2 remote users, 1 local port for use at the rack	17.3" x 11.4" x 1.75"; 439 x 290 x 44mm	8.65lbs; 3.9kg	Dual Power 100V/240V 47/63Hz 0.6A 62W 53 KCAL
DKX2-132	32 server ports, 1 remote user, 1 local port for use at the rack	17.3" x 11.4" x 1.75"; 439 x 290 x 44mm	9.0lbs; 4.1kg	Dual Power 100V/240V 47/63Hz 0.6A 62W 53 KCAL
DKX2-116	16 server ports, 1 remote user, 1 local port for use at the rack	17.3" x 11.4" x 1.75"; 439 x 290 x 44mm	8.65lbs; 3.9kg	Dual Power 100V/240V 47/63Hz 0.6A 62W 53 KCAL
DKX2-108	8 server ports, 1 remote user, 1 local port for use at the rack	17.3" x 11.4" x 1.75"; 439 x 290 x 44mm	8.58lbs; 3.9kg	Dual Power 100V/240V 47/63Hz 0.6A 61W 53 KCAL

Specifications for All Dominion KX II Models

Form Factor	1U and 2U full width, rack mountable (brackets included)
Operating Temperature	0° - 40° C (32° - 104° F)
Humidity	20% - 85% RH
Remote Connection	Dual 10/100/1000 gigabit Ethernet access; dual-stack: IPv4 and IPv6
Network Modem	DB9(F) DTE
Port Protocols	TCP/IP, HTTP, HTTPS, UDP, RADIUS, SNTP, DHCP, PAP, CHAP, LDAP, SNMP v2 and v3

Specifications for All Dominion KX II Models	
Local port access	
Video	HD15(F) VGA
Keyboard/Mouse	USB(F), 1 USB front, 3 USB rear
Warranty	Two years standard with advanced replacement*

Supported Target Server Video Resolution/Refresh Rate/Connection Distance

The maximum supported distance is a function of many factors including the type/quality of the Cat5 cable, server type and manufacturer, video driver and monitor, environmental conditions, and user expectations.

The following table summarizes the maximum target server distance for various video resolutions and refresh rates:

Video resolution	Refresh rate	Maximum distance
1920x1080	60	50 ft. (15 m)
1600x1200	60	50 ft. (15 m)
1280x1024	60	100 ft. (30 m)
1024x768	60	150 ft. (45 m)

Note: Due to the multiplicity of server manufacturers and types, OS versions, video drivers, and so on, as well as the subjective nature of video quality, Raritan cannot guarantee performance across all distances in all environments.

See **Supported Video Resolutions** (on page 313) for the video resolutions supported by the KX II.

Supported Computer Interface Module (CIMs) Specifications

CIM model	Description	Dimensions (WxDxH)	Weight
D2CIM-DVUSB	Dual USB CIM for BIOS virtual media, smartcard/CAC, audio and Absolute Mouse Synchronization	1.7" x 3.5" x 0.8"; 43 x 90 x 19mm	0.25lb; 0.11kg
			

CIM model	Description	Dimensions (WxDxH)	Weight
D2CIM-VUSB	USB CIM for virtual media and Absolute Mouse Synchronization 	1.3" x 3.0" x 0.6"; 33 x 76 x 15mm	0.20lb; 0.09kg
DCIM-PS2	CIM for PS/2 	1.3" x 3.0" x 0.6"; 33 x 76 x 15mm	0.20lb; 0.09kg
DCIM-SUN	CIM for Sun 	1.3" x 3.0" x 0.6"; 33 x 76 x 15mm	0.20lb; 0.09kg
DCIM-USBG2	CIM for USB and Sun USB 	1.3" x 3.0" x 0.6"; 33 x 76 x 15mm	0.20lb; 0.09kg
D2CIM-PWR	CIM for remote power management	1.3" x 3.0" x 0.6"; 33 x 76 x 15mm	0.20lb; 0.09kg

CIM model	Description	Dimensions (WxDxH)	Weight
			
P2CIM-SER	<p>Paragon II/Dominion KX II CIM for serial (ASCII) devices</p> 	1.3" x 3.0" x 0.6"; 33 x 76 x 15mm	0.20lb; 0.09kg
D2CIM-DVUSB-DVI	<p>Digital CIM that provides digital-to-analog conversion and support for virtual media, smartcard/CAC, audio, Absolute and Relative Mouse Synchronization</p> 	1.7" x 3.5" x 0.8"; 43 x 90 x 19mm	0.25lb; 0.11kg

CIM model	Description	Dimensions (WxDxH)	Weight
D2CIM-DVUSB-DP	Digital CIM that provides digital-to-analog conversion and support for virtual media, smartcard/CAC, audio, Absolute and Relative Mouse Synchronization 	1.7" x 3.5" x 0.8"; 43 x 90 x 19mm	0.25lb; 0.11kg
D2CIM-DVUSB-HDMI	Digital CIM that provides digital-to-analog conversion and support for virtual media, smartcard/CAC, audio, Absolute and Relative Mouse Synchronization 	1.7" x 3.5" x 0.8"; 43 x 90 x 19mm	0.25lb; 0.11kg

Note: Digital CIMs are supported by KX II 2.5.0 (and later)

Digital CIM Target Server Timing and Video Resolution

Digital CIMs support Display Data Channels (DDC) and Enhanced Extended Display Identification Data (E-EDID).

See **Supported Computer Interface Module (CIMs) Specifications** (on page 289) for CIM specifications.

Digital CIM Timing Modes

Following are the default timing modes that are used when the KX II communicates with a video source via a digital CIM.

The timing mode that is used is dependent on the native resolution of the video source.

- 1920x1080@60Hz
- 1600x1200@60Hz
- 1280x1024@60Hz (default resolution applied to digital CIMs)
- 1440x900@60Hz
- 1024x768@60Hz

See **Configuring CIM Ports** (on page 176) in online help for more information.

Digital CIM Established and Standard Modes

The following additional established and standard resolutions and timing modes are supported by the KX II 2.5.0 (and later).

Established Modes

- 720x400@70Hz IBM, VGA
- 640x480@60Hz IBM, VGA
- 640x480@67Hz Apple Mac® II
- 640x480@72Hz VESA
- 640x480@75Hz VESA
- 800x600@56Hz VESA
- 800x600@60Hz VESA
- 800x600@72Hz VESA
- 800x600@75Hz VESA
- 832x624@75Hz Apple Mac II
- 1024x768@60Hz VESA
- 1024x768@70Hz VESA
- 1024x768@75Hz VESA
- 1280x1024@75Hz VESA
- 1152x870@75Hz Apple Mac II

Standard Modes

- 1152x864@75Hz VESA
- 1280x960@60Hz VESA
- 1280x1024@60Hz VESA
- 1360x768@60Hz VESA
- 1400x1050@60Hz VESA
- 1440x900@60Hz VESA
- 1600x1200 @60Hz VESA
- 1680x1050@60Hz VESA
- 1920x1080@60Hz VESA

Digital CIM Display Native Resolution

You are able to select the native resolution of the CIM on the Port Configuration page from the Display Native Resolution drop-down.

This is the preferred resolution and timing mode of the digital CIM. Once a resolution is selected, it is applied to the CIM.

If no selection is made, the default 1024x1280@60Hz resolution is used.

See **Configuring CIM Ports** (on page 176)

DVI Compatibility Mode

DVI Compatibility Mode may be required if you are using an HDMI CIM to connect to a Dell Optiplex target with an Intel video card, or a Mac® Mini with an HDMI video port.

Selecting this mode ensures a good video quality from the targets.

See **Configuring CIM Ports** (on page 176) in online help.

Digital Video CIMs for Macs

Use a digital video CIM to connect to the following Mac® ports:

Mac port	CIM
DVI	D2CIM-DVUSB-DVI
HDMI	D2CIM-DVUSB-HDMI
DisplayPort or Thunderbolt	D2CIM-DVUSB-DP

If the Mac's HDMI or DisplayPort video has a mini connector, a passive adapter cable may be required to connect to the full sized HDMI and DisplayPort plugs on the digital CIMs.

Alternatively, use the Mac VGA adapter with the D2CIM-VUSB or D2CIM-DVUSB. Note that this may be less reliable and the video quality may suffer.

For information on established modes supported by the KX II 2.5.0 (and later) for Mac, see **Digital CIM Established and Standard Modes** (on page 294).

Supported Paragon II CIMS and Configurations

The KX II supports the P2CIM-APS2DUAL and P2CIM-AUSB2DUAL CIMS, which provide two RJ45 connections to different KVM switches.

Support of these CIMS provides a second path to access the target in the event that one of the KVM switches is blocked or fails.

Paragon CIM	Supports	Does not support
P2CIM-APS2DUAL	<ul style="list-style-type: none"> • Servers with IBM® PS/2-type keyboard and mouse ports • Automatic skew compensation (when the CIMS are connected to Paragon II, not from a KX II) • Intelligent Mouse mode • Standard Mouse mode 	<ul style="list-style-type: none"> • Virtual media • Smart cards • Absolute Mouse mode • Use with blade chassis • Cascaded KVM configurations
P2CIM-AUSB2DUAL	<ul style="list-style-type: none"> • Servers with USB- or Sun™ USB-type keyboard and mouse ports • Automatic skew compensation (when the CIMS are connected to Paragon II, not from a KX II) • Intelligent Mouse mode • Standard Mouse mode 	<ul style="list-style-type: none"> • Virtual media • Smart cards • Absolute Mouse mode • Use with blade chassis • Cascaded KVM configurations

KX II-to-KX II Paragon CIM Guidelines

The following system configuration guidelines should be followed when you are using Paragon CIMs in a KX II-to-KX II configuration:

Concurrent Access

Both KX II KVM switches should be configured with the same policy for concurrent access to targets - both PC-Share or both Private.

If Private access to targets is required, both KVM switches must be configured accordingly:

- From Security > Security Settings > Encryption & Share, set PC Share Mode to 'Private'

This guarantees that concurrent access to targets is prohibited, for all targets by all user groups.

The KX II allows for more granular control of concurrent access to targets on a per user group basis. This is done by setting the user group's PC Share permissions. However, this is only enforced within the boundary of a KX II. User Group PC Share permissions must not be relied on if Privacy must be guaranteed when using the P2CIM-APS2DUAL or P2CIM-AUSBDUAL with the KX II.

CIM Name Updates

The P2CIM-APS2 and P2CIM-AUSB names are stored within the CIM's memory. There are two memory locations provided to accommodate the Paragon naming convention (12 characters) and the KX II naming convention (32 characters).

When first connected to a KX II, the Paragon name will be retrieved from memory and written into the CIM memory location used by KX II. Subsequent queries for the CIM name or updates to the CIM name from the KX II will be made to the memory location used by the KX II. Updates will not be made by the KX II to the memory location used by Paragon II.

When the CIM name is updated by one KX II, the other KX II will detect and retrieve the updated name on the next attempt to connect to that target. Until that time, the name will not be updated on the other KX II.

Port Status and Availability

The port status, displayed on the KX II Port Access page as either Up or Down, is updated to show whether the CIM is powered up and connected to the KX II port.

The port availability, as displayed on the KX II Port Access page as Idle, Busy or Connected, is only updated to reflect activity on a target that has been initiated from that same KX II.

If a connection to the target is in place from the other KX II, the availability is checked when a connection is attempted. Access is denied or allowed consistent with the PC-Share policy in place for the KX II. Until that time, the availability is not be updated on the other KX II.

If access is denied because the target is busy, a notification is displayed.

Working from CC-SG

Operations initiated from CC-SG are based on the Status, Availability and CIM name reported by the managed KX II. When the target is connected to two managed KX IIs and the devices are added to CC-SG, two nodes will be created. Each node will have its own oob-kvm interface associated with it. Alternatively, a single node can be configured with an oob-kvm interface from each KX II.

If the KX IIs are configured for ‘Private’ mode, when a second connection is attempted the user is notified that they cannot connect and access is denied.

When a port name change is initiated via the CC-SG Port Profile pane, the changed name is pushed to the managed KX II. The corresponding port name of the other KX II will not be updated in CC-SG until a connection is attempted to the target port via the other KX II’s oob-kvm interface.

KX II-to-Paragon II Guidelines

The P2CIM-APS2DUAL or P2CIM-AUSBDUAL can be connected to a KX II and Paragon II.

Concurrent Access

The KX II and Paragon II must be configured with the same policy for concurrent access to targets.

Paragon II operation mode	Mode description	Supported?
Private	A server or other device on a specific channel port can be accessed exclusively by only one user at a time.	Supported. Paragon II and the KX II must be set to Private. The Private setting is applied on to KX II device, not per user group. The Paragon II uses Red to indicate ‘busy’ or Green to indicate ‘available’.
PC Share	A server or other device on a specific channel	Supported. However, PC Share Idle

Paragon II operation mode	Mode description	Supported?
	port can be selected and controlled by more than one user, but only one user has keyboard and mouse control at any one time.	Timeout, which is configured on the Paragon II, is not supported. Both users will have concurrent keyboard and mouse control. The Paragon II uses Green to indicate 'available'. This will also be true if another user is already accessing the target.
Public View	While one user is accessing a server or other device on a specific channel port, other users can select that channel port and view the video output from that device. However, only the first user will have keyboard and mouse control until they disconnect or switch away.	Not supported. This mode cannot be used when connecting the CIM to a Paragon II and the KX II. The Paragon II uses Yellow to indicate it is in P-View mode.

CIM Name Updates

- CIM names updated from Paragon II are stored and retrieved from the CIM memory location corresponding to the Paragon naming convention.
- CIM names updated from the KX II are stored and retrieved from the CIM memory location corresponding to the KX II naming convention.
- CIM name updates do not propagate between the Paragon II and the KX II.

Supported Connection Distances Between Paragon II and KX II

When using KX II as the front end of a Paragon II system, you should restrict the cable length (distance) for good video quality.

Supported distance from the Paragon II user station to the target server is 500 cable feet (152 m). Greater distances may result in video performance that may or may not be acceptable to you.

Supported distance from KX II to the Paragon II user station is up to 150 cable feet (45 m).

Supported Remote Connections

Remote connection	Details
Network	10BASE-T, 100BASE-T, and 1000BASE-T (Gigabit) Ethernet
Protocols	TCP/IP, UDP, SNMP, HTTP, HTTPS, RADIUS, LDAP/LDAPS

Network Speed Settings

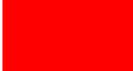
KX II network speed setting						
Network switch port setting	Auto	1000/Full	100/Full	100/Half	10/Full	10/Half
Auto	Highest Available Speed	1000/Full	KX II: 100/Full Switch: 100/Half	100/Half	KX II: 10/Full Switch: 10/Half	10/Half
1000/Full	1000/Full	1000/Full	No Communication	No Communication	No Communication	No Communication
100/Full	KX II: 100/Half Switch: 100/Full	KX II: 100/Half Switch: 100/Full	100/Full	KX II: 100/Half Switch: 100/Full	No Communication	No Communication
100/Half	100/Half	100/Half	KX II: 100/Full Switch: 100/Half	100/Half	No Communication	No Communication
10/Full	KX II: 10/Half Switch: 10/Full	No Communication	No Communication	No Communication	10/Full	KX II: 10/Half Switch: 10/Full
10/Half	10/Half	No Communication	No Communication	No Communication	KX II: 10/Full Switch: 10/Half	10/Half

Legend:

 Does not function as expected

 Supported

 Functions; not recommended

 NOT supported by Ethernet specification; product will communicate, but collisions will occur

 Per Ethernet specification, these should be “no communication,” however, note that the KX II behavior deviates from expected behavior

Note: For reliable network communication, configure the KX II and the LAN switch to the same LAN Interface Speed and Duplex. For example, configure the KX II and LAN Switch to Autodetect (recommended), or set both to a fixed speed/duplex such as 100MB/s/Full.

Dell Chassis Cable Lengths and Video Resolutions

In order to maintain video quality, Raritan recommends using the following cable lengths and video resolutions when you are connecting to Dell® blade chassis from the KX II:

Video resolution	Cable length
1024x768@60Hz	50' (15.24 m)
1280x1024@60Hz	50' (15.24 m)
1600x1200@60Hz	30' (9.14 m)

Smart Card Minimum System Requirements

Local Port Requirements

The basic interoperability requirement for local port attachment to the KX II is:

- All devices (smart card reader or token) that are locally attached must be USB CCID-compliant.

Target Server Requirements

When using smart card readers, the basic requirements for interoperability at the target server are:

- The IFD (smart card reader) Handler must be a standard USB CCID device driver (comparable to the generic Microsoft® USB CCID driver).
- A digital CIM or D2CIM-DVUSB (Dual-VM CIM) is required and must be using firmware version 3A6E or later.
- Blade chassis server connections, where a CIM per blade is used, are supported.
- Blade chassis server connections, where a CIM per chassis is used, is only supported for IBM® BladeCenter® models H and E with auto-discovery enabled.

Windows XP Targets

Windows XP® operating system targets must be running Windows XP SP3 in order to use smart cards with the KX II. If you are working with .NET 3.5 in a Windows XP environment on the target server, you must be using SP1.

Linux Targets

If you are using a Linux® target, the following requirements must be met to use smart card readers with the Raritan device.

- CCID Requirements

If the Raritan D2CIM-DVUSB VM/CCID is not recognized as a smart card reader by your Linux target, you may need to update the CCID driver version to 1.3.8 or above and update the driver configuration file (Info.plist).

Operating system	CCID requirements
RHEL 5	ccid-1.3.8-1.el5
SuSE 11	pcsc-ccid-1.3.8-3.12
Fedora® Core 10	ccid-1.3.8-1.fc10.i386

Remote Client Requirements

The basic requirements for interoperability at the remote client are:

- The IFD (smart card reader) Handler must be a PC/SC compliant device driver.
- The ICC (smart card) Resource Manager must be available and be PC/SC compliant.
- The JRE® Java™ 1.7 with smart card API must be available for use by the Raritan client application.

Linux Clients

If you are using a Linux® client, the following requirements must be met to use smart card readers with the Raritan device.

Note: User login to client, on smart card insertion, may take longer when 1 or more KVM sessions are actively in place to targets. As the login process to these targets is also under way.

- PC/SC Requirements

Operating system	Required PC/SC
RHEL 5	pcsc-lite-1.4.4-0.1.el5
SuSE 11	pcsc-lite-1.4.102-1.24
Fedora® Core 10	pcsc-lite-1.4.102.3.fc10.i386

- Create a Java® Library Link

A soft link must be created to the libpcsclite.so after upgrading RHEL 4, RHEL 5 and FC 10. For example, In `–s /usr/lib/libpcsclite.so.1 /usr/lib/libpcsclite.so`, assuming installing the package places the libraries in `/usr/lib` or `/user/local/lib`

- PC/SC Daemon

When the pcsc daemon (resource manager in framework) is restarted, restart the browser and MPC, too.

Supported and Unsupported Smart Card Readers

External, USB smart card readers are supported.

Supported Smart Card Readers

Type	Vendor	Model	Verified
USB	SCM Microsystems	SCR331	Verified on local and remote
USB	ActivIdentity®	ActivIdentity USB Reader v2.0	Verified on local and remote
USB	ActivIdentity	ActivIdentity USB Reader v3.0	Verified on local and remote
USB	Gemalto®	GemPC USB-SW	Verified on local and remote
USB Keyboard/Card reader combo	Dell®	USB Smart Card Reader Keyboard	Verified on local and remote
USB Keyboard/Card reader combo	Cherry GmbH	G83-6744 SmartBoard	Verified on local and remote
USB reader for SIM-sized cards	Omniquey	6121	Verified on local and remote
Integrated (Dell Latitude D620)	O2Micro	OZ776	Remote only
PCMCIA	ActivIdentity	ActivIdentity PCMCIA Reader	Remote only
PCMCIA	SCM Microsystems	SCR243	Remote only

Note: SCM Microsystems SCR331 smart card readers must be using SCM Microsystems firmware v5.25.

Unsupported Smart Card Readers

This table contains a list of readers that Raritan has tested and found not to work with the Raritan device, therefore they are unsupported.

If a smart card reader does not appear in the supported smart card readers table or in the unsupported smart card readers table, Raritan cannot guarantee it will function with the device.

Type	Vendor	Model	Notes
USB Keyboard/Card reader Combo	HP®	ED707A	No interrupt endpoint => not compatible with Microsoft® driver
USB Keyboard/Card reader Combo	SCM Microsystems	SCR338	Proprietary card reader implementation (not CCID-compliant)
USB Token	Aladdin®	eToken PRO™	Proprietary implementation

Supported Audio Device Formats

The KX II supports one playback and capture device and one record device on a target at a time. The following audio device formats are supported:

- Stereo, 16 bit, 44.1K
- Mono, 16 bit, 44.1K
- Stereo, 16 bit, 22.05K
- Mono, 16 bit, 22.05K
- Stereo, 16 bit, 11.025K
- Mono, 16 bit, 11.025K

Audio Playback and Capture Recommendations and Requirements

Audio Level

- Set the target audio level to a mid-range setting.
For example, on a Windows® client, set the audio to 50 or lower.

This setting must be configured through the playback or capture audio device, not from the client audio device control.

Recommendations for Audio Connections when PC Share Mode is Enabled

If you are using the audio feature while running PC Share mode, audio playback and capture are interrupted if an additional audio device is connected to the target.

For example, User A connects a playback device to Target1 and runs an audio playback application then User B connects a capture device to the same target. User A's playback session is interrupted and the audio application may need to be restarted.

The interruption occurs because the USB device needs to be re-enumerated with the new device configuration.

It may take some time for the target to install a driver for the new device.

Audio applications may stop playback completely, go to the next track, or just continue playing.

The exact behavior is dependent on how the audio application is designed to handle a disconnect/reconnect event.

Bandwidth Requirements

The table below details the audio playback and capture bandwidth requirements to transport audio under each of the selected formats.

Audio format	Network bandwidth requirement
44.1 KHz, 16bit stereo	176 KB/s
44.1 KHz, 16bit mono	88.2 KB/s
2.05 KHz, 16bit stereo	88.2 KB/s
22.05 KHz, 16bit mono	44.1 KB/s
11.025 KHz, 16bit stereo	44.1 KB/s
11.025 KHz, 16bit mono	Audio 22.05 KB/s

In practice, the bandwidth used when an audio device connects to a target is higher due to the keyboard and video data consumed when opening and using an audio application on the target.

A general recommendation is to have at least a 1.5MB connection before running playback and capture.

However, high video-content, full-color connections using high-target screen resolutions consume much more bandwidth and impact the quality of the audio considerably.

To help mitigate quality degeneration, there are a number of recommended client settings that reduce the impact of video on audio quality at lower bandwidths:

- Connect audio playback at the lower quality formats. The impact of video consuming bandwidth is much less notable at 11k connections than at 44k
- Set the connection speed under Connection Properties to a value that best matches the client to server connection
- Under Connection Properties, set the color depth to as lowt value as possible. Reducing the color depth to 8 bit color considerably reduces the bandwidth consumed
- Set Smoothing, to High. This will improve the appearance of the target video by reducing displayed video noise
- Under Video settings, set the Noise Filter to its highest setting of 7 (highest value) so less bandwidth is used for target screen changes

Audio in a Mac Environment

Following are known issues in a Mac® environment.

- On Mac clients, only one playback device is listed on the Connect Audio panel when accessing the device through the Virtual KVM Client (VKC) and Multi-Platform Client (MPC). The device listed is the default and is displayed on the Connect Audio panel as Java Sound Audio Engine.
- Using audio on a Mac target through Skype® may cause the audio to be corrupted.

Number of Supported Audio/Virtual Media and Smartcard Connections

Following are the number of simultaneous Audio/Virtual Media and Smartcard connections that can be made from a client to a target:

- 1 smartcard
- 1 virtual media
- 1 Smartcard and 1 virtual media
- 2 virtual media

Certified Modems

- USRobotics® 56K 5686E
- ZOOM® v90
- ZOOM v92
- USRobotics Sportster® 56K
- USRobotics Courier™ 56K

Devices Supported by the Extended Local Port

The extended local port supports attachment from the following devices:

- Paragon II User Station (P2-UST) connected directly to extended local port
- Paragon II Enhanced User Station (P2-EUST) connected directly to extended local port
- Cat5Reach URKVMG Receiver connected directly to extended local port
- Paragon II analog KVM switch (UMT) target port connected to extended local port. Provides furthest possible access to extended local port, when used together with the Paragon II Enhanced User Station.

KX2 8xx Extended Local Port Recommended Maximum Distances

Extended device	1024x768, 60 Hz	1280x1024, 60 Hz
Paragon II UMT using EUST	1000	900
Paragon EUST	500	400
URKVM	650	250
Paragon UST	500	200

Mac Mini BIOS Keystroke Commands

The following BIOS commands have been tested on Intel-based Mac® Mini target servers and Mac Lion® servers running Mac Snow Leopard®. The servers were attached to a KX II with D2CIM-DVUSB and D2CIM-VUSB CIMs. See below for the supported keys and any notes.

Keystroke	Description	Virtual Media CIM	Dual Virtual Media CIM	Mac Lion Server HDMI CIM
Press C during startup	Start up from a bootable CD or DVD, such as the Mac OS X Install disc	✓	✓	
Press D during startup	Start up in Apple Hardware Test (AHT)	✓ May need BIOS Mac profile for the mouse to work	✓ May need BIOS Mac profile for mouse to work	✓ May need BIOS Mac profile for the mouse to work
Press Option-Command-P-R until you hear startup sound a second time.	Reset NVRAM		✓	✓
Press Option during startup	Start up in Startup Manager, where you can select a Mac OS X volume to start from	✓	✓	✓
Press Eject, F12, or hold the mouse button	Ejects any removable media, such as an optical disc	✓	✓	

Keystroke	Description	Virtual Media CIM	Dual Virtual Media CIM	Mac Lion Server HDMI CIM
Press N during startup	Start up from a compatible network server (NetBoot)	✓	✓	✓
Press T during startup	Start up in Target Disk mode			✓
Press Shift during startup	Start up in Safe Boot mode and temporarily disable login items	✓	✓	Known issue with LION to boot to safe mode. "Safe Mode" in red does not appear for Lion
Press Command-V during startup	Start up in Verbose mode.admin	✓	✓	✓
Press Command-S during startup	Start up in Single-User mode	✓	✓	✓
Press Option-N during startup	Start from a NetBoot server using the default boot image	✓	✓	✓
Press Command-R during startup	Start from Lion Recovery1	N/A	N/A	✓

Using a Windows Keyboard to Access Mac Targets

A Windows® keyboard can be used to access a Mac® connected to a KX II. Windows keys are then used to emulate the special Mac keys. This is the same as connecting a Windows keyboard directly to the Mac.

TCP and UDP Ports Used

Port	Description
HTTP, Port 80	<p>This port can be configured as needed. See HTTP and HTTPS Port Settings (on page 146).</p> <p>By default, all requests received by the KX II via HTTP (port 80) are automatically forwarded to HTTPS for complete security.</p> <p>The KX II responds to Port 80 for user convenience, relieving users from having to explicitly type in the URL field to access the KX II, while still preserving complete security.</p>
HTTPS, Port 443	<p>This port can be configured as needed. See HTTP and HTTPS Port Settings (on page 146).</p>

Port	Description
	By default, this port is used for multiple purposes, including the web server for the HTML client, the download of client software (Multi-Platform Client (MPC) and Virtual KVM Client (VKC)) onto the client's host, and the transfer of KVM and virtual media data streams to the client.
KX II (Raritan KVM-over-IP) Protocol, Configurable Port 5000	<p>This port is used to discover other Dominion devices and for communication between Raritan devices and systems, including CC-SG for devices that CC-SG management is available.</p> <p>By default, this is set to Port 5000, but you may configure it to use any TCP port not currently in use. For details on how to configure this setting, see Network Settings (on page 141).</p>
SNTP (Time Server) on Configurable UDP Port 123	<p>The KX II offers the optional capability to synchronize its internal clock to a central time server.</p> <p>This function requires the use of UDP Port 123 (the standard for SNTP), but can also be configured to use any port of your designation. Optional</p>
LDAP/LDAPS on Configurable Ports 389 or 636	If the KX II is configured to remotely authenticate user logins via the LDAP/LDAPS protocol, ports 389 or 636 will be used, but the system can also be configured to use any port of your designation. Optional
RADIUS on Configurable Port 1812	If the KX II is configured to remotely authenticate user logins via the RADIUS protocol, either port 1812 will be used, but the system can also be configured to use any port of your designation. Optional
RADIUS Accounting on Configurable Port 1813	If the KX II is configured to remotely authenticate user logins via the RADIUS protocol, and also employs RADIUS accounting for event logging, port 1813 or an additional port of your designation will be used to transfer log notifications.
SYSLOG on Configurable UDP Port 514	If the KX II is configured to send messages to a Syslog server, then the indicated port(s) will be used for communication - uses UDP Port 514.
SNMP Default UDP Ports	Port 161 is used for inbound/outbound read/write SNMP access and port 162 is used for outbound traffic for SNMP traps. Optional
TCP Port 22	Port 22 is used for the KX II command line interface (when you are working with Raritan Technical Support).
SSH	(Secure Shell) SSH port can be configured. The default is port 22.
Telnet	Telnet port can be configured but is not recommended. The default port is 23.

Software

Supported Operating Systems (Clients)

The following operating systems are supported on the Virtual KVM Client (VKC) and Multi-Platform Client (MPC).

- Windows 7®
- Windows XP®
- Windows 2008®
- Windows Vista®
- Windows 2000® SP4 Server
- Windows 2003® Server
- Windows 2008® Server
- Red Hat® Desktop 5.0
- Red Hat Desktop 4.0
- Open SUSE 10, 11
- Fedora® 13 and 14
- Mac® OS X
 - Mac® OS X Mountain Lion® 10.7.5 using Safari 6.0.5 running JRE™ 1.7.0_51
 - Mac OS X Mountain Lion 10.8.5 * using Safari 6.1.1 running JRE 1.7.0_51

**Note: Upon upgrading from OS X 10.8.2 to OS X 10.8.3, Safari® may block Java™.*

- Solaris™

Note: Solaris does not support virtual media for ISO images.

- Linux®

The JRE™ plug-in is available for the Windows® 32-bit and 64-bit operating systems. MPC and VKC can be launched only from a 32-bit browser, or 64-bit browser.

Following are the Java™ 32-bit and 64-bit Windows operating system requirements.

Mode	Operating system	Browser
Windows x64 32-bit mode	Windows XP®	<ul style="list-style-type: none"> • Internet Explorer® 6.0 SP1+ or 7.0, 9.0, 10.0 or 11.0 • Firefox® 1.06 - 4 or later
	Windows Server 2003®	<ul style="list-style-type: none"> • Internet Explorer 6.0 SP1++, 9.0, 10.0 or 11.0 • Firefox 1.06 - 3
	Windows Vista®	<ul style="list-style-type: none"> • Internet Explorer 9.0, 10.0 or 11.0
	Windows 7®	<ul style="list-style-type: none"> • Internet Explorer 9.0, 10.0 or 11.0 • Firefox 1.06 - 4 or later
Windows x64 64-bit mode	Windows XP	64bit OS, 32bit browsers:
	Windows XP Professional®	
	Windows XP Tablet®	<ul style="list-style-type: none"> • Internet Explorer 6.0 SP1+, 7.0 or 8.0 • Firefox 1.06 - 4 or later
	Windows Vista	64bit mode, 64bit browsers:
	Windows Server 2003	
	Windows Server 2008	
	Windows 7	
	<ul style="list-style-type: none"> ▪ Internet Explorer 7.0, 8.0, 9.0, 10.0 or 11.0 	

Supported Browsers

KX II supports the following browsers:

- Internet Explorer® 7 through 11
- Firefox® 4 (or later)
- Safari® 3 (or later)
 - Mac® OS X Mountain Lion® 10.7.5 using Safari 6.0.5 running JRE™ 1.7.0_51

- Mac OS X Mountain Lion 10.8.5 * using Safari 6.1.1 running JRE 1.7.0_51

**Note: Upon upgrading from OS X 10.8.2 to OS X 10.8.3, Safari® may block Java™.*

JRE Requirements and Browser Considerations for Mac

Java Runtime Environment Requirements for Mac

Install Java Runtime Environment 7 (JRE)® on PCs and Macs® when using the Virtual KVM Client (VKC) to access target servers via KX II.

This ensures in order to provide high performance, KVM-over-IP video processing when remotely accessing target servers/PCs/Macs.

The latest version of JRE for Mac can be downloaded from the Apple Support website.

Browser Considerations for Mac

Java may be disabled by default in certain browsers. Enable Java and accept all security warnings in order to use KX II.

Certain versions of Safari® block Java for security reasons. Since Java is required to use KX II, Raritan recommends you use Firefox® instead.

Additionally, you may be required to navigate through a number of messages. Select 'Do Not Block' if these messages are displayed.

Supported Video Resolutions

Ensure each target server's video resolution and refresh rate are supported by the KX II, and that the signal is noninterlaced.

Video resolution and cable length are important factors in the ability to obtain mouse synchronization.

The KX II supports these resolutions:

Resolutions	
640x350 @70Hz	1024x768@85
640x350 @85Hz	1024x768 @75Hz
640x400 @56Hz	1024x768 @90Hz
640x400 @84Hz	1024x768 @100Hz
640x400 @85Hz	1152x864 @60Hz
640x480 @60Hz	1152x864 @70Hz
640x480 @66.6Hz	1152x864 @75Hz

Resolutions	
640x480 @72Hz	1152x864 @85Hz
640x480 @75Hz	1152x870 @75.1Hz
640x480 @85Hz	1152x900 @66Hz
720x400 @70Hz	1152x900 @76Hz
720x400 @84Hz	1280x720@60Hz
720x400 @85Hz	1280x960 @60Hz
800x600 @56Hz	1280x960 @85Hz
800x600 @60Hz	1280x1024 @60Hz
800x600 @70Hz	1280x1024 @75Hz
800x600 @72Hz	1280x1024 @85Hz
800x600 @75Hz	1360x768@60Hz
800x600 @85Hz	1366x768@60Hz
800x600 @90Hz	1368x768@60Hz
800x600 @100Hz	1400x1050@60Hz
832x624 @75.1Hz	1440x900@60Hz
1024x768 @60Hz	1600x1200 @60Hz
1024x768@70	1680x1050@60Hz
1024x768@72	1920x1080@60Hz

Note: Composite Sync and Sync-on-Green video require an additional adapter.

Note: Some resolutions may not be available by default. If you do not see a resolution, plug in the monitor first, remove the monitor and then plug in the CIM.

Note: If the 1440x900 and 1680x1050 resolutions are not displayed but are supported by the target server's graphics adapter card, a DDC-1440 or DDC-1680 adapter may be required.

Video Image Appears Dark when Using a Mac

If you are using a Mac® with an HDMI video port and the video seems too dark, enable DVI Compatibility Mode on the CIM to help resolve the issue.

See **Configuring CIM Ports** (on page 176)

KX II Supported Keyboard Languages

The KX II provides keyboard support for the languages listed in the following table.

Note: You can use the keyboard for Chinese, Japanese, and Korean for display only; local language input is not supported at this time for the KX II Local Console functions. For more information about non-US keyboards, see Informational Notes.

Note: Raritan strongly recommends that you use system-config-keyboard to change languages if you are working in a Linux environment.

Language	Regions	Keyboard layout
US English	United States of America and most of English-speaking countries: for example, Canada, Australia, and New Zealand.	US Keyboard layout
US English International	United States of America and most of English-speaking countries: for example, Netherlands	US Keyboard layout
UK English	United Kingdom	UK layout keyboard
Chinese Traditional	Hong Kong S. A. R., Republic of China (Taiwan)	Chinese Traditional
Chinese Simplified	Mainland of the People's Republic of China	Chinese Simplified
Korean	South Korea	Dubeolsik Hanguk
Japanese	Japan	JIS Keyboard
French	France	French (AZERTY) layout keyboard.
German	Germany and Austria	German keyboard (QWERTZ layout)
French	Belgium	Belgian
Norwegian	Norway	Norwegian

Language	Regions	Keyboard layout
Danish	Denmark	Danish
Swedish	Sweden	Swedish
Hungarian	Hungary	Hungarian
Slovenian	Slovenia	Slovenian
Italian	Italy	Italian
Spanish	Spain and most Spanish speaking countries	Spanish
Portuguese	Portugal	Portuguese

Events Captured in the Audit Log and Syslog

Following is a list and description of the events that are captured by the KX II audit log and syslog:

- Access Login - A user has logged in to the KX II
- Access Logout - A user has logged out of the KX II
- Active USB Profile - The USB profile is active
- CIM Connected - A CIM was connected
- CIM Disconnected - A CIM was disconnected
- Connection Lost - The connection to the target was lost
- Disconnected User - A user was disconnected from a port
- End CC Control - CC-SG management ended
- Login Failed - User login failed
- Password Changed - Password change occurred
- Port Connect - Port was connected
- Port Disconnect - Port was disconnected
- Port Status Change - Change in the port status
- Scan Started - A target scan was started
- Scan Stopped - A target scan was stopped
- Session Timeout - A session timeout occurred
- VM Image Connected - A VM image was connected
- VM Image Disconnected - A VM image was disconnected

Appendix B Dual Video Port Groups

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Overview

Servers with dual video cards can be remotely accessed with an extended desktop configuration, which is available to remote users. This is done by creating dual port video groups.

Extended desktop configurations allow you to view the target server desktop across two monitors vs. the standard single monitor view.

Once a dual port video group is selected, all port channels in that group open simultaneously.

See **Dual Port Video Configuration Steps** (on page 322)

Review the information in this section for important information regarding dual port video groups.

Note: Dual port video groups are not supported by models with only one KVM channel such as KX2-108 and KX2-116 models.

Recommendations for Dual Port Video

Set the target server's primary and secondary displays to the same video resolution in order to maintain mouse synchronization and minimize having to periodically resync.

Depending on the desired orientation, the top display (vertical orientation) or left display (horizontal orientation) should be the designated primary display. This display will provide active menu selection for virtual media, audio, smart card and mouse operations.

In order to provide intuitive mouse movement and control, the following should have the same display orientation:

- Client PC's primary and secondary displays
- Raritan device's dual video port group configuration
- Target server's primary and secondary displays

Only the following Client Launch Settings will be applied to dual port video displays:

- Select standard display or full screen Window mode when launching KVM client
- Enable video scaling
- Enable pinning menu toolbar when in full screen mode

The use of single mouse mode is not recommended when displaying dual video ports in full screen mode on a single client monitor. This will require exiting single mouse mode in order to access and view the other display.

Dual Video Port Group Supported Mouse Modes

Target operating systems	Supported mouse modes	Comments
All Windows® operating systems	Intelligent, Standard and Single Mouse Modes	<p>If 'Stretch' mode is supported by the target server video card, Absolute mouse mode operates correctly.</p> <p>Stretch mode means the target server manages the dual display as a single, contiguous, virtual display.</p> <p>In contrast, the target server considers the displays as two independent displays when configured in Extended mode. For Extended mode, Intelligent</p>

Target operating systems	Supported mouse modes	Comments
		Mouse mode is recommended.
Linux®	Intelligent and Standard Mouse Modes	Linux® users may experience display and mouse movement issues using single mouse mode. Raritan recommends Linux users do not use Single Mouse mode.
Mac® operating system	Single Mouse Mode	For Mac targets with multiple monitors, use a standard mouse in Single-Cursor mode.

CIMs Required for Dual Video Support

The following CIMs support the dual video port feature:

- D2CIM-VUSB
- D2CIM-DVUSB
- D2CIM-DVUSB-DVI
- D2CIM-DVUSB-DP
- D2CIM-DVUSB-HDMI
- DCIM-USBG2

Review ***Digital CIM Target Server Timing and Video Resolution*** (on page 292) for important information regarding digital CIMs. See ***Supported Computer Interface Module (CIMs) Specifications*** (on page 289) for CIM specifications.

If the original CIM attached to a primary or secondary video port is disconnected and replaced with another CIM, the port is removed from the dual port video group. If needed, re-add the port to the group.

Note: The CIM you use depends on your target server requirements.

Dual Port Video Group Usability Notes

Following are various functions that are affected when using the dual port video group feature.

- Client Launch Settings that are configured in the Virtual KVM Client (VKC) and Active KVM Client (AKC) clients via Tools > Options > Client Launch Settings will be applied to dual video port groups as follows:
 - Window Mode settings will be applied

- Monitor settings will NOT be applied. Instead the Port Group Management configured 'Display Orientation' will be applied.
- Other - Enable Single Mouse Cursor setting will NOT be applied
- Other - Enable Scale Video setting will be applied
- Other - Pin Menu Toolbar setting will be applied
- Dragging and moving items between windows on the primary and secondary target requires a release and press of the mouse button as the item is moved from one window to the other.
- On Linux® and Mac® target servers, when Caps Scroll, and Num Lock is turned on, the Caps Lock indicator in the status bar of the primary port window is displayed, but the indicator may not be displayed in the status bar of the secondary port window.

Permissions and Dual Video Port Group Access

Ideally, the permissions applied to each port in the port group should be the same. If they are not, the permissions of the port with the most restrictive permissions are applied to the port group.

For example, if VM Access Deny is applied to one port and VM Access Read-Write is applied to another port, VM Access Deny is applied to the port group.

If a user does not have the appropriate permissions to access a port that is part of a dual video port group, only the port that they do have permissions to access is displayed. If a user does not have permissions to access either port, access is denied.

A message indicating that the port is either not available or the user does not have permission to access the port is displayed when they try to access it.

Example Dual Port Video Group Configuration

The following is a general example.

Your configuration may vary in the type of CIMs used, the port you designate as the primary port, the ports you are connecting to and so on.

In this example, we are using:

- A target server with two video ports
- Target server video port 1 as the primary port, and target server video port 2 as the secondary port
- A KX2-832 device
- A D2CIM-DVUSB-DP CIMs
- A target server and remote client running the Microsoft® Windows 7® operating system
- Intelligent mouse mode

An extended desktop view on the target server and remote client, so we are configuring the KX II to support a "Horizontal - Primary (Left), Secondary (Right)" display orientation.

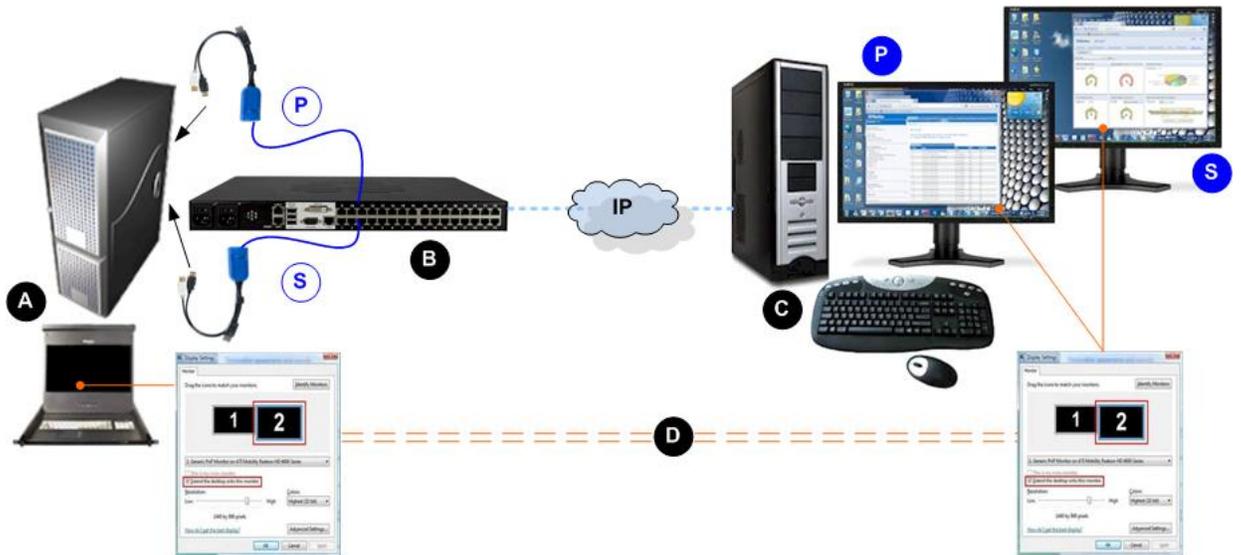


Diagram key

A	Remote client - configure the dual port video group and display settings
B	KX II

Diagram key	
	Connection from the target's primary (first) video port to the KX II
	Connection from the target's secondary (second) video port to the KX II
IP connection between the KX II and remote client	
	Target server - configure the display settings and launch the dual port video group
	Display settings are the same on the remote client and target server (recommended)
	Horizontal - Primary (Left) - defined on the Port Group Management page in KX II
	Secondary (Right) - defined on the Port Group Management page in KX II

Dual Port Video Configuration Steps

Step 1: Configure the Target Server Display

The orientation setting configured on the device for the target must match the actual configuration on the target operating system.

It is recommended that the connecting client have the same screen orientation whenever possible.

For information on display orientations and mouse modes, review the previous topics in this section.

Note: See your target server or operating system user documentation for exact steps on configuring display settings.

► To configure target server display and mouse settings:

1. At the target server, configure the target server display orientation for each video port to match the display orientation of your remote client.

For example, if you are using an extended desktop orientation moving from left-to-right across two monitors at the remote client, set the target server display orientation to the same.

2. Ensure that your target server's video has already been set to a supported resolution and refresh rate. See **Supported Target Server Video Resolutions** (see "**Supported Video Resolutions**" on page 313, <http://www.raritan.com/help/kx-iii/v3.0.0/en/index.htm#32872>)

Note: If the target primary and secondary displays are set to different resolutions the mouse will not stay in sync and will need to be periodically re-synced from the top-left target window.

Step 2: Connect the Target Server to the KX III

Dual port video groups can be created from existing port connections, or new port connections.

The steps provided here assume you are creating new connections.

If you are creating a dual port video group from existing connections, see Step 4: Create the Dual Video Port Group.

► To connect the equipment:

1. Install and power up your target server per the manufacturer's instructions if you have not already done so.
2. Attach each CIM's video connector to each of the target's video output ports, then connect the USB cables to available USB ports on the target.
3. Connect each CIM to the Raritan device using a CAT5/6 cable.
4. If you have not already done so:
 - a. Connect the Raritan device to an AC power source using the provided power cable
 - b. Connect to the Raritan device network port and local port (if needed)
 - c. Configure the Raritan device.
5. Launch a supported web browser.
6. Enter either:
 - The URL - *http://IP-ADDRESS* to use the Java-based Virtual KVM Client

Or

 - *http://IP-ADDRESS/akc* for the Microsoft .NET-based Active KVM Client

IP-ADDRESS is the IP address assigned to your KX II

You can also use HTTPS, or the DNS name of the KX II assigned by your administrator (if applicable).

You are always redirected to the IP address from HTTP to HTTPS.
7. Enter your username and password, then click Login.
8. Accept the user agreement (if applicable).
9. If security warnings appear, accept and/or allow access.

Step 3: Configure the Mouse Mode and Ports

Once you have connected the target server to the Raritan device through the target server video ports, it detects the connection and displays the ports on the Port Configuration page.

For instructions, see **Configuring Standard Target Servers** (on page 173)

After the ports are configured, they can be grouped in a dual video port group.

*Note: Existing ports do not have to be configured if you have already done so when creating dual port video groups. See **Creating a Dual Video Port Group** (on page 218)*

Configure the target server mouse mode after you connect to the target. See **Dual Video Port Group Supported Mouse Modes** (on page 318)

Step 4: Create the Dual Video Port Group

See **Creating a Dual Video Port Group** (on page 218)

Step 5: Launch a Dual Port Video Group

Once you have created the dual video port group, it is available on the Port Access page.

Two KVM channels are required to remotely connect to the dual video port group by clicking primary port. If two channels are not available, the Connect link is not displayed.

Session timeouts that are configured on the KX II are applied to both ports of a dual video group.

► **To launch a dual port group:**

- On the Port Access page, click on the primary port name, then click Connect.

Both connections are launched at once and displayed in two different windows.

Once the windows are displayed, they can be moved based on the display setup you are using. For example, if you are using extended desktop mode, the port windows can be moved between monitors.



Raritan Client Navigation when Using Dual Video Port Groups

When using full screen mode in the clients, switch between ports by:

- Virtual KVM Client (VKC)
 - Pressing Alt+Tab
 - For Mac® clients, pressing F3, then selecting the port display
- Active KVM Client (AKC)
 - Clicking your mouse outside the display window, then pressing Alt+Tab

Direct Port Access and Dual Port Video Groups

Direct port access allows users to bypass having to use the device's Login dialog and Port Access page.

This feature also provides the ability to enter a username and password directly to proceed to the target, if the username and password is not contained in the URL.

If you are accessing a target that is part of a dual port video group, direct port access uses the primary port to launch both the primary and secondary ports.

Direct port connections to the secondary port are denied, and usual permission rules apply.

For information on the dual port video group feature, see **Creating a Dual Video Port Group** (on page 218).

For information on direct port access, see **Enabling Direct Port Access via URL**.

Dual Port Video Groups Displayed on the Ports Page

Note: The dual video primary port is defined when the port group is created.

Note: Two KVM channels are required to remotely connect to the dual video port group by clicking primary port. If two channels are not available, the Connect link is not displayed.

For dual video port groups, the primary port is included in a port scan, but the secondary port is not included when connecting from a remote client. Both ports can be included in the scan from the Local Port.

See **Working with Target Servers** (on page 32) for more information on what is displayed on the Ports page, and see **Scanning Ports** (on page 47) for information on performing scans.

Appendix C Accessing a PX2 from the KX II

In This Chapter

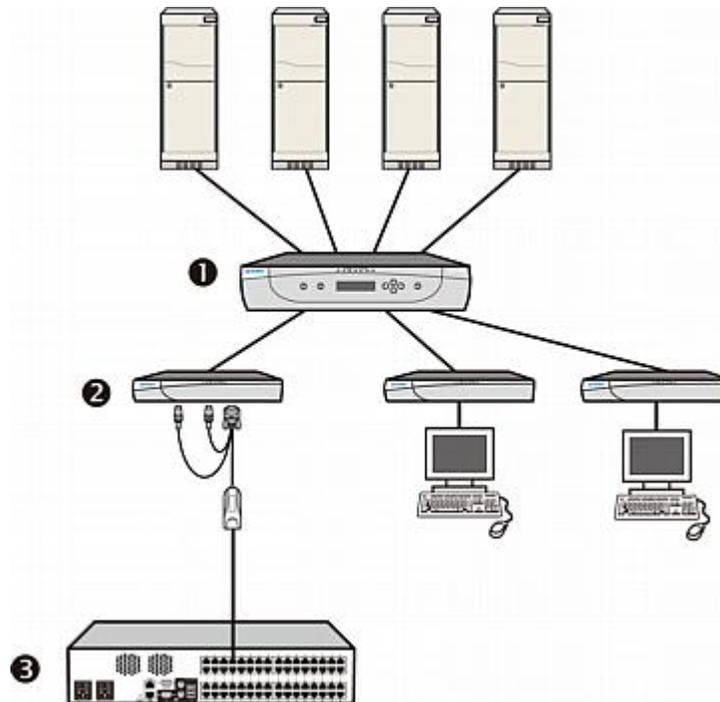
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Overview

Connect the Paragon II system to a KX II device that is managed by CC-SG so that Paragon II is accessible from CC-SG.

This diagram indicates the configuration integrating KX II.

Note: The images are for example purposes only, and may not look exactly like your device.



1	The Paragon II system involving Paragon II switches, servers and user stations
2	The user station with a DCIM-USB G2 attached
3	KX II

When you access the Paragon II system from KX II or CC-SG (if the KX II is managed by CC-SG), the Paragon II OSUI login screen appears for you to log in.

In this integration, you can perform any OSUI functions implemented with current Paragon II firmware or any KX II function implemented with current KX II firmware except for the virtual media feature.

When accessing the Paragon II OSUI through KX II, DO NOT attempt to synchronize the mouse manually. A mouse is not necessary on the OSUI screen and mouse synchronization will delay the keyboard response for seconds.

See **Supported Paragon CIMS and Configurations** (see "**Supported Paragon II CIMS and Configurations**" on page 296) for additional information.

Connecting the Paragon II to the KX II

► **To connect the Paragon II system to a KX II:**

1. Check whether the Paragon II user station that you want to connect to the KX II is implemented with version 4.6 firmware (or later). If not, upgrade it.

The Paragon II user station can be one of these:

- P2-UST
- P2-EUST
- P2-EUST/C

See Firmware Upgrade for upgrade instructions.

2. Connect a compatible CIM to this user station. If the system is a two- or three-tier system, ensure the user station is one of those connected to the Base Unit (first tier).

Only two types of CIMs are supported in this integration:

- If using DCIM-USB G2, plug its connectors into the USB and video ports on the user station.
- If using DCIM-PS2, plug its connectors into the PS/2 and video ports on the user station.

3. Connect the Paragon II user station to a KX II device via a Cat5 UTP cable up to 150 feet (45 m).
 - Plug one end of the cable to the DCIM's RJ-45 port and the other end to one of the channel ports on the KX II device.
4. If you want to have more paths to access the same Paragon II system in KX II or CC-SG, repeat Steps 1 to 3 to connect additional user stations to the KX II.

Appendix D Updating the LDAP Schema

Note: The procedures in this chapter should be attempted only by experienced users.

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Returning User Group Information

Use the information in this section to return User Group information (and assist with authorization) once authentication is successful.

From LDAP/LDAPS

When an LDAP/LDAPS authentication is successful, the KX II determines the permissions for a given user based on the permissions of the user's group. Your remote LDAP server can provide these user group names by returning an attribute named as follows:

rciusergroup attribute type: string

This may require a schema extension on your LDAP/LDAPS server. Consult your authentication server administrator to enable this attribute.

In addition, for Microsoft® Active Directory®, the standard LDAP memberOf is used.

From Microsoft Active Directory

Note: This should be attempted only by an experienced Active Directory® administrator.

Returning user group information from Microsoft's® Active Directory for Windows 2000® operating system server requires updating the LDAP/LDAPS schema. See your Microsoft documentation for details.

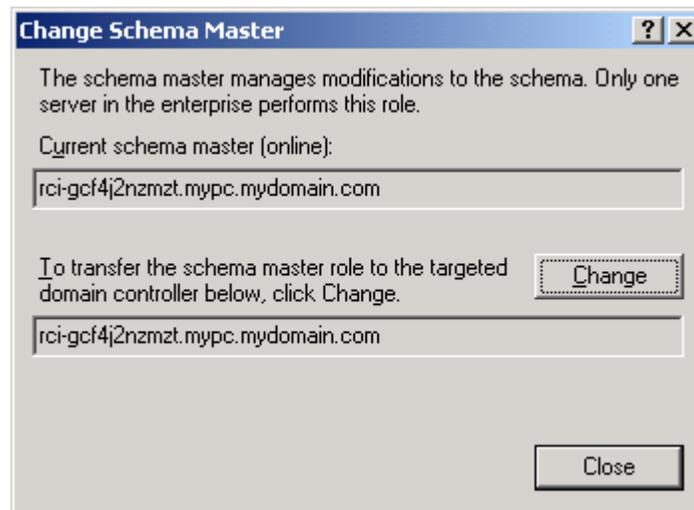
1. Install the schema plug-in for Active Directory. See Microsoft Active Directory documentation for instructions.
2. Run Active Directory Console and select Active Directory Schema.

Setting the Registry to Permit Write Operations to the Schema

To allow a domain controller to write to the schema, you must set a registry entry that permits schema updates.

► **To permit write operations to the schema:**

1. Right-click the Active Directory® Schema root node in the left pane of the window and then click Operations Master. The Change Schema Master dialog appears.



2. Select the "Schema can be modified on this Domain Controller" checkbox. **Optional**
3. Click OK.

Creating a New Attribute

► **To create new attributes for the rcigroup class:**

1. Click the + symbol before Active Directory® Schema in the left pane of the window.
2. Right-click Attributes in the left pane.

3. Click New and then choose Attribute. When the warning message appears, click Continue and the Create New Attribute dialog appears.

Create New Attribute

Create a New Attribute Object

Identification

Common Name: rciusergroup

LDAP Display Name: rciusergroup

Unique X500 Object ID: 1.3.6.1.4.1.13742.50

Description: Raritan's LDAP attribute

Syntax and Range

Syntax: Case Insensitive String

Minimum: 1

Maximum: 24

Multi-Valued

OK Cancel

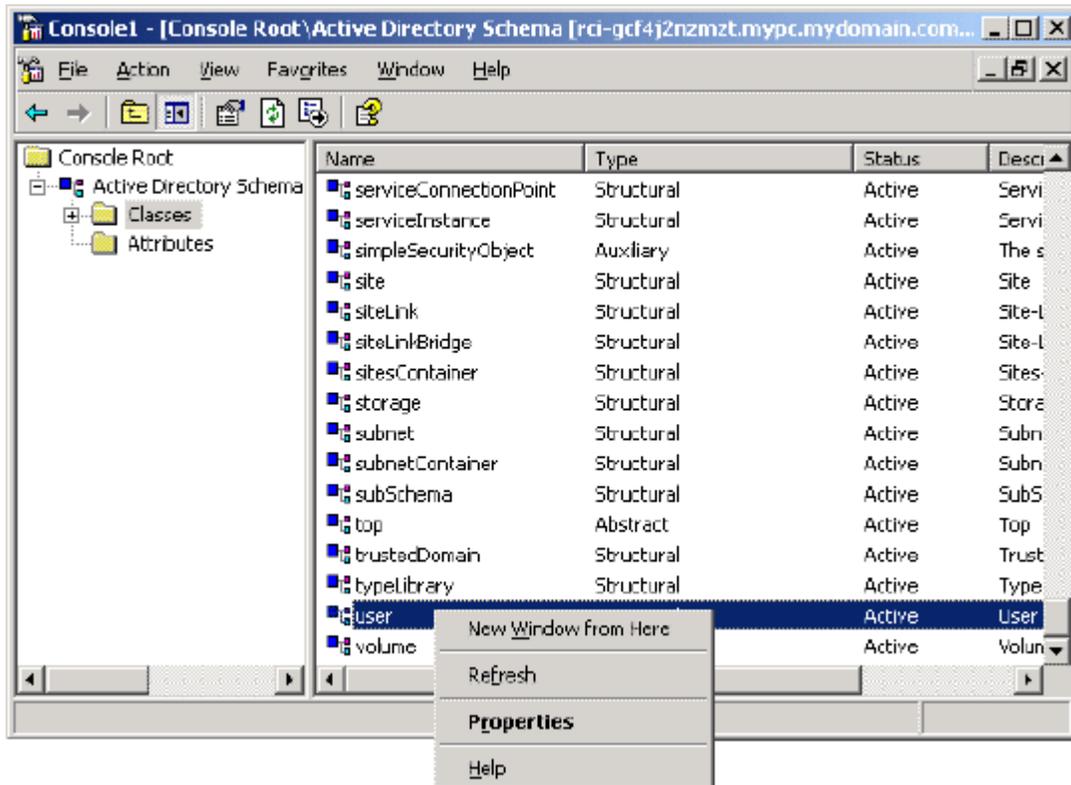
4. Type *rciusergroup* in the Common Name field.
5. Type *rciusergroup* in the LDAP Display Name field.
6. Type *1.3.6.1.4.1.13742.50* in the Unique x5000 Object ID field.
7. Type a meaningful description in the Description field.
8. Click the Syntax drop-down arrow and choose Case Insensitive String from the list.
9. Type *1* in the Minimum field.
10. Type *24* in the Maximum field.
11. Click OK to create the new attribute.

Adding Attributes to the Class

► **To add attributes to the class:**

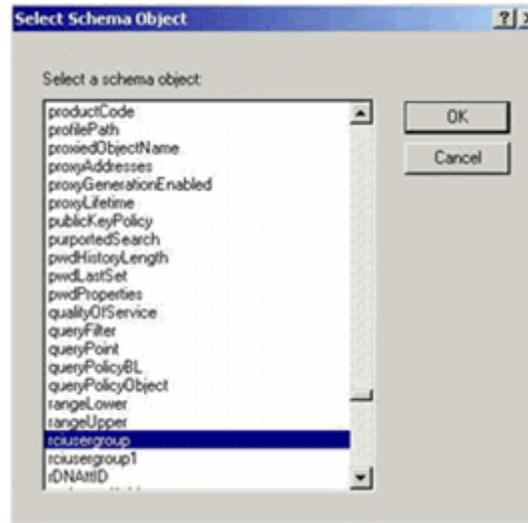
1. Click Classes in the left pane of the window.

2. Scroll to the user class in the right pane and right-click it.



3. Choose Properties from the menu. The user Properties dialog appears.
4. Click the Attributes tab to open it.
5. Click Add.

6. Choose rcigroup from the Select Schema Object list.



7. Click OK in the Select Schema Object dialog.
8. Click OK in the User Properties dialog.

Updating the Schema Cache

► **To update the schema cache:**

1. Right-click Active Directory® Schema in the left pane of the window and select Reload the Schema.
2. Minimize the Active Directory Schema MMC (Microsoft® Management Console) console.

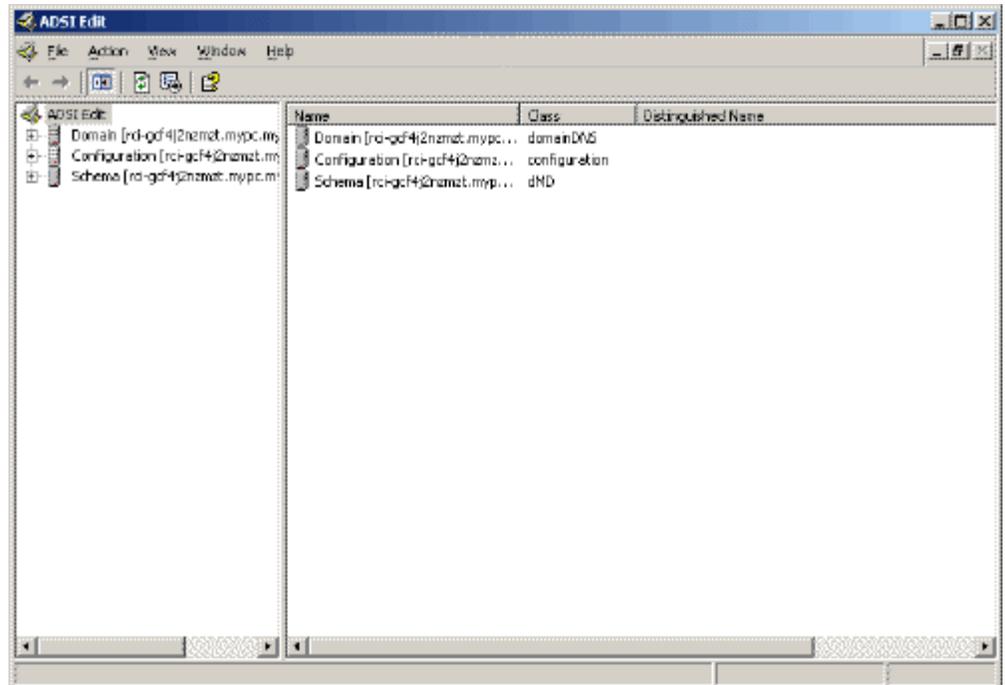
Editing rcigroup Attributes for User Members

To run the Active Directory® script on a Windows 2003® server, use the script provided by Microsoft® (available on the Windows 2003 server installation CD). These scripts are loaded onto your system with a Microsoft® Windows 2003 installation. ADSI (Active Directory Service Interface) acts as a low-level editor for Active Directory, allowing you to perform common administrative tasks such as adding, deleting, and moving objects with a directory service.

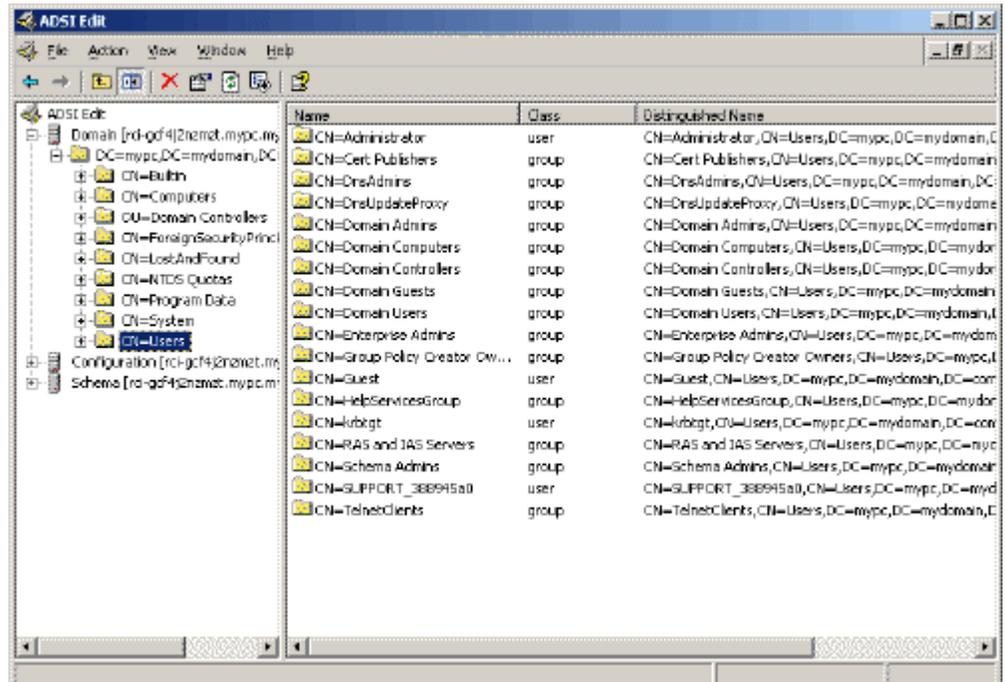
► **To edit the individual user attributes within the group rcigroup:**

1. From the installation CD, choose Support > Tools.
2. Double-click SUPTOOLS.MSI to install the support tools.

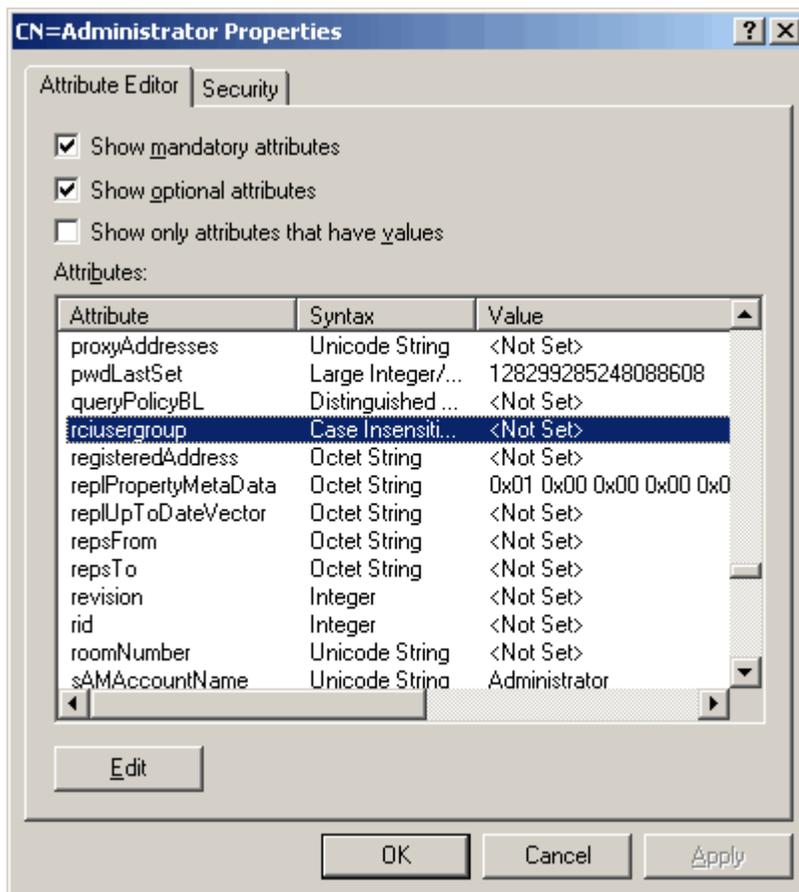
- Go to the directory where the support tools were installed. Run `adsiedit.msc`. The ADSI Edit window opens.



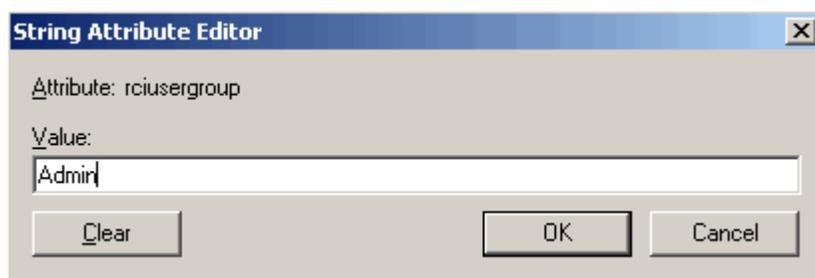
- Open the Domain.
- In the left pane of the window, select the CN=Users folder.



6. Locate the user name whose properties you want to adjust in the right pane. Right-click the user name and select Properties.
7. Click the Attribute Editor tab if it is not already open. Choose rciusergroup from the Attributes list.



8. Click Edit. The String Attribute Editor dialog appears.
9. Type the user group (created in the KX II) in the Edit Attribute field. Click OK.



Appendix E Informational Notes

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Overview

This section includes important notes on KX II usage. Future updates will be documented and available online through the Help link in the KX II Remote Console interface.

Note: Some topics in this section reference other multiple Raritan devices because various devices are impacted by the information.

Java Runtime Environment (JRE) Notes

Java Runtime Environment (JRE)

Important: It is recommended that you disable Java™ caching and clear the Java cache. Please refer to your Java documentation or the KVM and Serial Access Clients Guide for more information.

The LX, KX II, KX II-101 and KX II-101-V2 Remote Console and MPC require the Java Runtime Environment™ (JRE™) to function since the Remote Console checks the Java version. If the version is incorrect or outdated, you will be prompted to download a compatible version.

Raritan recommends using JRE version 1.7 for optimum performance, but the Remote Console and MPC function with JRE version 1.6.x and later with the exception of 1.6.2.

Note: In order for multi-language keyboards to work in the LX, KX II, KX II-101 and KX II-101-V2 Remote Consoles and Virtual KVM Client, install the multi-language version of JRE.

Java Not Loading Properly on Mac

If you are using a Mac® and see the following message when connecting to a device from the KX II Port Access Table, Java™ is not loaded properly:

"Error while getting the list of open targets, please try again in a few seconds".

If this occurs, check your Java installation from this website:

<http://www.java.com/en/download/testjava.jsp>

<http://www.java.com/en/download/testjava.jsp>

If your Java applet is inactive, it can be enabled from this page. If it is not installed correctly, a message lets you know and you can then reinstall Java.

IPv6 Support Notes

Operating System IPv6 Support Notes

Java

Java™ 1.7 supports IPv6 for the following:

- Solaris™ 10 (and later)
- Linux® kernel 2.1.2 (and later)/RedHat 6.1 (and later)
- Solaris 10 (and later)
- Windows XP® SP1 and Windows 2003®, Windows Vista® and Windows 7 operating systems

The following IPv6 configurations *are not* supported by Java:

- J2SE does not support IPv6 on Microsoft® Windows®.

Linux

- It is recommended that Linux kernel 2.4.0 or higher is used when using IPv6.
- An IPv6-enabled kernel will need to be installed or the kernel will need to be rebuilt with IPv6 options enabled.
- Several network utilities will also need to be installed for Linux when using IPv6. For detailed information, refer to <http://www.bieringer.de/linux/IPv6/IPv6-HOWTO/IPv6-HOWTO.html>

Windows

- Windows XP and Windows 2003 users will need to install the Microsoft IPv6 service pack to enable IPv6.
- For AKC with IPv6 on Windows XP, add the executable kxgui.exe to your firewall exception list. View your log file on the client to identify the full path for the location of the file kxgui.exe.

Samba

- IPv6 is not supported for use with virtual media when using Samba.

AKC Download Server Certification Validation IPv6 Support Notes

If you are connecting to a KX II standalone device and support for AKC download server certificate validation is enabled, the valid IPv6 format to generate the certificate is either:

- CN = [fd07:02fa:6cff:2500:020d:5dff:fe00:01c0] when there is a leading 0
- or
- CN = [fd07:02fa:6cff:2500:020d:5dff:0000:01c0] when there is no zero compression

Dual Stack Login Performance Issues

If you are using the KX II in a dual stack configuration, it is important you configured the domain system (DNS) correctly in the KX II in order to avoid delays when logging in.

See ***Tips for Adding a Web Browser Interface*** (on page 195) for information on configuring your DNS in KX II.

CIM Notes

Windows 3-Button Mouse on Linux Targets

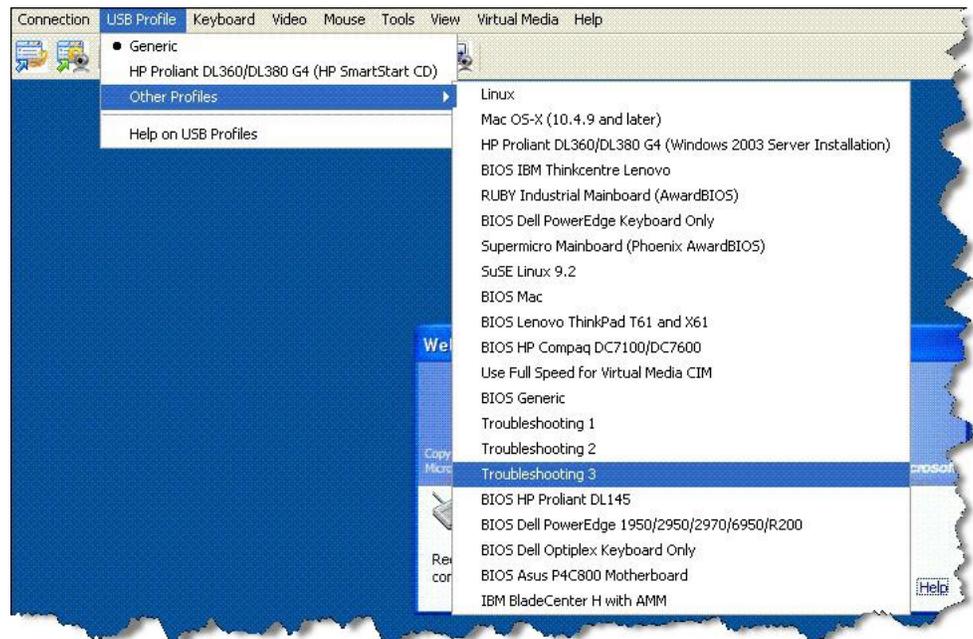
When using a 3-button mouse on a Windows® client connecting to a Linux® target, the left mouse button may get mapped to the center button of the Windows client 3-button mouse.

Windows 2000 Composite USB Device Behavior for Virtual Media

The Windows 2000® operating system does not support USB composite devices, like Raritan's D2CIM-VUSB, in the same manner as non-composite USB devices.

As a result, the "Safely Remove Hardware" system tray icon does not appear for drives mapped by the D2CIM-VUSB and a warning message may appear when disconnecting the device. Raritan has not observed any problems or issues from this message, however.

Raritan's US engineering department has developed a configuration which supports the "Safely Remove Hardware" icon and avoids this Windows message. This configuration requires the use of the D2CIM-DVUSB virtual media adapter and the Troubleshooting 3 USB Profile that configures the D2CIM-DVUSB as a non-composite USB device supporting a single virtual media connection. Raritan has successfully tested this configuration in the US and Japan.



Virtual Media Notes

Cannot Connect to Drives from Linux Clients

If you cannot connect to a virtual media drive on a target server when you connect from a client running Linux® Fedora™ 18 with Java™ 1.7 (update 45 and later), disable SELinux in Fedora 18 on the client to resolve the problem.

Cannot Write To/From a File from a Mac Client

If you are connecting to the KX II from a Mac® 10.8.5 client running Safari® 6.1 with Java™ 1.7 and cannot write to/from a file on a target server or access virtual media, do the following to correct this:

1. In Safari, select Preferences.
2. Under the Security tab, select Manage Website Settings.
3. Click on "Website for KX2".
4. Select "Run in safe mode" from the drop-down.
5. Restart Safari.

Virtual Media via VKC and AKC in a Windows Environment

Windows XP® operating system administrator and standard user privileges vary from those of the Windows Vista® operating system and the Windows 7® operating system.

When enabled in Vista or Windows 7, User Access Control (UAC) provides the lowest level of rights and privileges a user needs for an application. For example, a Run as Administrator option is provided for Internet Explorer® for Administrator level tasks; otherwise these are not accessible even though the user has an Administrator login.

Both features affect the types of virtual media that can be accessed by users via Virtual KVM Client (VKC) and Active KVM Client (AKC). See your Microsoft® help for additional information on these features and how to use them.

Following is a list virtual media types users can access via VKC and AKC when running in a Windows environment. The features are broken down by client and the virtual media features that are accessible to each Windows user role.

Windows XP

If you are running VKC and AKC in a Windows XP environment, users must have Administrator privileges to access any virtual media type other than CD-ROM connections, ISOs and ISO images.

Windows Vista and Windows 7

If you are running VKC and AKC in a Windows Vista or Windows 7 environment and UAC is enabled, the following virtual media types can be accessed depending on the user's Windows role:

Client	Administrator	Standard User
AKC and VKC	Access to: <ul style="list-style-type: none"> • Fixed drives and fixed drive partitions • Removable drives • CD/DVD drives • ISO images • Remote ISO images 	Access to: <ul style="list-style-type: none"> • Removable drives • CD/DVD drives • ISO images • Remote ISO images

Virtual Media Not Refreshed After Files Added

After a virtual media drive has been mounted, if you add a file(s) to that drive, those files may not be immediately visible on the target server. Disconnect and then reconnect the virtual media connection.

Virtual Media Linux Drive Listed Twice

For KX II 2.4.0 (and later) and LX 2.4.5 (and later), users who are logged in to Linux™ clients as root users, the drives are listed twice in the Local Drive drop-down.

For example, you will see eg /dev/sdc and eg /dev/sdc1 where the first drive is the boot sector and the second drive is the first partition on the disk.

Accessing Virtual Media on a Windows 2000

A virtual media local drive cannot be accessed on a Windows 2000® server using a D2CIM-VUSB.

Disconnecting Mac and Linux Virtual Media USB Drives

In a Linux® or Mac® environment:

- For Linux users, if there is /dev/sdb and /dev/sdb1, the client only uses /dev/sdb1 and advertise it as removable disk
- /dev/sdb is not available for the user.
- For Linux users, if there is /dev/sdb but no /dev/sdb1, /dev/sdb is used as a removable device
- For Mac users, /dev/disk1 and /dev/disk1s1 is used

Target BIOS Boot Time with Virtual Media

The BIOS for certain targets may take longer to boot if media is mounted virtually at the target.

► **To shorten the boot time:**

1. Close the Virtual KVM Client to completely release the virtual media drives.
2. Restart the target.

Virtual Media Connection Failures Using High Speed for Virtual Media Connections

Under certain circumstances it may be necessary to select the "Use Full Speed for Virtual Media CIM" when a target has problems with "High Speed USB" connections or when the target is experiencing USB protocol errors caused by signal degradation due to additional connectors and cables (for example, a connection to a blade server via a dongle).

USB Port and Profile Notes

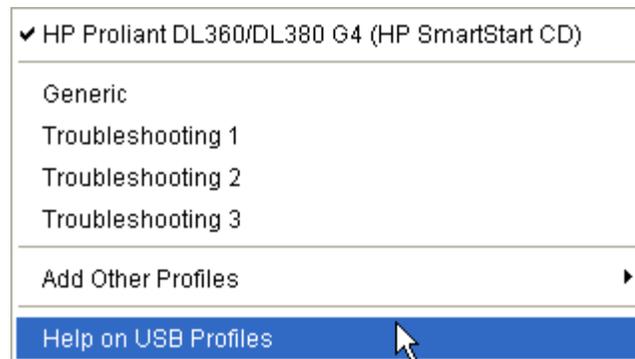
VM-CIMs and DL360 USB Ports

HP® DL360 servers have one USB port on the back of the device and another on the front of the device. With the DL360, both ports cannot be used at the same time. Therefore, a dual VM-CIM cannot be used on DL360 servers.

However, as a workaround, a USB2 hub can be attached to the USB port on the back of the device and a dual VM-CIM can be attached to the hub.

Help Choosing USB Profiles

When you are connected to a KVM target server via the Virtual KVM Client (VVC), you can view information about USB profiles via the Help on USB Profiles command on the USB Profile menu.



USB profile help appears in the USB Profile Help window. For detailed information about specific USB profiles, see **Available USB Profiles** (on page 109).

Raritan provides a standard selection of USB configuration profiles for a wide range of operating system and BIOS level server implementations. These are intended to provide an optimal match between remote USB device and target server configurations.

The 'Generic' profile meets the needs of most commonly deployed target server configurations.

Additional profiles are made available to meet the specific needs of other commonly deployed server configurations (for example, Linux®, Mac OS X®).

There are also a number of profiles (designated by platform name and BIOS revision) that have been tailored to enhance the virtual media function compatibility with the target server, for example, when operating at the BIOS level.

'Add Other Profiles' provides access to other profiles available on the system. Profiles selected from this list will be added to the USB Profile Menu. This includes a set of 'trouble-shooting' profiles intended to help identify configuration limitations.

The USB Profile Menu selections are configurable via the Console Device Settings > Port Configuration page.

Should none of the standard USB profiles provided by Raritan meet your target server requirements, Raritan Technical Support can work with you to arrive at a solution tailored for that target. Raritan recommends that you do the following:

1. Check the most recent release notes on the Raritan website (www.raritan.com) on the Firmware Upgrade page to see if a solution is already available for your configuration.
2. If not, please provide the following information when contacting Raritan Technical Support:
 - a. Target server information, manufacturer, model, BIOS, manufacturer, and version.
 - b. The intended use (e.g. redirecting an image to reload a server's operating system from CD).

Changing a USB Profile when Using a Smart Card Reader

There may be certain circumstances under which you will need to change the USB profile for a target server. For example, you may need to change the connection speed to "Use Full Speed for Virtual Media CIM" when the target has problems with the "High Speed USB" connection speed.

When a profile is changed, you may receive a New Hardware Detected message and be required to log in to the target with administrative privileges to reinstall the USB driver. This is only likely to occur the first few times the target sees the new settings for the USB device. Afterward, the target will select the driver correctly.

Keyboard Notes

Non-US Keyboards

French Keyboard

Caret Symbol (Linux® Clients Only)

The Virtual KVM Client (VKC) and the Multi-Platform Client (MPC) do not process the key combination of Alt Gr + 9 as the caret symbol (^) when using French keyboards with Linux® clients.

► **To obtain the caret symbol:**

From a French keyboard, press the ^ key (to the right of the P key), then immediately press the space bar.

Alternatively, create a macro consisting of the following commands:

1. Press Right Alt
2. Press 9.
3. Release 9.
4. Release Right Alt.

Note: These procedures do not apply to the circumflex accent (above vowels). In all cases, the ^ key (to the right of the P key) works on French keyboards to create the circumflex accent when used in combination with another character.

Accent Symbol (Windows XP® Operating System Clients Only)

From the Virtual KVM Client (VKC) and the Multi-Platform Client (MPC) , the key combination of Alt Gr + 7 results in the accented character displaying twice when using French keyboards with Windows XP® clients.

Note: This does not occur with Linux® clients.

Numeric Keypad

From the Virtual KVM Client (VKC) and the Multi-Platform Client (MPC) , the numeric keypad symbols display as follows when using a French keyboard:

Numeric keypad symbol	Displays as
/	;
.	;

Tilde Symbol

From the Virtual KVM Client (VKC) and the Multi-Platform Client (MPC) , the key combination of Alt Gr + 2 does not produce the tilde (~) symbol when using a French keyboard.

► To obtain the tilde symbol:

Create a macro consisting of the following commands:

- Press right Alt
- Press 2
- Release 2
- Release right Alt

Keyboard Language Preference (Fedora Linux Clients)

Because the Sun™ JRE™ on Linux® has problems generating the correct KeyEvents for foreign-language keyboards configured using System Preferences, Raritan recommends that you configure foreign keyboards using the methods described in the following table.

Language	Configuration method
US Intl	Default
UK	System Settings (Control Center)
French	Keyboard Indicator
German	Keyboard Indicator
Hungarian	System Settings (Control Center)
Spanish	System Settings (Control Center)
Swiss-German	System Settings (Control Center)
Norwegian	Keyboard Indicator
Swedish	Keyboard Indicator
Danish	Keyboard Indicator
Japanese	System Settings (Control Center)
Korean	System Settings (Control Center)
Slovenian	System Settings (Control Center)
Italian	System Settings (Control Center)
Portuguese	System Settings (Control Center)

Note: The Keyboard Indicator should be used on Linux systems using Gnome as a desktop environment.

When using a Hungarian keyboard from a Linux client, the Latin letter U with Double Acute and the Latin letter O with Double Acute work only with JRE 1.6 (and later).

There are several methods that can be used to set the keyboard language preference on Fedora® Linux clients. The following method must be used in order for the keys to be mapped correctly from the Virtual KVM Client (VKC) and the Multi-Platform Client (MPC).

► **To set the keyboard language using System Settings:**

1. From the toolbar, choose System > Preferences > Keyboard.
2. Open the Layouts tab.
3. Add or select the appropriate language.

4. Click Close.

▶ **To set the keyboard language using the Keyboard Indicator:**

1. Right-click the Task Bar and choose Add to Panel.
2. In the Add to Panel dialog, right-click the Keyboard Indicator and from the menu choose Open Keyboard Preferences.
3. In the Keyboard Preferences dialog, click the Layouts tab.
4. Add and remove languages as necessary.

Mac Keyboard Keys Not Supported for Remote Access

When a Mac® is used as the client, the following keys on the Mac® keyboard are not captured by the Java™ Runtime Environment (JRE™):

- F9
- F10
- F11
- F14
- F15
- Volume Up
- Volume Down
- Mute
- Eject

As a result, the Virtual KVM Client (VKC) and the Multi-Platform Client (MPC) are unable to process these keys from a Mac client's keyboard.

Video Mode and Resolution Notes

SUSE/VESA Video Modes

The SuSE X.org configuration tool SaX2 generates video modes using modeline entries in the X.org configuration file. These video modes do not correspond exactly with VESA video mode timing (even when a VESA monitor is selected). The KX II, on the other hand, relies on exact VESA mode timing for proper synchronization. This disparity can result in black borders, missing sections of the picture, and noise.

▶ **To configure the SUSE video display:**

1. The generated configuration file `/etc/X11/xorg.conf` includes a Monitor section with an option named `UseModes`. For example, `UseModes "Modes[0]"`
2. Either comment out this line (using `#`) or delete it completely.

3. Restart the X server.

With this change, the internal video mode timing from the X server is used and corresponds exactly with the VESA video mode timing, resulting in the proper video display on the KX II.

List of Supported Target Video Resolutions Not Displaying

When using a CIM, there are some video resolutions, as listed in KX III Supported Target Server Video Resolutions, that may not be available by default for selection.

► **To view all available video resolutions if they do not appear:**

1. Plug the monitor in.
2. Next, unplug the monitor and plug in the CIM. All video resolutions will not be available and can be used.

Audio

Audio Playback and Capture Issues

Features that May Interrupt an Audio Connection

If you use any of the following features while connected to an audio device, your audio connection may be interrupted. Raritan recommends you do not use these features if you are connected to an audio device:

- Video Auto-Sense
- Extensive use of the local port
- Adding users

Issues when Using a Capture Device and Playback Device Simultaneously on a Target

On some targets, the simultaneous connection of capture devices and playback devices may not work due to the USB hub controller and how it manages the USB ports. Consider selecting an audio format that requires less bandwidth.

If this does not resolve the issue, connect the D2CIM-DVUSB CIM's keyboard and mouse connector to a different port on the target. If this does not solve the problem, connect the device to a USB hub and connect the hub to the target.

Audio in a Linux Environment

The following are known issues when using the audio feature in a Linux® environment.

- Linux® users, use the default audio device for playback. Sound may not come through if a non-default sound card is selected.
- SuSE 11 clients require Javas_1_6_0-sun-alsa (ALSA support for java-1_6_0-sun) to be installed via YAST.
- For Logitech® headsets with a built in a mic, only the Mono Capture option is available.
- In order to display the device, if you are running SUSE 11 and an ALSA driver, log out of KX II, then log back in.

Additionally, if you connect and disconnect the audio device a number of times, the device may be listed several times vs. just once as it should.

- Using the audio feature with a Fedora Core® 13 target set to mono 16 bit, 44k may cause considerable interference during playback.

Audio in a Windows Environment

On Windows® 64-bit clients, only one playback device is listed on the Connect Audio panel when accessing the device through the Virtual KVM Client (VKC) and Multi-Platform Client (MPC).

The audio device is the default device, and is listed on the Connect Audio panel as Java Sound Audio Engine.

CC-SG Notes

Virtual KVM Client Version Not Known from CC-SG Proxy Mode

When the Virtual KVM Client (VKC) is launched from CommandCenter Secure Gateway (CC-SG) in proxy mode, the VKC version is unknown.

In the About Raritan Virtual KVM Client dialog, the version is displayed as "Version Unknown".

Single Mouse Mode when Connecting to a Target Under CC-SG Control

When using Firefox® to connect to a KX II target under CC-SG control using DCIM-PS2 or DCIM-USBG2, if you change to Single Mouse Mode in the Virtual KVM Client (VKC), the VKC window will no longer be the focus window and the mouse will not respond.

If this occurs, left click on the mouse or press Alt+Tab to return the focus to the VKC window.

Proxy Mode and MPC

If you are using KX II in a CC-SG configuration, do not use the CC-SG proxy mode if you are planning to use the Multi-Platform Client (MPC).

Moving Between Ports on a Device

If you move a between ports on the same Raritan device and resume management within one minute, CC-SG may display an error message.

If you resume management, the display will be updated.

Browser Notes

Resolving Fedora Core Focus

Using the Multi-Platform Client (MPC), occasionally there is an inability to log in to an LX, KX II or KSX II device, or to access KVM target servers (Windows®, SUSE, and so forth). In addition, the Ctrl+Alt+M key combination may not bring up the Keyboard Shortcut menu. This situation occurs with the following client configuration: Fedora® Core 6 and Firefox® 1.5 or 2.0.

Through testing, it has been determined that installation of libXp resolves window focusing issues with Fedora Core 6. Raritan has tested with libXp-1.0.0.8.i386.rpm; this resolved all of the keyboard focus and popup-menu problems.

Note: libXp is also required for the SeaMonkey (formerly Mozilla®) browser to work with the Java™ plug-in.

Mouse Pointer Synchronization (Fedora)

When connected in dual mouse mode to a target server running Fedora® 7, if the target and local mouse pointers lose synchronization, changing the mouse mode from or to Intelligent or Standard may improve synchronization.

Single mouse mode may also provide for better control.

► **To resynchronize the mouse cursors:**

- Use the Synchronize Mouse option from the Virtual KVM Client (VKC).

VKC and MPC Smart Card Connections to Fedora Servers

If you are using a smart card to connect to a Linux® Fedora® server via Multi-Platform Client (MPC) and Virtual KVM Client (VKC) upgrade the pcsc-lite library to 1.4.102-3 or above.

Note: This feature is available on the KSX II 2.3.0 (and later) and KX II 2.1.10 (and later).

Resolving Issues with Firefox Freezing when Using Fedora

If you are accessing Firefox® and are using a Fedora® server, Firefox may freeze when it is opening.

To resolve this issue, install the libnjp2.so Java™ plug-in on the server.

Appendix F Frequently Asked Questions

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General FAQs

Question	Answer
What is Dominion KX II?	<p>Dominion KX II is a second-generation digital KVM (keyboard, video, mouse) switch that enables one, two, four or eight IT administrators to access and control 8, 16, 32 or 64 servers over the network with BIOS-level functionality. Dominion KX II is completely hardware- and OS-independent; users can troubleshoot and reconfigure servers even when servers are down.</p> <p>At the rack, Dominion KX II provides the same functionality, convenience, and space and cost savings as traditional analog KVM switches. However, Dominion KX II also integrates the industry's highest performing KVM-over-IP technology, allowing multiple administrators to access server KVM consoles from any networked workstation as well as from the iPhone® and iPad®.</p>

Question	Answer
<p>How does Dominion KX II differ from remote control software?</p>	<p>When using Dominion KX II remotely, the interface, at first glance, may seem similar to remote control software such as pcAnywhere™, Windows® Terminal Services/Remote Desktop, VNC, etc. However, because Dominion KX II is not a software but a hardware solution, it's much more powerful:</p> <p>Hardware- and OS-independent – Dominion KX II can be used to manage servers running many popular OSs, including Intel®, Sun®, PowerPC running Windows, Linux®, Solaris™, etc.</p> <p>State-independent/Agentless – Dominion KX II does not require the managed server OS to be up and running, nor does it require any special software to be installed on the managed server.</p> <p>Out-of-band – Even if the managed server's own network connection is unavailable, it can still be managed through Dominion KX II.</p> <p>BIOS-level access – Even if the server is hung at boot up, requires booting to safe mode, or requires system BIOS parameters to be altered, Dominion KX II still works flawlessly to enable these configurations to be made.</p>
<p>Can the Dominion KX II be rack mounted?</p>	<p>Yes. The Dominion KX II ships standard with 19" rack mount brackets. It can also be reverse rack mounted so the server ports face forward.</p>
<p>How large is the Dominion KX II?</p>	<p>Dominion KX II is only 1U high (except the KX2-864 and KX2-464, which are 2U), fits in a standard 19" rack mount and is only 11.4" (29 cm) deep. The Dominion KX2-832 and KX2-864 are 13.8" (36 cm) deep.</p>

Remote Access

Question	Answer
How many users can remotely access servers on each Dominion KX II?	Dominion KX II models offer remote connections for up to eight users per user channel to simultaneously access and control a unique target server. For one-channel devices like the DKX2-116, up to eight remote users can access and control a single target server. For two-channel devices, like the DKX2-216, up to eight users can access and control the server on channel one and up to another eight users on channel two. For four-channel devices, up to eight users per channel, for a total of 32 (8 x 4) users, can access and control four servers. Likewise, for the eight-channel devices, up to eight users can access a single server, up to an overall maximum of 32 users across the eight channels.
Can I remotely access servers from my iPhone or iPad?	Yes. Starting with Dominion KX II Release 2.4 and CC-SG Release 5.2, users can access servers connected to the KX II using their iPhone or iPad.
Can two people look at the same server at the same time?	Yes. Actually, up to eight people can access and control any single server at the same time.
Can two people access the same server, one remotely and one from the local port?	Yes. The local port is completely independent of the remote "ports." The local port can access the same server using the PC-Share feature.
In order to access Dominion KX II from a client, what hardware, software or network configuration is required?	<p>Because Dominion KX II is completely Web-accessible, it doesn't require customers to install proprietary software on clients used for access. (An optional installed client is available on www.raritan.com; this is required for access by an external modem.)</p> <p>Dominion KX II can be accessed through major Web browsers, including: Internet Explorer® and Firefox®. Dominion KX II can be accessed on Windows, Linux and Macintosh® desktops, via Raritan's Windows Client, and the Java™-based Multiplatform and Virtual KVM Client™.</p> <p>Dominion KX II administrators can also perform remote management (set passwords and security, rename servers, change IP address, etc.) using a convenient browser-based interface.</p>
How do I access servers connected to Dominion KX II if the network ever becomes unavailable?	<p>You can access servers at the rack or via modem.</p> <p>Dominion KX II offers a dedicated modem port for attaching an external modem.</p>
Do you have a Windows KVM Client?	Yes. We have a native .NET Windows Client called the Raritan Active KVM Client (AKC).

Question	Answer
Do you have a non-Windows KVM Client?	Yes. Both the Virtual KVM Client (VKC) and the Multiplatform Client (MPC) allow non-Windows users to connect to target servers in the data center. MPC can be run via Web browsers and stand-alone and can access servers connected to both Dominion KX I and KX II switches. Please refer to Raritan's Dominion KX II and KVM Client User Guides for more information.
Do your KVM Clients have multi-language support?	Yes. The Dominion KX II's remote HTML User Interface and the KVM Clients support the Japanese, Simplified Chinese and Traditional Chinese languages. This is available stand-alone as well as through CC-SG.
Do your KVM Clients support dual LCD monitors?	Yes. For customers wishing to enhance their productivity by using multiple LCD monitors on their desktops, the Dominion KX II can launch KVM sessions to multiple monitors, either in full screen or standard modes.
Do you support servers with dual video cards?	Yes, as of Release 2.5, servers with dual video cards are supported with an extended desktop configuration available to the remote user.

Question	Answer															
<p>What is the file size of the applet that's used to access Dominion KX II? How long does it take to retrieve?</p>	<p>The Virtual KVM Client (VKC) applet used to access Dominion KX II is approximately 500KB in size. The following chart describes the time required to retrieve Dominion KX II's applet at different network speeds:</p> <table border="1" data-bbox="618 474 1226 1020"> <tbody> <tr> <td data-bbox="618 474 824 583">100Mbps</td> <td data-bbox="824 474 1031 583">Theoretical 100Mbit network speed</td> <td data-bbox="1031 474 1226 583">.05 seconds</td> </tr> <tr> <td data-bbox="618 583 824 693">60Mbps</td> <td data-bbox="824 583 1031 693">Likely practical 100Mbit network speed</td> <td data-bbox="1031 583 1226 693">.08 seconds</td> </tr> <tr> <td data-bbox="618 693 824 802">10Mbps</td> <td data-bbox="824 693 1031 802">Theoretical 10Mbit network speed</td> <td data-bbox="1031 693 1226 802">.4 seconds</td> </tr> <tr> <td data-bbox="618 802 824 911">6Mbps</td> <td data-bbox="824 802 1031 911">Likely practical 10Mbit network speed</td> <td data-bbox="1031 802 1226 911">.8 seconds</td> </tr> <tr> <td data-bbox="618 911 824 1020">512Kbps</td> <td data-bbox="824 911 1031 1020">Cable modem download speed (typical)</td> <td data-bbox="1031 911 1226 1020">8 seconds</td> </tr> </tbody> </table>	100Mbps	Theoretical 100Mbit network speed	.05 seconds	60Mbps	Likely practical 100Mbit network speed	.08 seconds	10Mbps	Theoretical 10Mbit network speed	.4 seconds	6Mbps	Likely practical 10Mbit network speed	.8 seconds	512Kbps	Cable modem download speed (typical)	8 seconds
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Universal Virtual Media

Question	Answer
<p>Which Dominion KX II models support virtual media?</p>	<p>All Dominion KX II models support virtual media. It is available stand-alone and through CommandCenter® Secure Gateway, Raritan's centralized management appliance.</p>
<p>Which types of virtual media does the Dominion KX II support?</p>	<p>Dominion KX II supports the following types of media: internal and USB-connected CD/DVD drives, USB mass storage devices, PC hard drives and ISO images.</p>

Question	Answer
<p>What is required for virtual media?</p>	<p>A Dominion KX II virtual media CIM is required: a digital CIM, D2CIM-VUSB or D2CIM-DVUSB.</p> <p>The D2CIM-VUSB has a single USB connector and is for customers who will use virtual media at the OS level.</p> <p>The D2CIM-DVUSB has dual USB connectors and should be purchased by customers who wish to utilize virtual media at the BIOS level. The D2CIM-DVUSB is also required for smart card authentication, tiering/cascading and digital audio.</p> <p>Both support virtual media sessions to target servers supporting the USB 2.0 interface. Available in economical 32 and 64 quantity CIM packages, these CIMs support Absolute Mouse Synchronization™ as well as remote firmware updates.</p> <p>Our CIMs have traditionally supported analog VGA video. Three new dual virtual media CIMs support digital video formats, including DVI, HDMI and DisplayPort. These are the D2CIM-DVUSB-DVI, D2CIM-DVUSB-HDMI and D2CIM-DVUSB-DP.</p>
<p>Is virtual media secure?</p>	<p>Yes. Virtual media sessions are secured using 256-bit AES, 128-bit AES or 128-bit RC4 encryption.</p>
<p>Does virtual media really support audio?</p>	<p>Yes. Audio playback and recording to a server connected to the Dominion KX II is supported. You can listen to sounds and audio playing on a remote server in the data center using the speakers connected to your desktop PC or laptop. You can also record on the remote server using a microphone connected to your PC or laptop. A digital CIM or D2CIM-DVUSB dual virtual media CIM is required.</p>
<p>What is a USB profile?</p>	<p>Certain servers require a specifically configured USB interface for USB-based services such as virtual media. The USB profile tailors the KX II's USB interface to the server to accommodate these server-specific characteristics.</p>

Question	Answer
Why would I use a USB profile?	USB profiles are most often required at the BIOS level where there may not be full support for the USB specification when accessing virtual media drives. However, profiles are sometimes used at the OS level, for example, for mouse synchronization for Macintosh and Linux servers.
How is a USB profile used?	Individual ports or groups of ports can be configured by the administrator to use a specific USB profile in the KX II's port configuration page. A USB profile can also be selected in the KX II Client when required. See the user guide for more information.
Do I always need to set a USB profile when I use virtual media?	No. In many cases, the default USB profile is sufficient when using virtual media at the OS level or operating at the BIOS level without accessing virtual media.
What profiles are available? Where can I find more information?	Consult the user guide for the available profiles and for more information.

Bandwidth and KVM-over-IP Performance

Question	Answer
<p>How is bandwidth used in KVM-over-IP systems?</p>	<p>Dominion KX II offers next-generation KVM-over-IP technology – the very best video compression available. Raritan has received numerous technical awards, confirming its high video quality transmissions and the low bandwidth utilization.</p> <p>The Dominion KX II digitizes compresses and encrypts the keyboard, video and mouse signals from the target server and transmits IP packets over the IP network to the remote client to create the remote session to the user. The KX II provides an at-the-rack experience based on its industry-leading video processing algorithms.</p> <p>Screen changes, i.e., video accounts for the majority of the bandwidth used – and keyboard and mouse activity are significantly less.</p> <p>It is important to note that bandwidth is only used when the user is active. The amount of bandwidth used is based on the amount of change to the server’s video display screen.</p> <p>If there are no changes to the video – the user is not interacting with the server – there is generally no bandwidth used. If the user moves the mouse or types a character, then there is a small amount of bandwidth used. If the display is running a complex screen saver or playing a video, then there can be a larger amount of bandwidth used.</p>
<p>How does bandwidth affect KVM-over-IP performance?</p>	<p>In general, there is a trade-off between bandwidth and performance. The more bandwidth available, the better performance can be. In limited bandwidth environments, performance can degrade. The Dominion KX II has been optimized to provide strong performance in a wide variety of environments.</p>

Question	Answer
What factors affect bandwidth?	<p>There are many factors that determine how much bandwidth will be used. The primary factor, noted above, is the amount of change in the target server's video display. This is dependent on the user's task and actions.</p> <p>Other factors include the server's video resolution, networking speed and characteristics, client PC resources and video card noise.</p> <p>The Dominion KX II has very sophisticated video processing algorithms that optimize bandwidth and performance for a variety of environments. In addition, they are highly configurable; there are many settings to optimize bandwidth usage. In particular, the connection speed setting in the remote clients (VNC, MPC) can be set to reduce the bandwidth used.</p> <p>Unlike the KX I, the noise filter parameter does not generally have a large role in reducing bandwidth or improving performance of the Dominion KX II.</p>

Question	Answer
<p>How can I reduce bandwidth?</p>	<p>KX II provides a variety of settings in our remote clients for the user to optimize bandwidth and performance. The default settings will provide an at-the-rack level of performance in standard LAN/WAN environments with economical use of bandwidth.</p> <p>Bandwidth management settings include the connection speed and color depth. To reduce bandwidth:</p> <p>Connection speed. Reducing the connection speed can significantly reduce the bandwidth used. In a standard LAN/WAN environment, setting the connection speed to 1.5 or 1 Mb per second will reduce bandwidth while maintaining good performance. Settings below this will further reduce bandwidth and are appropriate for slow bandwidth links.</p> <p>Color depth. Reducing the color depth will also significantly decrease bandwidth and increase performance, but fewer colors will be used, resulting in video degradation. This may be acceptable for certain system administration tasks.</p> <p>For slow Internet connections, the use of 8-bit color or lower bit depths can reduce bandwidth and improve performance.</p> <p>Other tips to decrease bandwidth include:</p> <ul style="list-style-type: none"> ▪ Use a solid desktop background instead of a complex image ▪ Disable screensavers ▪ Use a lower video resolution on the target server ▪ Uncheck the "Show window contents while dragging" option in Windows ▪ Use simple images, themes and desktops (e.g., Windows Classic)

Question	Answer
What should I do on slower bandwidth links?	<p>The connection speed and color depth settings can be tweaked to optimize performance for slower bandwidth links.</p> <p>For example, in the Multiplatform Client or the Virtual KVM Client, set the connection speed to 1.5 Mb or 1 Mb; and the color depth to 8 bit.</p> <p>Even lower connection speeds and color depths can be used for very low bandwidth situations.</p> <p>For modem connections, the KX II will automatically default to a very low connection speed and reduced color depth to optimize performance.</p>
I want to connect over the Internet. What type of performance should I expect?	<p>It depends on the bandwidth and latency of the Internet connection between your remote client and the KX II. With a cable modem or high speed DSL connection, your performance can be very similar to a LAN/WAN connection. For lower speed links, use the suggestions above to improve performance.</p>
I have a high bandwidth environment. How can I optimize performance?	<p>The default settings will provide strong performance in a high bandwidth environment.</p> <p>Ensure that the connection speed is set to 100 Mb or 1 Gb and the color depth is set to 15-bit RGB color.</p>
What is the maximum remote (over IP) video resolution supported?	<p>The Dominion KX II is the first and only KVM-over-IP switch to support full high definition (HD) remote video resolution – 1920x1080.</p> <p>In addition, popular widescreen formats are supported, including 1600x1200, 1680x1050 and 1440x900, so remote users can work with today's higher resolution monitors.</p>
How much bandwidth is used for audio?	<p>It depends on the type of audio format used, but to listen to CD quality audio, approximately 1.5 Mbps is used.</p>

Question	Answer
<p>What about servers with DVI ports?</p>	<p>Servers with DVI ports that support DVI-A (analog) and DVI-I (integrated analog and digital) can use Raritan's ADVI-VGA inexpensive, passive adapter to convert the server's DVI port to a VGA plug that can be connected to a KX II CIM's VGA plug.</p> <p>Servers with DVI ports that support DVI-I or DVI-D (digital) can use the new D2CIM-DVUSB-DVI CIM.</p>
<p>How much bandwidth does KX II use for common tasks?</p>	<p>Bandwidth primarily depends on the user's task and actions. The more the server's video screen changes, the more bandwidth is utilized.</p> <p>The table below summarizes some standard use cases at Dominion KX II's default and with two reduced bandwidth settings (connection speed setting of 1Mb with 15- and 8-bit color) on a Windows XP target server (1024x768 resolution) over a 100 Mb/s LAN.</p> <p>With the reduced bandwidth settings, bandwidth is reduced significantly for virtually all tasks. With the 15-bit color setting, perceived performance is similar to the default parameters. Further bandwidth reductions are possible with additional changes in the settings.</p> <p>Please note that these bandwidth figures are only examples and may vary from those seen in your environment due to many factors.</p>

User Task	Default	1Mb Speed and 15-bit Color	1Mb Speed and 8-bit Color
Idle Windows Desktop	0 KB/s	0 KB/s	0 KB/s
Move Mouse Cursor	5 – 15 KB/s	2 – 6 KB/s	2 – 3 KB/s
Drag Icon	40 – 70 KB/s	10 – 25 KB/s	5 – 15 KB/s
Drag Folder	10 – 40 KB/s	5 – 20 KB/s	5 – 10 KB/s

User Task	Default	1Mb Speed and 15-bit Color	1Mb Speed and 8-bit Color
Open Text Window	50 – 100 KB/s	25 – 50 KB/s	10 – 15 KB/s
Continuous Typing	1 KB/s	.5 – 1 KB/s	.2 – .5 KB/s
Scroll Text Window	1050 KB/s	5 – 25 KB/s	2 – 10 KB/s
Close Text Window	50 – 100 KB/s	20 – 40 KB/s	10 – 15 KB/s
Open Panel	50 – 100 KB/s	60 – 70 KB/s	20 – 30 KB/s
Change Tab in Panel	40 – 50 KB/s	20 – 50 KB/s	10 – 20 KB/s
Close Panel	50 – 100 KB/s	40 – 60 KB/s	20 – 30 KB/s
Change Panel Option	2 – 10 KB/s	1 – 5 KB/s	1 – 3 KB/s
Open Browser Page	100 – 300 KB/s	50 – 200 KB/s	40 – 80 KB/s
Scroll Browser	75 – 200 KB/s	50 – 200 KB/s	30 – 100 KB/s
Close Browser	100 – 150 KB/s	75 – 100 KB/s	30 – 60 KB/s
Open Start Menu	75 – 100 KB/s	50 – 75 KB/s	20 – 30 KB/s
Close Start Menu	75 – 100 KB/s	25 – 50 KB/s	10 – 15 KB/s
Starfield Screensaver	25 – 50 KB/s	10 – 15 KB/s	7 – 10 KB/s
3D Pipes Screensaver	10 – 100 KB/s	5 – 20 KB/s	2 – 10 KB/s
Windows Media Video	500 – 1200 KB/s	300 – 500 KB/s	150 – 300 KB/s
QuickTime® Video #1	700 – 2500 KB/s	400 – 500 KB/s	150 – 350 KB/s
QuickTime Video #2	1500 – 2500 KB/s	400 – 550 KB/s	200 – 350 KB/s

Ethernet and IP Networking

Question	Answer
What is the speed of Dominion KX II's Ethernet interfaces?	Dominion KX II supports gigabit as well as 10/100 Ethernet. KX II supports two 10/100/1000 speed Ethernet interfaces, with configurable speed and duplex settings (either auto detected or manually set).
Can I access Dominion KX II over a wireless connection?	Yes. Dominion KX II not only uses standard Ethernet, but also very conservative bandwidth with very high quality video. Thus, if a wireless client has network connectivity to a Dominion KX II, servers can be configured and managed at the BIOS level wirelessly.
Does the Dominion KX II offer dual gigabit Ethernet ports to provide redundant failover or load balancing?	Yes. Dominion KX II features dual gigabit Ethernet ports to provide redundant failover capabilities. Should the primary Ethernet port (or the switch/router to which it is connected) fail, Dominion KX II will failover to the secondary network port with the same IP address – ensuring that server operations are not disrupted. Note that automatic failover must be enabled by the administrator.
Can I use Dominion KX II with a VPN?	Yes. Dominion KX II uses standard Internet Protocol (IP) technologies from Layer 1 through Layer 4. Traffic can be easily tunneled through standard VPNs.
Can I use KX II with a proxy server?	Yes. KX II can be used with a SOCKS proxy server, assuming the remote client PC is configured appropriately. Contact the user documentation or online help for more information.
How many TCP ports must be open on my firewall in order to enable network access to Dominion KX II?	Two ports are required: TCP port 5000 to discover other Dominion devices and for communication between Raritan devices and CC-SG; and, of course, port 443 for HTTPS communication.
Are these ports configurable?	Yes. Dominion KX II's TCP ports are configurable by the administrator.
Can Dominion KX II be used with Citrix®?	Dominion KX II may work with remote access products like Citrix if configured appropriately, but Raritan cannot guarantee it will work with acceptable performance. Customers should realize that products like Citrix utilize video redirection technologies similar in concept to digital KVM switches so that two KVM-over-IP technologies are being used simultaneously.

Question	Answer
Can the Dominion KX II use DHCP?	DHCP addressing can be used; however, Raritan recommends fixed addressing since the Dominion KX II is an infrastructure device and can be accessed and administered more effectively with a fixed IP address.
I'm having problems connecting to the Dominion KX II over my IP network. What could be the problem?	<p>The Dominion KX II relies on your LAN/WAN network. Some possible problems include:</p> <p>Ethernet auto-negotiation. On some networks, 10/100 auto-negotiation does not work properly, and the Dominion KX II unit must be set to 100 Mb/full duplex or the appropriate choice for its network.</p> <p>Duplicate IP address. If the IP address of the Dominion KX II is the same as another device, network connectivity may be inconsistent.</p> <p>Port 5000 conflicts. If another device is using port 5000, the Dominion KX II default port must be changed (or the other device must be changed).</p> <p>When changing the IP address of a Dominion KX II, or swapping in a new Dominion KX II, sufficient time must be allowed for its IP and Mac® addresses to be known throughout the Layer 2 and Layer 3 networks.</p>

IPv6 Networking

Question	Answer
What is IPv6?	<p>IPv6 is the acronym for Internet Protocol Version 6. IPv6 is the "next generation" IP protocol which will replace the current IP Version 4 (IPv4) protocol.</p> <p>IPv6 addresses a number of problems in IPv4, such as the limited number of IPv4 addresses. It also improves IPv4 in areas such as routing and network auto-configuration. IPv6 is expected to gradually replace IPv4, with the two coexisting for a number of years.</p> <p>IPv6 treats one of the largest headaches of an IP network from the administrator's point of view – configuring and maintaining an IP network.</p>
Why does Dominion KX II support IPv6 networking?	<p>U.S. government agencies and the Department of Defense are now mandated to purchase IPv6-compatible products. In addition, many enterprises and foreign countries, such as China, will be transitioning to IPv6 over the next several years.</p>
What is "dual stack" and why is it required?	<p>Dual stack is the ability to simultaneously support both IPv4 and IPv6 protocols. Given the gradual transition from IPv4 to IPv6, dual stack is a fundamental requirement for IPv6 support.</p>
How do I enable IPv6 on the Dominion KX II?	<p>Use the "Network Settings" page, available from the "Device Settings" tab. Enable IPv6 addressing and choose manual or auto-configuration. Consult the user guide for more information.</p>
What if I have an external server with an IPv6 address that I want to use with my Dominion KX II?	<p>The Dominion KX II can access external servers via their IPv6 addresses, for example, an SNMP manager, syslog server or LDAP server.</p> <p>Using the Dominion KX II's dual-stack architecture, these external servers can be accessed via: (1) an IPv4 address, (2) IPv6 address or (3) hostname. So, the Dominion KX II supports the mixed IPv4/IPv6 environment many customers will have.</p>
Does the Dominion KX I (the previous generation KX) support IPv6?	<p>No. The Dominion KX I does not support IPv6 addresses.</p>

Question	Answer
What if my network doesn't support IPv6?	The Dominion KX II's default networking is set at the factory for IPv4 only. When you are ready to use IPv6, then follow the above instructions to enable IPv4/IPv6 dual-stack operation.
Where can I get more information on IPv6?	See www.ipv6.org for general information on IPv6. The Dominion KX II user guide describes the Dominion KX II's support for IPv6.

Servers

Question	Answer
Does Dominion KX II depend on a Windows server to operate?	Absolutely not. Because users depend on the KVM infrastructure to always be available in any scenario whatsoever (as they will likely need to use the KVM infrastructure to fix problems), Dominion KX II is designed to be completely independent from any external server.
Do I need to install a Web server, such as Microsoft Internet Information Services (IIS), in order to use Dominion KX II's Web browser capability?	No. Dominion KX II is a completely self-sufficient appliance. After assigning an IP address to Dominion KX II, it's ready to use – with Web browser and authentication capabilities completely built in.
What software do I have to install in order to access Dominion KX II from a particular workstation?	None. Dominion KX II can be accessed completely via a Web browser (although an optional installed client is provided on Raritan's website, www.raritan.com , which is required for modem connections). A Java-based client is now available for non-Windows users.
What should I do to prepare a server for connection to Dominion KX II?	Set the mouse parameter options to provide users with the best mouse synchronization and turn off screensavers and any power management features that affect screen display.

Question	Answer
What about mouse synchronization?	In the past, KVM-over-IP mouse synchronization was a frustrating experience. The Dominion KX II's Absolute Mouse Synchronization provides for a tightly synchronized mouse without requiring server mouse setting changes on Windows and Apple® Mac servers. For other servers, the Intelligent Mouse mode or the speedy, single mouse mode can be used to avoid changing the server mouse settings.
What comes in the Dominion KX II box?	The following is included: (1) Dominion KX II unit, (2) Quick Setup Guide, (3) standard 19" rack mount brackets, (4) user manual CD-ROM, (5) network cable, (6) crossover cable, (7) localized AC line cord and (8) warranty certificate and other documentation.

Blade Servers

Question	Answer
Can I connect blade servers to the Dominion KX II?	Yes. Dominion KX II supports popular blade server models from the leading blade server manufacturers: HP®, IBM®, Dell® and Cisco®.
Which blade servers are supported?	The following models are supported: Dell PowerEdge® 1855, 1955 and M1000e; HP BladeSystem c3000 and c7000; IBM BladeCenter® H, E and S; and Cisco UCS B-Series.
Are the Paragon® Blade CIMs used?	No. The Dominion KX II does not require the use of special blade server CIMs like the Paragon II.
Which CIM should I use?	It depends on the type of KVM ports on the specific make and model of the blade server you are using. The following CIMs are supported: DCIM-PS2, DCIM-USBG2, D2CIM-VUSB and D2CIM-DVUSB.
Which types of access and control are available?	The Dominion KX II provides automated and secure KVM access: (1) at the rack, (2) remotely over IP, (3) via CommandCenter and (4) by modem.

Question	Answer
Do I have to use hotkeys to switch between blades?	Some blade servers require you to use hotkeys to switch between blades. With the Dominion KX II, you don't have to use these hotkeys. Just click on the name of the blade server, and the Dominion KX II will automatically switch to that blade without the explicit use of the hotkey.
Can I access the blade server's management module?	Yes. You can define the URL of the management module and access it from the Dominion KX II or from our CommandCenter Secure Gateway. If configured, one-click access is available.
How many blade servers can I connect to a Dominion KX II?	For performance and reliability reasons, you can connect up to eight blade chassis to a Dominion KX II, regardless of model. Raritan recommends connecting up to two times the number of remote connections supported by the device. For example, with a KX2-216 with two remote channels, we recommend connecting up to four blade server chassis. You can, of course, connect individual servers to the remaining server ports.
I'm an SMB customer with a few Dominion KX IIs. Must I use your CommandCenter Secure Gateway management station?	No, you don't have to. SMB customers are not required to use CommandCenter Secure Gateway to use the new blade features.
I'm an enterprise customer using CommandCenter Secure Gateway. Can I access blade servers via CommandCenter Secure Gateway?	Yes. Once blade servers are configured on the Dominion KX II, the CommandCenter Secure Gateway user can access them via KVM connections. In addition, the blade servers are organized by chassis as well as CommandCenter Secure Gateway custom views.
What if I also want in-band or embedded KVM access?	In-band and embedded access to blade servers can be configured within CommandCenter Secure Gateway.
I'm running VMware® on some of my blade servers. Is this supported?	Yes. With CommandCenter Secure Gateway, you can display and access virtual machines running on blade servers.

Question	Answer
Is virtual media supported?	This depends on the blade server. HP blades can support virtual media. The IBM BladeCenter (except for BladeCenter T) supports virtual media if configured appropriately. A virtual media CIM – D2CIM-VUSB or D2CIM-DVUSB – must be used.
Is Absolute Mouse Synchronization supported?	Servers with internal KVM switches inside the blade chassis typically do not support absolute mouse technology. For HP blade and some Dell blade servers, a CIM can be connected to each blade, so Absolute Mouse Synchronization is supported.
Is blade access secure?	Yes. Blade access uses all of the standard Dominion KX II security features such as 128-bit or 256-bit encryption. In addition, there are blade-specific security features such as per blade access permissions and hotkey-blocking that eliminates unauthorized access.
Does the Dominion KSX II or the KX II-101 support blade servers?	At this time, these products do not support blade servers.

Installation

Question	Answer
Besides the unit itself, what do I need to order from Raritan to install Dominion KX II?	Each server that connects to Dominion KX II requires a Dominion or Paragon computer interface module (CIM), an adapter that connects directly to the keyboard, video and mouse ports of the server.
Which kind of Cat5 cabling should be used in my installation?	Dominion KX II can use any standard UTP (unshielded twisted pair) cabling, whether Cat5, Cat5e or Cat6. Often in our manuals and marketing literature, Raritan will simply say "Cat5" cabling for short. In actuality, any brand UTP cable will suffice for Dominion KX II.
Which types of servers can be connected to Dominion KX II?	Dominion KX II is completely vendor independent. Any server with standards-compliant keyboard, video and mouse ports can be connected. In addition, servers with serial ports can be controlled using the P2CIM-SER CIM.

Question	Answer
How do I connect servers to Dominion KX II?	Servers that connect to the Dominion KX II require a Dominion or Paragon CIM, which connects directly to the keyboard, video and mouse ports of the server. Then, connect each CIM to Dominion KX II using standard UTP (unshielded twisted pair) cable such as Cat5, Cat5e or Cat6.
How far can my servers be from Dominion KX II?	In general, servers can be up to 150 feet (45 m) away from Dominion KX II, depending on the type of server. (See printed user manual or manual on the Raritan website.) For the D2CIM-VUSB CIMs that supports virtual media and Absolute Mouse Synchronization, a 100-foot (30 m) range is recommended.
Some operating systems lock up when I disconnect a keyboard or mouse during operation. What prevents servers connected to Dominion KX II from locking up when I switch away from them?	Each Dominion computer interface module (DCIM) dongle acts as a virtual keyboard and mouse to the server to which it is connected. This technology is called KME (keyboard/mouse emulation). Raritan's KME technology is data center grade, battle-tested and far more reliable than that found in lower-end KVM switches: it incorporates more than 15 years of experience and has been deployed to millions of servers worldwide.
Are there any agents that must be installed on servers connected to Dominion KX II?	Servers connected to Dominion KX II do not require any software agents to be installed because Dominion KX II connects directly via hardware to the servers' keyboard, video and mouse ports.
How many servers can be connected to each Dominion KX II unit?	Dominion KX II models range from 8, 16 or 32 server ports in a 1U chassis, to 64 server ports in a 2U chassis. This is the industry's highest digital KVM switch port density.
What happens if I disconnect a server from Dominion KX II and reconnect it to another Dominion KX II unit, or connect it to a different port on the same Dominion KX II unit?	Dominion KX II will automatically update the server port names when servers are moved from port to port. Furthermore, this automatic update does not just affect the local access port, but propagates to all remote clients and the optional CommandCenter Secure Gateway management appliance.

Question	Answer
<p>How do I connect a serially controlled (RS-232) device, such as a Cisco router/switch or a headless Sun server, to Dominion KX II?</p>	<p>If there are only a few serially controlled devices, they may be connected to a Dominion KX II using Raritan's P2CIM-SER serial converter.</p> <p>Customers can also consider deploying the Dominion KSX II, an integrated KVM and serial switch. The DKSX-144 features four KVM-over-IP ports and four serial ports.</p> <p>The DKSX-188 features eight KVM-over-IP ports and eight serial ports.</p> <p>However, if there are many serially controlled devices, we recommend the use of Raritan's Dominion SX line of secure console servers. Dominion SX offers more serial functionality at a better price point than Dominion KX II. This SX is easy to use, configure and manage, and can be completely integrated with a Dominion series deployment.</p>

Local Port

Question	Answer
<p>Can I access my servers directly from the rack?</p>	<p>Yes. At the rack, Dominion KX II functions just like a traditional KVM switch – allowing control of up to 64 servers using a single keyboard, monitor and mouse. You can switch between servers by the browser-based user interface or via a hotkey.</p>
<p>Can I consolidate the local ports of multiple KX IIs?</p>	<p>Yes. You can connect the local ports of multiple KX II switches to another KX II using the "tiering" feature of the KX II. You can then access the servers connected to your KX II devices from a single point in the data center via a consolidated port list.</p>

Question	Answer
When I am using the local port, do I prevent other users from accessing servers remotely?	No. The Dominion KX II local port has a completely independent access path to the servers. This means a user can access servers locally at the rack – without compromising the number of users that access the rack remotely at the same time.
Can I use a USB keyboard or mouse at the local port?	Yes. The Dominion KX II has USB keyboard and mouse ports on the local port. Note that as of April 2011, the Dominion KX II switches no longer have PS/2 local ports. Customers with PS/2 keyboards and mice should utilize a PS/2 to USB adapter.
Is there an onscreen display (OSD) for local, at-the-rack access?	Yes, but Dominion KX II's at-the-rack access goes way beyond conventional OSDs. Featuring the industry's first browser-based interface for at-the-rack access, Dominion KX II's local port uses the same interface for local and remote access. Moreover, most administrative functions are available at the rack.
How do I select between servers while using the local port?	The local port displays the connected servers using the same user interface as the remote client. Users connect to a server with a simple click of the mouse or via a hotkey.
How do I ensure that only authorized users can access servers from the local port?	<p>Users attempting to use the local port must pass the same level of authentication as those accessing remotely. This means that:</p> <p>If the Dominion KX II is configured to interact with an external RADIUS, LDAP or Active Directory® server, users attempting to access the local port will authenticate against the same server.</p> <p>If the external authentication servers are unavailable, Dominion KX II fails over to its own internal authentication database.</p> <p>Dominion KX II has its own stand-alone authentication, enabling instant, out-of-the-box installation.</p>

Question	Answer
If I use the local port to change the name of a connected server, does this change propagate to remote access clients as well? Does it propagate to the optional CommandCenter appliance?	Yes. The local port presentation is identical and completely in sync with remote access clients as well as Raritan's CommandCenter Secure Gateway management appliance. To be clear, if the name of a server via the Dominion KX II onscreen display is changed, this updates all remote clients and external management servers in real time.
If I use Dominion KX II's remote administration tools to change the name of a connected server, does that change propagate to the local port OSD as well?	Yes. If the name of a server is changed remotely, or via Raritan's optional CommandCenter Secure Gateway management appliance, this update immediately affects Dominion KX II's onscreen display.

Extended Local Port (Dominion KX2-832 and KX2-864 models only)

Question	Answer
What is the extended local port?	The Dominion KX2-832 and KX2-864 feature an extended local port. The KX II eight-user models have a standard local port, plus a new extended local port that extends the local port, via Cat5 cable, beyond the rack to a control room, another point in the data center or to a Dominion KX II or Paragon II switch.
Can I connect the extended local port to another KX II?	Yes. You can connect the extended local port to a server port of another KX II using the "tiering" feature of the KX II.
Is a user station required for the extended local port?	Yes. The following devices can function as the "user station" for the extended local port: Paragon II EUST, Paragon II UST and the Cat5 Reach® URKVMG device. In addition, the extended local port can be connected via Cat5 cable to a server port on a Dominion KX II or Paragon II switch. This configuration can be used to consolidate the local ports of many KX2-8xxx devices to a single switch.
How far can the user station be from the Dominion KX II?	The distance is 200 feet to 1,000 feet (61 m to 304 m), but varies according to the type of user station, the video resolution and cable type and quality. See the user guide or Release Notes for more information.
Is a CIM required?	No CIM is required. Just connect a Cat5 cable.

Question	Answer
Must I use the extended local port?	No. The extended local port is an optional feature and is disabled by default. Use the "Local Port Settings" page to enable it. You can also disable the standard local port if you are not going to use it for added security.
Dual Power Supplies	
Does Dominion KX II have a dual power option?	Yes. All Dominion KX II models come equipped with dual AC inputs and power supplies with automatic failover. Should one of the power inputs or power supplies fail, then the KX II will automatically switch to the other.
Does the power supply used by Dominion KX II automatically detect voltage settings?	Yes. Dominion KX II's power supply can be used in AC voltage ranges from 100–240 volts, at 50–60 Hz.
If a power supply or input fails, will I be notified?	The Dominion KX II front panel LED will notify the user of a power failure. An entry will also be sent to the audit log and displayed on the KX remote client user interface. If configured by the administrator, then SNMP or syslog events will be generated.

Intelligent Power Distribution Unit (PDU) Control

Question	Answer
What type of remote power control capabilities does Dominion KX II offer?	Raritan's intelligent PDUs can be connected to the Dominion KX II to provide power control of target servers and other equipment. For servers, after a simple one-time configuration step, just click on the server name to power on, off or to recycle a hung server.
What type of power strips does Dominion KX II support?	Raritan's Dominion PX™ and Remote Power Control (RPC) power strips. These come in many outlet, connector and amp variations. Note that you should not connect the PM series of power strips to the Dominion KX II as these power strips do not provide outlet-level switching.
How many PDUs can be connected to a Dominion KX II?	Up to eight PDUs can be connected to a Dominion KX II device.

Appendix F:

Question	Answer
How do I connect the PDU to the Dominion KX II?	The D2CIM-PWR is used to connect the power strip to the Dominion KX II. The D2CIM-PWR must be purchased separately; it does not come with the PDU.
Does Dominion KX II support servers with multiple power supplies?	Yes. Dominion KX II can be easily configured to support servers with multiple power supplies connected to multiple power strips. Four power supplies can be connected per target server.
Does the Dominion KX II display statistics and measurements from the PDU?	Yes. PDU-level power statistics, including power, current and voltage, are retrieved from the PDU and displayed to the user.
Does remote power control require any special configuration of attached servers?	Some servers ship with default BIOS settings such that the server does not automatically restart after losing and regaining power. For these servers, see the server's documentation to change this setting.
What happens when I recycle power to a server?	Note that this is the physical equivalent of unplugging the server from the AC power line, and reinserting the plug.
Can I power on/off other equipment (non-servers) connected to a PDU?	Yes. You can power on/off other equipment attached to the PDU by outlet from the Dominion KX II's browser-based interface.

Local Port Consolidation, Tiering and Cascading

Question	Answer
<p>How do I physically connect multiple Dominion KX II devices together into one solution?</p>	<p>To physically connect multiple KX II devices together for consolidated local access, you can connect the local ports of multiple "tiered" (or "cascaded") KX II switches to a "base" KX II using the tiering feature of the KX II. You can then access the servers connected to your KX II devices from a single point in the data center via a consolidated port list.</p> <p>The D2CIM-DVUSB CIM must be used to connect the tiered KX II switch to the base switch. Or for the KX2-832 and KX2-864, the extended local port can be connected via Cat 5/6 cable (no CIM required) to the base KX II switch.</p> <p>Access via the consolidated port list is available in the data center or even from a remote PC. All servers connected to the tiered KX IIs can be accessed via a hierarchical port list or via search (with wildcards).</p> <p>Two levels of tiering are supported; up to 1024 devices can be accessed in a tiered configuration. Remote power control is also supported.</p> <p>Virtual media, smart card and blade server access via tiered access will be supported in a future release. Of course these features are available when accessed via a standard remote connection.</p> <p>While remote IP server access via the consolidated port list is available as a convenience, remote accessing a tiered server from CommandCenter or via the KX II the server is connected to, is recommended for optimal performance.</p>

Question	Answer
Do I have to physically connect Dominion KX II devices together?	<p>Multiple Dominion KX II units do not need to be physically connected together. Instead, each Dominion KX II unit connects to the network, and they automatically work together as a single solution if deployed with Raritan's CommandCenter Secure Gateway (CC-SG) management appliance.</p> <p>CC-SG acts as a single access point for remote access and management. CC-SG offers a significant set of convenient tools, such as consolidated configuration, consolidated firmware update and a single authentication and authorization database.</p> <p>Customers using CC-SG for centralized remote access can make good use of the KX II's tiering (cascading) feature to consolidate the local ports of multiple KX II switches and locally access up to 1024 servers from a single console when in the data center.</p>
Is CC-SG required?	<p>For customers wanting stand-alone usage (without a central management system), multiple Dominion KX II units still interoperate and scale together via the IP network. Multiple Dominion KX II switches can be accessed from the KX II Web-based user interface and from the Multiplatform Client (MPC).</p>
Can I connect an existing analog KVM switch to Dominion KX II?	<p>Yes. Analog KVM switches can be connected to one of Dominion KX II's server ports. Simply use a USB computer interface module (CIM), and attach it to the user ports of the existing analog KVM switch.</p> <p>Analog KVM switches supporting hotkey-based switching on their local ports can be tiered to a Dominion KX II switch and switched via a consolidated port list, both remotely and in the data center.</p> <p>Please note that analog KVM switches vary in their specifications and Raritan cannot guarantee the interoperability of any particular third-party analog KVM switch. Contact Raritan technical support for further information.</p>

Computer Interface Modules (CIMs)

Question	Answer
What type of video is supported by your CIMs?	Our CIMs have traditionally supported analog VGA video. Three new CIMs support digital video formats, including DVI, HDMI and DisplayPort. These are the D2CIM-DVUSB-DVI, D2CIM-DVUSB-HDMI and D2CIM-DVUSB-DP.
Can I use computer interface modules (CIMs) from Paragon, Raritan's analog matrix KVM switch, with Dominion KX II?	<p>Yes. Certain Paragon computer interface modules (CIMs) may work with Dominion KX II. (Please check the Raritan Dominion KX II Release Notes on the website for the latest list of certified CIMs.)</p> <p>However, because Paragon CIMs cost more than Dominion KX II CIMs (as they incorporate technology for video transmission of up to 1,000 feet [304 m]), it is not generally advisable to purchase Paragon CIMs for use with Dominion KX II. Also note that when connected to Dominion KX II, Paragon CIMs transmit video at a distance of up to 150 feet (46 m), the same as Dominion KX II CIMs – not at 1,000 feet (304 m), as they do when connected to Paragon.</p>
Can I use Dominion KX II computer interface modules (CIMs) with Paragon, Raritan's analog matrix KVM switch?	No. Dominion KX II computer interface modules (CIMs) transmit video at ranges of 50 feet to 150 feet (15 m to 46 m) and thus do not work with Paragon, which requires CIMs that transmit video at a range of 1,000 feet (304 m). To ensure that all Raritan's customers experience the very best quality video available in the industry – a consistent Raritan characteristic – Dominion series CIMs do not interoperate with Paragon.

Question	Answer
Does Dominion KX II support Paragon Dual CIMs?	<p>Yes. The Dominion KX II now supports Paragon II Dual CIMs (P2CIM-APS2DUAL and P2CIM-AUSB2DUAL), which can connect servers in the data center to two different Dominion KX II switches.</p> <p>If one KX II switch is not available, the server can be accessed through the second KX II switch, providing redundant access and doubling the level of remote KVM access.</p> <p>Please note these are Paragon CIMs, so they do not support the KX II advanced features such as virtual media, absolute mouse, etc.</p>

Security

Question	Answer
Is the Dominion KX II FIPS 140-2 Certified?	The Dominion KX II uses an embedded FIPS 140-2 validated cryptographic module running on a Linux platform per FIPS 140-2 implementation guidelines. This cryptographic module is used for encryption of KVM session traffic consisting of video, keyboard, mouse, virtual media and smart card data.
What kind of encryption does Dominion KX II use?	Dominion KX II uses industry-standard (and extremely secure) 256-bit AES, 128-bit AES or 128-bit encryption, both in its SSL communications as well as its own data stream. Literally no data is transmitted between remote clients and Dominion KX II that is not completely secured by encryption.
Does Dominion KX II support AES encryption as recommended by the U.S. government's NIST and FIPS standards?	<p>Yes. The Dominion KX II utilizes the Advanced Encryption Standard (AES) for added security. 256-bit and 128-bit AES is available.</p> <p>AES is a U.S. government-approved cryptographic algorithm that is recommended by the National Institute of Standards and Technology (NIST) in the FIPS Standard 197.</p>

Question	Answer
Does Dominion KX II allow encryption of video data? Or does it only encrypt keyboard and mouse data?	Unlike competing solutions, which only encrypt keyboard and mouse data, Dominion KX II does not compromise security – it allows encryption of keyboard, mouse, video and virtual media data.
How does Dominion KX II integrate with external authentication servers such as Active Directory, RADIUS or LDAP?	Through a very simple configuration, Dominion KX II can be set to forward all authentication requests to an external server such as LDAP, Active Directory or RADIUS. For each authenticated user, Dominion KX II receives from the authentication server the user group to which that user belongs. Dominion KX II then determines the user's access permissions depending on the user group to which he or she belongs.
How are usernames and passwords stored?	Should Dominion KX II's internal authentication capabilities be used, all sensitive information, such as usernames and passwords, is stored in an encrypted format. Literally no one, including Raritan technical support or product engineering departments, can retrieve those usernames and passwords.
Does Dominion KX II support strong passwords?	Yes. The Dominion KX II has administrator-configurable, strong password checking to ensure that user-created passwords meet corporate and/or government standards and are resistant to brute force hacking.
Can I upload my own digital certificate to the Dominion KX II?	Yes. Customers can upload self-signed or certificate authority-provided digital certificates to the Dominion KX II for enhanced authentication and secure communication.
Does the KX II support a configurable security banner?	Yes. For government, military and other security-conscious customers requiring a security message before user login, the KX II can display a user-configurable banner message and optionally require acceptance.
My security policy does not allow the use of standard TCP port numbers. Can I change them?	Yes. For customers wishing to avoid the standard TCP/IP port numbers to increase security, the Dominion KX II allows the administrator to configure alternate port numbers.

Smart Cards and CAC Authentication

Question	Answer
Does Dominion KX II support smart card and CAC authentication?	Yes. Smart cards and DoD common access cards (CAC) authentication to target servers is supported by Release 2.1.10 and greater.
What is CAC?	Mandated by Homeland Security Presidential Directive 12 (HSPD-12), CAC is a type of smart card created by the U.S. government and used by U.S. military and government staff. The CAC card is a multitechnology, multipurpose card; the goal is to have a single identification card. For more information, see the FIPS 201 standards.
Which KX II models support smart cards/CAC?	All Dominion KX II models are supported. The Dominion KSX II and KX II-101 do not currently support smart cards and CAC.
Do enterprise and SMB customers use smart cards, too?	Yes. However, the most aggressive deployment of smart cards is in the U.S. federal government.
Which CIMs support smart card/CAC?	The D2CIM-DVUSB, D2CIM-DVUSB-DVI, D2CIM-DVUSB-HDMI and D2CIM-DVUSB-DP are the required CIMs.
Which smart card readers are supported?	The required reader standards are USB CCID and PC/SC. Consult the user documentation for a list of certified readers and more information.
Can smart card/CAC authentication work on the local port and via CommandCenter?	Yes. Smart card/CAC authentication works on both the local port and via CommandCenter. For the local port, connect a compatible smart card reader to the USB port of the Dominion KX II.
Are the Paragon smart card-enabled UST and CIM used?	No. The P2-EUST/C and P2CIM-AUSB-C are not part of the Dominion KX II solution.
Where can I get more information on KX II smart card support?	See the Release Notes and the Dominion KX II User Guide for more information.

Manageability

Question	Answer
Can Dominion KX II be remotely managed and configured via Web browser?	Yes. Dominion KX II can be completely configured remotely via Web browser. Note that this does require that the workstation have an appropriate Java Runtime Environment (JRE) version installed. Besides the initial setting of Dominion KX II's IP address, everything about the solution can be completely set up over the network. (In fact, using a crossover Ethernet cable and Dominion KX II's default IP address, you can even configure the initial settings via Web browser.)
Can I back up and restore Dominion KX II's configuration?	Yes. Dominion KX II's device and user configurations can be completely backed up for later restoration in the event of a catastrophe. Dominion KX II's backup and restore functionality can be used remotely over the network, or through your Web browser.
What auditing or logging does Dominion KX II offer?	For complete accountability, Dominion KX II logs all major user events with a date and time stamp. For instance, reported events include (but are not limited to): user login, user logout, user access of a particular server, unsuccessful login, configuration changes, etc.
Can Dominion KX II integrate with syslog?	Yes. In addition to Dominion KX II's own internal logging capabilities, Dominion KX II can send all logged events to a centralized syslog server.
Can Dominion KX II integrate with SNMP?	Yes. In addition to Dominion KX II's own internal logging capabilities, Dominion KX II can send SNMP traps to SNMP management systems. SNMP v2 and v3 are supported.
Can an administrator log-off a user?	Yes, administrators can view which users are logged into which ports and can log-off a user from a specific port or from the device if required.
Can Dominion KX II's internal clock be synchronized with a timeserver?	Yes. Dominion KX II supports the industry-standard NTP protocol for synchronization with either a corporate timeserver, or with any public timeserver (assuming that outbound NTP requests are allowed through the corporate firewall).

Documentation and Support

Question	Answer
Where do I find documentation on the Dominion KX II?	The documentation is available at raritan.com on the KX II firmware and documentation page: http://www.raritan.com/support/dominion-kx-ii . The documentation is listed by firmware release.
What documentation is available?	A Quick Setup Guide, User Guide and a KVM and Serial Client Guide, as well as Release Notes and other information are available.
Is online help available?	Yes. Online help is available at raritan.com with the documentation and from the KX II user interface.
What CIM should I use for a particular server?	Consult the CIM Guide available with the KX II documentation. Note that DVI, HDMI and DisplayPort video standards are supported with the new digital video CIMs, available as of Release 2.5.
How long is the hardware warranty for the KX II?	The Dominion KX II comes with a standard two-year warranty, which can be extended to 5 years of warranty coverage.

Miscellaneous

Question	Answer
What is Dominion KX II's default IP address?	192.168.0.192
What is Dominion KX II's default username and password?	The Dominion KX II's default username and password are admin/raritan (all lower case). However, for the highest level of security, the Dominion KX II forces the administrator to change the Dominion KX II default administrative username and password when the unit is first booted up.

Question	Answer
I changed and subsequently forgot Dominion KX II's administrative password; can you retrieve it for me?	Dominion KX II contains a hardware reset button that can be used to factory reset the device, which will reset the administrative password on the device to the default password.
How do I migrate from the Dominion KX I to Dominion KX II?	In general, KX I customers can continue to use their existing switches for many years. As their data centers expand, customers can purchase and use the new KX II models. Raritan's centralized management appliance, CommandCenter Secure Gateway (CC-SG), and the Multiplatform Client (MPC) both support KX I and KX II switches seamlessly.
Will my existing KX I CIMs work with Dominion KX II switches?	Yes. Existing KX I CIMs will work with the Dominion KX II switch. In addition, select Paragon CIMs will work with the KX II. This provides an easy migration to KX II for Paragon I customers who wish to switch to KVM over IP. However, you may want to consider the D2CIM-VUSB and D2CIM-DVUSB CIMs that support virtual media and Absolute Mouse Synchronization. Additionally, digital video CIMs supporting DVI, HDMI, and Display Port are also available.

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