



# Dominion KX IV-101

## User Guide

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**Release 4.2.0**

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## What's New in KX IV-101 Release 4.2.0

### ▶ Release 4.2.0:

- Support for PDUs using SNMP: **PDU Management** (on page 157)
- Support for Direct Port Access using SSH: **Direct Port Access via SSH for DSAM** (on page 175)
- New option on HKC Client to construct Macro from Text: **Text to macro** (on page 89)
- More generic support for LDAP groups: **LDAP Authentication** (on page 116)
- New settings for terminal block control: **Terminal Block Control** (on page 165)
- Auto scan saves multiple images: **Auto Scan** (on page 134)
- All clients now support all function keys, F1-F24.

Please see the Release Notes for a more detailed explanation of the changes applied to this version of the Dominion KX IV-101.

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# Installation and Initial Configuration

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## Supported Browsers

- Chrome
- Edge
- Firefox
- Safari

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*See the Release Notes for more details on versions and compatibility.*

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## Minimum Client and System Recommendations

Minimum client requirements vary somewhat depending on what client you want to use, and what kind of video you plan to stream.

- ▶ **Network Speed Recommendation:**
  - A fast network like Gigabit Ethernet or WiFi 802.11ac
- ▶ **Standalone Virtual KVM Client (VKCS) and Active KVM Client (AKC)**
  - CPU:
    - For FullHD video: a modern and fast dual core CPU, such as Intel Core i3 4xxx or newer, or a quad core CPU. If you plan to run more than one KVM session, a quad core CPU is recommended.
    - For 4K video: a modern and fast quad core CPU, such as Intel Core i5 4xxx or newer. If you plan to run more than one 4K stream, a CPU with 6 or more cores is recommended, such as Intel Core i5/i7 8xxx.
  - 8GB RAM

- Graphics Card: a modern OpenGL capable graphics card, such as GeForce or Radeon. At least 1GB.

▶ **HTML KVM Client (HKC):**

4K video not recommended on HKC.

- CPU: a modern and fast dual core CPU
- 8GB RAM
- OpenGL capable graphic card

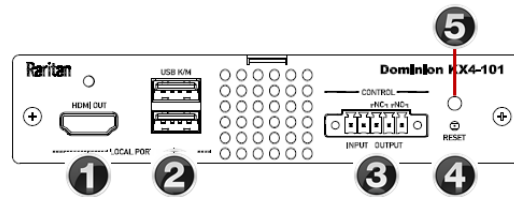
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## Package Contents

- 1 Dominion KX IV–101
- 1 power cord
- 1 HDMI cable
- 1 USB-B to USB-A cable
- 1 mounting bracket kit

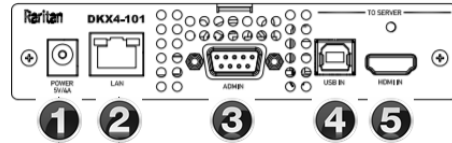
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## Front View



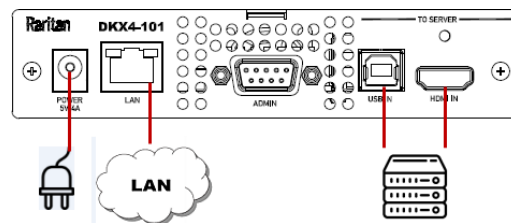
- ① Local Port HDMI Out to local port monitor
- ② Local Port USB K/M:
  - Use for local port keyboard/mouse, OR connect 1 or 2 DSAM units
- ③ Input/Output
- ④ Reset
- ⑤ Power Status LED:
  - Green ON: Power on
  - Green BLINKING: Remote target connection
-

## Rear View



- ➊ Power 5V/4A from power adapter
- ➋ RJ-45 LAN Network Port with 2 LEDs for network speed and activity:
  - Amber OFF/Green OFF: Link Inactive
  - Amber ON/Green OFF: 1000 MBps Link/No Activity
  - Amber BLINKING/Green OFF: 1000 MBps Link/Activity(RX, TX)
  - Amber OFF/Green ON: 100 MBps Link/No Activity
  - Amber OFF/Green BLINKING: 100 MBps Link/Activity(RX, TX)
  - Amber ON/Green ON: 10 MBps Link/No Activity
  - Amber BLINKING/Green BLINKING: 10 MBps Link/Activity(RX, TX)
- ➌ Serial Admin Port
- ➍ USB In from target server
- ➎ HDMI In from target server

## Connecting the Equipment



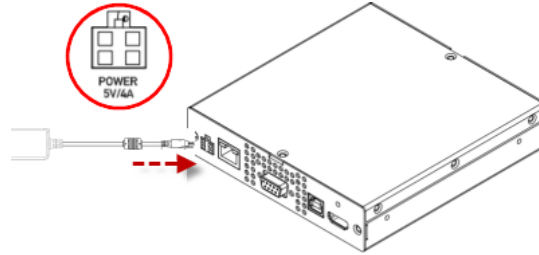
- ▶ **Connect the Dominion KX IV–101 to the network:**
  - Connect the Dominion KX IV–101 to the network using the LAN port.

▶ **Connect your target server:**

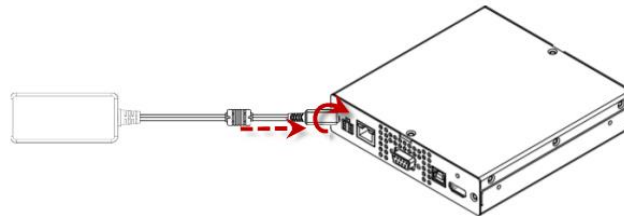
- Connect the target server with an HDMI cable to the Dominion KX IV-101 HDMI IN port. If the target server video is not HDMI, purchase a Raritan cable- or video-adapter.
- Connect the target server to the Dominion KX IV-101 USB IN port using the included USB cable.

▶ **Connect the power adapter:**

- Newer models include a power adapter with a 4-pin connector. Push the adapter in to lock.



- Some of the original models include twist-to-lock adapters, as shown in the image below. These are marked with an arrow. Connect with the arrow facing up. Push in firmly and twist clockwise to lock. Check to ensure it is locked.



Power on all devices.

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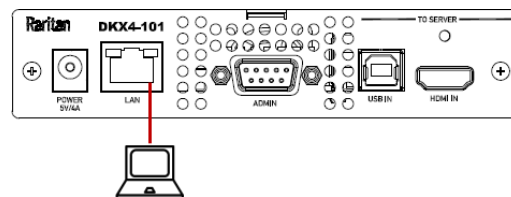
## Initial Configuration

Default login: admin/raritan

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### Option 1: Connect a PC to the LAN Port

*Re-connect the Dominion KX IV-101 to the LAN after initial configuration.*

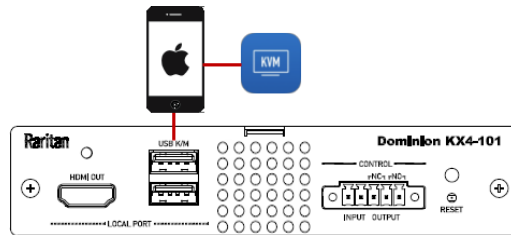


- Disable the wireless interface of the PC, and make sure the PC is set to DHCP.
- Connect a network cable between the PC and Dominion KX IV–101 LAN port.
- Open a browser. Enter the URL "https://kvm.local". The login page appears.
- Follow the prompts to change the default password.

### Option 2: Connect an iOS device at the Local Port

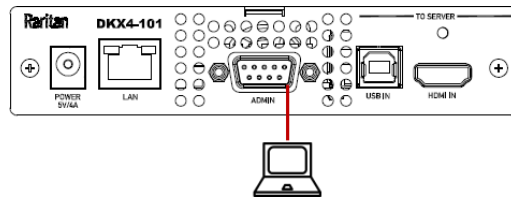
Required App: Raritan KVM by Raritan:

<https://itunes.apple.com/us/app/raritan-kvm/id1455817539?mt=8>



- Launch the Raritan KVM app on an iOS device.
- Connect the iOS device with the Raritan KVM app to the Dominion KX IV–101 USB port.
- Wait until the app detects the connected Dominion KX IV–101.
- Follow the prompts to change the default password.

### Option 3: Serial configuration



- Connect a DB9 serial cable or USB-Serial adapter between the PC and the Dominion KX IV–101 serial Admin port.
- Serial console configuration: (default) 115200bps/None/8bits/1stop
- To find the default DHCP IP address, use the "show" command to "show network".
- For help with all commands, see **CLI Commands** (on page 202).

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## Next Steps

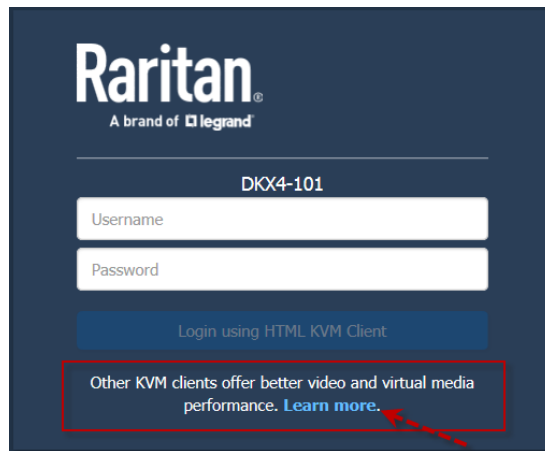
- Configure network settings: See **Network** (on page 147)
- Configure time settings: See **Date and Time** (on page 136)
- Install certificates: See **TLS Certificate** (on page 179)
- Configure users: See **User Management** (on page 113)
- Configure port settings: **Port Configuration: KVM Port Settings - General, Video, Audio** (on page 9)

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## KVM Client Options

Dominion KX IV–101 offers a selection of KVM clients. Upon launching the Dominion KX IV–101 IP address in a supported browser, the login page appears. The HTML KVM Client (HKC) is loaded by default.

- Click the **Learn more** link in the login page to view other KVM client options.



- The **Learn more** link launches a client options dialog. Click the provided links to launch a different client.
  - `https://<IP address>` launches HKC
  - `https://<IP address>/akc` launches AKC

- <https://<IP address>/vkcs> launches VKC

**KX4-101 Client Options**

Three different clients are available to launch KVM sessions or administer your device, each with its own benefits. Note that you must log into each client separately.

Client Name	How to Launch	Notes
HTML KVM Client (HKC)	On any browser, including mobile, go to <a href="https://192.168.56.27">https://192.168.56.27</a>	This is what you're running now. Quickest and easiest to log into, but video performance and virtual media functionality are limited.
Active KVM Client (AKC)	On Windows, using Microsoft Edge™ Internet Explorer™ 11, or another browser with ClickOnce plug-in, go to <a href="https://192.168.56.27/akc">https://192.168.56.27/akc</a>	Recommended high-performance client for Windows. AKC will load and launch automatically when the link is clicked.
Virtual KVM Client Standalone (VKCS)	On any system with Java 1.8, go to <a href="https://192.168.56.27/vkcs">https://192.168.56.27/vkcs</a>	Recommended high-performance client for Mac and Linux. After clicking link, VKCS will download. If browser does not do it automatically, click the downloaded .jnlp file (or ctrl-click on Mac) to launch.

When a different client is selected, Dominion KX IV–101 automatically checks your system to make sure it meets the requirements of the client. If your system is ready, the selected client loads. If your system needs to meet additional requirements, another message displays with details.

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*Note: For AKC and VKCS, your browser may display a "This site is not secure" warning message until you have installed valid certificates. Click to accept the warnings and go to the site. See **TLS Certificate** (on page 179) for help installing certificates that prevent these warnings.*

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For more details and instructions for using all clients, see **KVM Clients** (on page 46).

# Port Access and Configuration

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## Port Access

Click Port Access to view the port preview and connect to the target.

► **Port Preview:**

- The preview image refreshes every 5 seconds.
- Your ability to see the preview depends on your privileges. If you do not have sufficient privileges, a message displays with details.





▶ **Connect to the target:**

- Click the Connect button to open a connection to the target server.
- For help with using the KVM clients, see **KVM Clients** (on page 46).

▶ **Control power to the target:**

- You will see power control options only if you have associated one or more PDUs to the target, and have permission to do power functions.
- Click the Power On, Power Off or Power Cycle to control power to the target. Power association must be setup first. See **Port Configuration: Power Association** (on page 18)




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## Port Configuration: KVM Port Settings - General, Video, Audio

The Port Configuration page contains all port settings for the KVM port name and video resolution, as well as USB port and audio settings.

▶ **To access all port configuration:**

- Click Port Configuration.



► **KVM Port Settings:**

**General Settings:**

- To rename the KVM port: enter a new name and click Save.
- View the Current Port Status:
  - Active, Idle
  - Active, Busy: Connected, but PC Share is disabled. See ***KVM Security*** (on page 172).
  - Active, Connected: Connected, and PC Share is enabled.

**Video Settings:**

- Select **Enable VGA Mode** if the video input originates with a VGA or other analog source, through an HDMI adapter. In VGA mode, resolution is controlled on the video source device only.
- Select the **Preferred Video Resolution: Important!** The KX IV uses an “EDID” data structure to tell the target server what video resolution is wanted. To change the video resolution on the target server, change the Preferred Video Resolution to the new resolution. This should change the resolution when you connect to the target; if not, you can then also change the resolution on the target server.
  - See ***Supported Preferred Video Resolutions*** (on page 12) for a list of all supported resolutions.
  - If you have a specific EDID to load, see ***Port Configuration: Custom EDIDs*** (on page 19).

- Set the **Video Interface** to HDMI or DVI (no audio).
- Set a longer **Cycle Time** if your target video is not responding properly to changes in preferred video resolution. Default is 200ms. A longer Cycle Time may allow your target to respond accurately to a new preferred video resolution.
- Select **Enable Video Throttle** to cap the client frame rate at half the frame rate of the incoming video. This can be useful to reduce network bandwidth and CPU load on the client.

**Video Settings**

**i** Enable VGA Mode when the video input originates with a VGA or other analog source, through an HDMI adapter. In VGA mode, resolution is controlled on the video source device only.

Enable VGA Mode

**i** Use these settings if necessary to help force digital video sources to desired screen resolution. Try a longer cycle time value if target does not respond properly.

Video Interface HDMI ▲▼

Preferred Video Resolution 1920x1080 @ 60Hz ▲▼

Cycle Time 200 ms ▲▼

**i** Enable Video Throttle to cap the client frame rate at 1/2 that of the incoming video. This can be useful to reduce network bandwidth and/or CPU load on the client.

Enable Video Throttle

**Audio Settings**

- If there is no audio, select Audio Compensation to enable it. You must reboot the Dominion KX IV–101 after disabling this function to allow a new audio connection to another target computer.

**Audio Settings**

**i** If there is no audio, please enable Audio Compensation.  
Please reboot this KX4-101 switch if you disable this setting to connect the KX4-101 to another target computer.

Audio Compensation

- Click Save to apply all settings.

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### Supported Preferred Video Resolutions

Each supported EDID is listed with the preferred video resolutions it can offer. The server will generally choose the largest resolution and refresh rate that it can support.

▶ **1024x768@60Hz**

- 640x480@60Hz, @72Hz, @75Hz
- 720x400@70Hz
- 800x600@56Hz, @60Hz, @72Hz, @75Hz
- 1024x768@60Hz, @70Hz, @75Hz

▶ **1152x864@60Hz**

- 640x480@60Hz, @72Hz, @75Hz, @85Hz
- 720x400@70Hz
- 800x600@56Hz, @60Hz, @72Hz, @75Hz, @85Hz
- 1024x768@60Hz, @70Hz, @75Hz, @85Hz
- 1152x864@60Hz

▶ **1280x720@60Hz**

- 640x480@60Hz, @72Hz, @75Hz, @85Hz
- 720x400@70Hz
- 800x600@56Hz, @60Hz, @72Hz, @75Hz, @85Hz
- 1024x768@60Hz, @70Hz, @75Hz, @85Hz
- 1152x864@60Hz, @75Hz
- 1280x720@60Hz

▶ **1280x960@60Hz**

- 640x480@60Hz, @72Hz, @75Hz, @85Hz
- 720x400@70Hz
- 800x600@56Hz, @60Hz, @72Hz, @75Hz, @85Hz
- 1024x768@60Hz, @70Hz, @75Hz, @85Hz
- 1152x864@60Hz, @75Hz
- 1280x960@60Hz

▶ **1280x1024@60Hz**

- 640x480@60Hz, @72Hz, @75Hz, @85Hz
- 720x400@70Hz
- 800x600@56Hz, @60Hz, @72Hz, @75Hz, @85Hz
- 1024x768@60Hz, @70Hz, @75Hz, @85Hz
- 1152x864@60Hz, @75Hz
- 1280x1024@60Hz, @75Hz

▶ **1360x768@60Hz**

- 640x480@60Hz, @72Hz, @75Hz
- 720x400@70Hz
- 800x600@56Hz, @60Hz, @72Hz, @75Hz
- 1024x768@60Hz, @70Hz, @75Hz
- 1152x864@60Hz, @75Hz
- 1280x960@60Hz
- 1280x1024@60Hz
- 1360x768@60Hz

▶ **1440x900@60Hz**

- 640x480@60Hz, @72Hz, @75Hz
- 720x400@70Hz
- 800x600@56Hz, @60Hz, @72Hz, @75Hz
- 1024x768@60Hz, @70Hz, @75Hz
- 1152x864@75Hz
- 1280x960@60Hz
- 1280x1024@60Hz
- 1440x900@60Hz

▶ **1400x1050@60Hz**

- 640x480@60Hz, @72Hz, @75Hz
- 720x400@70Hz
- 800x600@56Hz, @60Hz, @72Hz, @75Hz
- 1024x768@60Hz, @70Hz, @75Hz
- 1152x864@60Hz, @75Hz
- 1280x960@60Hz
- 1280x1024@60Hz, @75Hz
- 1400x1050@60Hz

▶ **1600x900@60Hz**

- 640x480@60Hz, @72Hz, @75Hz, @85Hz
- 720x400@70Hz
- 800x600@56Hz, @60Hz, @72Hz, @75Hz, @85Hz
- 1024x768@60Hz, @70Hz, @75Hz, @85Hz
- 1152x864@60Hz, @75Hz, @85Hz
- 1600x900@60Hz

▶ **1600x1200@60Hz**

- 640x480@60Hz, @72Hz, @75Hz, @85Hz

- 720x400@70Hz
- 800x600@56Hz, @60Hz, @72Hz, @75Hz, @85Hz
- 1024x768@60Hz, @70Hz, @75Hz, @85Hz
- 1152x864@60Hz, @75Hz, @85Hz
- 1280x1024@75Hz
- 1600x1200@60Hz

▶ **1680x1050@60Hz**

- 640x480@60Hz, @72Hz, @75Hz
- 720x400@70Hz
- 800x600@56Hz, @60Hz, @72Hz, @75Hz
- 1024x768@60Hz, @70Hz, @75Hz
- 1152x864@60Hz, @75Hz
- 1280x960@60Hz
- 1280x1024@60Hz, @75Hz
- 1440x900@60Hz
- 1680x1050@60Hz

▶ **1920x1080@60Hz (148.5MHz clock)**

- 640x480@60Hz, @72Hz, @75Hz
- 720x400@70Hz
- 800x600@56Hz, @60Hz, @72Hz, @75Hz
- 1024x768@60Hz, @70Hz, @75Hz
- 1152x864@75Hz
- 1280x720@60Hz
- 1280x960@60Hz
- 1280x1024@60Hz, @75Hz
- 1440x900@60Hz
- 1600x1200@60Hz
- 1680x1050@60Hz
- 1920x1080@60Hz

▶ **1920x1200@60Hz (Reduced Blanking 154MHz clock)**

- 640x480@60Hz, @72Hz, @75Hz
- 720x400@70Hz
- 800x600@56Hz, @60Hz, @72Hz, @75Hz
- 1024x768@60Hz, @70Hz, @75Hz
- 1152x864@75Hz
- 1280x720@60Hz
- 1280x960@60Hz
- 1280x1024@60Hz, @75Hz

- 1440x900@60Hz
- 1600x1200@60Hz
- 1680x1050@60Hz
- 1920x1080@60Hz
- 1920x1200@60Hz

▶ **1920x2160@60Hz**

- 640x480@60Hz, @72Hz, @75Hz
- 720x400@70Hz
- 800x600@56Hz, @60Hz, @72Hz, @75Hz
- 1024x768@60Hz, @70Hz, @75Hz
- 1152x864@75Hz
- 1280x720@60Hz
- 1280x960@60Hz
- 1280x1024@60Hz, @75Hz
- 1440x900@60Hz
- 1600x1200@60Hz
- 1680x1050@60Hz
- 1920x1080@60Hz
- 1920x2160@60Hz

▶ **2560x1440@60Hz**

- 640x480@60Hz, @72Hz, @75Hz
- 720x400@70Hz
- 720x480@60Hz
- 720x576@50Hz
- 800x600@56Hz, @60Hz, @72Hz, @75Hz
- 1024x768@60Hz, @70Hz, @75Hz
- 1152x864@75Hz
- 1280x720@50Hz, @60Hz
- 1280x800@60Hz
- 1280x1024@60Hz, @75Hz
- 1440x900@60Hz
- 1600x900@60Hz
- 1680x720@60Hz
- 1680x1050@60Hz
- 1920x1080@24Hz, @30Hz, @60Hz
- 1920x1200@60Hz
- 2560x1080@30Hz
- 2560x1440@60Hz

▶ **2560x1600@60Hz**

- 640x480@60Hz, @72Hz, @75Hz
- 720x400@70Hz
- 720x480@60Hz
- 720x576@50Hz
- 800x600@56Hz, @60Hz, @72Hz, @75Hz
- 1024x768@60Hz, @70Hz, @75Hz
- 1152x864@75Hz
- 1280x720@50Hz, @60Hz
- 1280x800@60Hz
- 1280x1024@60Hz, @75Hz
- 1440x900@60Hz
- 1600x900@60Hz
- 1680x720@60Hz
- 1680x1050@60Hz
- 1920x1080@24Hz, @30Hz, @60Hz
- 1920x1200@60Hz
- 2560x1080@30Hz
- 2560x1600@60Hz

▶ **3840x1080@60Hz**

- 640x480@60Hz, @72Hz, @75Hz
- 720x400@70Hz
- 720x480@60Hz
- 720x576@50Hz
- 800x600@56Hz, @60Hz, @72Hz, @75Hz
- 1024x768@60Hz, @70Hz, @75Hz
- 1152x864@75Hz
- 1280x720@50Hz, @60Hz
- 1280x800@60Hz
- 1280x1024@60Hz, @75Hz
- 1440x900@60Hz
- 1600x900@60Hz
- 1680x720@60Hz
- 1680x1050@60Hz
- 1920x1080@24Hz, @30Hz, @60Hz
- 1920x1200@60Hz
- 2560x1080@30Hz, @60Hz
- 2560x1440@60Hz



- 2560x1600@60Hz
- 3840x1080@60Hz

▶ **3840x1200@60Hz**

- 640x480@60Hz, @72Hz, @75Hz
- 720x400@70Hz
- 720x480@60Hz
- 720x576@50Hz
- 800x600@56Hz, @60Hz, @72Hz, @75Hz
- 1024x768@60Hz, @70Hz, @75Hz
- 1152x864@75Hz
- 1280x720@50Hz, @60Hz
- 1280x800@60Hz
- 1280x1024@60Hz, @75Hz
- 1440x900@60Hz
- 1600x900@60Hz
- 1680x720@60Hz
- 1680x1050@60Hz
- 1920x1080@24Hz, @30Hz, @60Hz
- 1920x1200@60Hz
- 2560x1080@30Hz, @60Hz
- 2560x1440@60Hz
- 3840x1200@60Hz

▶ **3840x1600@30Hz**

- 640x480@60Hz, @72Hz, @75Hz
- 720x400@70Hz
- 720x480@60Hz
- 720x576@50Hz
- 800x600@56Hz, @60Hz, @72Hz, @75Hz
- 1024x768@60Hz, @70Hz, @75Hz
- 1152x864@75Hz
- 1280x720@60Hz
- 1280x800@60Hz
- 1280x1024@60Hz, @75Hz
- 1440x900@60Hz
- 1600x900@60Hz
- 1680x1050@60Hz
- 1920x1080@60Hz
- 1920x1200@60Hz

- 2560x1080@60Hz
- 2560x1440@60Hz
- 3840x1600@30Hz
- ▶ **3840x2160@30Hz**
- 640x480@60Hz, @72Hz, @75Hz
- 720x400@70Hz
- 720x480@60Hz
- 720x576@50Hz
- 800x600@56Hz, @60Hz, @72Hz, @75Hz
- 1024x768@60Hz, @70Hz, @75Hz
- 1152x864@75Hz
- 1280x720@50Hz, @60Hz
- 1280x800@60Hz
- 1280x1024@60Hz, @75Hz
- 1440x900@60Hz
- 1600x900@60Hz
- 1680x720@60Hz
- 1680x1050@60Hz
- 1920x1080@24Hz, @30Hz, @60Hz
- 1920x1200@60Hz
- 2560x1080@60Hz
- 2560x1440@60Hz
- 2560x1600@60Hz
- 3440x1440@50Hz
- 3840x2160@24Hz, @25Hz, @30Hz
- 4096x2160@30Hz

---

## Port Configuration: Power Association

Port association can be done once a power strip is added to the Dominion KX IV–101. See **Adding PDUs** (on page 157). You can configure up to four power associations on each target. The outlets may be on the same or different PDUs.

---

*Note: Power association will not be visible if a PDU has not been added to the Dominion KX IV–101.*

---

▶ **To configure Power Associations:**

1. Select Port Configuration then scroll down to Power Association.
2. In the PDU Name fields, select from the drop down list of configured PDUs.
3. In the Outlet Name fields, select the outlet from each PDU you want to associate with this target.

4. Leave extra fields blank or select none.
5. Click Save.

**Power Association**

PDU Name	Raritan-PX3		Outlet Name	Outlet 1
PDU Name	ServerTech-PRO3X		Outlet Name	Outlet 1
PDU Name			Outlet Name	
PDU Name			Outlet Name	

6. Once Power Association is saved, you will see power controls on the KVM Port Access page.




---

### Port Configuration: Custom EDIDs

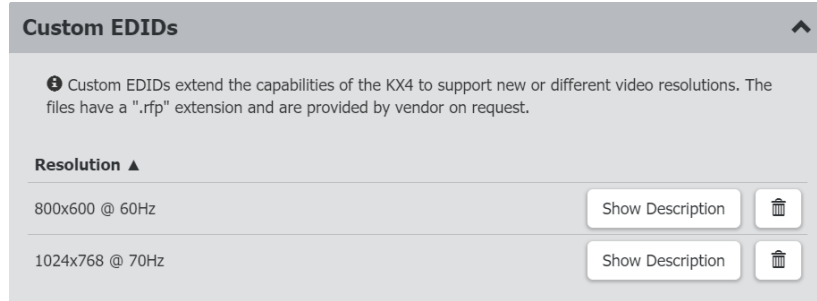
A custom EDID can be loaded to allow the Dominion KX IV–101 to support a new or different video resolution, or to specify a custom version of standard supported resolution. Only one custom EDID per resolution can be added. The files have a ".rfp" extension and are provided by the vendor on request.

You can upload up to 20 custom EDIDs with a maximum of 10 custom HDMI EDIDs and 10 custom DVI EDIDs. Custom EDIDs are not included in backups.

**▶ To upload a custom EDID:**

1. Click Port Configuration, then scroll down to Custom EDIDs.

2. Click Browse to find and select the .rfp EDID file.
3. Click Upload. Repeat these steps to add more files.
4. Once EDIDs are uploaded, they display in a list sorted by resolution.
  - Click Show Description to view the details.
  - Click the Delete icon to remove a file.



---

## Port Configuration: Local Port Monitor EDID

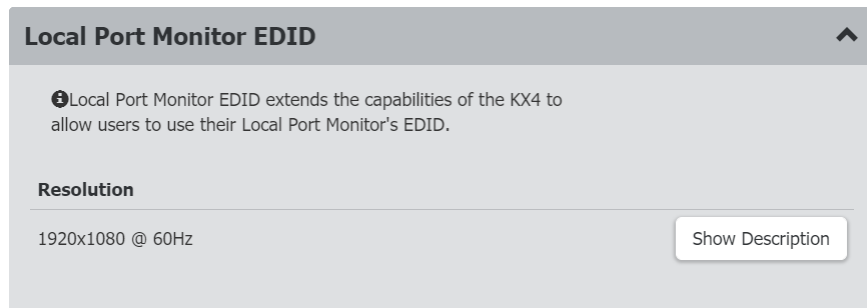
If a Local Port Monitor is attached to Dominion KX IV–101, a Local Port Monitor EDID section appears on the Port Configuration page and the monitor's EDID is included in the Preferred Video Resolution. You can use the Local Port Monitor's EDID by selecting it as the Preferred Video Resolution.

If the Local Port Monitor is removed while it's EDID was in use as the preferred video resolution, the preferred video resolution will revert back to the default 1920x1080@60Hz standard EDID.

If a new monitor is attached, it will overwrite the old Local Port Monitor EDID.

► **To view Local Port Monitor EDID:**

1. Click Port Configuration, then scroll down to Local Port Monitor EDID.
2. The EDID of the currently attached local port monitor is listed.
  - Click Show Description to view the details.



## Port Configuration: USB Connection Settings

USB Connection Settings are disabled when the port is connected. All users must be disconnected from the KVM target to change the USB port settings.

### ▶ To define USB connections for the target server:

- Click Port Configuration, then scroll down to USB Connection Settings.
- Select the USB connection settings you will be using:
  - Enable Absolute Mouse - Disable if the target does not support absolute mouse mode
  - Use Full Speed - Useful for BIOS that cannot accommodate High Speed USB devices. Clear the checkbox to allow negotiation to the target's highest USB speed capability.
  - Enumerate virtual media first before keyboard and mouse: Useful to resolve issues when a target cannot detect USB mass storage at the BIOS.
- Click Save.

### USB Connection Settings

Basic

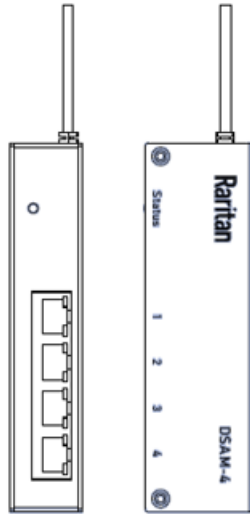
Enable Absolute Mouse	<input checked="" type="checkbox"/>
Use Full Speed - Useful for BIOS that cannot handle High Speed USB devices	<input type="checkbox"/>
Enumerate virtual media first before keyboard and mouse	<input type="checkbox"/>

- Set Advanced Options as needed:
  - Virtual Media Interface Types: Both interfaces cannot be set to CDROM or Removable Disk.
    - Disabled
    - CDROM
    - Removable Disk
    - Auto - can function as either CDROM or Removable Drive but not both at the same time
  - Remove Unused VM Interface From Device Configuration: Select this option to remove the drive when VM is disconnected. Clear this option to allow empty drives.

- Click Save.

Advanced	
Virtual Media Interface #1 Type	CD-ROM
Remove Unused VM Interface #1 From Device Configuration	<input type="checkbox"/>
Virtual Media Interface #2 Type	Removable Disk
Remove Unused VM Interface #2 From Device Configuration	<input type="checkbox"/>

# Serial Access With Dominion Serial Access Module



Connecting a Dominion KX IV–101 and a Dominion Serial Access Module (DSAM) provides access to devices such as LAN switches and routers that have a RS-232 serial port.

The DSAM is a 2- or 4 port serial module that derives power from the Dominion KX IV–101.

Connect a maximum of 2 DSAM modules to the Dominion KX IV–101 using USB cables. DSAM can be mounted in a 0U configuration.

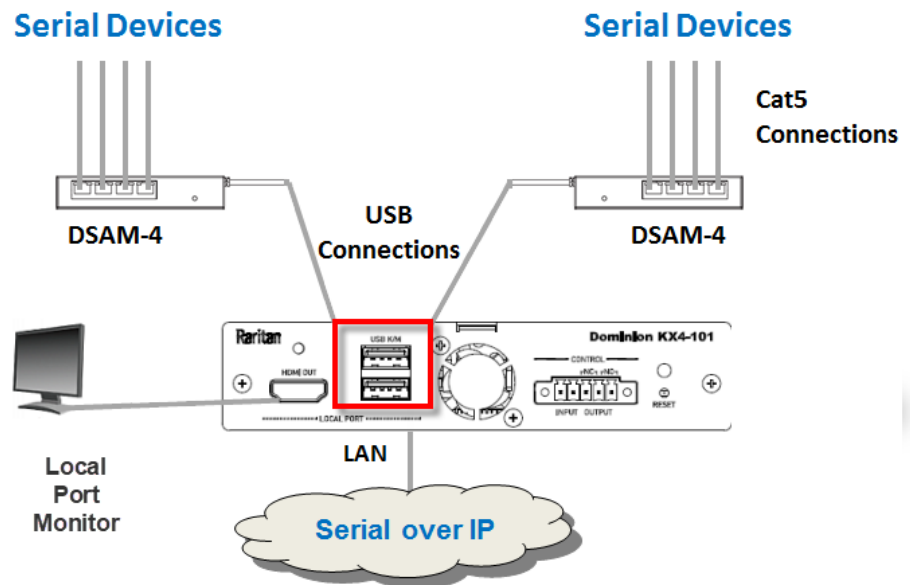
## In This Chapter

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## Connect DSAM

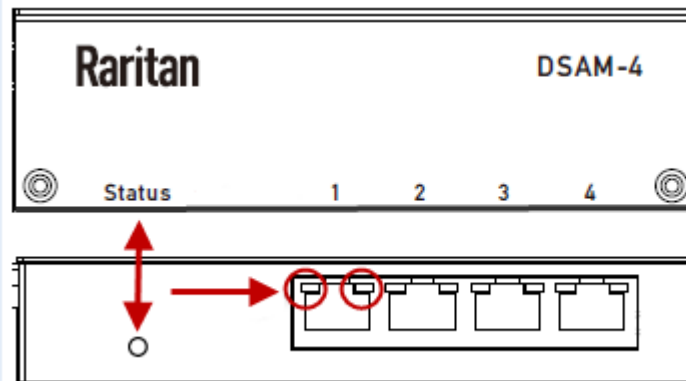
▶ **To connect DSAM to Dominion KX IV–101:**

- Connect the DSAM unit's USB cable to either of the USB K/M ports on the front of the Dominion KX IV–101.
- Connect the serial devices to the serial ports on the DSAM unit.
- When 2 DSAM units are connected, a local keyboard and mouse cannot be connected.
- When only 1 DSAM unit is connected, a combined keyboard/mouse can be connected to the available USB port.



## DSAM LED Operation

The DSAM unit has one LED for status, and 2 LEDs on each port.





### ► Status LED:

The Status LED is labeled on the unit front. Light is on back. The Status LED gives information at bootup and upgrade.

- Green LED - Slow blink: DSAM booting up but not controlled by Dominion KX IV–101.
- Blue LED - Slow blink: DSAM controlled by Dominion KX IV–101.
- Blue LED - Fast blink: Firmware upgrade in progress.

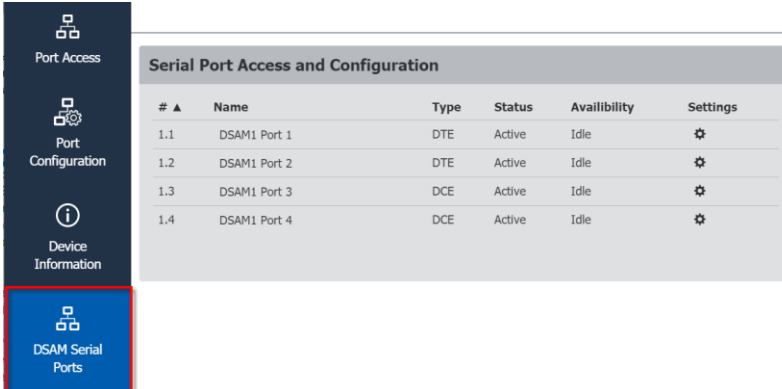
### ► USB Port LEDs:

Each USB port has a left Green LED and a right Yellow LED.

- Green LED: Port is set as DCE
- Yellow LED: Port is set as DTE
- LEDs off: Port is set as AUTO

## DSAM Serial Ports

When a DSAM unit is connected to the Dominion KX IV–101, a DSAM Serial Ports page is available.



# ▲	Name	Type	Status	Availability	Settings
1.1	DSAM1 Port 1	DTE	Active	Idle	⚙️
1.2	DSAM1 Port 2	DTE	Active	Idle	⚙️
1.3	DSAM1 Port 3	DCE	Active	Idle	⚙️
1.4	DSAM1 Port 4	DCE	Active	Idle	⚙️

### ► To view DSAM serial ports:

Click DSAM Serial Ports. You can access and configure serial ports from this page.





- Ports are listed by physical USB position on the DSAM unit.
- # column indicates which Dominion KX IV–101 USB port DSAM is plugged into.
- Type column indicates port's DTE/DCE setting.
- Status and Availability columns show current activity.

## Configure DSAM Serial Ports

You can rename serial ports and configure their settings.

► **To configure DSAM serial ports:**

1. Click DSAM Serial Ports, then click the gear icon for the port you want to configure to open the settings.

Serial Port Access and Configuration					
# ▲	Name	Type	Status	Availability	Settings
1.1	DSAM1 Port 1	DTE	Active	Idle	
1.2	DSAM1 Port 2	DTE	Active	Idle	
1.3	DSAM1 Port 3	DCE	Active	Idle	
1.4	DSAM1 Port 4	DCE	Active	Idle	

2. In the General section:

**DSAM Serial Port 1.1 Settings**

General

Name

Current State Active, Idle

- Enter a Name for the port.
- Check the Current State of the port. Status and Availability are listed.

3. In the Serial Settings section, check or change the following settings:

**Serial Settings**

Emulation	<input type="text" value="VT100"/>	Escape Mode	<input type="text" value="Control"/>
Encoding	<input type="text" value="Default"/>	Escape Character	<input type="text" value="]"/>
Equipment Type	<input type="text" value="Auto Detection"/>	Char Delay (ms)	<input type="text" value="0"/>
BPS	<input type="text" value="9600"/>	Line Delay (ms)	<input type="text" value="0"/>
Parity/Bits	<input type="text" value="Node/8"/>	Send Break Duration (ms)	<input type="text" value="300"/>
Flow Control	<input type="text" value="None"/>	Suppress Messages	<input type="checkbox"/>
Stop Bits	<input type="text" value="1"/>	Always Active	<input type="checkbox"/>
Multiple Writers	<input type="text" value="Single writer allowed"/>	Exit Command	<input type="text"/>
Port Keywords			

4. Emulation: Select the terminal emulation mode used to match the serial targets connected to the ports.

- VT100
- VT220
- VT320
- ANSI

5. Encoding: Select a specific character encoding for this port if needed. Encoding overrides the global setting for the port to whatever value you set.
  - DEFAULT
  - US-ASCII
  - 8-BIT ASCII
  - ISO-8859-1
  - ISO-8859-15
  - UTF-8
  - Shift-JIS
  - EUC-JP
  - EUC-CN
  - EUC-KR
6. Equipment Type: Indicate whether you want the Dominion KX IV–101 to automatically detect a physical connection to the target.
  - Default is Auto Detection.
  - Force DTE causes Dominion KX IV–101 to act as a piece of data terminal detection equipment to detect targets connected to it.
  - Force DCE causes Dominion KX IV–101 to act as a piece of data communications equipment to detect equipment connected to it.

---

*Note: If the target has the ability to autodetect either DTE or DCE, you must select either Force DTE or Force DCE for the port. Dominion KX IV–101 does not support autodetection of both DCE and DTE on the same port.*

---

7. Bits Per Second (BPS): Select a value.
  - BPS options: 1200, 1800, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 230400
8. Parity/Bits: Select a value.
9. Flow Control: Select a value.
10. Stop Bits: Select a value.
11. Multiple Writers: Select an option to allow single or multiple writers on a port at one time.
12. Port Keywords: When configured, port keywords appear here. Go to Device Settings > Serial Port Keyword List to add port keywords.
13. Escape Mode: The escape sequence affects only the CLI. When entering escape mode, the user is given a menu of commands that can be performed (for example, gethistory, view commands, and so on), a command to return to the port session, and a command to exit the port connection. Default is Control.
  - None
  - Control

14. Escape Character: The default for the Dominion KX IV–101 is ] (closed bracket).

---

*Raritan recommends that you do not use [ or Ctrl-[. Either of these may cause unintended commands, such as invoking the Escape Command unintentionally. This key sequence is also triggered by the arrow keys on the keyboard.*

---

15. Char Delay: To specify the delay between when individual characters are sent via the port, enter the time in milliseconds.
16. Line Delay: To specify the delay between when lines of text are sent via the port, enter it in the field.
17. Send Break Duration: Entering the send break time in milliseconds. Range is from 0ms - 1000ms.
18. Always Active: Select the checkbox if you want to log activities coming into a port even if no user is connected.

The default option is to not maintain port access without a connected user, which means ignore data coming into a port when no user is connected.

This option is for port data logs.

---

*Note: When no users are logged into a port session, port traffic, by default, is discarded .*

---

19. Exit Command: Type a command, such as `logout`, to be sent to your system when a user with write permission disconnects from the port. This ensures that the user's session on the target machine is closed, but it is not imperative to have an Exit command configured on a port.
20. Click Save.

---

## Serial Port Keyword List

Port keywords work as a filter. If a keyword is detected, message are sent to:

- Event Log
- SNMP
- SMTP
- Syslog

This feature is useful for notifying administrators if a particular event occurs on a port. For keywords to trigger when no users are connected to a port, "Always Active" must be selected in the port settings. (See **Configure DSAM Serial Ports** (on page 26).) You can also view the list of existing port keywords on the serial port settings page.

► **To configure serial port keywords:**

1. Click Device Settings > Serial Port Keywords. The Serial Port Keyword List page opens.
2. Click New. The New Keyword Settings page opens.

3. Enter a keyword in the Keyword field, then select the ports you want to associate with that keyword. For all ports, select the top checkbox.

**New Keyword Setting**

Keyword

Select Ports

<input type="checkbox"/>	Name ▲
<input checked="" type="checkbox"/>	DSAM1 Port 1
<input type="checkbox"/>	DSAM1 Port 2
<input type="checkbox"/>	DSAM1 Port 3
<input type="checkbox"/>	DSAM1 Port 4

4. Click Add Keyword. The Serial Port Keyword List appears.

**Serial Port Keyword List**

No.	Keyword
1	Example

- To edit or delete a keyword, select it to highlight blue, then click Edit or Delete.

## Power Association and Operation from DSAM Serial Ports

You can perform power operations from DSAM serial ports just like KVM ports. Serial port association can be done once a power strip is added to the Dominion KX IV–101. See **Adding PDUs** (on page 157). You can configure up to four power associations on each serial port. The outlets may be on the same or different PDUs.

*Note: DSAM Serial Ports menu will become available when DSAM is connected to the Dominion KX IV–101.*

# ▲	Name	Type	Status	Availability	Settings
2.1	DSAM2 Port 1	DCE	Active	Idle	⚙️
2.2	DSAM2 Port 2	AUTO	Inactive	Idle	⚙️
2.3	DSAM2 Port 3	DTE	Active	Idle	⚙️
2.4	DSAM2 Port 4	DCE	Active	Idle	⚙️

► **To configure power association to DSAM serial ports:**

1. Click DSAM Serial Ports > click the Settings icon to open configuration for the port.
2. Scroll down to the Power Association section.

**DSAM Serial Port 2.1 Settings**

**General**

Name: DSAM2 Port 1  
Current State: Active, Idle

**Serial Settings**

Emulation: VT100 | Escape Mode: Control  
Encoding: Default | Escape Character: ]

**Power Association**

PDU Name: P93 | Outlet Name: Outlet 2  
PDU Name: | Outlet Name: |  
PDU Name: | Outlet Name: |  
PDU Name: | Outlet Name: |

Save

3. In the PDU Name fields, select from the drop down list of configured PDUs.
4. In the Outlet Name fields, select the outlet from each PDU you want to associate with this serial port.

- Click Save.

---

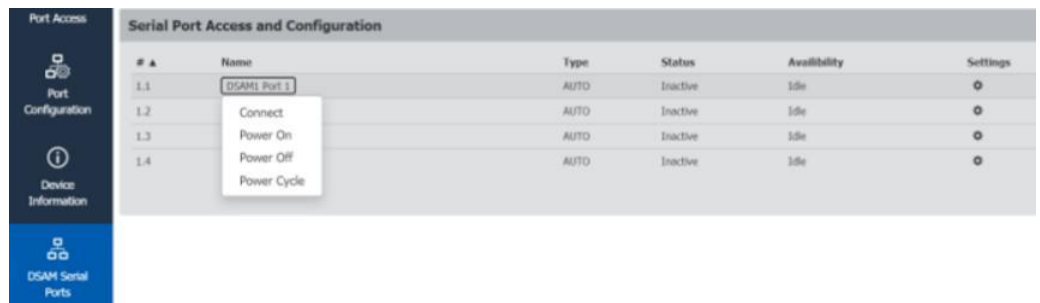
*Note: Power association will be grayed out if no PDU is added to the Dominion KX IV–101.*

---

► **To perform power operation from DSAM serial ports:**

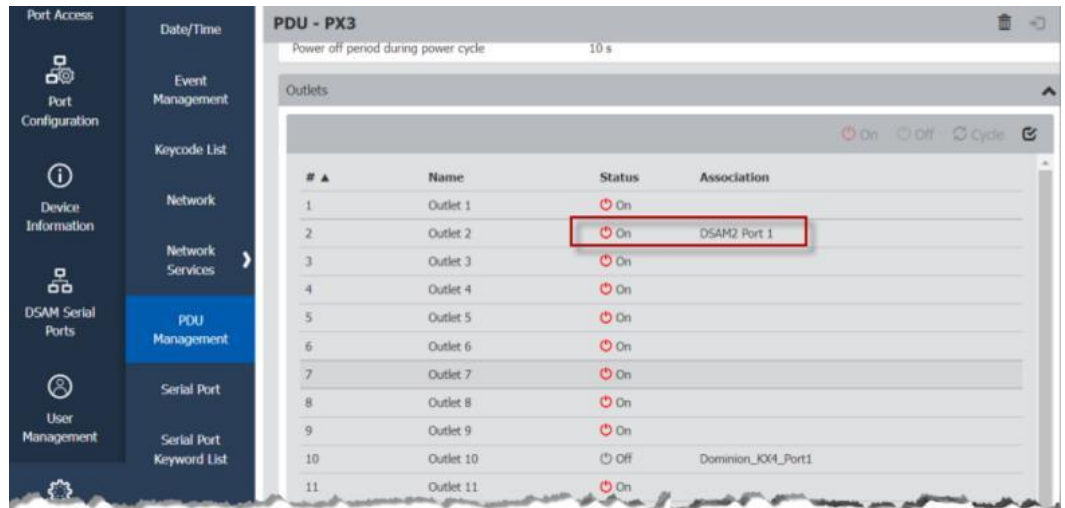
Power operations are done from the Serial Port Access and Configuration page.

- Select DSAM Serial Ports.
- On the Serial Port Access and Configuration page, click one of the associated DSAM Ports.
- Click Power On or Power Off or Power Cycle.



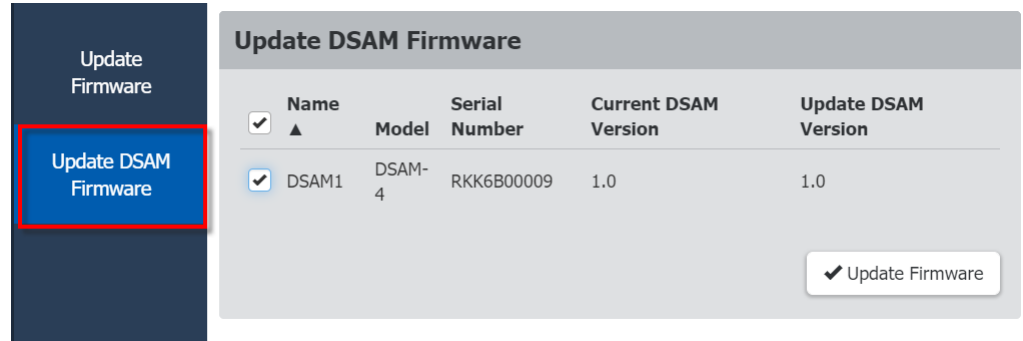
► **To check the outlet status:**

- Click Device Settings > PDU Management, then click the PDU whose outlets you want to check.
- Scroll down to the Outlets to see the status.



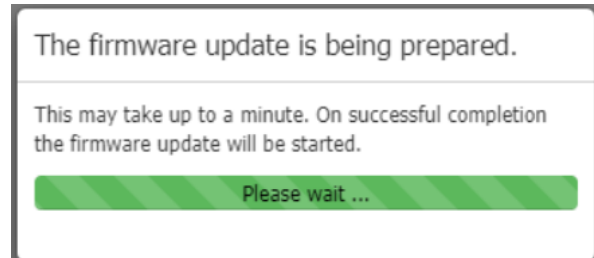
## Update DSAM Firmware

DSAM firmware is upgraded automatically during Dominion KX IV–101 device firmware upgrades if a new DSAM version is detected in the device firmware. You can also upgrade your DSAM firmware manually.



► **To update the DSAM firmware manually:**

1. Choose Maintenance > Update DSAM Firmware.
2. Select the checkboxes for the DSAM units you want to upgrade to the Upgrade DSAM Version listed.
3. Click Update Firmware, then click OK to confirm. A progress message appears.



4. When firmware upgrade completes, a success message appears.

## Supported CLI Commands

- **show**
  - `show device`  
If DSAMs is attached in KX4-101, show device will include DSAM device information
  - `show keyword`  
Shows all configured keywords
  - `show port`  
Shows DSAM serial port parameters



- **connect:**

Connect to a DSAM serial port

- `connect <port index> (1.1/1.2.../2.4)`

During connecting to target, using the escape key sequence, the following target port CLI command can be reached:

- `clearhistory`

Clear history buffer for this port

- `clientlist`

Display all users on the port

- `close`

Close this target connection

- `gethistory`

Display the history buffer for this port

- `getwrite`

Get write access for the port

- `resetport`

Reset of this port

- `powercycle`

Power Cycle of this port

- `poweroff`

Power Off of this port

- `poweron`

Power On of this port

- `powerstatus`

Query Power status of this port

- `return`

Return to the target session

- `sendbreak`

Send a break to the connected target

- `writelock`

Lock write access to this port

- `writeunlock`

Unlock write access to this port

- **config**

- **keyword**

- `keyword add [key <key>] [port <port>]`

Add a keyword

- `keyword delete [key <key>]`

Delete a keyword

- keyword modify [key <key>] [port <port>

Edit a keyword

- **port**

Configure DSAM serial port settings

- port [index <index>] [name <name>] [emulation <emulation>] [encoding <encoding>] [eqtype <eqtype>] [bps <bps>] [parity <parity>] [flowcontrol <flowcontrol>] [stopbits <stopbits>] [multiwrite <multiwrite>] [escapemode <escapemode>] [escapechar <escapechar>] [chardelay <chardelay>] [linedelay <linedelay>] [sendbreak <sendbreak>] [suppress <suppress>] [alwaysactive <alwaysactive>] [exitcommand <exitcommand>]

---

### Supported Escape Key Characters

The default escape key is CTRL ]

The following characters are supported for customized escape keys.

- A-Z
- a-z
- [ ]
- { }
- ^
- \_
- \
- |

---

## Connect to DSAM Serial Targets in the Web Interface

The screenshot shows a web interface with a sidebar on the left containing 'DSAM Serial Ports' and 'User Management'. The main content area is titled 'Serial Port Access and Configuration' and contains a table with the following data:

# ▲	Name	Type	Status	Availability	Settings
1.1	DSAM1 Port 1	DTE	Active	Idle	⚙️
1.2	DSAM1 Port 2	DTE	Active	Idle	⚙️
1.3	DSAM1 Port 3	DCE	Active	Idle	⚙️
1.4	DSAM1 Port 4	DCE	Active	Idle	⚙️

► **To connect to DSAM serial targets in the web interface:**

1. Click DSAM Serial Ports to view the list of ports.
2. Click the port you want to connect to, then click the pop-up Connect button.

HSC launches in a new window.

---

## Connect to DSAM Serial Target with URL Direct Port Access

1. Choose Security > KVM Security, then select the Enable Direct Port Access via URL checkbox.
2. To connect with direct port access, type the URL:  
"https://<IP Address>/dpa.asp?port=<serial port number>&username=<user name>&password=<password>"

---

*Example:*

*https://192.168.51.101/dpa.asp?port=1.4&username=admin&password=raritan0*

---

3. HTML Serial Client (HSC) launches and connects to the serial target.

---

## Connect to DSAM Serial Targets via SSH

See **Supported CLI Commands** (on page 32).

▶ **To connect to DSAM serial targets via SSH:**

1. Make sure that SSH Access is enabled in Device Settings > Network Services > SSH.
2. Launch SSH client in client PC to connect to Dominion KX IV-101.
3. After login, user will enter CLI interface.
4. Type command "connect <serial port number>".

---

*Example: connect 1.4*

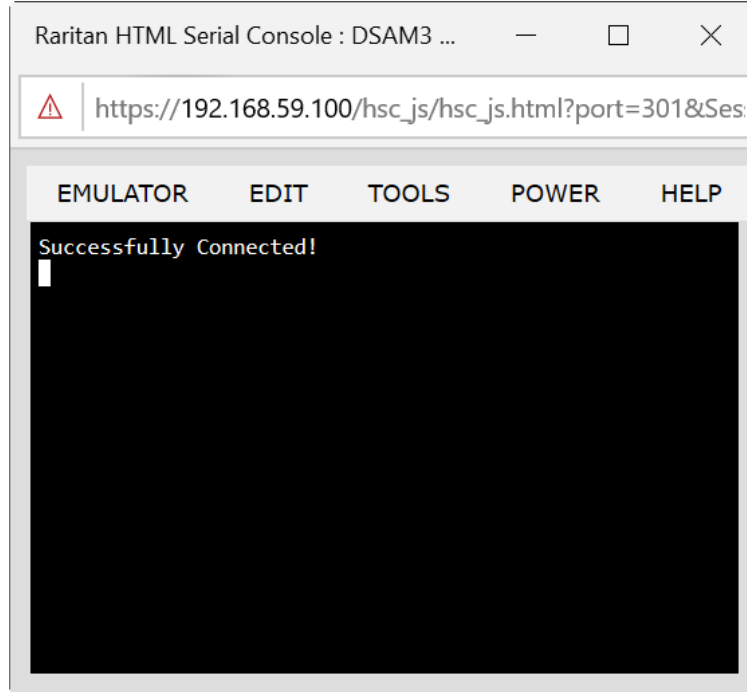
---

5. If successful, serial target is accessed.
6. To exit serial target, type escape-key-sequence, default is Ctrl-], then enter port sub-menu CLI interface.
7. Type "close", then enter main CLI interface.

---

## HTML Serial Console (HSC) Help

You can connect to serial targets using HSC. HSC is supported with several Raritan products that offer serial connections. Not all products support all HSC features. Differences are noted.



---

### HSC Functions

#### Emulator

---

**IMPORTANT:** HSC sessions are affected by the Dominion KX IV–101 Idle Timeout.

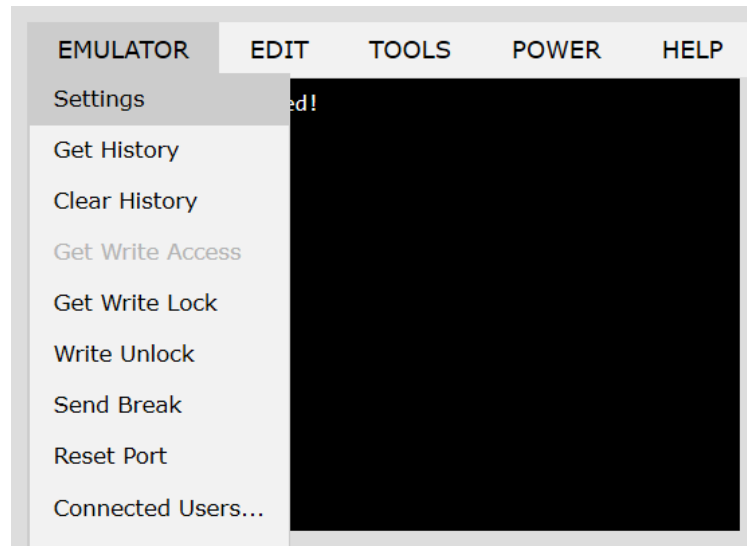
If you have not changed the Dominion KX IV–101 Idle Timeout setting from the default, your session could be closed automatically if it exceeds the Idle Timeout period.

Change the default Idle Timeout setting and then launch the HSC. See Login Limitations for details on changing the Idle Timeout setting.

---

#### Access Emulator Options

1. Select the Emulator drop-down menu to display a list of options.



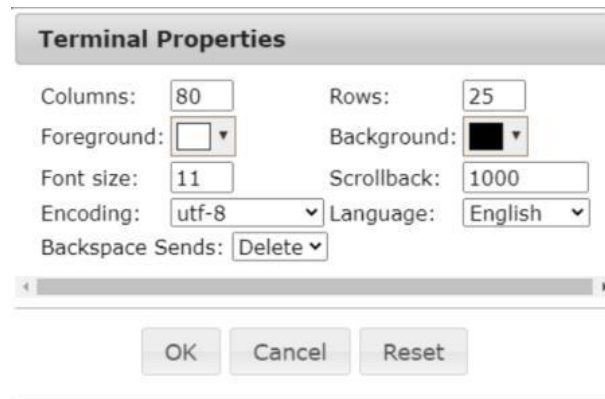
### Settings

*Note:*

*KX3 administrators can set Terminal emulation settings in Setup > Serial Port Configuration.*

*KX4-101 administrators can set terminal emulation settings in DSAM Serial Ports > Settings.*

1. Choose Emulator > Settings. The Terminal Properties dialog displays the default settings.



2. Set the terminal size by selecting the number of Columns and Rows. Default is 80 by 25.
3. Set the Foreground and Background colors. Default is white on black.
4. Set the Font size. Default is 11.

5. Set the Scrollback number to indicate the number of lines available for scrolling.
6. Choose one of the following from the Encoding drop-down menu:
  - UTF-8
  - 8-bit ascii
  - ISO-8859-1
  - ISO-8859-15
  - Shift-JIS
  - EUC-JP
  - EUC-KR
7. Choose one of the following from the Language drop-down menu:
  - English
  - Japanese
  - Korean
  - Chinese
  - Bulgarian
8. The Backspace Sends default is ASCII DEL, or you can choose Control-H from the Backspace Sends drop-down menu.
9. Click OK to save. If you changed the Language setting, the HSC changes to that language when the Display Settings window is closed.

---

*The emulator settings are saved on a per port basis in the browser used for HSC, so make sure your browser is not set to delete history on exit.*

---

### **Get History**

History information can be useful when debugging, troubleshooting, or administering a target device. The Get History feature:

- Allows you to view the recent history of console sessions by displaying the console messages to and from the target device.
- Displays up to 512KB of recent console message history. This allows a user to see target device events over time.

When the size limit is reached, the text wraps, overwriting the oldest data with the newest.

---

*Notes: History data is displayed only to the user who requested the history.*

---

To view the Session History, choose Emulator > Get History.

### **Clear History**

- To clear the history, choose Emulator > Clear History.

### **Get Write Access**

Only users with permissions to the port get Write Access. The user with Write Access can send commands to the target device. Write Access can be transferred among users working in the HSC via the Get Write Access command.

To enable Write Access, choose Emulator > Click Get Write Access.

- You now have Write Access to the target device.
- When another user assumes Write Access from you:
  - The HSC displays a red block icon before Write Access in the status bar.
  - A message appears to the user who currently has Write Access, alerting that user that another user has taken over access to the console.

### **Get Write Lock**

Write lock prevents other users from taking the write access while you are using it.

1. To get write lock, choose Emulator > Get Write Lock.
2. If Get Write Lock is not available, a request rejected message appears.

### **Write Unlock**

To get Write Unlock, choose Emulator > Write Unlock.

### **Send Break**

Some target systems such as Sun Solaris servers require the transmission of a null character (Break) to generate the OK prompt. This is equivalent to issuing a STOP-A from the Sun keyboard.

Only users with Write Access privileges can send a break.

To send an intentional “break” to a Sun Solaris server:

1. Verify that you have Write Access. If not, follow the instructions in the previous section to obtain write access.
2. Choose Emulator > Send Break. A Send Break Ack (Acknowledgement) message appears.
3. Click OK.

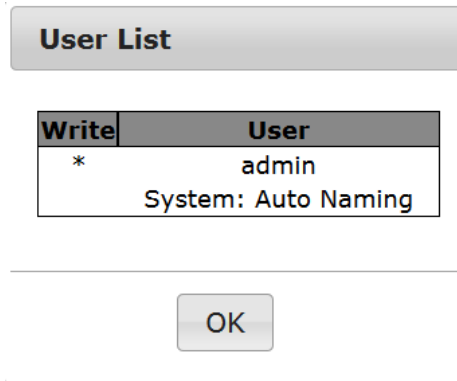
### **Reset Port**

Reset Port resets the physical serial port on the SX2 and re-initializes it to the configured values regarding bps/bits, and so on.

### **Connected Users**

The Connected Users command allows you to view a list of other users who are currently connected on the same port.

1. Choose Emulator > Connected Users.



2. A star appears in the Write column for the User who has Write Access to the console.

#### Exit

1. Choose Emulator > Exit to close the HSC.

#### Copy and Paste and Copy All

Data on the current visible page can be selected for copying. Copy and Paste are accessible in the HSC by right click in the terminal window. Select Copy or Paste in the context menu that appears.

To copy all text, use the Copy All option in the Edit menu.

If you need to paste a large amount of data, it is better to save the data in a file and use the Send a Text File function. Pasting a large amount of data in a browser windows can cause the browser to hang as it processes the data. See **Send Text File** (on page 41).

When pasting data to a port, the end of a line is sent as a carriage return.

The Cut option on the right-click menu is disabled.

Do not use the Delete option that appears in the right-click menu of IE and some versions of Firefox. This Delete option will remove display lines entirely from the emulator window.

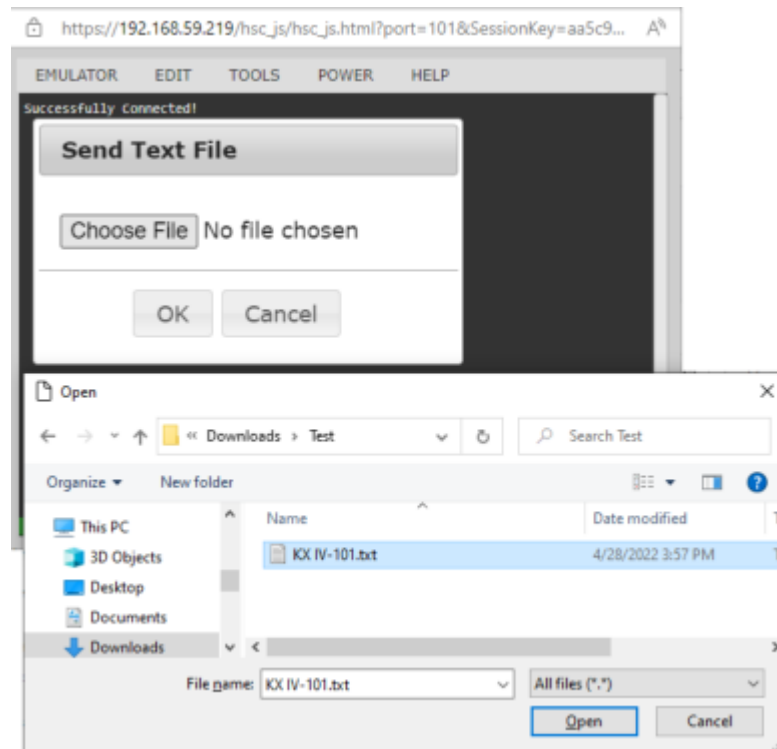
#### ► Browser-specific behaviors

When copying from IE or Edge browsers, there are no end of line characters in the copied data. The pasted data appears to be all in one line and contains many spaces. When pasting back into a HSC window, the data may appear to be misaligned, but the data is complete.



### Send Text File

1. Select Edit> Send Text File.
2. In the Send Text File dialog, click Browse to find the text file.
3. Click OK.
  - When you click OK, the selected file sends directly to the port.
  - If there is currently no target connected, nothing is visible on the screen.



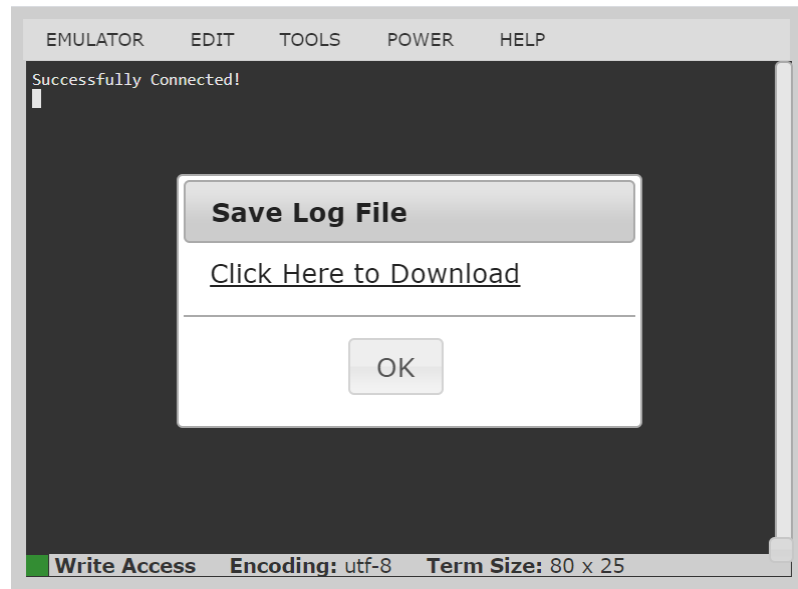
► **Note, if you are using a Mac® and/or Safari®, do the following in order to use this feature:**

1. In Safari, select Preferences.
2. Under the Security tab, select "Manage Website Settings"
3. Click on the Dominion KX IV–101 website.
4. Select "Run in unsafe mode" from the drop-down box.
5. Restart Safari.

### Tools: Start and Stop Logging

The Tools menu contains options for creating a data history file and downloading it.

1. Choose Tools > Start Logging to start the storage of serial port data in memory.
2. Click Stop Logging to save the log file. A pop up message appears with a download link. Click to download the memory buffer into a text file.



## Power

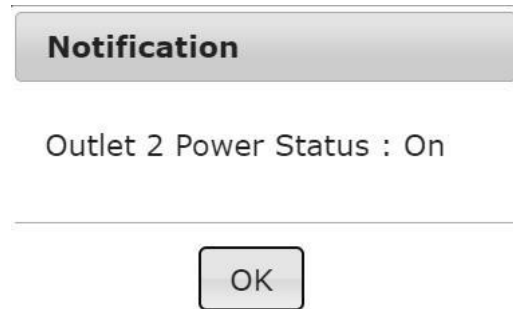
---

*Note: You must have permission to manage the target's power, and the target must have configured power associations.*

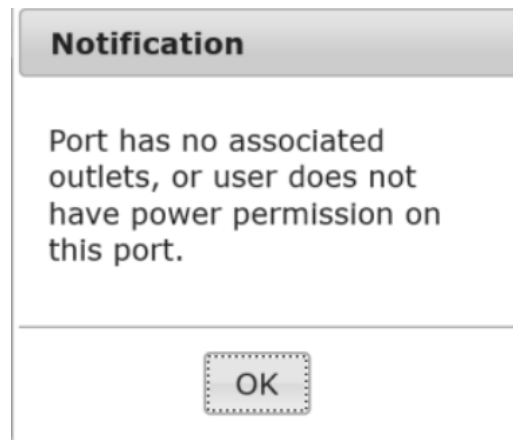
---

### ▶ To view power status:

- Choose Power > Power Status to view the status of the outlet the target is plugged into.
  - The Notification dialog shows the status of the outlet as ON or OFF.



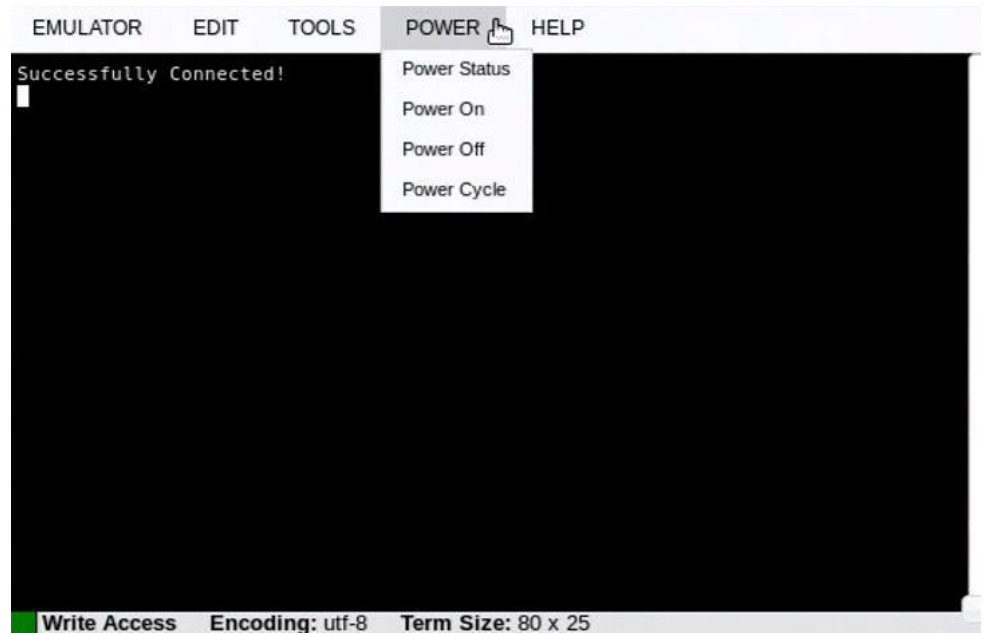
- Status may also show no associated outlet, or no power permission to the port.



### ▶ To perform power operations:

- Choose an option from the Power menu to control the serial target's power.
  - Power On
  - Power Off

▪ Power Cycle



- Click OK in the success message.

**Notification**

Power operation succeeded.

OK

---

### Browser Tips for HSC

Some browsers have limitations that affect HSC.

- In Chrome, disable the background throttling to prevent background tabs from disconnecting after a certain amount of time. Go to `chrome://flags`, then search for "throttle". Set "Throttle Javascript timers in background" and "Calculate window occlusion on Windows" to "Disabled". Restart chrome to apply settings.
- Browser option to select certificate for authentication displayed on Edge and Chrome after session is idle for about 5 minutes, due to internal browser SSL caching and timeouts. If certificate is selected promptly, reconnection is successful. With longer idle times, authentication is not successful, and the browser should be restarted to reconnect. Issue is not observed in Firefox or IE 11.
- Internet Explorer has an internal limitation on the number of websockets that are allowed to be created to a single server (6). This can be changed by modifying a registry variable as shown here :  
[https://msdn.microsoft.com/en-us/library/ee330736\(v=vs.85\).aspx#websocket\\_maxconn](https://msdn.microsoft.com/en-us/library/ee330736(v=vs.85).aspx#websocket_maxconn).
- Internet Explorer 11, Safari, and Edge have a limitation when connecting to IPv6 devices. Using the numerical URL will not work when it attempts to establish a websocket connection. In these browsers, use the device hostname or literal IPv6 as UNC to connect to the SX II. See [https://en.wikipedia.org/wiki/IPv6\\_address#Literal\\_IPv6\\_addresses\\_in\\_UNC\\_path\\_names](https://en.wikipedia.org/wiki/IPv6_address#Literal_IPv6_addresses_in_UNC_path_names)
- When using HSC in IOS Safari, the keyboard may not appear in some pages if the "request desktop website" setting is enabled. To change the setting, go to Settings > Safari >Request Desktop Website, then make sure All Websites is not selected, and the device address is not selected. You can also set this per address by clicking the "aA" in Safari's URL pane when connected to the HSC port, then select "Website Settings" and make sure that "Request Desktop Website" is not selected.

# KVM Clients

Dominion KX IV–101 can be accessed with a variety of KVM clients that support your individual configuration.

- HKC is best for Linux and Mac users without Java.
- AKC is best for Windows Platforms, using Windows or Edge browsers.
- VKC is best for Linux and Mac users with Java.

KVM Client	Name	Platforms	Features
HTML KVM Client	<b>HKC</b>	<ul style="list-style-type: none"> <li>▪ Linux</li> <li>▪ Mac</li> <li>▪ Windows</li> <li>▪ HTML and Javascript</li> </ul>	<ul style="list-style-type: none"> <li>▪ Java-Free</li> <li>▪ Supports most features</li> <li>▪ See HTML KVM Client (HKC) for supported features</li> </ul>
Active KVM Client	<b>AKC</b>	<ul style="list-style-type: none"> <li>▪ Windows</li> <li>▪ Requires Microsoft .NET</li> </ul>	<ul style="list-style-type: none"> <li>▪ Full-featured KVM Client</li> <li>▪ Java-Free</li> </ul>
Virtual KVM Client	<b>VKC</b>	<ul style="list-style-type: none"> <li>▪ Linux</li> <li>▪ Mac</li> <li>▪ Windows</li> </ul>	<ul style="list-style-type: none"> <li>▪ Full-featured KVM Client</li> <li>▪ Requires Java</li> </ul>

## In This Chapter

Virtual KVM Client (VKCS) Help .....	46
Active KVM Client (AKC) Help .....	76
HTML KVM Client (HKC) .....	78
Tips for Accessing Dominion KX IV–101 With Dual Monitor Setups .....	112
Dominion User Station Access to Multi KX4-101 Setups .....	112

---

## Virtual KVM Client (VKCS) Help

To launch VKCS, enter `https://<KX4-101 IP address>/vkcs` in a browser.

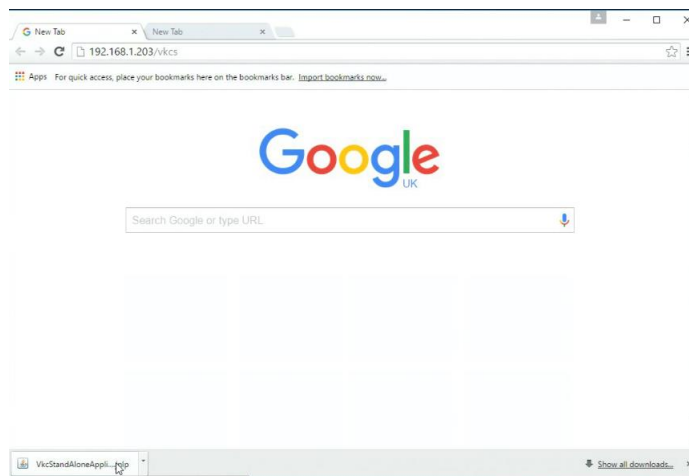
### Java Requirements

- A supported Java version is required. Check the release notes for latest supported version.
- If Java is not installed, a prompt is displayed that the file cannot be opened, with an option to search for the program.

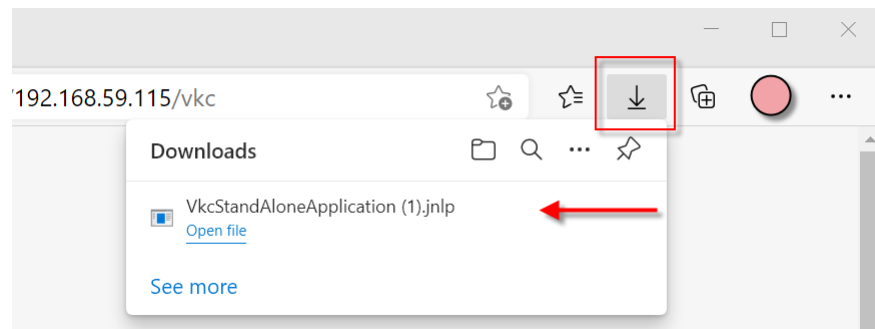
### ▶ VKCS Launching:

For all browsers, the VKCS standalone application needs to be downloaded everytime you use it.

- Chrome: The downloaded VKCS jnlp file must always be clicked at bottom left corner of browser window to launch.



- Edge: You can allow and open the file from the browser downloads in the top right corner.



- Safari: Save the jnlp file locally. Hold down the Ctrl key when selecting to open, then click Open in displayed prompt
  - Firefox: The current default setting in Firefox on Windows saves the file and runs from the download. You can launch from the browser with this setting: Tools>Options>Applications, then select "Jnlp File" in the Content Type column, and change the Action from "Always ask" to "Use Java Web Launcher".

---

### Proxy Server Configuration

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 remote client PC, 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).*

---

- e. Click OK at each dialog to apply the settings.
2. Next, configure the proxy settings for the Java™ applets:
  - a. Select Control Panel > Java.
  - b. On the General tab, click Network Settings. The Network Settings dialog opens.
  - c. Select "Use Proxy Server".
  - d. Click Advanced. The Advanced Network Settings dialog opens.
  - e. Configure the proxy servers for all protocols.

**IMPORTANT: Do not select 'Use the same proxy server for all protocols'.**

---

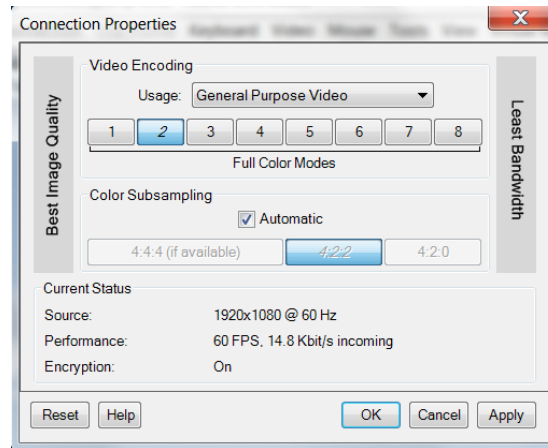
*Note: The default port for a SOCKS proxy (1080) is different from HTTP proxy (3128).*

---



## Connection Properties

The Connection Properties dialog allows you to configure the video stream parameters to match your system capabilities with your performance needs.



### ▶ Video Encoding

This section selects the video encoding algorithm and quality setting.

- Usage: specify your general application area. This selection optimizes the available choices elsewhere in this dialog.
  - General Purpose Video: video content where smooth color reproduction is most important, such as movies, video games, and animations.
  - Computer and IT Applications: video content where text sharpness and clarity are important, such as computer graphical interfaces.

- **Encoder Mode:** Choose the encoder mode from the row of eight buttons. Options will vary depending on the Usage selection. In general, modes towards the left of the button bar offer higher image quality but consume higher bandwidth, and might cause frame rate to drop depending on network speed and/or client performance. Modes towards the right consume lower bandwidth at the cost of reduced image quality. In network- or client-constrained situations, modes towards the right may achieve better frame rates.

The default video mode is always "Full Color 2", which is a high-quality mode and works well for most uses in LAN environments. If needed, experiment with modes further towards the right to find the right balance of image quality and frame rate.

#### ► **Color Subsampling**

Color subsampling reduces the color information in the encoded video stream.

- **Automatic:** Recommended. The optimal color subsampling mode will be enabled based on the selections in the video encoding section.
- **4:4:4:** Highest quality at significant bandwidth cost. Usually not necessary except for some situations in graphical user interfaces. Not supported for resolutions above 1920x1200, so for those resolutions color subsampling will automatically drop down to 4:2:2.
- **4:2:2:** Good blend of image quality and bandwidth.
- **4:2:0:** Maximum savings of network bandwidth and client load. Works fine for most general-purpose applications that don't emphasize high-resolution lines or text.

#### ► **Current Status**

Current status includes real-time video performance statistics. As you change settings in the dialog, you can immediately see the effects on performance.

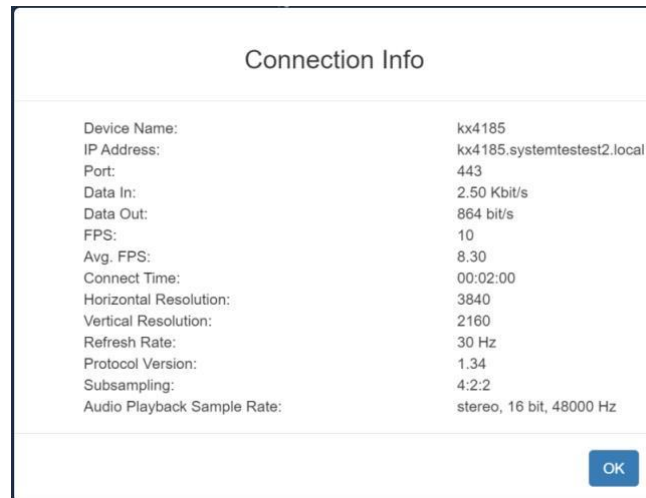
- **Source:** resolution and frame rate of the incoming video source.
- **Performance:** frames per second (FPS) being rendered in the client, and the data rate of the incoming video stream. These values are where you will see the effects of your video settings.
- **Encryption:** whether the video stream is encrypted or not. Encrypted streams usually have lower frame rates and lower bandwidth. Encryption is a global setting in security → KVM Security → "Apply Encryption Mode to KVM and Virtual Media".

---

## Connection Info

Open the Connection Information dialog for real-time connection information on your current connection, and copy the information from the dialog as needed. To edit the connection properties, see **Connection Properties** (on page 49).

- To view the Connection Info, choose Connection > Info...





---

## Keyboard

### Send 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.

### Send LeftAlt+Tab (Switch Between Open Windows on a Target Server)

Select Keyboard > Send LeftAlt + Tab to switch between open windows on the target server.

### Send Text to Target

► **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.

### 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 your client PC.

Macros are stored on the client PC and are PC-specific. 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.

### Build a New 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

Press Esc

Release F4

Release 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 fields 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.

#### **Importing and Exporting Macros**

Macros created in VKC cannot be used in AKC or vice versa. Macros created on HKC are only compatible with HKC, and cannot be used on AKC or VKC. Likewise, macros created on VKC or AKC cannot be used on HKC.

#### ***Import Macros***

##### **► To import macros:**

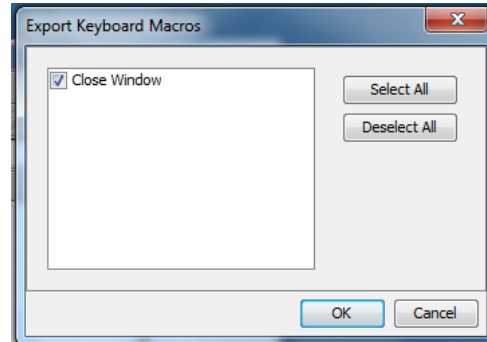
1. Choose Keyboard > Import Keyboard Macros to open the Import Macros dialog. Browse to the folder location of the macro file.
2. Click on the macro file and click Open to import the macro.
  - a. If too many macros are found in the file, an error message is displayed and the import terminates once OK 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.

#### **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.

---

## Video

### Refreshing the Screen


The Refresh Screen command forces a refresh of the video screen

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

### Screenshot from Target Command (Target Screenshot)

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.

---

## Mouse Options

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

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

When controlling a target server, the Remote Console displays two mouse cursors - one belonging to your Dominion KX IV-101 client workstation, and the other belonging to the target server.

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.

Single mouse mode allows you to view only the target server's pointer. You can use Single mouse mode when other modes don't work.

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

## Dual Mouse Modes

### ***Absolute Mouse Synchronization***

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 is the default mouse mode.

#### ▶ **To enter Absolute Mouse Synchronization:**

- Choose Mouse > Absolute from the KVM client.

### ***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. Use intelligent mouse mode if absolute mouse mode is not supported on the target.

## Enter Intelligent Mouse Mode

#### ▶ **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.
- The target advanced mouse properties such as "Enhanced pointer precision" or "Snap mouse to default button in dialogs" should be disabled.
- 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, 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.

#### **Standard Mouse Mode**

Standard Mouse mode uses a standard mouse synchronization algorithm. The algorithm determines relative mouse positions on the client and target server.

In order for the client and target mouse cursors to stay in synch, mouse acceleration must be disabled. Additionally, specific mouse parameters must be set correctly.

#### ► **To enter Standard Mouse mode:**

- Choose Mouse > Standard.

### 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. If that does not improve the mouse synchronization (for Linux, UNIX, and Solaris KVM target servers):
3. Open a terminal window.
4. Enter the following command: `xset mouse 1 1`
5. Close the terminal window.
6. Click the "KVM Client mouse synchronization" button.

### Synchronize Your Mouse

In dual mouse mode, the Synchronize Mouse command forces realignment of the target server mouse cursor with the client mouse cursor.

► **To synchronize the mouse cursors, do one of the following:**

- Click the Synchronize Mouse button  in the KVM client toolbar, or select Mouse > Synchronize Mouse from the menu bar.

---

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

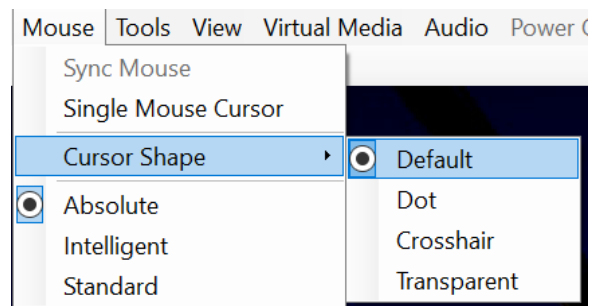
---

### Cursor Shape

In dual mouse modes, you can select a custom cursor shape for your session. To make the cursor selection permanent, see **Client Launch Settings** (on page 63).

► **To change the cursor shape:**

- Choose Mouse > Cursor Shape, then select from the list.
  - Default arrow
  - Dot
  - Crosshair
  - Transparent



### Single Mouse Mode


Single Mouse mode uses only the target server mouse cursor; the client mouse cursor no longer appears onscreen.

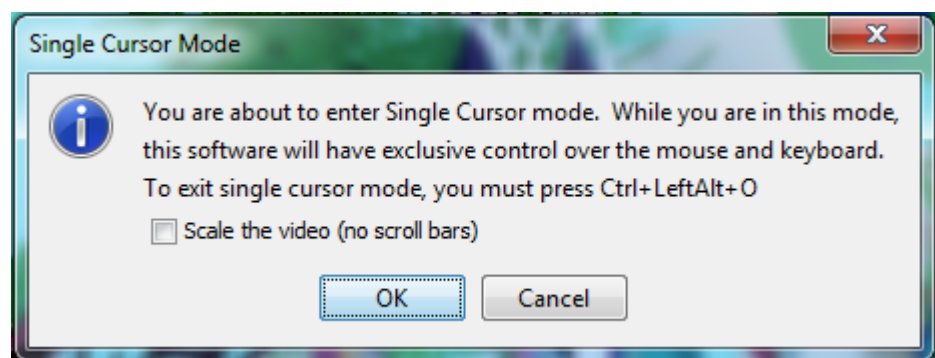
---

*Note: Single mouse mode does not work on Windows or Linux targets when the 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:**

1. 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. OpenGL rendering of scaled KVM images is enabled by default. If there are performance issues, select the Disable Hardware Accelerated Rendering checkbox to disable. **Only available in AKC.**
3. Select the Enable Logging checkbox only if directed to by Technical Support.

This option creates a log file in your home directory.

4. 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.*

---

5. Select Adjust Full Screen Window Size to Target Resolution Instead of Client Resolution if you prefer. Option not available for Linux clients. See **Adjust Full Screen Window Size to Target Resolution** (on page 62) for details and examples.
  6. In Mac OS/VKCs launches only, Let Full Screen Window Cover the Main Menu Bar and the Dock is enabled by default. Use this setting to prevent the Java menubar from hiding the VKCs menubar when running VKCs in full-screen mode on Mac.
  7. Select Disable Menu in Full Screen to hide the menu options in Full screen mode if you do not want to see it.
- Configure hotkeys:
    - Toggle 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 toggling in and out of this mode.
    - Toggle 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 toggle in and out of single cursor mode, removing and bringing back the client mouse cursor.
    - Toggle Scaling Mode - Hotkey.  
When you enter scaling mode, the target server scales to fit your display.

This is the hot key used to toggle in and out of scaling mode.

- Disconnect from Target - Hotkey.

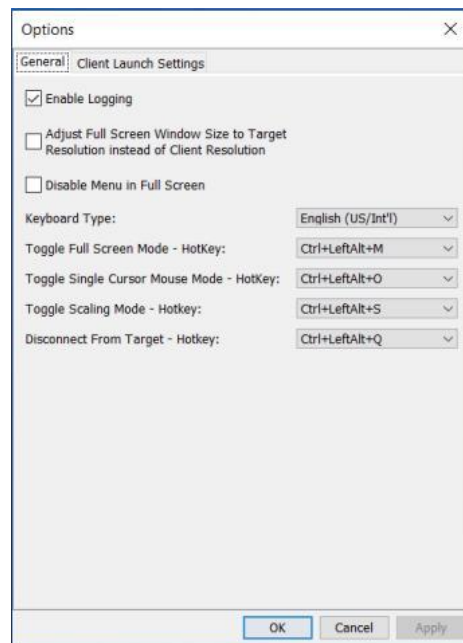
Enable this hotkey to allow users to quickly disconnect from the target.

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 Toggle 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.

1. Click OK.



### **Keyboard Limitations**

#### **Turkish Keyboards**

Turkish keyboards are only supported on Active KVM Client (AKC).

#### **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, configure foreign keyboards using the methods described in the following table.

Language	Configuration method
US Intl	Default

Language	Configuration method
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.*

#### **Adjust Full Screen Window Size to Target Resolution**

When Adjust Full Screen Window Size to Target Resolution instead of Client Resolution is enabled, the client starts in full-screen in a window equal to the target's resolution, not the resolution of the client monitor. If you have a multi-monitor client, a full-screen window may cover more than one monitor. See **General Settings** (on page 59) for instructions on enabling the setting.

#### **▶ Example:**

The client has a multi-head environment with 8 monitors, 1920 x 1080 each with the following arrangement:

1	2	3	4
5	6	7	8

A KVM session is launched on monitor 6 with a the target resolution of 3840 x 1080. The client window opens on monitor 6 and 7 in native resolution and covers both monitors by 100%.

### Client Launch Settings

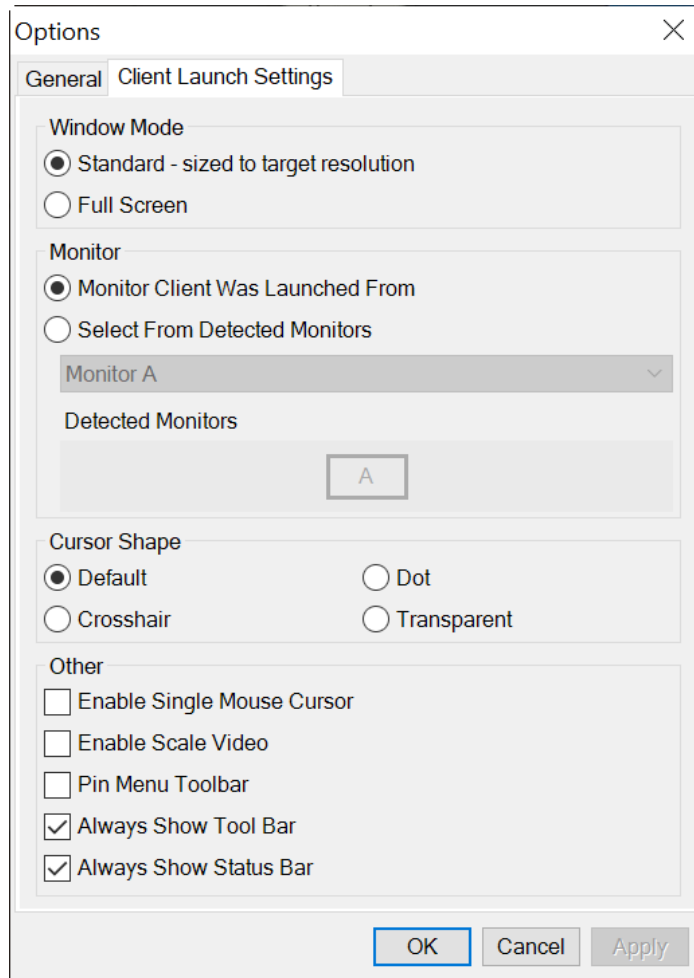
Configuring client launch settings allows you to define the screen settings for a KVM session.

► **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**:
    - 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).
    - Select 'Full Screen' to open the target window in full screen mode.
  - To configure the **monitor on which the target viewer is launched**:
    - 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).
    - 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 **cursor shape**:
    - Select Default arrow, Dot, Crosshair, or Transparent to set the cursor shape for all sessions. Use the Mouse menu to change the cursor shape during a session.
  - To configure **additional launch settings**:

- Select 'Enable Single Cursor Mode' to enable single mouse mode as the default mouse mode when the server is accessed.
- Select 'Enable Scale Video' to automatically scale the display on the target server when it is accessed.
- 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.
- Always Show Tool Bar and Always Show Status Bar are per-user settings that are stored in the computer you are accessing the client from, so if you use a different computer, the setting may be different. Select to keep tool bar and status bar visible as default, deselect to keep tool bar and status bar hidden as default.

3. Click OK.





**Collecting a Diagnostic Snapshot of the Target**

Administrators are able to collect a "snapshot" of a target.

The "snapshot" function generate log files and image files from the target.

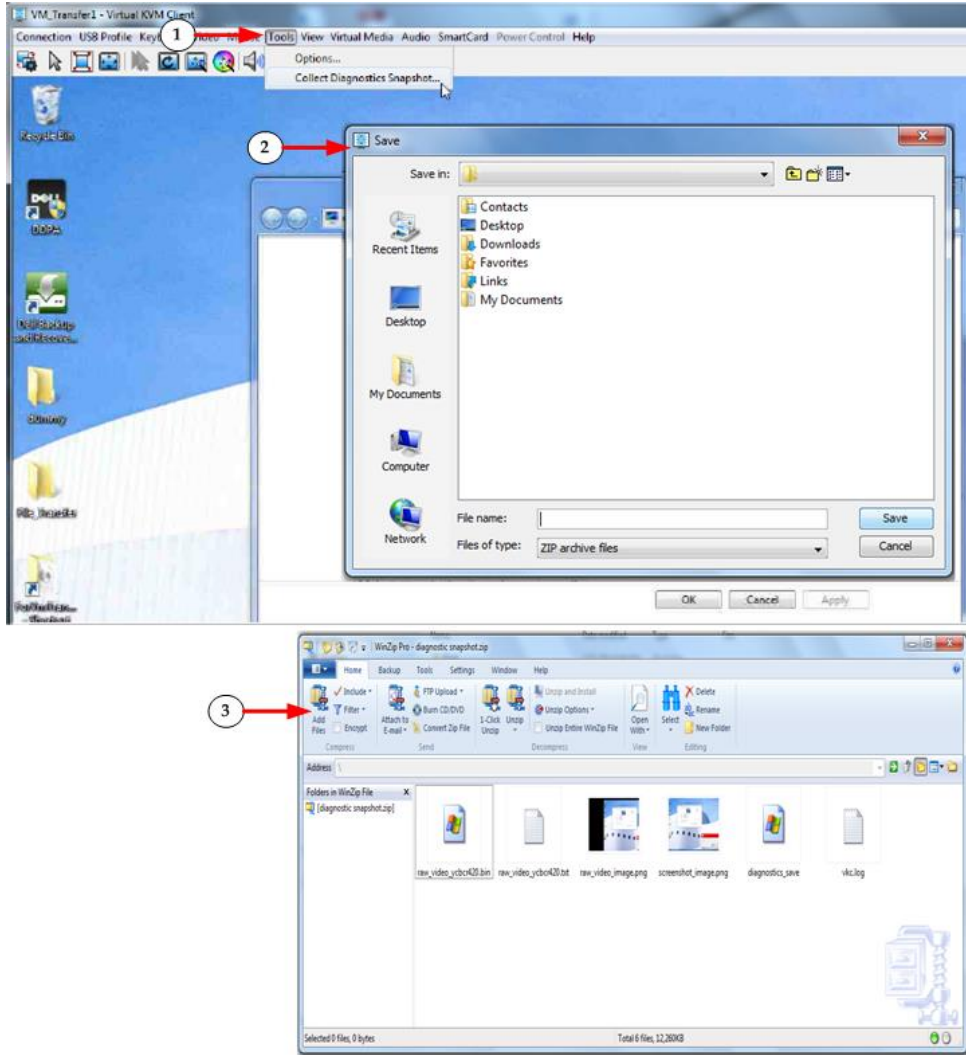
It then bundles these files in a zip file that can be sent to Technical Support to help diagnose technical problems you may be encountering.

The following files are included in the zip file:

- screenshot\_image.png  
This is a screenshot of the target that captures a picture of the issue you are experiencing. This feature operates like the "Screenshot from Target" feature.
- raw\_video\_image.png:  
A snapshot image created from raw video data. Please note that client's postprocessing is applied, just as if it were a "regular" screen update.
- raw\_video\_ybcr420.bin:  
Binary file of the raw snapshot.
- raw\_video\_ybcr420.txt:  
Text file containing data used to help diagnose issues.
- Log.txt file:  
These are the client logs.  
  
Note that the logs are included even if you have not enabled information to be captured in them. VKC uses internal memory to capture the information in this case.

***Collect a Diagnostic Snapshot***

► To capture a diagnostic snapshot:



Steps	
1	Access a target, and then click Tools > Collect a Diagnostic Snapshot. Several messages are displayed as the information is collected.
2	You are prompted to save the zip file containing the diagnostic files.
3	The zip file containing the diagnostic files is saved.

---

## 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 59).

While in Full Screen mode, moving your mouse to the top of the screen displays the Full Screen mode menu bar. The behavior of the menu in full screen mode is affected by some options on the Tool Options menu. See Tool Options > General Settings > Full Screen options

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 59).

▶ **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:**

---

*Note: Not available in LX2.*

---

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

---

### Virtual Media

#### Access a Virtual Media Drive on a Client Computer


---

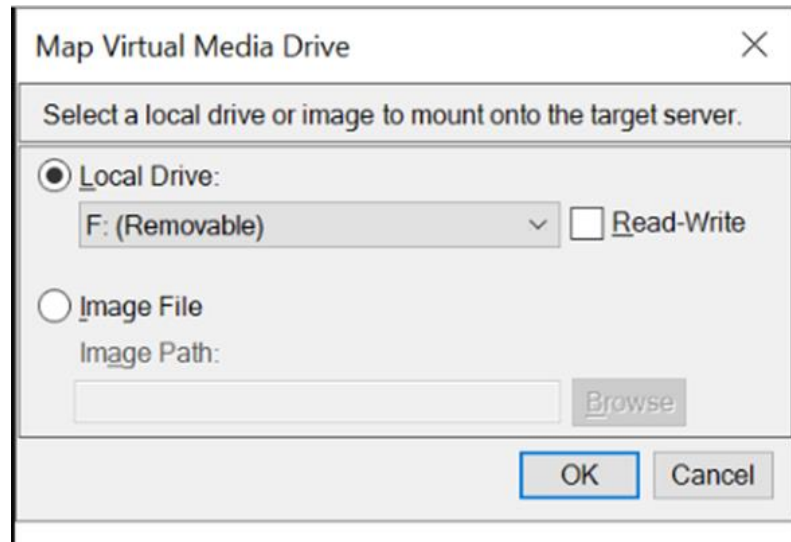
**Important: Once you are connected to a virtual media drive, do not change mouse modes in the KVM client if you are performing file transfers, upgrades, installations or other similar actions. Doing so may cause errors on the virtual media drive or cause the virtual media drive to fail.**

---

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

1. From the 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 195) 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.

#### Access a Virtual Media Image File

Use the "Image File" option to access a disk image of a removable disk.

► **Image file guidelines:**

- Image files created using dd on Linux (dd if=/dev/sdb of=disk.img) or similar tools such as Win32DiskImager on Windows, or Mac Disk Utility are supported.
- Apple DMG files:
  - DMG image files of a FAT32 USB drive are recognized on all OSs.
  - DMG images files of a folder on a Mac Drive are recognized only on Mac OS targets.

- Image should be created via Mac Disk Utility using the following settings: Encryption: None; Image format: read/write.
- Not supported: Encrypted or compressed dmg images, MacOS install images, DMG files downloaded from the Apple support site.

▶ **To access a virtual media image file:**

1. From the KVM client, choose Virtual Media > Connect Drive, or click the Connect Drive... button . The Map Virtual Media Drive dialog appears.
2. Select the Image File option, then click Browse to find and select the .img or .dmg file.
3. Click OK. The media will be mounted on the target server virtually.

**Mounting CD-ROM/DVD-ROM/ISO Images**


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

---

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

---

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

1. From the 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 OK.
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 OK.
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 Virtual Media Shared Images page. Only items you configured using the Virtual Media Shared Images 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 OK.

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".*

---

#### **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.*

---

#### **Digital Audio**





The Dominion KX IV–101 supports audio playback over HDMI.

#### **Supported Audio Device Formats**

The following playback formats are supported:

- Stereo, 16bit, 44.1K
- Stereo, 16bit, 32K
- Stereo, 16bit, 48K

### Digital Audio VKC and AKC Icons

Audio icons	Icon name	Description
	Speaker	These icons are located in status bar at the bottom of the client window.
		Green, blinking waves indicate an audio playback session is currently streaming.
		A black speaker icon is displayed when the session is muted. The icon is grayed out when no audio is connected.
	Microphone	Playback is not supported. Microphone icon appears grayed out.

### Audio Playback 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 device, not from the client audio device control.

### Bandwidth Requirements

The table below details the audio playback bandwidth requirements to transport audio under each of the selected formats.

Audio format	Network bandwidth requirement
44.1 KHz, 16bit stereo	176 KB/s
32 KHz, 16bit stereo,	128KB/s
48 KHz, 16bit stereo	192KB/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 audio/video.

However, high video-content, full-color connections using high-target screen resolutions consume much more bandwidth and impact the quality of the audio considerably.



### **Saving Audio Settings**

Audio device settings are applied on a per Dominion KX IV–101 device basis.

Once the audio devices settings are configured and saved on the Dominion KX IV–101, the same settings are applied to it.

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

### **Connecting and Disconnecting a Digital Audio Device**


Audio device settings are applied on a per Dominion KX IV–101 device basis.

Once the audio devices settings are configured and saved on the Dominion KX IV–101, the same settings are applied to it.

See [Saving Audio Settings](#) (on page 73) for more information.

#### **Connect to a Digital Audio Device**

##### **▶ To connect to an audio device:**

1. Connect the audio device to the remote client PC prior to launching the browser connection to the Dominion KX IV–101.
2. Connect to the target from the Port Access page.
3. Once connected, click the Audio button  in the toolbar.

The Connect Audio Device dialog appears. A list of available audio devices 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 "Mount selected playback device automatically on connection to target" checkbox to automatically connect an audio playback device when you connect to an audio supporting target.
7. 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 changes to Disconnect Audio. The settings for the audio device are saved and applied to subsequent connections 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.

#### **Disconnect from an Audio Device**

##### **▶ 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 Playback Buffer Size**

Capture buffer size is not adjustable on Dominion KX IV–101. Playback buffer can be adjusted as needed once an audio device is connected.

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 VKC or AKC.

##### **▶ To adjust audio settings:**

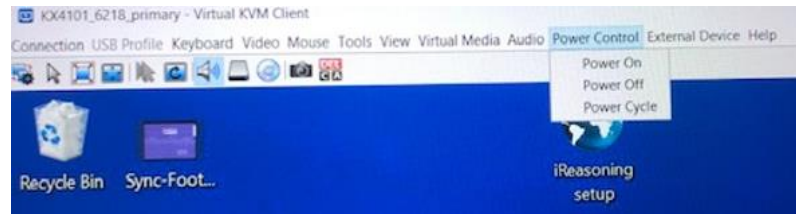
1. Select Audio Settings from the Audio menu. The Audio Settings dialog opens.
2. Adjust the playback buffer size as needed. Click OK.



---

## Power Control

You can power on, power off, and power cycle a target through the outlet it is connected to. Access the target, and then select a power control option from the Power Control menu.



The menu option is disabled if you do not have permission for power control, and when outlets are not associated with the port.

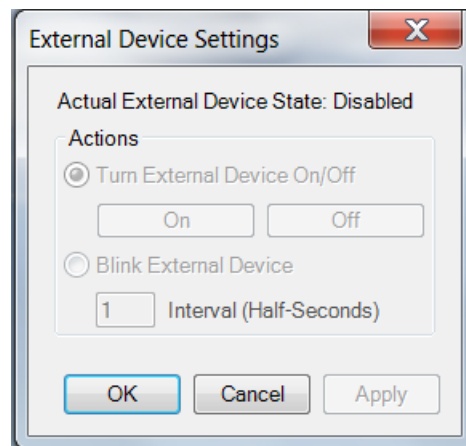
---

## External Device

The External Device menu allows you to control the device connected at the terminal block of the Dominion KX IV-101.

### ▶ External Device Settings:

1. Choose External Device > Settings to view the dialog.
2. The device state is listed.
3. Enabled devices can be controlled using the Actions options.
  - Turn External Device On/Off: Click On or Off to control terminal output relay.
  - Blink External Device: Enter the half-second interval to control blinking of the external device.



4. Click OK or Apply to save.

---

### Version Information - Virtual KVM Client

For version information about the client, in case you require assistance from Raritan Technical Support.

- Choose Help > About Raritan Virtual KVM Client.

---

## Active KVM Client (AKC) Help

To launch AKC, enter `https://<IP address>/akc` in a browser.

The Active KVM Client (AKC) is based on Microsoft Windows .NET® technology.

This allows you to run the client in a Windows environments without Java..

For details on using the features, see Virtual KVM Client (VKC and VKCs) Help.

---

### AKC Supported Microsoft .NET Framework

The Active KVM Client (AKC) requires Windows .NET®. See the Release Notes for supported versions.

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### AKC Supported Browsers

See the Release Notes for supported browser versions.

---

### AKC Supported Operating Systems

When launched from Internet Explorer®, the Active KVM Client (AKC) allows you to reach target servers via the Dominion KX IV–101.

AKC is compatible with the following platforms:

- Windows 10 \* operating system (up to 64 bit)  
See the Release Notes for the latest supported versions.

---

### Prerequisites for Using AKC

#### Allow Cookies

Ensure the cookies from the IP address of the device that is being accessed are not currently being blocked.

#### Include Dominion KX IV–101 IP Address in 'Trusted Sites Zone'

Add the IP address of the device being accessed to the browser's Trusted Sites Zone.

#### Disable 'Protected Mode'

Make sure that Protected Mode is not on when accessing this device.

### Edge Chromium versions

The Edge Chromium browser has experimental ClickOnce support which must be enabled for AKC. The browser will not detect support for ClickOnce, so you will still need to download AKC manually.

- To enable ClickOnce in Edge: Type `edge://flags` in the browser, search for ClickOnce support, set to enabled and restart the browser.
- To download AKC manually: Go to the Dominion KX IV–101 URL, for example `https://(KX-IP-Hostname)/akc` then select "Please click here" on the message showing that ClickOnce support has not been detected.

---

### Proxy Server Configuration

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 remote client PC, 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).*

---

- e. Click OK at each dialog to apply the settings.
2. Next, configure the proxy settings for the Java™ applets:
    - a. Select Control Panel > Java.
    - b. On the General tab, click Network Settings. The Network Settings dialog opens.
    - c. Select "Use Proxy Server".
    - d. Click Advanced. The Advanced Network Settings dialog opens.
    - e. 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).*

---

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## HTML KVM Client (HKC)

The HTML KVM client (HKC) provides KVM over IP access that runs in the browser without the need for applets or browser plugins. HKC uses Javascript, NOT Java.

HKC runs on Linux and Mac clients, and on Windows clients in Internet Explorer 11 (not supported in IE 10 or lower), Edge, Firefox, Chrome and Safari browsers.

Many KVM features are supported. Future releases will provide more advanced KVM features.

▶ **Supported Features:**

- Connection Properties
- Input Settings
- Audio Playback
- Virtual Media
- Keyboard Macros
- Import and Export of Keyboard Macros
- Send Text to Target
- Keyboard and Mouse Settings
- Single Mouse Mode - not available on IE browser
- External Device
- Power Control

▶ **Not supported:**

- Limited Tools option: Client Settings and Launch Settings supported
- Limited keyboard support: US-English, UK-English, French, German, Swiss-German, and Japan keyboards are supported
- Hotkeys for keyboard macros
- Can only create Macros from keys that exist on the client PC (US-English, UK-English, French, German, Swiss-German, or Japan), no special function keys
- Single Mouse mode - not available on IE
- Virtual Media write not supported
- Local File Transfer not available on IE
- USB drive connects

▶ **Known Issues:**

- If HKC does not load, but rather displays a white screen, your browser memory may be full. Close all browser windows and try again.

## Connection Properties

Connection properties manage streaming video performance over remote connections to target servers.

The properties are applied only to your connection - they do not impact the connection of other users accessing the same target servers.

If you make changes to connection properties, they are retained by the client.

### ► To view connection properties:

- Choose File > Connection Properties.

### Connection Properties

Best Image Quality

**Video Encoding**

**Usage**

General Purpose Video ▾

12345678

Full Color

Least Bandwidth

**Color Subsampling**

Automatic

4:4:4 (if available)4:2:24:2:0

Source	1920x1080 @ 60 Hz
Performance	24.67 FPS, 1.75 Kbit/s incoming
Encryption	On

Reset

Help

OK

Cancel

Apply

### ► Video Encoding

This section selects the video encoding algorithm and quality setting.

- Usage: specify your general application area. This selection optimizes the available choices elsewhere in this dialog.
  - General Purpose Video: video content where smooth color reproduction is most important, such as movies, video games, and animations.
  - Computer and IT Applications: video content where text sharpness and clarity are important, such as computer graphical interfaces.

- **Encoder Mode:** Choose the encoder mode from the row of eight buttons. Options will vary depending on the Usage selection. In general, modes towards the left of the button bar offer higher image quality but consume higher bandwidth, and might cause frame rate to drop depending on network speed and/or client performance. Modes towards the right consume lower bandwidth at the cost of reduced image quality. In network- or client-constrained situations, modes towards the right may achieve better frame rates.

The default video mode is always "Full Color 2", which is a high-quality mode and works well for most uses in LAN environments. If needed, experiment with modes further towards the right to find the right balance of image quality and frame rate.

#### ► **Color Subsampling**

Color subsampling reduces the color information in the encoded video stream.

- **Automatic:** Recommended. The optimal color subsampling mode will be enabled based on the selections in the video encoding section.
- **4:4:4:** Highest quality at significant bandwidth cost. Usually not necessary except for some situations in graphical user interfaces. Not supported for resolutions above 1920x1200, so for those resolutions color subsampling will automatically drop down to 4:2:2.
- **4:2:2:** Good blend of image quality and bandwidth.
- **4:2:0:** Maximum savings of network bandwidth and client load. Works fine for most general-purpose applications that don't emphasize high-resolution lines or text.

#### ► **Current Status**

Current status includes real-time video performance statistics. As you change settings in the dialog, you can immediately see the effects on performance.

- **Source:** resolution and frame rate of the incoming video source.
- **Performance:** frames per second (FPS) being rendered in the client, and the data rate of the incoming video stream. These values are where you will see the effects of your video settings.
- **Encryption:** whether the video stream is encrypted or not. Encrypted streams usually have lower frame rates and lower bandwidth. Encryption is a global setting in security → KVM Security → "Apply Encryption Mode to KVM and Virtual Media".



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### Connection Info

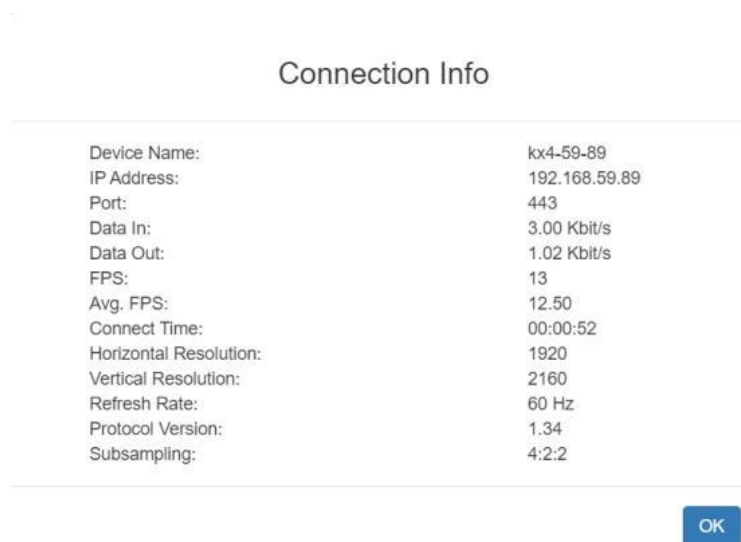
Open the Connection Information dialog for real-time connection information on your current connection, and copy the information from the dialog as needed.

See Default Connection Properties for help configuring the connection properties.

- Name of the device
- IP address of the device
- Port - The KVM communication TCP/IP port used to access the device
- Data In/Second - Data rate received from the device
- Data Out/Second - Data rate sent to the device
- FPS - Video frames per second from the device.
- Average FPS - Average number of video frames per second.
- Connect Time - The duration of the current connection.
- Resolution - The target server's horizontal and vertical resolution.
- Refresh Rate - Refresh rate of the target server.
- Protocol Version - communications protocol version.
- Subsampling - Adaptive color subsampling
- Audio Playback Sample Rate - Audio playback sample rate seen if audio is connected.

► **To view connection info:**

- Choose File > Connection Info.



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## Input Menu

### Keyboard Layout

▶ **To set your keyboard type.**

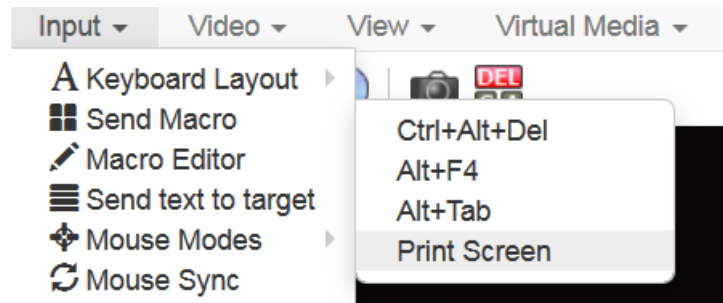
- Choose Input > Keyboard Layout, then select your keyboard type.
  - de-de
  - de-ch
  - en-gb
  - en-us
  - fr
  - ja

### Send Macro

Due to frequent use, several keyboard macros are preprogrammed.

▶ **To send a preprogrammed macro:**

- Choose Input > Send Macro, then select the macro:
  - Ctrl+Alt+Del: Sends the key sequence to the target without affecting the client.
  - Alt+F4: Closes a window on a target server.
  - Alt+Tab: Switch between open windows on a target server.
  - Print Screen: Take a screenshot of the target server.



### Macro Editor

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 your client PC.

Macros are stored on the client PC and are PC-specific. 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.

Macros created with HKC are only available with the current browser and KVM device. If you use HKC in more than one browser, or more than one Dominion KX IV-101, your macros will only be available on the browser and Dominion KX IV-101 where they were created. To reuse your macros in another Dominion KX IV-101 device, you can import and export the macro files. See **Import and Export Macros** (on page 87).

► **To access the Macro Editor:**

- Choose Inputs > Macro Editor.
- Select a macro from the Macros list to view the key combination.

### Macro Editor

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**Name**

**Macros**

Ctrl+Alt+Del
Alt+F4
Alt+Tab
Print Screen
Greetings

**Keys**

press: CTRL LEFT
press: ALT LEFT
press: DELETE
release: CTRL LEFT
release: ALT LEFT
release: DELETE

Add Key

Add Delay

↑

↓

Delete

Add New Macro

Delete Macro

Text to macro

Use in Toolbar

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Export

Import

OK

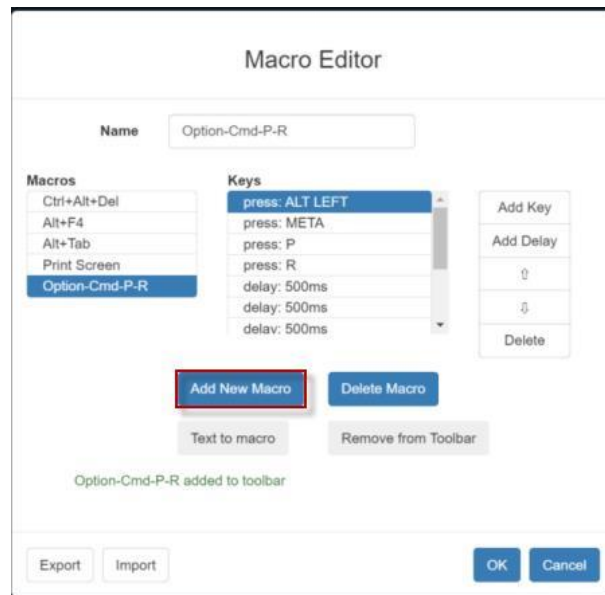
Cancel

#### Add New Macro

► **To add a new macro:**

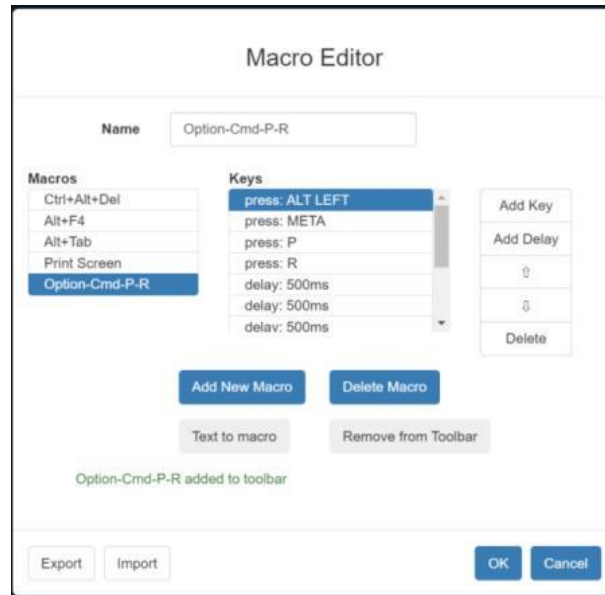
1. Choose Input > Macro Editor.

2. Click Add New Macro.



3. Enter a Name for the new macro. The name will appear in the Send Macro menu once the macro is saved.
4. Click Add Key, then press the key you want to add to the macro. The key press and key release appear in the Keys list.
  - To add more keys, click Add Key again, and press another key.
  - To remove a key, select it in the Keys list and click Delete.
5. To put the keys in the correct sequence, click to select a key in the Keys list, then click the up and down arrows.
6. To add a 500 ms delay to a key sequence, click Add Delay. A delay in the middle of a press-and-release key sequence indicates holding down a key. Add multiple delays to indicate a longer press-and-hold of a key. Click the up and down arrows to move the delays into the correct sequence.

- Click OK to save. To use this macro from your toolbar, click Use in Toolbar. See **Add a Macro to the Toolbar** (on page 85) for more details.



*This example shows a macro for a Mac bootup sequence that requires a 2-second delay.*

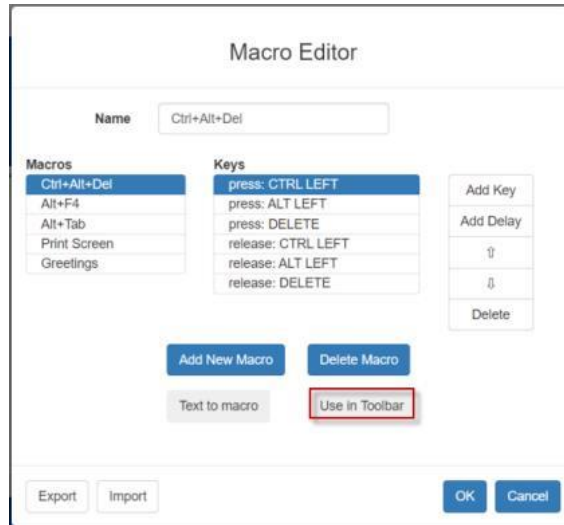
#### **Add a Macro to the Toolbar**

You can add a single macro to your HKC toolbar, so that you can use the macro by clicking an icon.

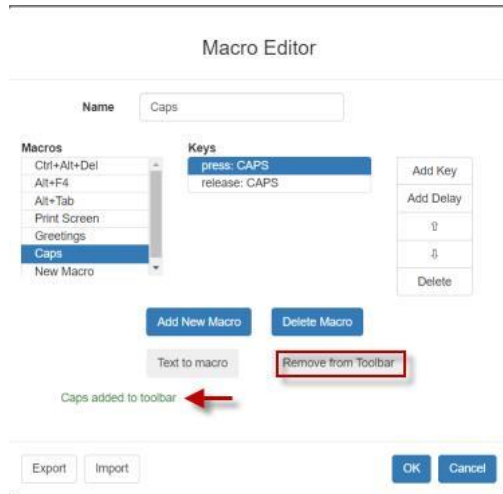
#### **▶ To add a macro to the toolbar:**

- Choose Inputs > Macro Editor.
- Select a macro from the Macros list.

3. Click Use in Toolbar.



4. A message appears to confirm the macro is added to the toolbar.
  - To remove the macro from the toolbar, click Remove from Toolbar, or select a different macro and click Use in Toolbar.



5. Click OK and exit the Macro Editor. The macro icon is added to the toolbar when one has been set.

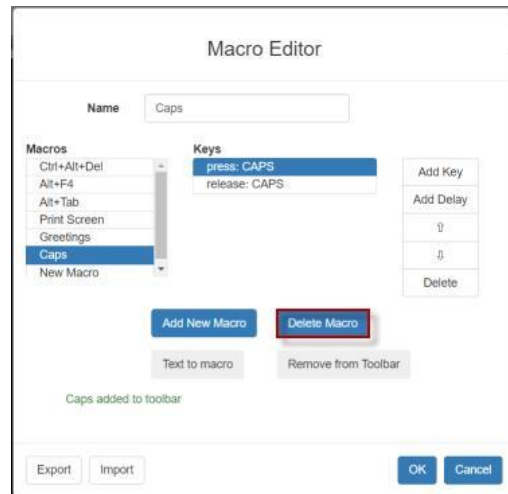


#### Delete a Macro

► **To delete a macro:**

1. Choose Inputs > Macro Editor.
2. Select the macro, then click Delete Macro.

3. Click OK.



#### **Import and Export Macros**

Macros created with HKC are only available with the current browser and KVM device. If you use HKC in more than one browser, or more than one Dominion KX IV–101, your macros will only be available on the browser and Dominion KX IV–101 where they were created. To reuse your macros in another Dominion KX IV–101 device, you can import and export the macro files. Imported and exported macro files created on HKC are only compatible with HKC, and cannot be used on AKC or VKC. Likewise, macro files created on AKC or VKC cannot be imported for use on HKC.

Macros are exported to an xml file named "usermacros.xml". Files are saved in your browser's default download location. Default macros are not exported.

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*Note: When exporting macros from Edge browser, a Down arrow is briefly displayed at the bottom of the KVM window and a file named "unconfirmed.crdownload" is saved to the default download directory. To use this file as a macro input file, rename it with a .xml extension.*

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#### **▶ To export and import macros:**

1. Choose Input > Macro Editor. The list of macros created for your browser and Dominion KX IV–101 displays in the Macro Editor dialog.
2. To export the list, click the Export button, then save the file.
3. Log in to the Dominion KX IV–101 where you want to import the macros.
4. Choose Input > Macro Editor.
5. Click Import, then click Open to Import and select the usermacros.xml file, and click OK.
6. The macros found in the file display in the list. Select the macros you want to import, then click OK.


- Macro names must be unique. If a macro with the same name already exists, an error message appears. Click the Edit icon to rename the macro, then click the checkmark to save the name.

### Macro Import

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Open to Import

Select macros to import:

Macro1	
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Select All

Deselect All

OK

Cancel

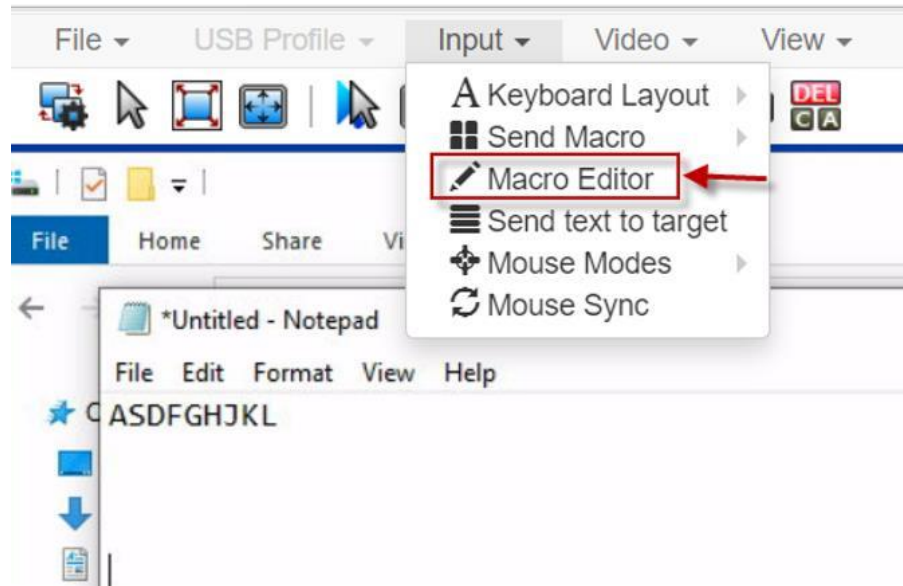


**Text to macro**

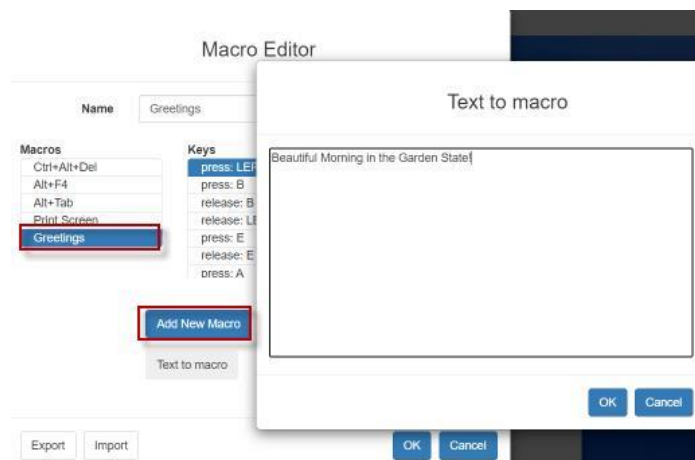
Text to macros will enable you to work more efficiently by producing frequently used phrases and paragraphs with a single command. Create a new macro and then assign text to it.

► **To add text to a macro:**

1. Choose Input > Macro Editor.



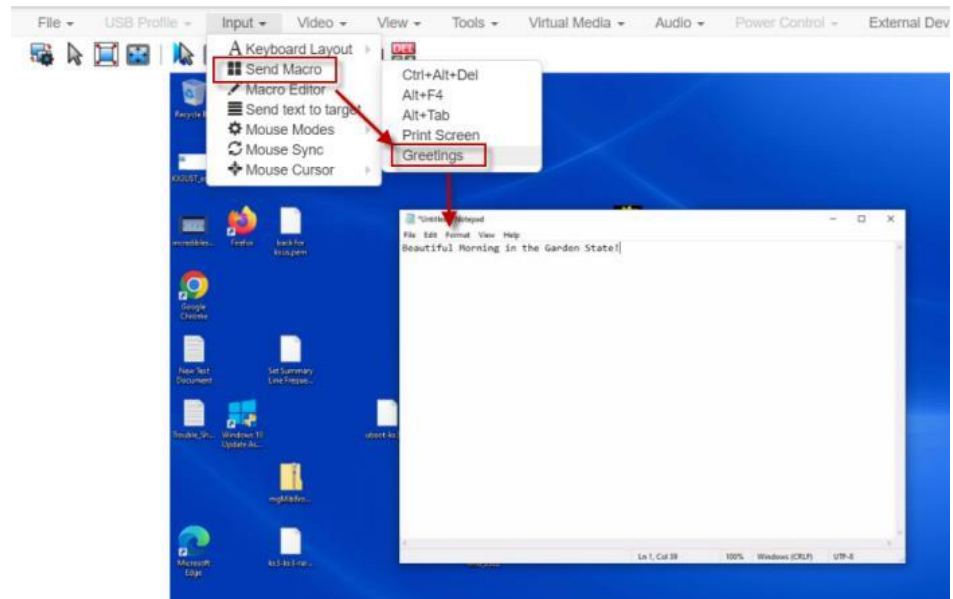
2. Select to add new macro and give name to
3. Click Text to macro.



4. Type text in the text area and then click OK to save the text.
5. Click OK again in the Macro Editor to save the macro.

► **To use macros with text:**

1. Connect to target you want to send macro to
2. Choose Input > Send Macro and then select the macro you created.
3. Macro will be sent to the target.



**Send Text to Target**

Use the Send Text to Target function to send text directly to the target. If a text editor or command prompt is open and selected on the target, the text is pasted there.

► **To send text to target:**

1. Choose Input > Send Text to Target. The Send Text to Target dialog appears.
2. Enter the text you want sent to the target. Supported keyboard characters only.
3. Click OK.

### Mouse Modes

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

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

When controlling a target server, the Remote Console displays two mouse cursors - one belonging to your Dominion KX IV-101 client workstation, and the other belonging to the target server.

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.

Single mouse mode allows you to view only the target server's pointer. You can use Single mouse mode when other modes don't work.

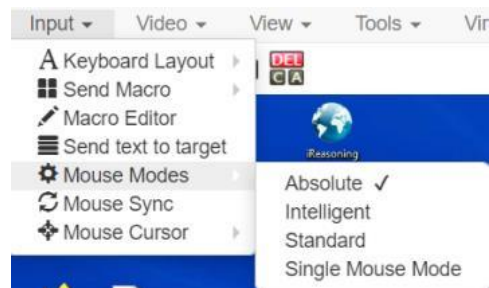
You can toggle between these two modes (single mouse and dual mouse).

#### **Absolute**

- 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.

#### ▶ **To enter Absolute Mouse Synchronization Mode:**

- Choose Input > Mouse Modes > Absolute.

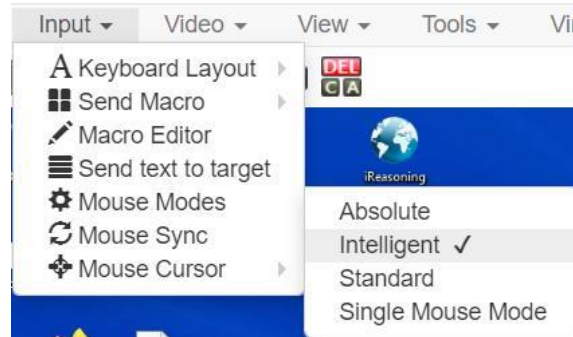


### **Intelligent**

In Intelligent Mouse mode, the device can detect the target mouse settings and synchronize the mouse cursors accordingly, allowing mouse acceleration on the target.

▶ **To enter Intelligent mouse mode:**

- Choose Input > Mouse Mode > Intelligent. The mouse will synch. See **Intelligent Mouse Synchronization Conditions** (on page 57).



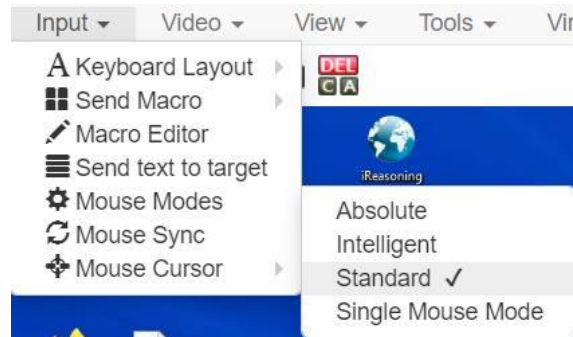
### **Standard**

Standard Mouse mode uses a standard mouse synchronization algorithm. The algorithm determines relative mouse positions on the client and target server.

In order for the client and target mouse cursors to stay in synch, mouse acceleration must be disabled. Additionally, specific mouse parameters must be set correctly.

▶ **To enter Standard mouse mode:**

- Choose Input > Mouse Modes > Standard.



**Single**

Single Mouse mode uses only the target server mouse cursor; the client mouse cursor no longer appears onscreen.

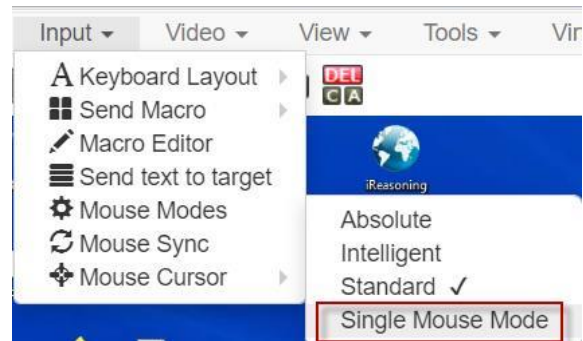
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*Note: Single mouse mode does not work on Windows or Linux targets when the client is running on a Virtual Machine. Single mouse mode is not available on Internet Explorer.*

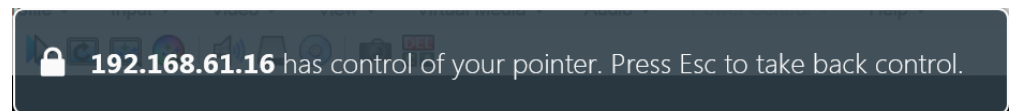
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▶ **To enter Single mouse mode:**

- Choose Inputs > Mouse Modes > Single.



- A message appears at the top of the client window: Press Esc to show your cursor.



▶ **To exit Single mouse mode:**

- Press Esc.
- Mouse mode changes back to dual mode.

**Mouse Sync**

In dual mouse mode, the Synchronize Mouse command forces realignment of the target server mouse cursor with the client mouse cursor.

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

▶ **To synchronize the mouse cursors:**

- Choose Inputs > Mouse Sync.

### **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.
- The target advanced mouse properties such as "Enhanced pointer precision" or "Snap mouse to default button in dialogs" should be disabled.
- 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, 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.

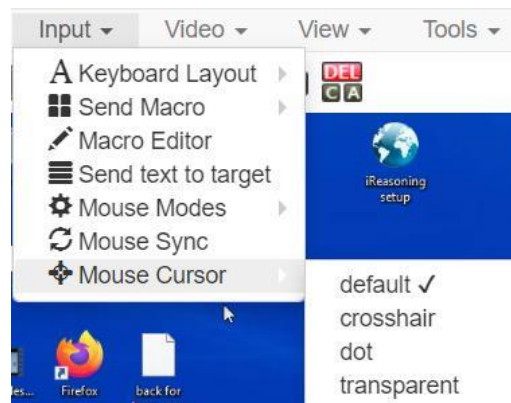
### **Mouse Cursor**

In dual mouse modes, you can select a custom cursor shape for your session. To make the cursor selection permanent, see **.Tools Menu** (on page 97)

#### **► To change the cursor shape:**

- Choose Input > Mouse Cursor, then select from the list.
  - default
  - crosshair
  - dot

- transparent




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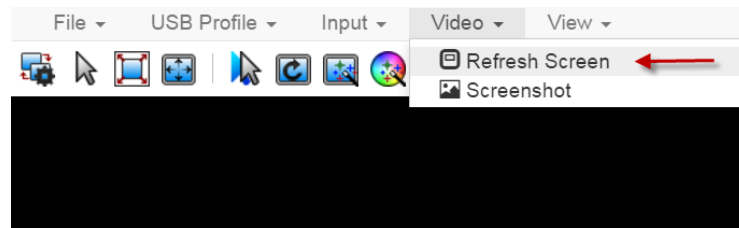
## Video Menu

### Refresh Screen

The Refresh Screen command forces a refresh of the video screen.

#### ▶ To force a refresh of the video screen:

- Choose Video > Refresh Video.



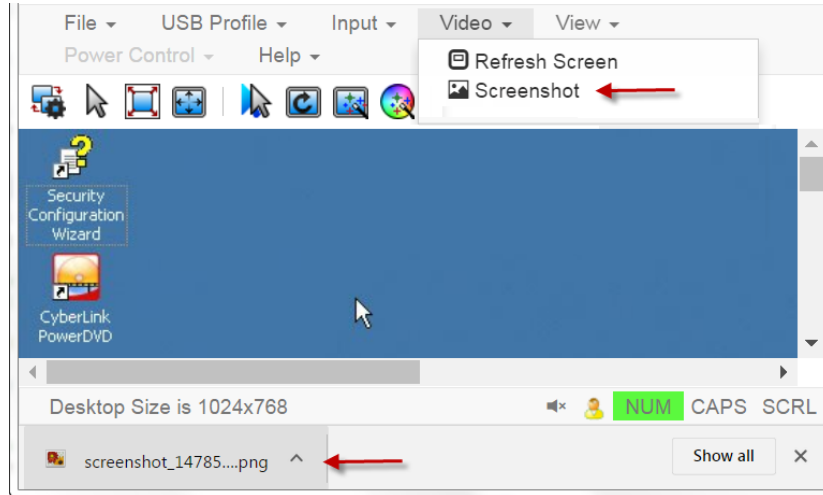
### Screenshot

Take a screenshot of a target server using the Screenshot command.

#### ▶ To take a screenshot of the target server:

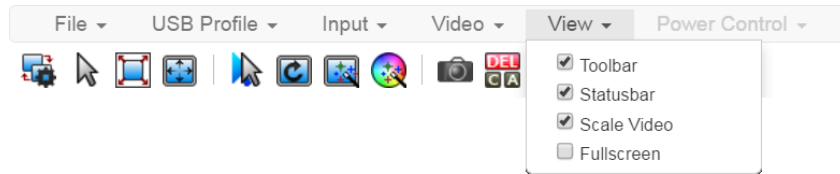
1. Choose Video > Screenshot.

2. The screenshot file appears as a download to view or save. Exact options depend on your client browser.



### View Menu

The View Menu contains options to customize your HKC display.



#### ▶ **Toolbar and Statusbar:**

The toolbar contains icons for some commands. The Statusbar displays screen resolution at the bottom of the client window.

#### ▶ **Scale Video:**

Scale Video scales your video to view the entire contents of the target server window in your HKC window. The scaling maintains the aspect ratio so that you see the entire target server desktop without using the scroll bar.

#### ▶ **Fullscreen:**

Fullscreen sets the target window to the size of your full screen, removing your client from the view.

- Press Esc to exit fullscreen.

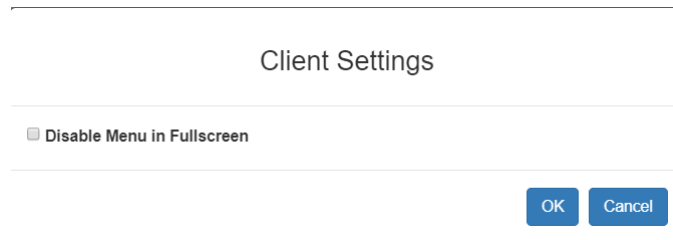


## Tools Menu

The Tools menu contains options for HKC target connection settings.

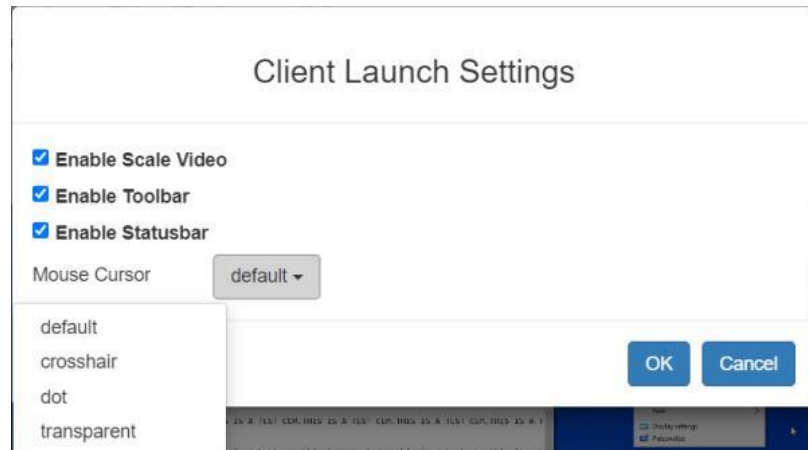
### ▶ Client Settings:

- Choose Tools > Client Settings to access the Disable Menu in Fullscreen option.
- When selected, the menu bar will not be available in fullscreen mode. This setting is specific to the client, so it must be set for each client device and each browser used for access.



### ▶ Launch Settings:

- Choose Tools > Launch settings to access Client Launch Settings options.
- This menus allows selection of Enable Scale Video, Enable Toolbar, Enable Statusbar and Mouse Cursor at target launch.



► **Touch Settings - enabled for iOS clients:**

- Tap Tools > Touch Settings to access the Client Touch Settings. Customize the Touch Input and Gesture Scrolling settings for your mobile device.

**Client Touch Settings**

Touch Input

Double Click Time (ms)  
250 ————— 750

Mouse Click Hold Time (ms)  
250 ————— 750

Use Left Hand Mouse

Gesture Scrolling

Enable Inverted Scroll x-Axis

Enable Inverted Scroll y-Axis

OK Cancel

- Double Click Time: Time between two touch taps for the equivalent of a mouse double click.
- Mouse Click Hold Time: Time to hold after touch down for the equivalent of a mouse right click.
- Use Left Hand Mouse: Enable if the target OS's primary mouse button is set to Right.
- Enable Inverted Scroll x-Axis: If selected, two-finger movement to the right moves the screen to the left instead of the default right.
- Enable Inverted Scroll y-Axis: If selected, two-finger movement up moves the screen down instead of the default up.

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**Virtual Media Menu**

Due to browser limitations, HKC supports a different set of virtual media functions than the other KVM Clients.

Due to browser resources, virtual media file transfer is slower on HKC than the other KVM clients.

### Connect Files and Folders

The Connect Files and Folders command provides an area to drag and drop files or folders that you want to connect by means of virtual media.

Supported browsers: Chrome, Firefox, Safari, Edge.

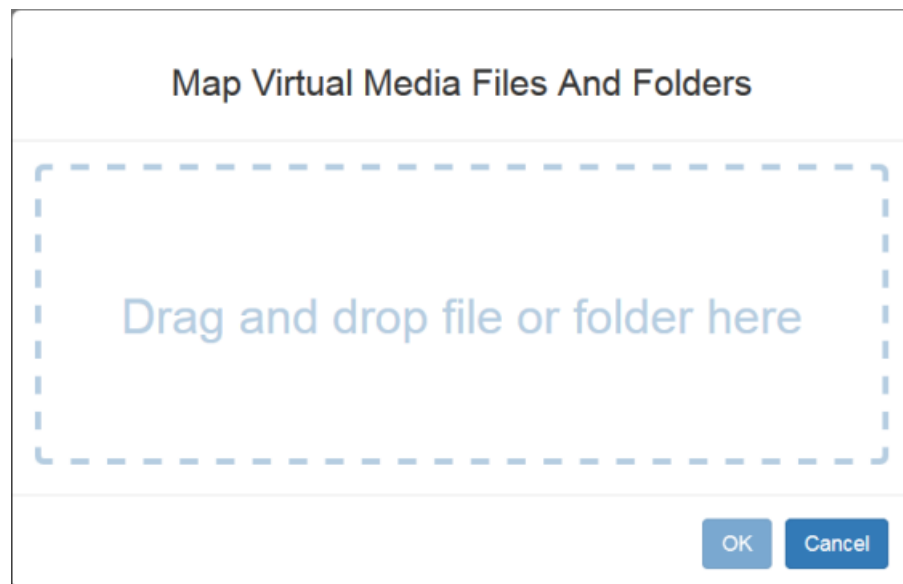
File size limit: 4GB per file

#### ▶ To connect files and folders:

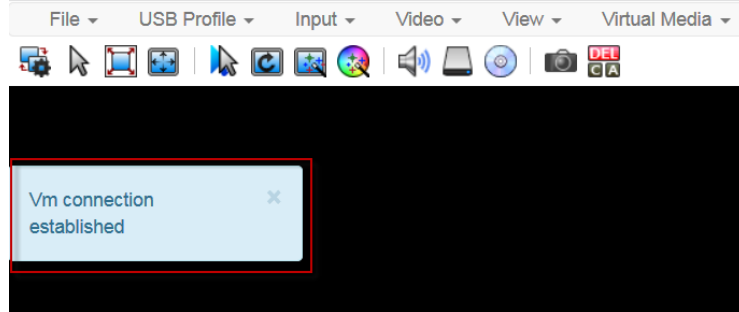
1. Choose Virtual Media > Connect Files and Folders. Or, click the matching icon in toolbar.



2. Drag files or folders onto the Map Virtual Media Files and Folders dialog. Click OK.

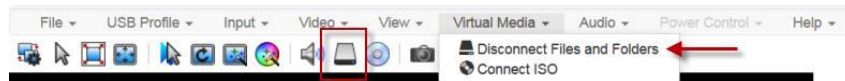


3. A message appears to show virtual media is connected. After a short time, a VM drive containing the selected files or folders will be mapped to the target server.



▶ **To disconnect files and folders:**

- Choose Virtual Media > Disconnect Files and Folders. Or, click the matching icon in the toolbar.



**Connect ISO**

The Connect ISO command maps a virtual media image file to the target. You can connect ISO, DMG or IMG files from your client PC or ISO files from a remote server.

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*Note: If connection to your SAMBA server is lost while transferring files from your image file to the target, keyboard and mouse control will be lost for several minutes, but will recover.*

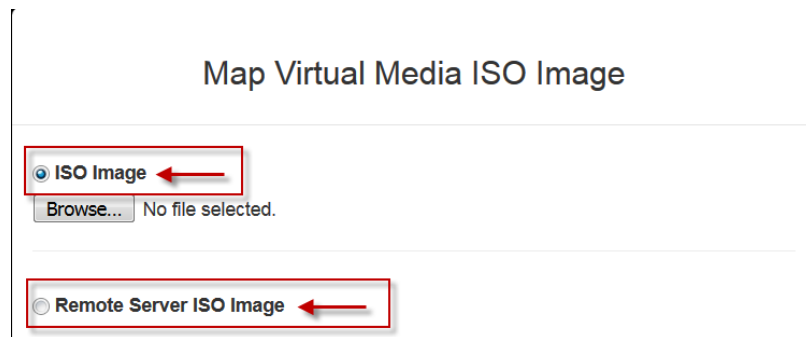
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▶ **To map virtual media image files:**

1. Choose Virtual Media > Connect ISO. Or, click the matching icon in the toolbar.

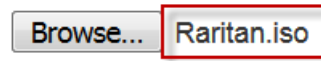


2. Select the option for your file's location:



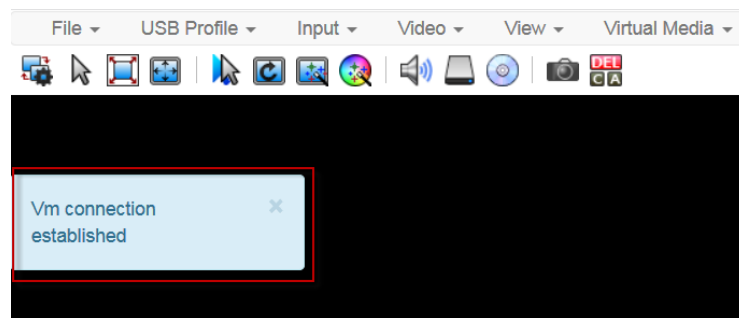
- Select ISO Image if the image file is directly accessible on your client. Click Browse, select the ISO, DMG or IMG file, and click OK. The filename appears next to the Browse button.

**ISO Image**



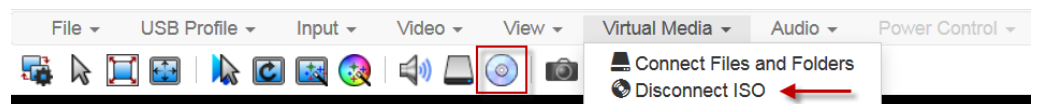
- Select Remote Server ISO Image for ISO files on a remote server. Remote ISO files must be pre-configured by an administrator for the mapping to appear here. See Virtual Media File Server Setup (File Server ISO Images Only). Select the Hostname, then select the image file from the Image list. Enter the file server's username and password.

3. Click OK to map the selected file to the target. A message appears to show virtual media is connected.



**To disconnect ISO:**

- Choose Virtual Media > Disconnect ISO. Or, click the matching icon in the toolbar.



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### Audio Menu

The Audio menu contains audio connection and settings.

Audio quality deteriorates if multiple target connections are open. To preserve quality, limit to four target connections open on HKC when an audio session is running.

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*Note: IE does not support audio. The menu will appear grayed out.*

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### Connect Audio

The Connect Audio command connects your playback device, selects audio format and gives an option to mount the selected playback device automatically when you connect to the target.

HKC connects the client PC's default audio playback device. To use a different device, it must be set as default in the client OS.

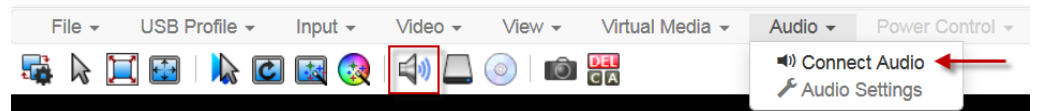
---

*Note: For best quality, limit the number of audio sessions to a maximum of four KVM sessions.*

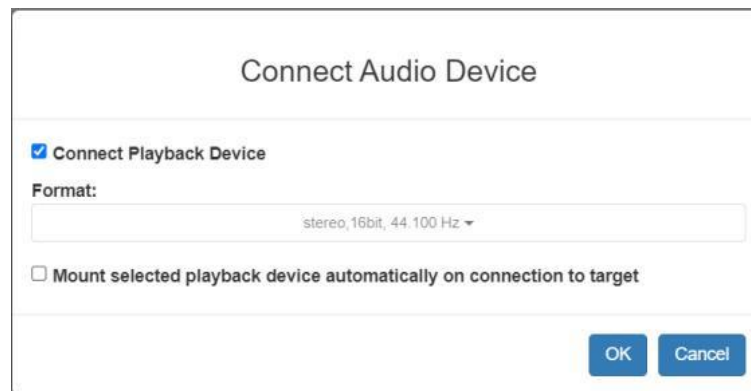
---

► **To connect audio:**

1. Choose Audio > Connect Audio, or click the matching icon in the toolbar.

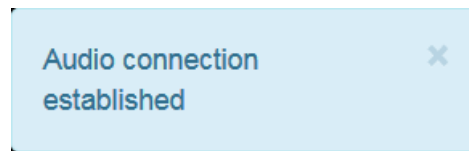


2. In the Connect Audio Device dialog, select the Connect Playback Device checkbox.



3. Select the "Mount selected playback device automatically on connection to target" checkbox to enable the option. This setting will connect audio automatically the next time you connect to the target.

- Click OK. A success message appears.



► **To disconnect audio:**

- Choose Audio > Disconnect Audio, or click the matching icon in the toolbar.

**Audio Settings**

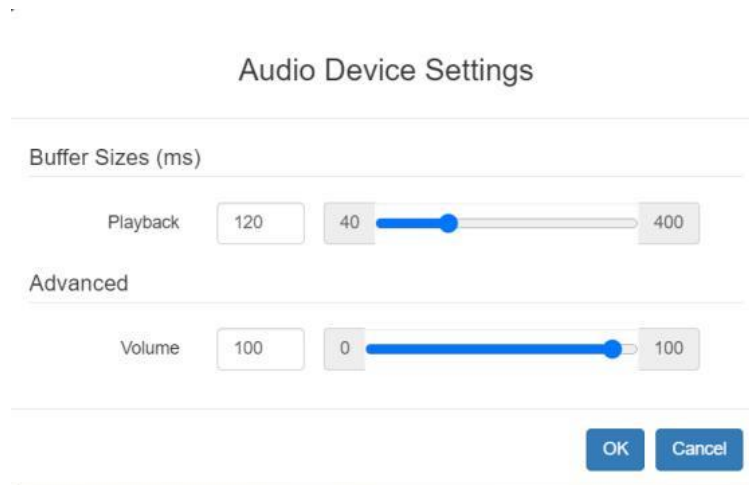
The Audio Settings option is enabled when audio is connected. Use the Audio Settings to set the buffer and volume.

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.

► **To configure audio settings:**

- Choose Audio > Audio Settings while Audio is connected.
- Set the Buffer and Volume using the arrows or sliders.



- Click OK.

**Auto Play in Safari**

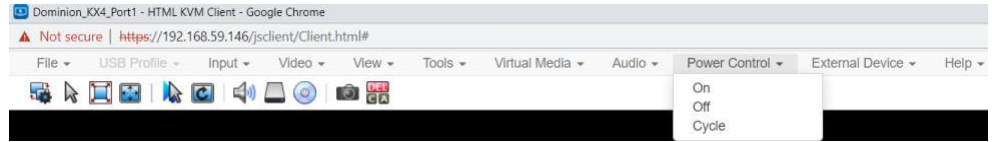
For HKC connections in the Safari browser that have auto mounted audio devices, make sure that the "Auto Play" setting is "Allow all Auto Play".

<https://support.apple.com/guide/safari/customize-settings-per-website-ibrw7f78f7fe/mac>

---

### Power Control

You can power on, power off, and power cycle a target. Access the target, and then select a power control option from the Power Control menu.



The menu option is disabled if you do not have permission for power control, and when outlets are not associated with the port.

---

### External Device Menu

The External Device menu allows you to control the device connected at the terminal block of the Dominion KX IV–101.

▶ **External Device Settings:**

1. Choose External Device > Settings to view the dialog.
2. The device state is listed.
3. Enabled devices can be controlled using the Actions options.
  - Turn External Device On/Off: Click On or Off to control terminal output relay.
  - Blink External Device: Enter the half-second interval to control blinking of the external device.

## External Device Settings

---

External Device State: Disabled

Action

---

Turn External Device On/Off

On Off

Blink External Device

1 Interval (Half-Seconds)

---

OK Cancel Apply

4. Click OK or Apply to complete the action.



---

### Using HKC on Apple iOS Devices

Dominion KX IV–101 supports remote access to targets from Apple mobile devices with iOS 10.0 or higher, using a mobile version of HKC. Due to Apple iOS limitations, you may notice some differences in operation. See **Limitations on Apple iOS Devices** (on page 111).

#### Install Certificate on Apple iOS Device

You must install a CA-signed certificate on your Apple iOS device before you can connect to Dominion KX IV–101. Access is prevented if only the default certificate is present. Depending on your browser, you may see an error such as "This Connection is Not Private".

When creating certificates, the certificate Common name should match the IP address/Hostname used to connect to the device.

Install both the Dominion KX IV–101 certificate and the CA certificate used to sign the Dominion KX IV–101 certificate.

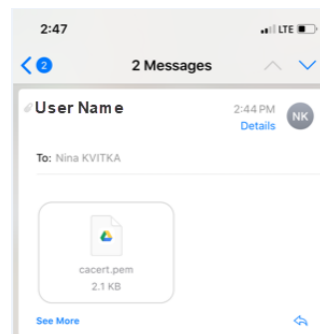
*Note: If you have issues launching connections from IOS devices, check that the certificate meets Apple requirements:*

*<https://support.apple.com/en-us/HT210176>*

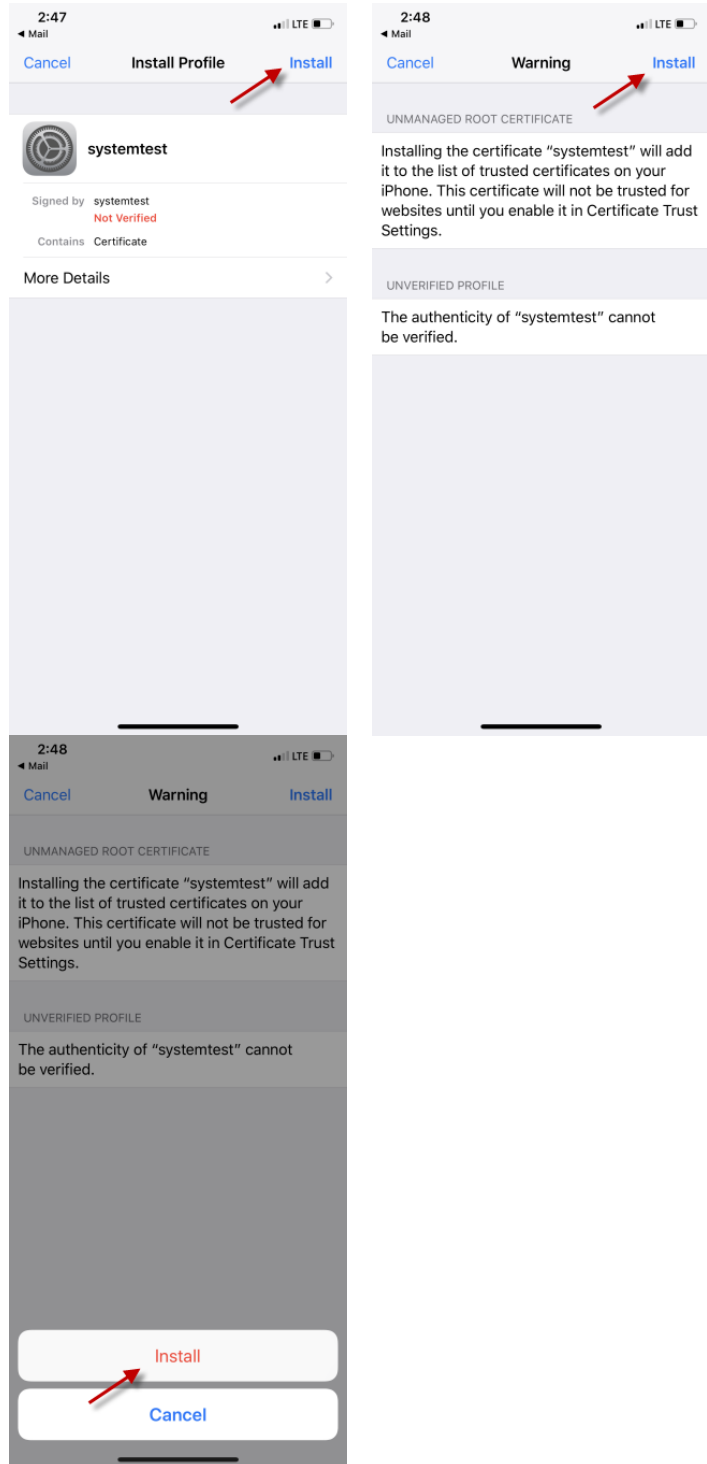
---

#### ► To install the certificate on an iOS device:

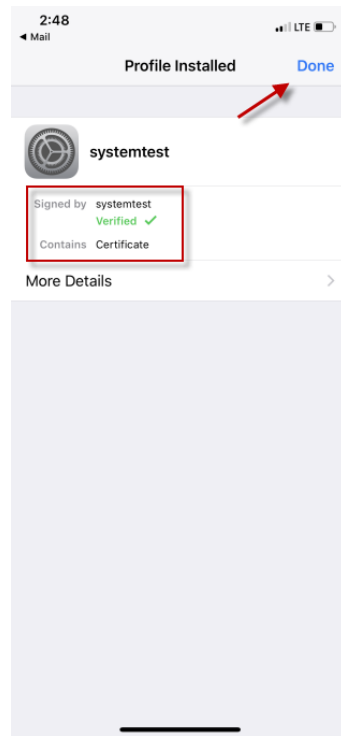
1. Email the certificate file to an email account that can be opened on the iOS device. Open the email and tap the attachment.



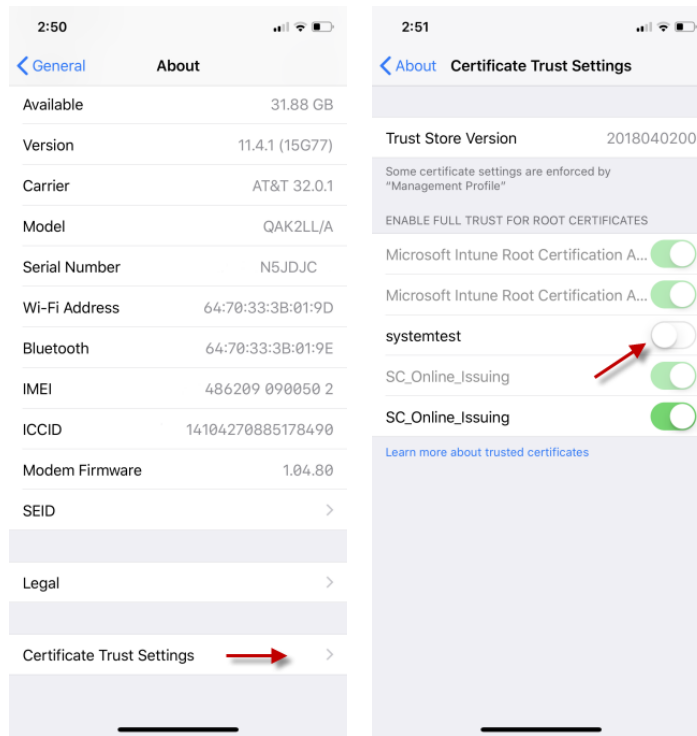
2. The certificate downloads as a "profile" that you have to install. You can have only one profile ready to install at a time. For example, if you download a profile and don't install it, and then download a second profile, only the second profile is available to be installed. If a profile is not installed within 8 minutes of downloading it, it is automatically deleted.
3. To install the profile, go to Settings, then tap Profile Downloaded.
4. Tap install, then follow prompts as presented to verify and Install.



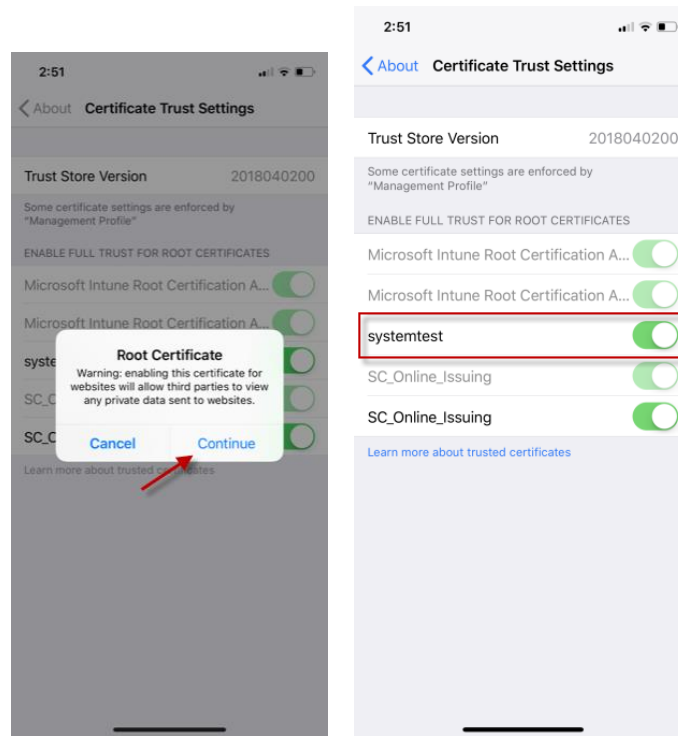
5. When complete the certificate is marked Verified. Tap Done.



6. To enable the certificate, go to Settings > General > About, then scroll all the way down. Tap Certificate Trust Settings.



7. Tap the certificate that was installed earlier to enable. A warning appears. Tap Continue to enable. The certificate slider displays green for enabled.



**Touch Mouse Functions**

Use the touchscreen equivalent for each mouse function. Some touch settings are configurable. See **Tools Menu** (on page 97).

Single Finger Touch	Mouse Equivalent
touch down - move - release	move mouse pointer
short tap	left click
double short tap	left double-click
short tap - touch down - hold for 250ms	mouse equivalent of Right Click"
short tap - touch down - move - release	hold down left mouse button and move, as in drag and drop or select
Two Finger Touch	Mouse Equivalent
touch down - move - release	move screen

### Keyboard Access on Mobile

Keyboard access to the target is through a virtual keyboard, available on the toolbar. For all other actions requiring keyboard input, the IOS popup keyboard displays automatically.

### Manage HKC iOS Client Keyboard Macros

The HKC iOS client includes a list of default macros. You can create additional macros using the HKC Macro Editor or import macros from a file. See **Macro Editor** (on page 83) and **Import and Export Macros** (on page 87).

---

*Note: To import macros when using an Apple iOS device, first export the file from HKC using a PC client. Add the file to a Cloud location to access from the IOS device for import.*

---

### Limitations on Apple iOS Devices

Mobile access with iOS devices is supported for several Raritan products. Not all limitations apply to all products. Differences are noted.

- Target connections are closed after about one minute if the browser is in background, or if your iOS device enters Auto Lock mode
- Unable to create Macros for some special characters: F1-F24, ESC, Control, Alt, OS Meta keys and others. A selection of commonly used keys are available in the default Macro list. These keys can be edited. Additional keys such as F1-24 and arrows can be added using a Macro Import.
- In Safari on iOS, must refresh the connection to device after a KVM or Serial target launch in order to access menu options or serial targets. Not needed in Chrome on iOS.
- iOS does not support auto connect audio device to targets.
- On Ubuntu 14.04 target, no response to mouse click and hold on target items to simulate right clicking.
- Dual Target connection issues: Both target windows have to be closed separately. Only 1 port of a Dual target opened from Safari on iOS 11.x devices. (Dual targets not supported on KX4-101).
- Options "FullScreen" and "Resize window to fit screen" are not enabled/available on iOS.
- KB locale from the Client Virtual Keyboard must match input locale of device and OS locale of the target.
- iOS client target window does not have scrollbars. Unscaled video can be scrolled horizontally/vertically by sliding two fingers left/right or up/down. See **Touch Mouse Functions** (on page 109).
- On Safari, users are prompted to save passwords when switching from a target with a server VM connection to another target. These prompts can be turned off by unchecking the box "Usernames and passwords" in Safari > Preferences > AutoFill.
- On Safari, the onscreen keyboard includes word forecast. Selecting a forecast word adds a space at the end. For example, at login screen, selecting "admin" enters "admin ". Similar behavior occurs for VM File server Username and other areas.
- Cannot move menu option panels such as Connection Info.
- iOS On-Screen keyboard is displayed from all mouse clicks on the HTML admin page if keyboard "Go" is tapped to save setting changes instead of tapping the Save button.
- For DSAM targets opened from iOS clients, every time a menu item is selected and closed the on-screen keyboard is displayed.
- VKC login occurs when refreshing login page after a reboot. This causes target connections to fail. To restore mobile HKC login, logout and enter the Dominion KX IV–101 IP or hostname again. Issue is applicable to both iOS and PC Clients.

- The VM Files and Folders Option from the Virtual Media menu is disabled as not possible to drag and drop files to panel.
- Not all Accented letters are processed from iOS client.
- Macro files exported from iOS devices using Safari are automatically given the name "unknown" and need to be renamed with an xml extension to be imported to another client.
- Macro file export from Chrome on iOS devices is not possible due to issues with downloading data.
- Only characters supported by target will be processed. There is no response from iOS characters such as ¥, § and ... that are found on iPad keyboards.
- With the onscreen keyboard, selecting ' character or "Return" key, brings keyboard display back to first in list.
- On default IOS client settings, characters ' and " are not processed from macro or send text to target options. The work around is to turn smart punctuation off

---

### Tips for Accessing Dominion KX IV–101 With Dual Monitor Setups

When remotely accessing a Dominion KX IV–101 in a dual monitor setup, make sure the monitor out to Dominion KX IV–101 is set as the Primary Display. Align the two monitors horizontally with the monitor out to KX4-101 in the left position. To ensure good mouse alignment in this scenario, use Intelligent Mouse Mode.

---

*Note: For Windows 10 targets, you must disable all acceleration when using Intelligent Mouse Mode.*

---

---

### Dominion User Station Access to Multi KX4-101 Setups

Two or more Dominion KX4-101 devices can be accessed as a multi-KVM channel using Dominion User Station.

The access must be configured in Dominion User Station:  
<https://help.raritan.com/kxus/v4.5.0/en/#45441.htm>

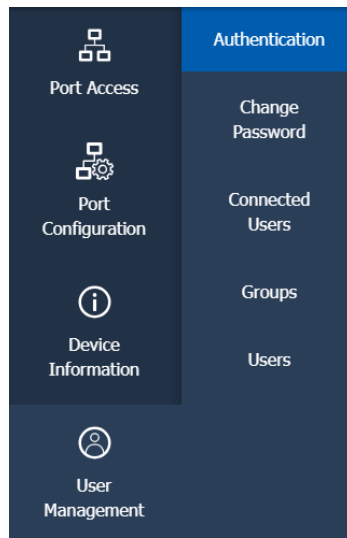


# User Management

Dominion KX IV–101 can be configured for local or remote authentication. To prepare for configuring external authentication, see **Gathering LDAP/Radius Information** (on page 114).

Dominion KX IV–101 is shipped with one built-in administrator account: **admin**, which is ideal for initial login and system administration. You cannot delete 'admin' or change its permissions, but you can change the username and password. For other security settings related to user management, see **Security** (on page 169).

Click User Management to view the submenu options.



## In This Chapter

Gathering LDAP/Radius Information .....	114
Configuring Authentication .....	114
Disabling External Authentication .....	122
Change Your Password .....	122
Connected Users.....	123
Users and Groups .....	124

---

## Gathering LDAP/Radius Information

You must have the following information about your authentication and authorization (AA) server settings to configure external authentication. See LDAP Configuration Example. If you are not familiar with these settings, consult your AA server administrator for help.

▶ **LDAP authentication:**

- The IP address or hostname of the LDAP server
- The type of the LDAP server, usually one of the following options:
  - *OpenLDAP*
    - If using an OpenLDAP server, consult the LDAP administrator for the Bind Distinguished Name (DN) and password.
  - *Microsoft Active Directory® (AD)*
    - If using a Microsoft Active Directory server, consult your AD administrator for the name of the Active Directory Domain.
- The required type of LDAP Security (None, TLS, StartTLS).
  - If Secure LDAP is in use, consult your LDAP administrator for the CA certificate file.
- The network port used by the LDAP server
- Bind Distinguished Name (DN) and password (if anonymous bind is NOT used)
- The Base DN of the server (used for searching for users)
- The login name attribute (or AuthorizationString)
- The user entry object class
- The user search subfilter (or BaseSearch)
- If the Group lookup using memberOf attribute is not selected, use following additional filters for group search.
  - Group member attribute
  - Group entry object class
  - Group search subfilter

▶ **Radius authentication:**

- The IP address or host name of the Radius server
- The type of Radius Authentication used by the Radius server (PAP, CHAP or MS CHAPV2)
- Shared secret for a secure communication
- UDP authentication port and accounting port used by the Radius server

---

## Configuring Authentication

**Important: Raritan uses TLS instead of SSL 3.0 due to published security**

**vulnerabilities in SSL 3.0. Make sure your network infrastructure, such as LDAP and mail services, uses TLS rather than SSL 3.0.**

---

The Dominion KX IV–101 supports :

- Local user database on the Dominion KX IV–101
- LDAP
- Radius

By default, the Dominion KX IV–101 is configured for local authentication. If you use this method, you only need to create user accounts.

If you prefer external authentication, you must provide the Dominion KX IV–101 with information about the external Authentication and Authorization (AA) server.

If you would like local authentication to be available as a backup method when external authentication is not available, create user accounts on the Dominion KX IV–101 in addition to providing the external AA server data. Note that local and external authentication cannot be used simultaneously. When configured for external authentication, all Dominion KX IV–101 users must have an account on the external AA server. Local-authentication-only users will have no access when external authentication is enabled, except for the admin, who can always access the Dominion KX IV–101.

► **To select authentication type:**

1. Click User Management > Authentication.
2. Select Authentication Type:
  - Local
  - LDAP
  - Radius
3. Select the "Use Local authentication when Remote Authentication is not available" checkbox to allow local authentication as a backup method when external authentication is not available, such as when the server is down.
4. Click Save. The authentication type is enabled.

For help with adding your external servers, see **LDAP Authentication** (on page 116) and **Radius Authentication** (on page 121). For help with adding users, see **Users and Groups** (on page 124).

**Authentication**

Local authentication is used if nothing is enabled.

Authentication Type

Use Local Authentication if Remote Authentication is not available

### LDAP Authentication

Gather the information you need to add your LDAP servers to Dominion KX IV–101. For help, see **Gathering LDAP/Radius Information** (on page 114).

► **To add LDAP servers:**

1. Click User Management > Authentication.
2. In the LDAP section, click New. Enter your LDAP details.

Field/setting	Description
IP Address / Hostname	The IP address or hostname of your LDAP/LDAPS server. <ul style="list-style-type: none"> <li>▪ Without encryption enabled, you can type either the domain name or IP address in this field, but you must type the fully qualified domain name if encryption is enabled.</li> </ul>
Copy settings from existing LDAP server	This checkbox appears only when there are existing AA server settings on the Dominion KX IV–101. To duplicate any existing AA server's settings, refer to the duplicating procedure below.
Type of LDAP Server	Choose one of the following options: <ul style="list-style-type: none"> <li>▪ OpenLDAP</li> <li>▪ Microsoft Active Directory. .</li> </ul>
Security	Determine whether you would like to use TLS encryption, which allows the Dominion KX IV–101 to communicate securely with the LDAPS server. Three options are available: <ul style="list-style-type: none"> <li>▪ StartTLS</li> <li>▪ TLS</li> <li>▪ None</li> </ul>
Port (None/StartTLS)	<ul style="list-style-type: none"> <li>▪ The default Port is 389, or specify another port.</li> </ul>
Port (TLS)	<b>Configurable only when "TLS" is selected in the Security field.</b> The default port is 636, or specify another port.
Enable verification of LDAP Server Certificate	Select this checkbox if it is required to validate the LDAP server's certificate by the Dominion KX IV–101 prior to the connection.  If the certificate validation fails, the connection is refused.

Field/setting	Description
CA Certificate	<p>Consult your AA server administrator to get the CA certificate file for the LDAPS server.</p> <p>Click Browse to select and install the certificate file.</p> <ul style="list-style-type: none"> <li>Click Show to view the installed certificate's content.</li> <li>Click Remove to delete the installed certificate if it is inappropriate.</li> </ul> <hr/> <p><i>Note: If the required certificate file is a chain of certificates, and you are not sure about the requirements of a certificate chain, see <a href="#">TLS Certificate Chain</a>.</i></p>
Allow expired and not yet valid certificates	<ul style="list-style-type: none"> <li>Select this checkbox to make the authentication succeed regardless of the certificate's validity period.</li> <li>After deselecting this checkbox, the authentication fails whenever any certificate in the selected certificate chain is outdated or not valid yet.</li> </ul>
Anonymous Bind	<p>Use this checkbox to enable or disable anonymous bind.</p> <ul style="list-style-type: none"> <li>To use anonymous bind, select this checkbox.</li> <li>When a Bind DN and password are required to bind to the external LDAP/LDAPS server, deselect this checkbox.</li> </ul>
Bind DN	<p><b>Required after deselecting the Anonymous Bind checkbox.</b></p> <p>Distinguished Name (DN) of the user who is permitted to search the LDAP directory in the defined search base.</p>
Bind Password, Confirm Bind Password	<p><b>Required after deselecting the Anonymous Bind checkbox.</b></p> <p>Enter the Bind password.</p>
Base DN for Search	<p>Distinguished Name (DN) of the search base, which is the starting point of the LDAP search.</p> <ul style="list-style-type: none"> <li>Example: <code>ou=dev,dc=example,dc=com</code></li> </ul>
Login Name Attribute	<p>The attribute of the LDAP user class which denotes the login name.</p> <ul style="list-style-type: none"> <li>Usually it is the <code>uid</code>.</li> </ul>
User Entry Object Class	<p>The object class for user entries.</p> <ul style="list-style-type: none"> <li>Usually it is <code>inetOrgPerson</code>.</li> </ul>

Field/setting	Description
User Search Subfilter	Search criteria for finding LDAP user objects within the directory tree.
Group lookup using memberOf attribute	Use this checkbox to enable or disable group lookup. <ul style="list-style-type: none"> <li>Based on memberOf attribute group will be find.</li> </ul>
Group Member Attribute	Group attribute that contains DNs of member users (only if memberOf is not used).
Group entry object class	Object class denoting group objects (only if memberOf is not used).
Group search subfilter	Additional filter to lookup group objects (only if memberOf is not used).
Active Directory Domain	The name of the Active Directory Domain. <ul style="list-style-type: none"> <li>Example: <code>testldap.com</code></li> </ul>

1. Click Test Connection to check if Dominion KX IV–101 can connect with the server.
2. Click Add Server. The new LDAP server is listed on the Authentication page. To add more servers, repeat the same steps. If you have multiple servers, use the arrow buttons to set their order, then click Save Order.
3. To start using these settings, make sure LDAP is selected and saved in the Authentication Type field. See **Configuring Authentication** (on page 114).

### Configure Group on the Dominion KX IV–101


A group on the Dominion KX IV–101 determines the permissions. You must create the groups whose names are identical to the user groups created for the Dominion KX IV–101 on the AD server or authorization will fail. See Configure User Groups on the AD Server. Therefore, we will create the groups named *KX\_User* and *KX\_Admin* on the Dominion KX IV–101. In this example, we will create two user groups with different permissions. Each group will consist of two user accounts available on the AD server.

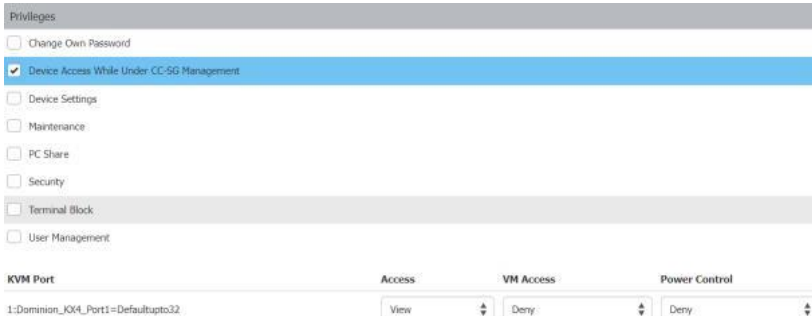
User group	User accounts (members)
KX_User	usera
	kxuser2
KX_Admin	userb
	kxuser

#### Group permissions:

- The KX\_User group will have only view permission to kvm port.
- The KX\_Admin group will have full privileges and all the permissions to the kvm port.

#### ▶ To create the KX\_User group with appropriate permissions assigned:

1. Choose User Management > Groups.
2. Click  to add a new group.
  - a. Type KX\_User in the Group Name field.
  - b. Type a description for the KX\_User group in the Description field. In this example, we type "View Only KVM Port" to describe the group.
  - c. In the Privileges list, select Device Access While Under CC-SG Management. This will allow user to view the KVM port even the device is under CC-SG control.



Privileges

Change Own Password

Device Access While Under CC-SG Management

Device Settings

Maintenance

PC Share

Security

Terminal Block

User Management

KVM Port

Access VM Access Power Control

1: Dominion\_K04\_Port1=Defaultupto32

View Deny Deny

- d. Click Save.

3. The KX\_User group is created.

Group Name ▲	Description
Admin	System defined administrator group including all privileges.
Group_A	Radius test group
<b>KX_User</b>	View Only KVM Port

► To create the KX\_Admin group with full permissions assigned:

1. Click to add another group.
  - a. Type KX\_Admin in the Group Name field.
  - b. Type a description for the KX\_Admin group in the Description field. In this example, we type "Includes all privileges" to describe the group.
  - c. In the Privileges list, select all Privileges. This allows users to configure or change Dominion KX IV–101 settings.
  - d. For KVM Port give full Control Access, Read-Write VM Access, and full Power Control.

Privileges

- Change Own Password
- Device Access While Under CC-SG Management
- Device Settings
- Maintenance
- PC Share
- Security
- Terminal Block
- User Management

KVM Port

KVM Port	Access	VM Access	Power Control
1: Dominion_KVM_Port1=DefaultUp32	Control	Read-Write	Access

- e. Click Save.
2. The KX\_Admin group is created.

Group Name ▲	Description
Admin	System defined administrator group including all privileges.
Group_A	Radius test group
<b>KX_Admin</b>	Includes all privileges



## Radius Authentication

Gather the information you need to add your Radius servers to Dominion KX IV–101. For help, see **Gathering LDAP/Radius Information** (on page 114).

### ► To add Radius servers:

1. Click User Management > Authentication.
2. In the Radius section, click New. Enter your Radius details.

Field/setting	Description
IP Address / Hostname	The IP address or hostname of your Radius server.
Type of RADIUS Authentication	Select an authentication protocol. <ul style="list-style-type: none"> <li>▪ PAP (Password Authentication Protocol)</li> <li>▪ MS-CHAP v2 (Microsoft's Point-to-Point Tunneling Protocol)</li> <li>▪ CHAP (Challenge Handshake Authentication Protocol)</li> </ul> CHAP is generally considered more secure because the user name and password are encrypted, while in PAP they are transmitted in the clear.
Authentication Port, Accounting Port	The defaults are standard ports -- 1812 and 1813. To use non-standard ports, type a new port number.
Timeout	This sets the maximum amount of time to establish contact with the Radius server before timing out. Type the timeout period in seconds.
Retries	Type the number of retries.
Shared Secret, Confirm Shared Secret	The shared secret is necessary to protect communication with the Radius server.

3. Click Test Connection to check if Dominion KX IV–101 can connect with the server.
4. Click Add Server. The new Radius server is listed on the Authentication page. To add more servers, repeat the same steps. If you have multiple servers, use the arrow buttons to set their order, then click Save Order.
5. To start using these settings, make sure Radius is selected and saved in the Authentication Type field. See **Configuring Authentication** (on page 114).

---

### Returning User Group Information via RADIUS

When a RADIUS authentication attempt succeeds, the Dominion KX IV–101 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}
```

where *GROUP\_NAME* is a string denoting the name of the group to which the user belongs.

---

### RADIUS Using RSA SecurID Hardware Tokens

Dominion KX IV–101 supports RSA SecurID Hardware Tokens used with a RADIUS server for two factor authentication

Users will specify their RADIUS password followed by the token ID without a delimiter between.

▶ **For example:**

- password = apple
- token = 1234
- User enters: apple1234

Or, configure the RADIUS server to use only hardware token and no passwords. Users will specify the token ID only.

---

## Disabling External Authentication

▶ **To disable external authentication:**

1. Click User Management > Authentication.
2. In the Authentication Type, select Local.
3. Click Save.

---

## Change Your Password

▶ **To change your password:**

1. Click User Management > Change Password.
2. Enter your old password, then enter your new password twice. Click Save.

## Connected Users

You can check which users have logged in to the Dominion KX IV–101 and their status. You can see the list of connected users without any special permission, but to terminate any user's connection, you must be administrator.

► **To view and manage connected users:**

1. Click User Management > Connected Users. A list of logged-in users displays.

Connected Users				
User Name ▲	IP Address	Client Type	Idle Time	
admin	192.168.84.22	Web GUI	0 min	Disconnect
Mary	192.168.84.24	Web GUI	0 min	Disconnect

Column	Description
User name	The login name of each connected user.
IP Address	The IP address of each user's host. For the login via a local connection (USB), <local> is displayed instead of an IP address.
Client Type	Web GUI: Refers to the web interface. CLI: Serial (local, such as USB connection) or SSH RDM: CC-SG or User Station
Idle Time	The length of time for which a user remains idle.

- a. To disconnect any user, click Disconnect.
- b. Click Disconnect on the confirmation message. The user is forced to log out.

## Users and Groups


All users must have a user account, containing the login name and password. Multiple users can log in simultaneously using the same login name. The admin user is created by default, and cannot be deleted, but you can change the username.

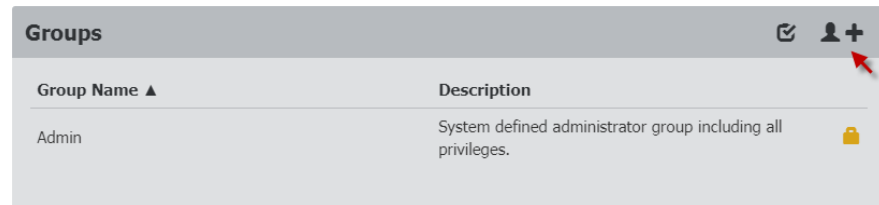
Privileges are assigned at the Group level, so you must also add groups, and assign your users to Groups. An admin group is created by default and has exclusive privileges. See **Admin Group Special Privileges** (on page 131).

When a user is assigned to multiple groups with different privilege levels, the highest-level of access specified is allowed to the user.

User group privilege changes take effect for the users in the group at the next login.

### ▶ To add groups:

1. Click User Management > Groups, then click the add group icon 



2. Complete the New Group information:

Field/setting	Description
Group Name	<ul style="list-style-type: none"> <li>▪ 1 to 32 characters</li> <li>▪ Case sensitive</li> <li>▪ Spaces are permitted.</li> </ul>
Description	<ul style="list-style-type: none"> <li>▪ Enter a description of the group's role.</li> <li>▪ Up to 64 characters.</li> </ul>

3. Select the Privileges assigned to this group. All tasks noted here as exclusions are available exclusively to the admin group. See **Admin Group Special Privileges** (on page 131).
  - Change Own Password: Allows users to change their own password.

- **Device Access While Under CC-SG Management:** Allows users to directly access the Dominion KX IV–101 using an IP address when Local Access is enabled for the device in CC-SG. When a device is accessed directly while it is under CC-SG management, access and connection activity is logged on the Dominion KX IV–101. User authentication is performed based on Dominion KX IV–101 authentication settings.
- **Device Settings:** All functions in the Device Settings menu except Enable and Configure SNMPv3
- **Maintenance:** All functions in the Maintenance menu except Backup/Restore and Reset to Factory Defaults
- **PC Share:** Simultaneous access to the same target by multiple users
- **Security:** All functions in the Security menu
- **Terminal Block:** All settings in Device Settings > Terminal Block, and access to the externally connected device using the KVM client
- **User Management:** All functions in the User Management menu except Disconnect Users

**Privileges**

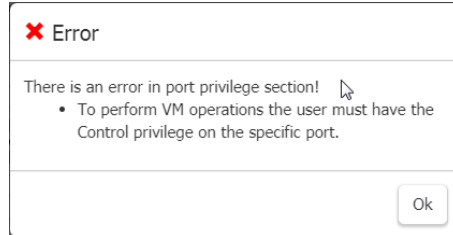
- Change Own Password
- Device Access While Under CC-SG Management
- Device Settings
- Maintenance
- PC Share
- Security
- Terminal Block
- User Management

4. Select the Access and VM privileges for the KVM Port.

KVM Port	Access	VM Access	Power Control
1:KX4101_5989_primary	Deny	Deny	Deny

- Access: Deny, View, Control
- VM Access: Deny, Read-only, Read-write
- Power Control: Access, Deny

*Some privileges require certain access permission. If you do not set the needed permissions, an error will display.*



5. When a DSAM unit is connected, the Serial Port section is available to select the Access privileges for the Serial Ports.
  - Access: Deny, View, Control

DSAM Serial Port	Access
1.1:DSAM1 Port 1	View
1.2:DSAM1 Port 2	Control
1.3:DSAM1 Port 3	Deny
1.4:DSAM1 Port 4	Deny

6. When PDUs are configured, the Power Control section is available to select the privileges to control power.
7. Power control: Access or Deny can be assigned to the KVM ports, the Serial ports or to the PDUs.

KVM Port	Access	VM Access	Power Control
1: Dominion_K04_Port1	Deny	Deny	Deny

DSAM Serial Port	Access	Power Control
2.1:DSAM2 Port 1	Control	Access
2.2:DSAM2 Port 2	Deny	Deny
2.3:DSAM2 Port 3	Deny	Deny
2.4:DSAM2 Port 4	Deny	Deny


PDU Device	Power Control
PX3	Access

8. The Restrictions section has options for restricting client views and blocking keys.

- Select Hide Client Toolbar and Menu Bar to remove these components from view for this group. Scaling and hotkeys for Single Mouse, Full-Screen, Scale Video and Disconnect from Target will be available.
- In the Block Key Stroke field, select a keycode list to restrict the users in this group from using the keys in the list. See **Keycode List** (on page 146).

9. Click Save. To assign these privileges and restrictions to users, select the group when you add or edit the user.

► **To add users:**

1. Click User Management > Users, then click the add user icon .

Enabled ▲	User Name	Full Name	Roles
✓	admin	Administrator	Admin

2. Complete the User information:

Field/setting	Description
Username	The name the user enters to log in to the Dominion KX IV–101. <ul style="list-style-type: none"> <li>▪ 4 to 32 characters</li> <li>▪ Case sensitive</li> <li>▪ Spaces, ":", "/" are NOT permitted.</li> </ul>
Full Name	The user's first and last names. <ul style="list-style-type: none"> <li>▪ Up to 64 characters</li> </ul>
Password Confirm Password	<ul style="list-style-type: none"> <li>▪ 4 to 64 characters</li> <li>▪ Case sensitive</li> <li>▪ Spaces are permitted.</li> </ul>
Telephone Number	The user's telephone number
eMail Address	The user's email address

Field/setting	Description
	<ul style="list-style-type: none"> <li>Up to 128 characters</li> <li>Case sensitive</li> </ul>
Enable	When selected, the user can log in to the Dominion KX IV-101.
Force password change on next login	When selected, a password change request automatically appears the next time the user logs in.

### New User

User

Username	<input type="text" value="user"/>
Full Name	<input type="text" value="User One"/>
Password	<input type="password" value="....."/>
Confirm password	<input type="password" value="....."/>
Telephone Number	<input type="text" value="555-555-5555"/>
eMail Address	<input type="text" value="user@legrand.com"/>
Enable	<input checked="" type="checkbox"/>
Force password change on next login:	<input type="checkbox"/>

3. SSH: The SSH public key is required when public key authentication for SSH is enabled. See **SSH Settings** (on page 156).
4. Open the SSH public key with a text editor.
5. Copy and paste all content in the text editor into the SSH Public Key field.

SSH

SSH Public Key

```
$ cat ~/.ssh/id_rsa.pub
ssh-rsa AAAAK8zaC1vc2EAAAABiwAAAOEakIOUpkDhrfHY1
GPJ+nafzIHDTYW7hd14yZ5ew18JH4JW9jbbhUFrviQzM7xIELE
P997fO8J/LKIBIWXFCR+HAo3FXRitBqxIX1nKhXpHAZsMciLq6
t3FaoJoAsncM1Q9x5+3V0Ww68/eIdksKUdFrEJKprX88XvpN
mZ+AW4OZPnTP189ZPmVMLuayrD2cE86Z/il8b+gw3r3+1nt
NrRFi9wrf+M7Q== user@legrand.local
```

6. SNMPv3: The SNMPv3 access permission is disabled by default. This section appears when the permission is enabled in the SNMP settings, or when a user is part of the admin group.



Field/setting	Description
Enable SNMPv3	Select this checkbox when intending to permit the SNMPv3 access by this user.  Note: The SNMPv3 protocol must be enabled for SNMPv3 access. See Configuring SNMP Settings.
Security Level	Click the field to select a preferred security level from the list: <ul style="list-style-type: none"> <li>▪ None: No authentication and no privacy. This is the default.</li> <li>▪ Authentication: Authentication and no privacy.</li> <li>▪ Authentication &amp; Privacy: Authentication and privacy.</li> </ul>

- **Authentication Password:** This section is configurable only when 'Authentication' or 'Authentication & Privacy' is selected.

Field/setting	Description
Same as User Password	Select this checkbox if the authentication password is identical to the user's password.  To specify a different authentication password, disable the checkbox.
Password, Confirm Password	Type the authentication password if the 'Same as User Password' checkbox is deselected.  The password must consist of 8 to 32 ASCII printable characters.

- **Privacy Password:** This section is configurable only when 'Authentication & Privacy' is selected.

Field/setting	Description
Same as Authentication Password	Select this checkbox if the privacy password is identical to the authentication password.  To specify a different privacy password, disable the checkbox.
Password, Confirm Password	Type the privacy password if the 'Same as Authentication Password' checkbox is deselected.  The password must consist of 8 to 32 ASCII printable characters.


- **Protocol:** This section is configurable only when 'Authentication' or 'Authentication & Privacy' is selected.

Field/setting	Description
Authentication	Click this field to select the desired authentication protocol. Two protocols are available: <ul style="list-style-type: none"> <li>▪ MD5</li> <li>▪ SHA-1 (default)</li> </ul>
Privacy	Click this field to select the desired privacy protocol. Two protocols are available: <ul style="list-style-type: none"> <li>▪ DES (default)</li> <li>▪ AES-128</li> </ul>

1. Groups: Select the groups this user belongs to. Users have the privileges assigned to their groups.
2. Click Save.

► **To edit a user; change the admin username:**

1. Click User Management > Users, then click to select the user you want to edit.



Enabled ▲	Username	Full Name	Groups	
✓	admin	Administrator	Admin	Unblock
✓	User1	User One	Admin	Unblock

2. Change the user information as needed, then click Save.

---

### Admin Group Special Privileges

The following special privileges are exclusively available to the admin group.

- Backup/Restore
- Disconnect Connected users
- Reset to Factory Defaults
- Diagnostics
- Enable SNMPv3 in the SNMP agent (SNMP gets and sets)
- Configure SNMPPMv3 user parameters
  - Security Level
  - Authentication Protocol
  - Authentication Password
  - Privacy Password
  - Privacy Protocol

# Device Settings and Information

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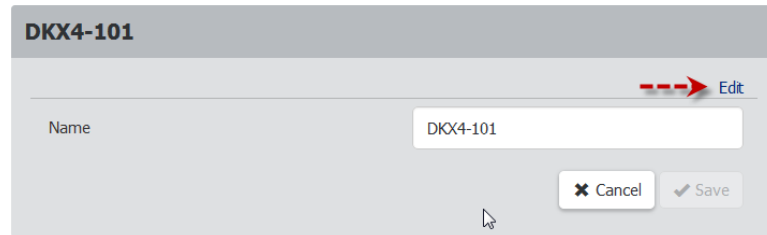
---

## Device Information

Click Device Information to view name, system, and network details about your Dominion KX IV-101. In this page you can also rename your device, and view open source license information.

▶ **To edit your device name:**

- Click Device Information, then click Edit to enter a new name. Click Save.



► **To view system details and status:**

- System Details: View the product name, model, firmware version, hardware ID, and serial number.
- System Status: View the internal temperatures status, and local monitor status.

System	
<b>Detail</b>	
Product	KX4
Model	DKX4-101
Firmware Version	4.2.0.5.48758
Hardware ID	2
Serial Number	11T8C00002
<b>Status</b>	
Internal Temperature Current Value	40.8°C / 105.3°F
Internal Temperature Maximum Value	46.1°C / 115.0°F
Local Monitor Preferred Resolution	1920x1080 @ 60Hz

► **To view network details:**

- View the network details as currently configured: IPv4 address, MAC address, Link state, DNS servers, DNS suffixes, DNS resolver preference, and IPv4/IPv6 routes.

Network	
<b>Ethernet</b>	
IPv4 address	192.168.59.219/24
IPv6 addresses	fd07:2fa:6cff:2030::219 (unique local) fe80::20d:5dff:fe00:2ec (link local)
MAC Address	00:0d:5d:00:02:ec
Link State	1 GBit/s, full duplex, link OK, autonegotiation
Authentication State	Disabled
<b>Common</b>	
DNS Servers	192.168.61.228, 192.168.50.107
DNS Suffixes	raritan.com
DNS Resolver Preference	IPv4 Address
IPv4 Routes	192.168.59.0/24 dev ETHERNET default via 192.168.59.126 (ETHERNET)
IPv6 Routes	fd07:2fa:6cff:2030::/64 dev ETHERNET default via fd07:2fa:6cff:2030::1 (ETHERNET) fe80::/64 dev ETHERNET

► **To view DSAM details:**

- When a DSAM unit is attached, view the hardware details: name, port number, USB port location, model, firmware version, hardware ID, serial number.

DSAM	
DSAM1	
Name	DSAM1
Port Number	1
USB Port	Back Bottom
Model	DSAM-4
Firmware Version	1.0
Hardware ID	0x0
Serial Number	RKK6B00009

---

## Auto Scan

The Auto Scan feature uses one of the Dominion KX IV–101 video channels to automatically scan and capture a screenshot of your target video at a specified time interval. Images are scaled and saved to a directory on your Network File Server. Image files are named after the port name, and saved as .JPG files. The image file is overwritten as each new capture is saved.

PC Share Mode should be enabled when using Auto Scan to ensure images can be captured and sent to the NFS server. When PC Share Mode is disabled, Auto Scan cannot capture a port image when the port is already occupied by another user. Go to Security > KVM Security to enable PC Share Mode.

While Auto Scan is enabled, the function will perform similarly to a connected user. In the User Management > Connected Users list, details are listed as shown here. The connection occupied by Auto Scan can be "disconnected" by disabling Auto Scan.

Connected Users				
Username ▲	IP Address	Client Type	Idle Time	
admin	Autoscan-Occupied	AutoScan	0 min	Disconnect
admin	192.168.62.29	Web GUI	0 min	Disconnect

► **To configure auto scan settings:**

1. Choose Device Settings > Auto Scan.

2. Enable Auto Scan: Click the checkbox to enable the setting.
3. Scan Scale %: Saved images will be resized according to the scale percentage. 1%-100%.
4. Scan Interval (seconds): Enter the number of seconds between image captures. 10 seconds - 86400 seconds.
5. NFS Server IP Address/Host Name: Enter the network file server IPv4/IPv6 IP address or host name.
6. NFS Server Directory: Enter the directory on the network file server that will store the image file. For example, `/nfs/autoscan`
7. Maximum number of stored snapshot image files: Enter the total number of snapshots to be saved. When the maximum number of image files is reached, the oldest file will be replaced with the new image file.
8. Click Save to apply the settings.
9. When Auto Scan is enabled, view the status in the Device Info page. Go to Device Info, then check Auto Scan NFS in the System section.

### Auto Scan

Enable Auto Scan	<input checked="" type="checkbox"/>
Scan Scale (%)	<input type="text" value="100"/>
Scan Interval (seconds)	<input type="text" value="10"/>
NFS Server IP Address/Host Name	<input type="text" value="192.168.50.155"/>
NFS Server Directory	<input type="text" value="/home/shans/temp"/>
Maximum number of stored snapshot image files	<input type="text" value="10"/>

ⓘ The snapshot image file will be overwritten at interval time if maximum number of snapshot image files is 0.

▶ **Auto Scan NFS Status:**

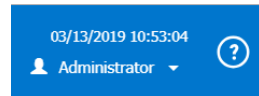
When Auto Scan is disabled, it does not appear in Device Info > Status. When enabled, possible status are:

- On
- Suspended
- Failed
- Connecting

## Date and Time

Set the internal clock on the Dominion KX IV–101 manually, or link to a Network Time Protocol (NTP) server.

The Dominion KX IV–101 system date and time appears in the upper right corner of the web interface.

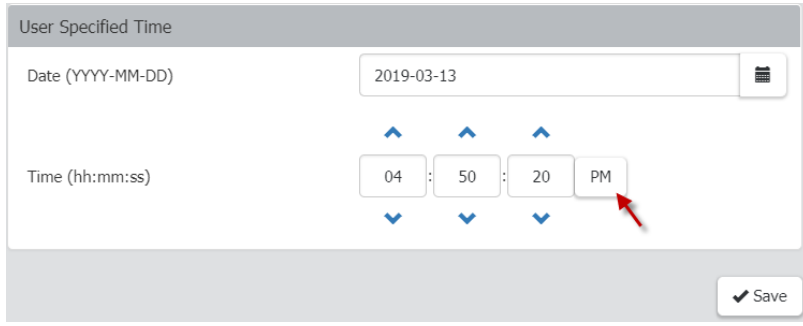


► **To set the date and time:**

1. Click Device Settings > Date/Time.
2. Select your Time Zone.
3. If your area participates in daylight saving time, verify the Automatic Daylight Saving Time Adjustment checkbox is selected.
4. Select the Time Setup Method:
  - User Specified Time: Set the time manually.
  - Synchronize with NTP Server

**User Specified Time**

- Click the calendar icon to select the Date.
- Enter the time in Hours, Minutes and Seconds. Specify AM or PM. Click AM/PM to toggle the setting.
- Click Save.





### Synchronize with NTP server

- To use the DHCP-assigned NTP servers: **leave the First and Second time server fields blank.** DHCP-assigned NTP servers are available when either IPv4 or IPv6 DHCP is enabled. See **Network** (on page 147).

The screenshot shows the 'NTP Settings' form with two empty text input fields labeled 'First Time Server' and 'Second Time Server'. Below the fields is a 'Check NTP Servers' button.

- To specify NTP servers manually, enter the primary NTP server in the First Time Server field. A secondary NTP server is optional. Click Check NTP Servers to verify. Click Save.

The screenshot shows the 'NTP Settings' form with the 'First Time Server' field containing the IP address '192.168.22.124'. The 'Second Time Server' field is empty. Below the fields is a 'Check NTP Servers' button. At the bottom right of the form is a 'Save' button with a checkmark icon.

## Event Management

All supported events are logged in the system log by default. You can also create additional actions for any event, including sending an email, sending an SNMP notification, and forwarding a syslog message.

### ▶ Configuring events and actions:

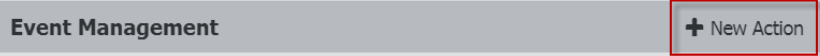
1. Click Device Settings > Event Management.
  - The Event Management page shows events by Category. Click a category to view individual events. In this example, New Action1 syslog, New Action1 snmp, and System Event Log Action have been added and assigned to all User Activity and User Administration events.
2. Select the event check boxes to assign an action to an event. Click Save.

3. You can select the Power Operation event under Outlet Port and notify through email, syslog or snmp events.

Event Management <span style="float: right;">+ New Action</span>						
Category	Event	SNMPv2	SNMPv3	Email	Syslog	System Event Log Action
> All Events	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
> Device	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
> XMM Port	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
▼ Outlet Port		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Outlet State	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Port settings Changed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Power Operation	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
> Serial Port	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
▼ User Activity		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	User accepted the Restricted Service Agreement	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Authentication failure	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	User login state	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Session timeout	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	User blocked	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
▼ User Administration		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Password changed	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Password settings changed	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Restricted Service Agreement changed	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Group added	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Group deleted	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Group modified	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	User added	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	User deleted	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	User modified	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

► **To add an action:**

1. Click New Action.



2. Assign a name to this action.
3. Select the desired action and configure it.
  - Email Actions: See **Send Email** (on page 139)
  - SNMP Actions: See **SNMP Notifications** (on page 139)
  - Syslog Actions: See **Syslog Messages** (on page 143)
4. Click Create.

## Send Email

Use this action to send an email according to your preconfigured SMTP settings, or create actions with one or more customized SMTP settings.

See **Event Management** (on page 137) for help assigning this action to an event.

### ▶ To create the send email action:

The screenshot shows a 'New Action' configuration window. The 'Action Name' field contains 'Email Admins'. The 'Action' dropdown menu is set to 'Send email'. The 'Recipient Email Addresses' field contains 'nina@raritan.com, steve@raritan.com'. Under the 'SMTP Server' section, the 'Use default settings' radio button is selected. Below this, the 'Server Name' is 'raritan.com' and the 'Sender Email Address' is 'user@raritan.com'. A note states 'Settings can be changed in SMTP Server settings.' The 'Use custom settings' radio button is unselected. At the bottom right, there are 'Cancel' and 'Create' buttons.

1. Select Send Email from the Action list.
2. In the Recipient Email Addresses field, enter the email addresses of the recipients. Use a comma to separate multiple email addresses.
3. By default, the SMTP server settings will be used to complete this action. To view or change those settings, click the SMTP Server hyperlink.
  - To use a different SMTP server, click the "Use custom settings" radio button. The fields for customized SMTP settings appear. See **SMTP Server Settings** (on page 154).
4. Click Create.

## SNMP Notifications

Use this action to send an SNMP notification to one or more SNMP servers.

See **Event Management** (on page 137) for help assigning this action to an event.

### ▶ To create the SNMP notification action:

1. Select Send SNMP Notification from the Action list.
2. Select the type of SNMP notification. Follow the procedure below based on your selection.

▶ **SNMP v2c notifications:**

### New Action

Action Name:

Action:

Notification Type:

#	Host	Port	Community
1	<input type="text" value="192.168.22.57"/>	<input type="text" value="162"/>	<input type="text" value="users"/>
2	<input type="text"/>	<input type="text" value="162"/>	<input type="text"/>
3	<input type="text"/>	<input type="text" value="162"/>	<input type="text"/>

1. In the Notification Type field, select SNMPv2c Trap.
2. In the Host fields, enter the IP address of the device(s) you want to access. This is the address to which notifications are sent by the SNMP system agent.
3. In the Port fields, enter the port number used to access the device(s).
4. In the Community fields, enter the SNMP community string to access the device(s). The community is the group representing the Dominion KX IV-101 and all SNMP management stations.
5. Click Create.

*Tip: An SNMP v2c notification action permits a maximum of three SNMP destinations. If you need to assign more than 3 SNMP destinations to an event, you can create and assign multiple actions comprising all the destinations.*

▶ **SNMP v3 notifications:**

*Note: Duplicated SNMP Trap v3 secName (User ID) is not supported when multiple SNMP Trap destinations are configured.*

**New Action**

Action Name:

Action:

---

Notification Type:

Engine ID: 0x800035ae8000b33777b6039fc0984c22b1bdb30173383275011bae2170354383

Host:

Port:

User ID:

Security Level:

1. In the Notification Type field, select SNMPv3 Trap. The engine ID is prepopulated.
2. Enter the following as needed and then click OK to apply the settings:
  - a. Host: Enter the IP address of the device(s) you want to access. This is the address to which notifications are sent by the SNMP system agent.
  - b. Port number
  - c. User ID for accessing the host -- make sure the User ID has SNMPv3 permission.
  - d. Select the host security level:

Security level	Description
"noAuthNoPriv"	Select this if no authorization or privacy protocols are needed.

Security level	Description
"authNoPriv"	Select this if authorization is required but no privacy protocols are required. Select the authentication protocol - MD5 or SHA Enter the authentication passphrase and then confirm the authentication passphrase
"authPriv"	Select this if authentication and privacy protocols are required. Select the authentication protocol - MD5 or SHA Enter the authentication passphrase and confirm the authentication passphrase Select the Privacy Protocol - DES or AES Enter the privacy passphrase and then confirm the privacy passphrase

3. Click Create.

### Syslog Messages

Use this action to automatically forward event messages to the specified syslog server. Determine the syslog transmission mechanism you prefer when setting it up.

Dominion KX IV–101 may or may not detect syslog message transmission failure. Detected syslog failures and reasons are saved in the event log.

See **Event Management** (on page 137) for help assigning this action to an event.


► **To create the syslog message action:**

#### New Action

Action Name	<input type="text" value="Syslog Example"/>
Action	<input style="border-bottom: 1px solid #ccc;" type="text" value="Syslog message"/>
Syslog Server	<input type="text" value="192.168.1.1"/>
Transport Protocol	<input style="border-bottom: 1px solid #ccc;" type="text" value="UDP"/>
Legacy BSD Syslog Protocol	<input checked="" type="checkbox"/>
UDP Port	<input type="text" value="514"/>

1. Select Syslog Message from the Action list.
2. In the Syslog Server field, specify the IP address to which the syslog is forwarded.
3. In the Transport Protocol field, select one of the syslog protocols: UDP, TCP, or TCP+TLS. The default is UDP.

Transport protocols	Next steps
UDP	<ul style="list-style-type: none"> <li>▪ In the UDP Port field, type an appropriate port number. Default is 514.</li> <li>▪ Select the "Legacy BSD Syslog Protocol" checkbox if applicable.</li> </ul>
TCP	NO TLS certificate is required. Type an appropriate port number in the TCP Port field.

Transport protocols	Next steps
TCP+TLS	<p>A TLS certificate is required.</p> <ul style="list-style-type: none"><li>▪ Type an appropriate port number in the "TCP Port" field. Default is 6514.</li><li>▪ In the CA Certificate field, click  to select a TLS certificate. After importing the certificate, click Show to view its contents, or click Remove to delete.</li><li>▪ To allow event messages even if any TLS certificate in the selected certificate chain is outdated or not valid yet, select the "Allow expired and not yet valid certificates" checkbox.</li></ul>

4. Click Create.



---

**Dominion KX IV–101 Events**

- Event log cleared - Event log was cleared
- CC Management Started - CC-SG management started
- CC Management Stopped - CC-SG management stopped
- Device settings restored - Device settings were restored
- Device settings saved - Device settings were backed up
- DSAM Connected - A DSAM connected to KX4-101
- DSAM Disconnected - A DSAM disconnected from KX4-101
- DSAM Controller Recovery - DSAM controller was recovered
- DSAM Controller Reset - DSAM Controller was reset
- DSAM Firmware update completed - DSAM firmware update completed
- DSAM Firmware update started - DSAM firmware update started
- Firmware update completed - KX4-101 firmware update completed
- Firmware update failed - KX4-101 firmware update failed
- Firmware update started - KX4-101 firmware update started
- Firmware validation failed - KX4-101 firmware validation failed
- A LDAP error occurred - A LDAP error was occurred
- Local Port Out Disabled - Local port output disabled
- Local Port Out Enabled - Local port output enabled
- Network interface link state is up - Network interface link state is up
- NFS Mount - NFS mount status  
(started/suspended/resumed/succeeded/failed)
- PDU Connected - A PDU connected to KX4-101
- PDU Disconnected - A PDU disconnected from KX4-101
- Radius error occurred - A Radius error was occurred
- Sending SMTP message failed - Sending SMTP message failed
- Sending Syslog message failed - Sending Syslog message failed
- System reset - System reset
- System started - System started
- Terminal block settings changed - Terminal block settings changed
- Terminal block status changed - Terminal block status changed
- KVM Port Connected - KVM Port was connected
- KVM Port Disconnected - KVM Port was disconnected
- KVM Port settings Changed - KVM Port settings changed
- Video Scan Started - Target scan was started  
Video Scan Stopped- Target scan was stopped
- VM Image Connected - A VM image was connected
- VM Image Disconnected - A VM image was disconnected
- Outlet Port State - Outlet port state of On/Off

- Outlet Port settings Changed - Outlet Port settings changed
- Outlet Port Power Operation - Outlet Port Power Operation (On/Off/Cycle)
- Serial Port Alert String - A keyword was detected
- Serial Port Connected – Serial port was connected
- Serial Port Disconnected - Serial port was connected
- Serial Port settings Changed - Serial port settings changed
- User accepted the Restricted Service Agreement - User accepted/declined the restricted service agreement
- Authentication failure - Authentication was failed
- User logon state - User logged in/out
- Session timeout - Session was timed out
- User blocked - User was blocked
- Password changed - Password was changed.
- Password settings changed - Password settings were changed
- Restricted Service Agreement changed - Restricted Service Agreement was changed
- Group added - Group was added
- Group deleted - Group was deleted
- Group modified - Group was modified
- User added - User was added
- User deleted - User was deleted
- User modified - User was modified

---

## Keycode List

Use the Keycode List feature to create lists of keys you want to block from being used. Assign the list to a user group to block the group from using those keys. Keycode lists are created by keyboard language type. You are provided with a list of keys that can be blocked for each keyboard type.

When users are assigned more than one blocked keycode list, a given key will be available if it is not included on every keycode list. For example, a user is in groups with both List1 and List2 assigned. If List1 restricts F1, but List2 does not restrict F1, the user would be able to use F1

► **To add a new keycode list:**

1. Click Device Settings > Keycode List.
2. Click New.
3. Enter a Keypset Name to identify this list of keys to be blocked.  
The keyset name is used when you assign the list to a user group. See **Users and Groups** (on page 124).
4. Select the Keyboard Type by language.
5. Select each Key you want to block from the Keys list, then click Add Key.

The added keys appear in the Keys Selected list. Click the Remove button to delete a key from the list.

6. When complete, click Add Keyset.

▶ **To edit a keycode list:**

1. Click Device Settings > Keycode List.
2. Click a keycode list by name to select it. The selected list is highlighted blue.
3. Click Edit to make changes to the list, and click Modify Keyset to save.

▶ **To delete a keycode list:**

1. Click Device Settings > Keycode List.
2. Click a keycode list by name to select it. The selected list is highlighted blue.
3. Click Delete to remove the list.

▶ **To block a user group from a keyset:**

Select the keyset in the User Management > Group settings. See **Users and Groups** (on page 124).

## Network

The default network setting is DHCP-enabled for IPv4. You can find your automatically assigned IP address in the Device Information page. See **Device Information** (on page 132). Dominion KX IV-101 supports 802.1X network authentication protocol.

*Note: Network settings cannot be changed when the device is under CC-SG management.*

▶ **IPv4 settings:**

Field/setting	Description
Enable IPv4	Enable or disable the IPv4 protocol.
IP auto configuration	Select the method to configure IPv4 settings. <ul style="list-style-type: none"> <li>▪ <i>DHCP</i>: Auto-configure IPv4 settings via DHCP servers.</li> <li>▪ <i>Static</i>: Manually configure the IPv4 settings.</li> </ul>

- **DHCP settings:** Optionally specify the preferred hostname, which must meet the following requirements:
  - Consists of alphanumeric characters and/or hyphens
  - Cannot begin or end with a hyphen
  - Cannot begin with a number

- Cannot contain punctuation marks, spaces, and other symbols
- Maximum 253 characters
- **Static settings:** Assign a static IPv4 address, which follows this syntax "IP address/prefix length".  
Example: *192.168.84.99/24*

▶ **IPv6 settings:**

Field/setting	Description
Enable IPv6	Enable or disable the IPv6 protocol.
IP auto configuration	Select the method to configure IPv6 settings. <ul style="list-style-type: none"> <li>▪ <i>Automatic:</i> Auto-configure IPv6 settings via DHCPv6.</li> <li>▪ <i>Static:</i> Manually configure the IPv6 settings.</li> </ul>

- **Automatic settings:** Optionally specify the preferred hostname, which must meet the above requirements.
- **Static settings:** Assign a static IPv6 address, which follows this syntax "IP address/prefix length".  
Example: *fd07:2fa:6cff:1111::0/128*

▶ **Interface Settings:**

Field	Description
Speed	<ul style="list-style-type: none"> <li>▪ Select a LAN speed.</li> <li>▪ Auto: System determines the optimum LAN speed through auto-negotiation.</li> <li>▪ 10 MBit/s: Speed is always 10 Mbps.</li> <li>▪ 100 MBit/s: Speed is always 100 Mbps.</li> <li>▪ 1 GBit/s: Speed is always 1 Gbps (1000 Mbps).</li> </ul>
Duplex	<ul style="list-style-type: none"> <li>▪ Select a duplex mode.</li> <li>▪ Auto: The Dominion KX IV–101 selects the optimum transmission mode through auto-negotiation.</li> <li>▪ Full: Data is transmitted in both directions simultaneously.</li> <li>▪ Half: Data is transmitted in one direction (to or from the Dominion KX IV–101) at a time.</li> </ul>
Current state	Show the LAN's current status, including the current speed and duplex mode.

Field	Description
Authentication	<p>Select an authentication method.</p> <ul style="list-style-type: none"> <li>▪ <i>No Authentication</i>: No authentication data is required.</li> <li>▪ <i>EAP</i>: Use Protected Extensible Authentication Protocol. Enter required authentication data in the fields that appear.</li> </ul>
Outer authentication	<p>This field appears when 'EAP' is selected.</p> <p>There are two authentication methods for EAP.</p> <ul style="list-style-type: none"> <li>▪ <i>PEAP</i>: A TLS tunnel is established, and an inner authentication method can be specified for this tunnel.</li> <li>▪ <i>TLS</i>: Authentication between the client and authentication server is performed using TLS certificates.</li> </ul>
Inner authentication	<p>This field appears when both 'EAP' and 'PEAP' are selected.</p> <ul style="list-style-type: none"> <li>▪ <i>MS-CHAPv2</i>: Authentication based on the given password using MS-CHAPv2 protocol.</li> <li>▪ <i>TLS</i>: Authentication between the client and authentication server is performed using TLS certificates.</li> </ul>
Identity	<p>This field appears when 'EAP' is selected.</p> <p>Type your user name.</p>
Password	<p>This field appears only when 'EAP', 'PEAP' and 'MS-CHAPv2' are all selected.</p> <p>Type your password.</p>

Field	Description
Client certificate, Client private key, Client private key password	<p>This field appears when 'EAP', 'PEAP' and 'TLS' are all selected.</p> <p>PEM encoded X.509 certificate and PEM encoded private key are required for certification-based authentication methods. Private key password is optional.</p> <ul style="list-style-type: none"> <li>▪ Private keys in PKCS#1 and PKCS#8 formats are supported.</li> <li>▪ Client Private Key Password should be entered only when your private key is encrypted with a password.</li> <li>▪ To view the uploaded certificate, click Show Client Certificate.</li> <li>▪ To remove the uploaded certificate and private key, click 'Clear Key/Certificate selection'.</li> </ul>
CA certificate	<p>This field appears when 'EAP' is selected.</p> <p>A third-party CA certificate may or may not be needed. If needed, follow the steps below.</p>
RADIUS authentication server name	<p>This field appears when 'EAP' is selected.</p> <p>Type the name of the RADIUS server if it is present in the TLS certificate.</p> <ul style="list-style-type: none"> <li>▪ The name must match the fully qualified domain name (FQDN) of the host shown in the certificate.</li> </ul>

*Note: Auto-negotiation is disabled after setting both the speed and duplex settings of the Dominion KX IV–101 to NON-Auto values, which may result in a duplex mismatch.*

• **Available settings for the CA Certificate:**

If the required certificate file is a chain of certificates, and you are not sure about the requirements of a certificate chain, see: **TLS Certificate** (on page 179)

Field/setting	Description
Enable verification of TLS certificate chain	Select this checkbox for the Dominion KX IV–101 to verify the validity of the TLS certificate that will be installed. <ul style="list-style-type: none"> <li>For example, the certificate's validity period against the system time is checked.</li> </ul>
Browse button	<p>A client certificate is required for two scenarios: EAP+TLS, and EAP+PEAP+TLS.</p> <p>Click this button to import a certificate file. Then you can:</p> <ul style="list-style-type: none"> <li>Click Show to view the certificate's content.</li> <li>Click Remove to delete the installed certificate if it is inappropriate.</li> </ul>
Allow expired and not yet valid certificates	<ul style="list-style-type: none"> <li>Select this checkbox to make the authentication succeed regardless of the certificate's validity period.</li> <li>After deselecting this checkbox, the authentication fails whenever any certificate in the selected certificate chain is outdated or not valid yet.</li> </ul>
Allow connection if system clock is incorrect	<p>If powered off for a long time, the system time may be incorrect.</p> <p>When this checkbox is deselected, and if the system time is incorrect, the installed TLS certificate is considered not valid yet and will cause the wireless network connection to fail.</p> <p>When this checkbox is selected, it will make the wireless network connection successful when the system time is earlier than the firmware build before synchronizing with any NTP server.</p>

▶ **Common Network Settings:**

Common Network Settings are OPTIONAL. If there are no specific local networking requirements, leave the default settings.

Field	Description
DNS resolver preference	Determine which IP address is used when the DNS resolver returns both IPv4 and IPv6 addresses. <ul style="list-style-type: none"> <li>▪ IPv4 Address: Use the IPv4 addresses.</li> <li>▪ IPv6 Address: Use the IPv6 addresses.</li> </ul>
DNS suffixes (optional)	Specify a DNS suffix name if needed.
First/Second DNS server	Manually specify static DNS server(s). <ul style="list-style-type: none"> <li>▪ If any static DNS server is specified in these fields, it will override the DHCP-assigned DNS server.</li> <li>▪ If DHCP (or Automatic) is selected for IPv4/IPv6 settings, and there are NO static DNS servers specified, the Dominion KX IV–101 will use DHCP-assigned DNS servers.</li> </ul>

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## Network Services

The Dominion KX IV–101 supports the following network communication services:

- Discovery
- HTTP/HTTPS
- SMTP Server
- SNMP
- SSH

---

### Discovery Port

Dominion KX IV–101 uses the default Discovery Port 5000 for communication with other Raritan products, such as User Station and CC-SG. You can change the port number if needed, but it cannot be changed while the device is under CC-SG management.

The device will transmit information about itself (make,model,firmware version,encryption) in clear text unless the encryption option is selected.

► **To change the default discovery port:**

1. Click Device Settings > Network Services > Discovery Port.
2. Enter the port number.
3. Select the Encrypted checkbox to encrypt the transmission of device information.



4. Click Save.

**< Network Services | Discovery**

Discovery Port

Encrypted

### HTTP/HTTPS Ports

Dominion KX IV–101 uses the default HTTP/HTTPS ports 80/443. You can change the default if needed.

HTTP access will be redirected to HTTPS.

► **To change the default HTTP/HTTPS ports:**

1. Click Device Settings > Network Settings > HTTP/HTTPS Ports.
2. Select the HTTP Access checkbox if you need HTTP enabled.
3. Enter the port numbers then click Save.

**< Network Services | HTTP/HTTPS**

**HTTP**

HTTP Access  Enable

Port

**HTTPS**

Port

4. The connection to the device will refresh with new HTTP/HTTPS port numbers. You must login again.

*Note: Port forwarding with non standard https port works when HTTP port is disabled and a valid TLS certificate added into the "Trusted Root Certification Authorities" zone. The common name of the certificate must match the IP address or hostname of the device.*

### SMTP Server Settings

To send event emails, you must configure the SMTP settings and enter an IP address for your SMTP server and a sender's email address. See **Event Management** (on page 137).


If any email messages fail to be sent successfully, the failure event and reason are available in the event log. See **Event Log** (on page 185).

► **To set SMTP server settings:**

1. Click Device Settings > Network Services > SMTP Server.
2. Enter the information needed.

Field	Description
IP address/host name	Type the name or IP address of the mail server.
Port	Type the port number. <ul style="list-style-type: none"> <li>▪ Default is 25</li> </ul>
Sender email address	Type an email address for the sender.
Number of sending retries	Type the number of email retries. <ul style="list-style-type: none"> <li>▪ Default is 2 retries</li> </ul>
Time between sending retries	Type the interval between email retries in minutes. <ul style="list-style-type: none"> <li>▪ Default is 2 minutes.</li> </ul>
Server requires authentication	Select this checkbox if your SMTP server requires password authentication, then enter the username and password.
User name	<ul style="list-style-type: none"> <li>▪ 4 to 64 characters allowed. Case sensitive.</li> <li>▪ No spaces allowed in user name.</li> <li>▪ Spaces are allowed in password.</li> </ul>
Password	
Enable SMTP over TLS (StartTLS)	Select this checkbox if your SMTP server supports TLS.

▪ **Settings for the CA Certificate:**

Field/setting	Description
	<ul style="list-style-type: none"> <li>▪ Click Browse to import a certificate file. Then you can:</li> <li>▪ Click Show to view the certificate's content.</li> <li>▪ Click Remove to delete the installed certificate.</li> </ul>

Field/setting	Description
Allow expired and not yet valid certificates	<ul style="list-style-type: none"> <li>▪ Select this checkbox to make the authentication succeed regardless of the certificate's validity period.</li> </ul>

3. To test the settings:
  - a. Enter a Recipient Email Address. Separate multiple email addresses with a comma.
  - b. Click Send Test Email and verify emails are received.
4. Click Save.

---

*Note: The Dominion KX IV–101 device's TLS-based protocols support AES 128 and 256-bit ciphers. The exact cipher to use is negotiated between the device and the client web browser. To force a specific cipher, check your client documentation for configuring AES settings.*

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### SNMP Settings

You can enable or disable SNMP communication between an SNMP manager and the Dominion KX IV–101.

#### ▶ To configure SNMP communication:

1. Click Device Settings > Network Services > SNMP.
2. Enable or disable SNMP v1 / v2c and/or SNMP v3 by clicking the corresponding checkbox.
  - a. The SNMP v1/v2c read-only access is enabled by default. The default 'Read community string' is "public".
  - b. To enable read-write access, type the 'Write community string.' Usually the string is "private".
3. Enter the MIB-II system group information, if applicable.
  - a. sysContact - the contact person in charge of the system
  - b. sysName - the name assigned to the system
  - c. sysLocation - the location of the system
4. Click the download link to get the SNMP MIB to use with your SNMP manager.

5. Click Save.

The image shows a web-based configuration interface for SNMP. It is divided into three main sections:

- SNMP Agent:** Contains four settings: 'Enable SNMP v1 / v2c' (checked), 'Read Community String' (public), 'Write Community String' (private), and 'Enable SNMP v3' (unchecked).
- MIB-II System Group:** Contains three text input fields for 'sysContact', 'sysName', and 'sysLocation', all of which are currently empty.
- Download MIBs:** Contains a single button labeled 'download' next to the text 'RADM-MIB'.

A 'Save' button with a checkmark icon is located at the bottom right of the interface.

---

### SSH Settings

Enable or disable SSH access to the CLI, change the TCP port, or set a password or public key for login over SSH.

► **SSH settings:**

1. Click Device Settings > Network Services > SSH.
2. To enable or disable SSH access, select or deselect the checkbox.
3. To change the default port 22, type a port number.
4. Select one of the authentication methods.
  - Password authentication only: Enables password-based login only.
  - Public key authentication only: Enables public key-based login only.
  - Password and public key authentication: Enables both password and public key-based login, which allows either login authentication method to be used. This is the default setting.

---

*If public key authentication is selected, you must enter a valid SSH public key for each user profile to log in over the SSH connection. See **Users and Groups** (on page 124)*

---

5. Click Save.

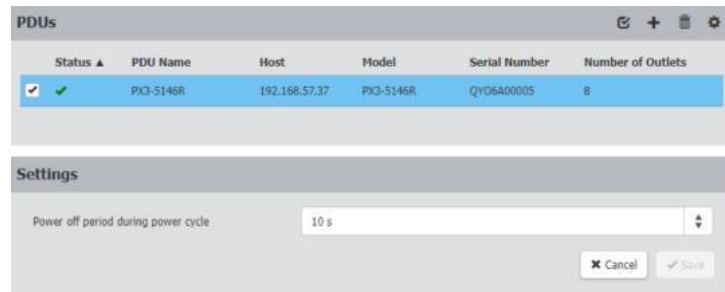
## PDU Management

Power Distribution Units (PDUs), including Raritan PX2 and PX3 and Server Technology PRO3X, can be added to the Dominion KX IV–101 using SNMP. You can configure up to 8 PDUs in the Dominion KX IV–101 and get their current status. You can see all the added PDUs on the PDU Management page. The Dominion KX IV–101 checks the connection status of the configured PDU every 30 seconds. If it fails 10 times consecutively, the Dominion KX IV–101 will stop further checks. After adding PDUs, you can configure power associations to targets. See **Port Configuration: Power Association** (on page 18).

### ▶ Added PDUs Information

All the added PDUs will show the following information:

- Status
- PDU Name
- Host or IP
- Model
- Serial Number
- Number of Outlets



Status	PDU Name	Host	Model	Serial Number	Number of Outlets
✓	PX3-5146R	192.168.57.37	PX3-5146R	QY06A00005	8

**Settings**

Power off period during power cycle: 10 s


Buttons: Cancel, Save

*Note: Value of Power off period during power cycle applies to all the configured PDUs.*

### Adding PDUs

Dominion KX IV–101 supports PDUs using Simple Network Management Protocol (SNMP).

#### ▶ To add a PDU:

1. Choose Device Settings > PDU Management and then click the add button .
2. On the New PDU page enter:
  - PDU Type: Select Raritan PDU or Server Technology PRO3X.
  - Name: Enter a PDU Name.
  - Host: Enter the hostname or the IP of the PDU.

- SNMP Version: Select from the list: SNMP 1/2c or SNMP v3.
- Port: By default, 161 is the listening port.
- To enable an SNMP v1/v2 agent choose the SNMP Version as SNMP1/2c. This enables Write community string field. Choose from the following:
  - Enter the Write Community string.
- To enable an SNMP v3 agent choose the SNMPv3 and fill in the following information:
  - Enter the SNMP Manager "User" name in the UserID field. User ID may have 1-32 characters.
  - Select Security level: Select from the list:No Authentication & No Privacy, Authentication and Authentication & Privacy. If Authentication and or Privacy level are selected then you need to provide more information as follows.
  - Select MD5 or SHA from the Authentication Protocol drop-down list.
  - Enter the Authentication Passphrase in the field. Passphrase may have 8-64 characters. Authentication Passphrase should be different from Privacy Passphrase for best security practices.
  - Select, DES, or AES in the Privacy Protocol drop-down list.
  - Enter the Privacy Passphrase. Passphrase may have 8-64 characters. Authentication Passphrase should be different from Privacy Passphrase for best security practices.
  - Confirm the Passphrase.

The screenshot shows a 'New PDU' configuration form with the following fields and values:

Field	Value
PDU Type	Raritan PDU
Name	PK3-590CR
Host	192.168.57.36
SNMP Version	SNMPv3
Port	161
Write community string	
User ID	admin
Security level	Authentication & Privacy
Authentication protocol	MD5
Authentication passphrase	*****
Confirm authentication passphrase	*****
Privacy protocol	DES
Privacy passphrase	*****
Confirm privacy passphrase	*****

Buttons: Cancel, Save

3. Click Save.
4. The PDU is added and appears in the PDU list on the PDU Management page.

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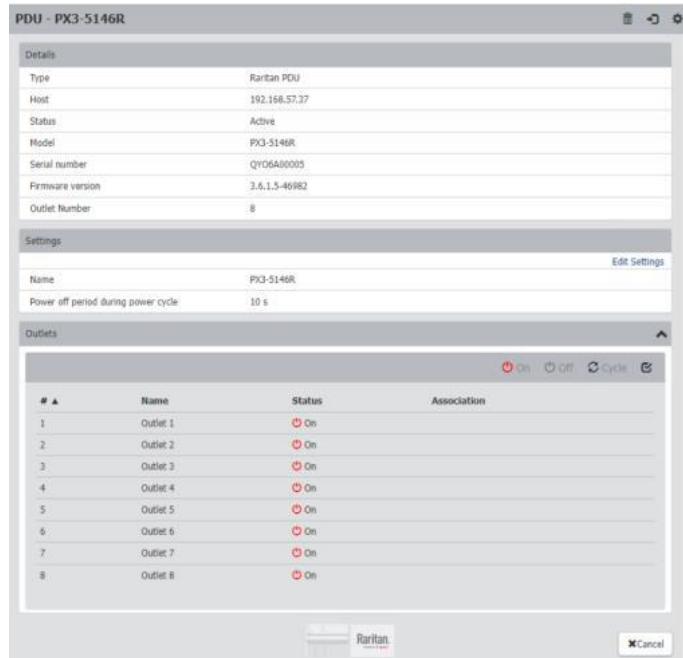
## PDU and Outlet Details

You can view the details of each configured PDU and its outlets.

► **To view PDU and outlet details:**

1. Choose Device Settings > PDU Management.
2. Click the PDU you want to view. Details, Settings and Outlets of the selected PDU display.
  - Details:
    - Type: Raritan PDU or ServerTech PRO3X
    - Host/IPaddress: Hostname or IP address of the PDU
    - Status: Active or inactive status of the PDU
    - Model: Model number of the PDU
    - Serial number: Serial number of the PDU
    - Firmware version: Firmware version of the PDU
    - Outlet Number: Total number of outlets of the PDU
  - Settings:
    - Name: Name of the PDU
    - Power off period during power cycle: Configured power off time period of the PDU during the power cycle
  - Outlets:

- Outlet numbers: List of outlets
- Name: Outlets names. To edit the name, click the outlet, then change the name on the Outlet Settings and click Save.
- Status: Outlet status of on or off
- Associations: Associations to KVM Ports or DSAM Serial Ports. If there is no association, the field is blank.



---

*Note: PDU, outlet names, and power off period during power cycle can be customized. These are saved in the Dominion KX IV–101. However, when the Dominion KX IV–101 is managed by CC-SG, name updates and power association can only be done from CC-SG. Note that these updates are not synced to the PDUs.*

---


### **Edit, Resume, and Delete PDUs**

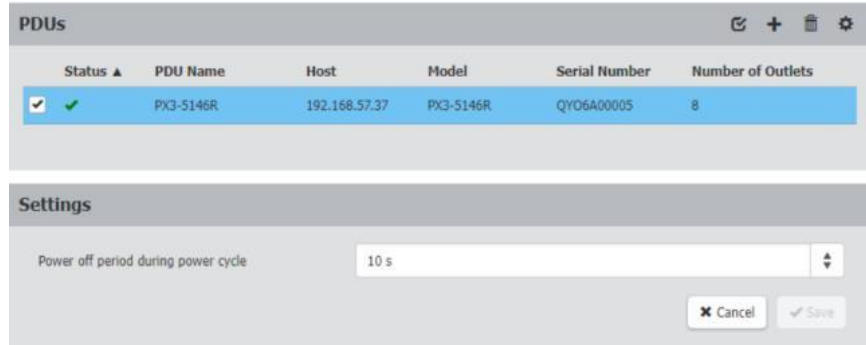
You can edit a PDU's configuration details, resume it's connectivity after a lapse, or delete a PDU from the Dominion KX IV–101.


#### **▶ To Edit a PDU:**

1. Choose Device Settings > PDU Management.




- Click the Select icon  to enable the checkboxes in the PDUs list.





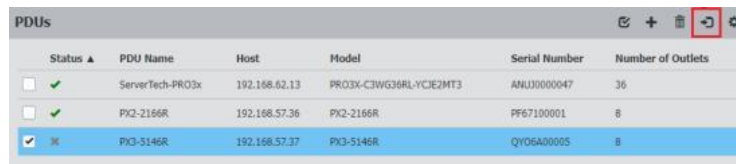
- Select the PDU and click the Settings icon .
- Update configuration information and click Save.


**▶ Resume a PDU:**

When the PDU stops communicating with the Dominion KX IV–101, the cross icon  under Status appears. You can resume the PDU connection.





- Choose Device Settings > PDU Management.
- Click the Select icon  to enable the checkboxes in the PDUs list.
- Select one or multiple PDUs, then click the resume icon .
- Click Resume to confirm. Resume icon appears when the PDU drops communication with the Dominion KX IV–101.



The Status shows the green check icon  when the connection resumes successfully.

**▶ To Delete a PDU:**

You can remove the added PDUs.

- Choose Device Settings > PDU Management.
- Click the Select icon  to enable the checkboxes in the PDUs list.
- Select the PDU and click the Trash icon .

4. Click Delete to confirm. The PDU is removed from the PDU list page.

---

### Settings for Power Cycling

The "Power off period during power cycle" settings controls how long the PDU outlet will remain powered down during a power cycle. By default, the delay before power is turned back on is 10 seconds.

► **To configure settings for power cycling:**

1. Click Device Settings > PDU Management.
2. In the Settings section, select a value for "Power off period during power cycle" from the list.
3. Click Save.

---

*Note: Value selected for the power off period during power cycle will be applied to all PDUs.*

---



---

### Outlet Power Operations

In the Outlets section of the PDU detail page you can perform power operation on one or multiple outlets.

1. Click Device Settings >PDU Management.
2. Click the PDU.
3. The PDU details page displays.
4. Scroll down to the Outlets section.

► **Power On**

1. Click the Select icon  to enable the checkboxes in the PDUs list.
2. Select one or multiple outlets.
3. Click On and then click Switch on to confirm.
4. All selected outlets turn on and show On status.

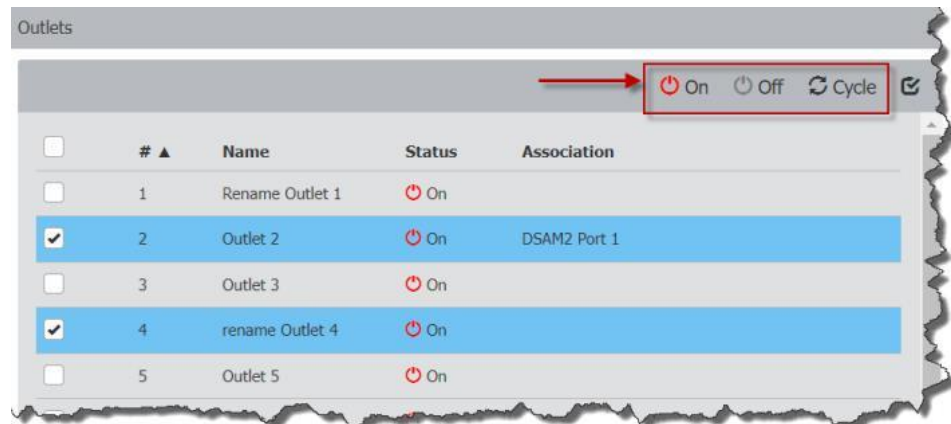
► **Power Off**

1. Click the Select icon  to enable the checkboxes in the PDUs list.
2. Select one or multiple outlets.

3. Click Off and then click Switch off to confirm.
4. All selected outlets turn off and show Off Status.

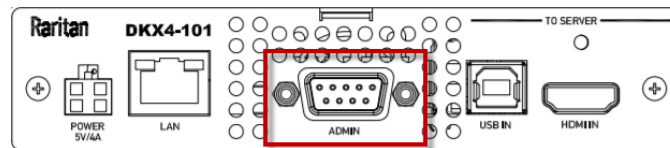
▶ **Power Cycle**

1. Click the Select icon  to enable the checkboxes in the PDUs list.
2. Select one or multiple outlets.
3. Click Cycle and then click Power cycle to confirm.
4. All selected outlets turn off, remain off for the configured power cycle delay period, then turn back on. After completion, the outlets show "On" Status.



## Serial Port

The Serial Port setting controls the baud rate of the Dominion KX IV–101 serial port. Dominion KX IV–101's serial port supports CLI serial console use only.



▶ **To configure the serial port:**

1. Click Device Settings > Serial Port.
2. Enter the Baud Rate and click Save.

**Serial Port**

Baud Rate  bit/s

---

## Serial Port Keyword List

Port keywords work as a filter. If a keyword is detected, a notification is sent to the following:

- Audit Log
- Syslog Server (if configured)
- SNMP (if configured)
- SMTP (if configured)

This feature is useful for notifying administrators if a particular event occurs on a port.

For keywords to trigger when no users are connected to a port, "Always Active" must be selected on the port's Port Configuration page.

A list of existing port keywords is displayed on the Port Configuration page as well.

► **To configure serial port keywords:**

1. Choose Device Settings > Serial Port Keyword List. The Serial Port Keyword List page opens.
2. Click Add at the bottom of list on the page. The Keyword page opens.
3. Type a keyword in the Keyword field.
4. Select the Port(s) you want to associate with that keyword.
5. Click Add to add them to the Selected box.

Click OK.

---

## Terminal Block Control

The Terminal Block Control feature allows you to configure an external device that is connected to the terminal block of the Dominion KX IV–101.

The Dominion KX IV–101 has one input terminal and one output terminal.

### ▶ Input Terminal:

- Two pins
- Supports an external push button or switch input
- Binary switches only
- Use case: turning off remote access when maintenance is being performed on the target

### ▶ Output Terminal:

- Three pins
- Two relays. One Normally Open (NO), and Normally Closed (NC). Both relays share the same common, so it is preferred to use only one. When using both at the same time, the common must be wired correctly.
- Use cases: performing remote power control of a server via its power button, turning on a light when a remote user is connected, or turning on a door lock or camera.
- Supported output devices: LED, Buzzer, PC Power Button. Output devices must provide their own power.

### ▶ Permissions:

There are several types of permissions involved in configuring and using terminal block control.

- To configure the terminal block settings, you must have the Terminal Block privilege. See **Users and Groups** (on page 124). With this privilege, you can access the Device Settings > Terminal Block Control page, which allows you to enable or disable input and output, and set permissions to allow input control for remote and local users, and configure the action of the output control. See procedure below.
- In addition to setting the permissions in the Terminal Block page, you must give all remote and local users Port Access permissions. The KVM Client's External Device menu will be accessible to users with the correct combined permissions. See **Users and Groups** (on page 124).
- You must enable local port output. The setting Security > KVM Security > Disable Local Port Output will override all other permissions. See **KVM Security** (on page 172).

### ▶ Terminal Block Control Settings: Input

1. Click Device Settings > Terminal Block Control.

Input Configuration	
Enable External Input Switch	Enable or disable the input switch.
Input State For Access Control	The input state for access control: Open or Closed. Default value is Closed.
Current External Input Switch State	The current state: Open or Closed. Input state allows control of the device access.
Give Remote Console User	Select the access permission for remote console users. <ul style="list-style-type: none"> <li>▪ Full Access: Default setting.</li> <li>▪ Video Only</li> <li>▪ No Access: No video, keyboard, and mouse activity allowed, VM session terminated, KVM session terminated, Connection to target disallowed.</li> </ul>
Give Local Console User	Select the access permission for local console users. <ul style="list-style-type: none"> <li>▪ Full Access</li> <li>▪ Video Only</li> <li>▪ No Access</li> </ul>

2. Click Save.

### Terminal Block Control

Input

Enable External Input Switch

Input State For Access Control Closed

Current External Input Switch State Open

---

Give Remote Console User

Full Access  
 Video Only  
 No Access

---

Give Local Console User

Full Access  
 Video Only  
 No Access

▶ **Terminal Block Control Output Settings and Actions:**

1. Click Device Settings > Terminal Block Control.
2. Scroll down for the Output settings and actions.

Output Configuration	
Enable External Device	Enable or disable the external device.
External Device State	The external device state is displayed: <ul style="list-style-type: none"> <li>▪ On</li> <li>▪ Off</li> <li>▪ Blinking</li> </ul>
Action	Select the radio button for the output action you want to perform on the external device: <ul style="list-style-type: none"> <li>▪ Turn External Device On/Off: Click On or Off.</li> <li>▪ Pulse External Device: Sends a pulse to the device, either off to on, or on to off. Initial state of pulse can be changed by clicking button "On" and "Off".</li> <li>▪ Blink External Device: Make sure the blink interval is set as desired.</li> <li>▪ Turn External Device Based On KVM Port Status: Allows KVM Port Status Association</li> <li>▪ KVM Port Status Association: Turn On when KVM Port Busy or Connected or Turn On when KVM Port Idle.</li> </ul>
Blink/Pulse Interval	Set interval between blinks or pulses in half-seconds. Default is 1. <ul style="list-style-type: none"> <li>▪ Blink range: 1-100 half-seconds</li> <li>▪ Pulse range: 1 - 100 half-seconds</li> </ul>

Output

Enable External Device

External Device State On

---

Action

Turn External Device On/Off  
 Blink External Device  
 Turn External Device Based On KVM Port Status

KVM Port Status Association

Turn On when KVM Port Busy or Connected  Turn On when KVM Port Idle

3. Click Save.

### Connecting the Terminal Block to a Motherboard

Dominion KX IV–101 can control one external switch, either power SW or reset SW, by connecting the terminal block to the pins on a motherboard of the external device.

There are power SW and reset SW headers on most motherboards. They are normally connected to the push buttons on the front panel of the case.

- Connect the two pin header to NO(normally open) of the terminal block on the Dominion KX IV–101.

### Virtual Media Shared Images

Configure Virtual Media Shared Images when using virtual media to access file server ISO images. ISO9660 format is the standard supported. However, other CD-ROM extensions may also work.

No.	IP Address / Hostname	Share Name	Image Path	Enable SAMBA v1.0
1	192.168.1.211	isos	/fedora28.iso	no
2	windows2012.systemtestest2.local	isos	windows2016.iso	no
3	windows2012.systemtestest2.local	isos	/OSFiles/ubuntu18.iso	no
4	fedora.systemtestest2.local	sambaguest	/OSFiles/openSUSE.iso	no
5	192.168.1.12	isoshare	/Fedora29.iso	yes

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

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

1. Click Device Settings > Virtual Media Shared Images.
2. Click New to add a shared image.
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. Up to 248 characters.
  - Share Name: Share name portion of the ISO image.
  - Image Path: Full path name of the location of the ISO image. For example, /path0/image0.iso, \path1\image1.iso, and so on.
  - Select the Enable Samba 1.0 checkbox to allow Dominion KX IV–101 to use an older Samba version. When unchecked, Samba 3.0 is used.
4. Click Test Connection to verify.
5. Click Add Shared Image.



# Security

## In This Chapter

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---

### Group Based Access Control

Group based access control rules are similar to IP access control rules, except that they are applied to members of a user group. This enables you to grant system permissions to groups, based on their IP addresses.

The order of role-based access control rules is important, since the rules are executed in numerical order.

► **To create IPv4 or IPv6 group based access control rules:**

1. Choose Security > Group Based Access Control.
2. Select the Enable Group Based Access Control for IPv4 or scroll down to select the checkbox for IPv6.

#	Start IP	End IP	Group	Policy	
1	192.168.22.57	192.168.22.59	Admin	Deny	↑ ↓ 🗑️

3. Determine the default policy.
  - Accept: Accepts traffic when no matching rules are present.
  - Deny: Rejects any user's login attempt when no matching rules are present.
4. Create rules and put them in priority order.
  - Enter Start IP and End IP, Group the rule applies to, and Policy.

- Click Append to add another rule. To add a rule above another, select a rule and click Insert Above.
  - To rearrange rules in order, click the arrow buttons on each rule.
  - To delete a rule, click the trashcan icon.
5. Click Save. Note that IPv4 and IPv6 rules are saved separately.

---

## IP Access Control

IP access control rules (firewall rules) determine whether to accept or discard traffic to/from the Dominion KX IV–101, based on the IP address of the host sending or receiving the traffic. When creating rules, keep these principles in mind:

- **Rule order is important.**

When traffic reaches or is sent from the Dominion KX IV–101, the rules are executed in numerical order. Only the first rule that matches the IP address determines whether the traffic is accepted or discarded. Any subsequent rules matching the IP address are ignored.

- **Prefix length is required.**

When typing the IP address, you must specify it in the CIDR notation. That is, BOTH the address and the prefix length are included. For example, to specify a single address with the 24-bit prefix length, use this format:

*x.x.x.x/24*

*/24* = the prefix length.

► **To create IPv4 or IPv6 IP access control rules:**

1. Choose Security > IP Access Control.
2. Select the Enable IP Access Control for IPv4 or scroll down to select the checkbox for IPv6.
3. Select the Default Policy:
  - Accept: Accepts traffic from all addresses.
  - Drop: Discards traffic from all addresses, without sending any failure notification to the source host.
  - Reject: Discards traffic from all addresses, and an ICMP message is sent to the source host for failure notification.
4. Go to the Inbound Rules section or the Outbound Rules section according to your needs.
  - Inbound rules control the data sent to the Dominion KX IV–101.
  - Outbound rules control the data sent from the Dominion KX IV–101.
5. Create rules and put them in priority order.
  - Enter IP address and mask and select the Policy.
  - Click Append to add another rule. To add a rule above another, select a rule and click Insert Above.

- To rearrange rules in order, click the arrow buttons on each rule. The selected rule displays in blue.
- To delete a rule, click the trashcan icon.

**IP Access Control**

IPv4

Enable IPv4 Access Control

**Inbound Rules**

Default Policy

#	IP/Mask	Policy	
1	<input type="text" value="192.168.22.57/24"/>	<input type="text" value="Drop"/>	<input type="button" value="↑"/> <input type="button" value="↓"/> <input type="button" value="🗑️"/>

**Outbound Rules**

Default Policy

#	IP/Mask	Policy	
no rules defined			

6. Click Save. Note that IPv4 and IPv6 rules are saved separately.

## KVM Security

The KVM Security settings page includes options for encryption mode, virtual media, local ports, and other functions that affect the device locally.

► **To configure KVM Security settings:**

1. Click Security > KVM Security.

2. Select options as needed.

Field/setting	Description
Apply Encryption Mode to KVM and Virtual Media	Select this checkbox to use encryption for virtual media as well as KVM. <i>Note: Only applies to AKC and VKCs target launches.</i>
PC Share	Select PC Share to allow concurrent remote KVM access, enabling up to eight remote users to simultaneously log into one Dominion KX IV–101 and concurrently view and control the same target server through the device. <i>Note: PC Share mode cannot be disabled when Auto Scan is enabled. See <b>Auto Scan</b> (on page 134).</i>
PC Share Idle Timeout	Set an idle time limit for users in PC Share mode. If a user has not moved the mouse or entered keyboard input and the timeout period expires, the user relinquishes control, and another user can access keyboard and mouse control of the target.

Field/setting	Description
Virtual Media Share	This option is available only when PC-Share mode is enabled. When selected, Virtual Media Share permits the sharing of virtual media and audio among multiple users, that is, several users can access the same virtual media or audio session. The default is disabled.
Disable Local Port Output	If you will be using the Terminal Block Control feature, make sure this checkbox is cleared. When Disable Local Port Output is selected, this setting will override all other permissions for terminal block control. See <b>Terminal Block Control</b> (on page 165).
Local Device Reset Mode	This option specifies which actions are taken when the hardware Reset button on the device is depressed. Choose one of the following options: <ul style="list-style-type: none"> <li>▪ Enable Local Factory Reset (default): Returns the Dominion KX IV–101 device to the factory defaults.</li> <li>▪ Enable Local Admin Password Reset: Resets the local administrator password only. The password is reset to "raritan".</li> <li>▪ Disable All Local Resets: No reset action is taken.</li> </ul>
Enable Direct Port Access via URL	When selected, users can access the target directly by entering login credentials for the Dominion KX IV–101 in a URL. See <b>Direct Port Access URL</b> (on page 174).
Allow IFrame	Enabling this option will allow WEB GUI to be embedded into iFrame, but it will decrease security level.

---

### Direct Port Access URL

When Direct Port Access is enabled, you can access a target directly with a special URL that you can bookmark. This allows you to bypass logging into the Dominion KX IV–101 to connect to the target.

- 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. Port number is "1".
- If the port is omitted altogether, an error is reported.
- Any special characters in the username, password, or port name must be passed in encoded URL codes.

▶ **Direct Port Access with VKCS:**

If you are using VKCS and direct port access, use one of the following syntaxes for standard ports.

▪ <code>https://IPaddress/dpa.asp?username=username&amp;password=password&amp;port=1&amp;client=vkcs</code>
▪ <code>https://IPaddress/dpa.asp?username=username&amp;password=password&amp;portname=portname&amp;client=vkcs</code>

▶ **Direct Port Access with AKC:**

If you are using AKC and direct port access, use one of the following syntaxes for standard ports.

▪ <code>https://IPaddress/dpa.asp?username=username&amp;password=password&amp;port=1&amp;client=akc</code>
▪ <code>https://IPaddress/dpa.asp?username=username&amp;password=password&amp;portname=portname&amp;client=akc</code>

▶ **Direct Port Access with HKC:**

If you are using HKC and direct port access, use one of the following syntaxes for standard ports.

▪ <code>https://IPaddress/dpa.asp?username=username&amp;password=password&amp;port=1&amp;client=hkc</code>
▪ <code>https://IPaddress/dpa.asp?username=username&amp;password=password&amp;portname=portname&amp;client=hkc</code>

## Direct Port Access via SSH for DSAM

### ► To Enable DSAM Direct Port Access

This feature provides Direct Port Access (DPA) for DSAM ports via SSH. When Direct Port Access via SSH is enabled, you can configure a SSH port for each DSAM ports. The SSH port should be unique, and cannot conflict with the other Dominion KX IV–101 opened ports, such as SSH, HTTPS, Discovery. It is not necessary to configure all the SSH Ports for the available DSAM ports.

When enabled, all the configured SSH DPA ports will be opened; when disabled, all the SSH DPA ports will be closed. Changing the configured ports to empty or unplugging the DSAM will close all the ports. If you replug the same DSAM to the same Dominion KX IV–101, the configuration of SSH DPA ports will be auto-retrieved and will open all the configured ports.

*Note: Connect one or two DSAM units to the Dominion KX IV–101.*

1. Choose Security > KVM Security. The KVM Security page opens.
2. Scroll down to the Direct Port Access via SSH section and select Enable Direct Port Access via SSH checkbox.
3. Enter a unique SSH Port number for each DSAM port you want to configure.
4. Click Save.

No.	Name	SSH Port
2.1	DSAM2 Port 1	<input type="text"/>
2.2	DSAM2 Port 2	<input type="text"/>
2.3	DSAM2 Port 3	<input type="text"/>
2.4	DSAM2 Port 4	<input type="text"/>

### ► To Access DSAM Ports

You can also directly access DSAM ports using SSH session:

- `ssh -l [user]:[DSAM Port Number] [KX4-101 IP/Hostname]`

*Note: Above command does not require SSH port setup for the DSAM ports.*

- `ssh -l [user] -p [SSH Port] [KX4-101 IP/Hostname]`

*Note: Above command requires SSH ports setup for each DSAM. See To Enable DSAM Direct Port Access*

---

## Login Settings

The Login Settings page contains options for user blocking and login limitations.

The default Login Setting is:

- Block user on login failure: Enabled
- Block timeout: 5 minutes
- Maximum number of failed logins: 3

► **To configure login settings:**

1. Click Security > Login Settings.
2. To block users for failed logins, select the Block user on login failure checkbox, then configure the parameters.
  - Block timeout: Select the time period that users with failed logins will be blocked from logging in.
  - Maximum number of failed logins: Enter the number of failed login attempts that users can make before they are blocked.
3. To automatically logout users after an idle period, select a time in the Idle timeout period field. To allow idle users to remain logged in, select "infinite."
4. Select "Prevent concurrent login with same username" to prevent logins by more than one user with the same username. This setting does not apply to the default admin user.

**Login Settings**

**User Blocking**

Block user on login failure

Block timeout 10 min

Maximum number of failed logins 3

**Login Limitations**

Idle timeout period 10 min

Prevent concurrent login with same username

Save

5. Click Save.



---

## Password Policy

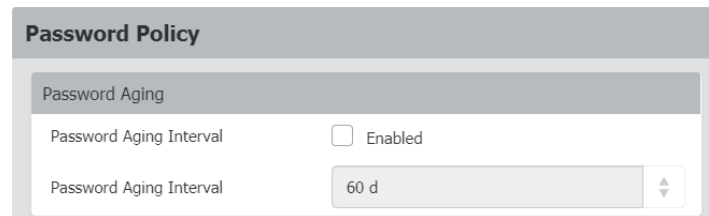
The Password Policy page contains settings for password aging and strong passwords.

The default Password Policy is:

- Password Aging: Disabled
- Strong Passwords: Enabled

► **To configure a password policy:**

1. Click Security > Password Policy.
2. To enable Password Aging, which forces users to change their passwords at selected intervals:
  - Select the Enabled checkbox for Password Aging Interval.
  - Select a Password Aging Interval, from 7 days to 365 days.



The screenshot shows a configuration window titled "Password Policy". Inside, there is a section for "Password Aging". It contains two rows of settings. The first row is "Password Aging Interval" with an unchecked checkbox labeled "Enabled". The second row is "Password Aging Interval" with a dropdown menu showing "60 d".

3. To enable strong passwords and set their parameters:
  - Select the Enabled checkbox for Strong Passwords.
  - Set a Minimum and Maximum Password Length. Minimum is 8. Maximum is 64.
  - Select options to enforce at least one lower case, upper case, numeric, and/or special character.

- Specify the Password History Size, which controls how frequently passwords can be reused. Maximum is 12.

The screenshot shows a configuration panel titled "Strong Passwords". It contains the following settings:

- Strong Passwords:  Enabled
- Minimum Password Length: 8
- Maximum Password Length: 32
- Enforce at least one lower case character:
- Enforce at least one upper case character:
- Enforce at least one numeric character:
- Enforce at least one special character:
- Password History Size: 5

A "Save" button with a checkmark is located at the bottom right of the panel.

4. Click Save.

---

## Service Agreement

The Service Agreement page allows you to enable an agreement that appears on the login page of the Dominion KX IV–101. Users must select a checkbox on the agreement before logging in.

► **To configure the service agreement:**

1. Click Security > Service Agreement.

The screenshot shows a configuration panel titled "Service Agreement". It contains the following settings:

- Enforce Service Agreement:

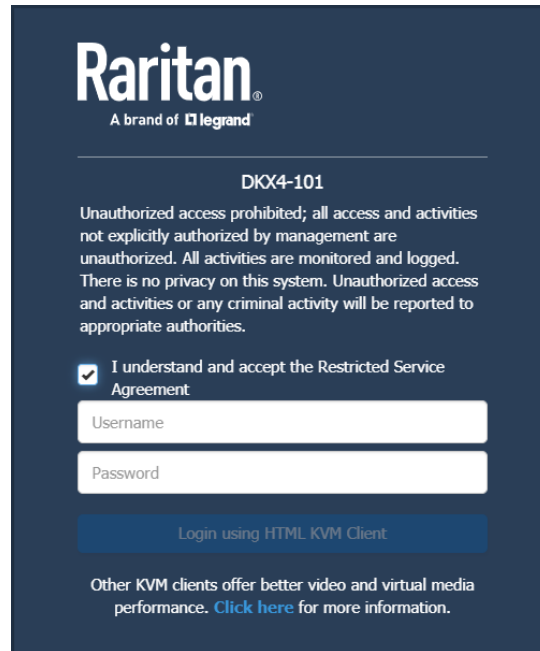
Below the checkbox is a text area containing the following text:

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.

Below the text area, it says "9703 characters remaining." A "Save" button with a checkmark is located at the bottom right of the panel.

2. Select the Enforce Service Agreement checkbox.

3. Enter the agreement text in the field and click Save. The login page will present the service agreement. Users must select the checkbox before logging in.




---

## TLS Certificate

Dominion KX IV–101 uses TLS 1.3 for any encrypted network traffic between itself and a connected client. When establishing a connection, Dominion KX IV–101 has to identify itself to a client using a cryptographic certificate. The Dominion KX IV–101 contains a default certificate that you should replace with your own.

Dominion KX IV–101 can generate a Certificate Signing Request (CSR) or a self-signed certificate using SHA-2.

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 Dominion KX IV–101 date/time is set correctly.**

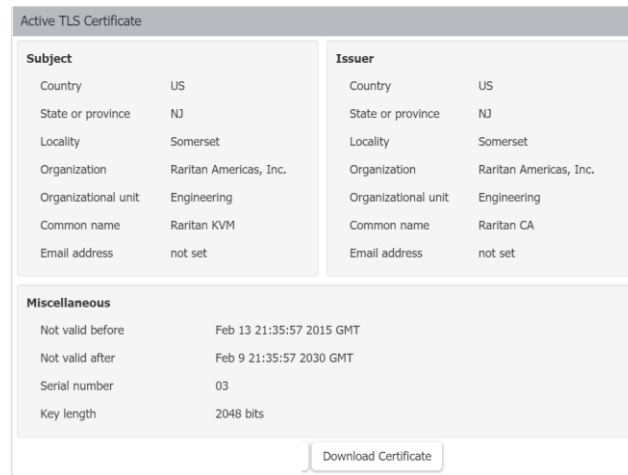
When a self-signed certificate is created, the Dominion KX IV–101 date and time are used to calculate the validity period. If the Dominion KX IV–101 date and time are not accurate, the certificate's valid date range may be incorrect, causing certificate validation to fail. See **Date and Time** (on page 136).

Note: The CSR must be generated on the Dominion KX IV–101.

Note: When upgrading firmware, the active certificate and CSR are not replaced.

► **To view and download the active certificate and key:**

1. Click Security > TLS Certificate. The active certificate details display.



2. Click Download Key and Download Certificate to get the active certificate files.

► **To create and install a new SSL certificate:**

1. Click Security > TLS Certificate. Scroll down to the New TLS Certificate section.
2. Complete the Subject fields:
  - 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.
  - State/Province - The state or province where the organization is located.
  - Locality/City - The city where the organization is located.
  - Organization - The name of the organization to which the Dominion KX IV–101 belongs.
  - Organizational unit - This field is used for specifying to which department within an organization the Dominion KX IV–101 belongs.

- Common name - The network name of the Dominion KX IV–101 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 Dominion KX IV–101 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 Dominion KX IV–101 is accessed using HTTPS.
  - Email address - The email address of a contact person that is responsible for the Dominion KX IV–101 and its security.
3. Add up to 10 Subject Alternative Names (SAN) by clicking the Add Name button, then enter the hostname or IP in the field. SANs are the hostnames or IP addresses the certificate will be valid for.

---

***Note: It is highly recommended to use SubjectAlternativeName (SAN) and hostname in certificates. Using IP address as CN is no longer supported.***

---

1. To generate self-signed certificate, do the following:
  - a. In the Key Creation Parameters, select the Self-Sign checkbox . When you select this option, the Dominion KX IV–101 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. Set the Validity in Days, which controls how many days until this certificate expires. Ensure the Dominion KX IV–101 date and time are correct. If the date and time are not correct, the certificate's valid date range may not be calculated correctly.
  - c. Click Create New TLS Key.
  - d. When the page refreshes, new buttons appear in the New TLS Certificate section, to allow you to install, download or delete the newly generated self-signed certificate and key.
  - e. **To start using the new certificate**, click Install Key and Certificate.
  - f. The page may refresh as the certificate loads.
2. To generate a CSR to send to the CA for certification:
  - a. In the Key Creation Parameters, enter a password in the Challenge and Confirm Challenge fields.
  - b. Click Create New TLS Key.
  - c. When the page refreshes, new buttons appear in the New TLS Certificate section, to allow you to download the CSR, download the key, or delete the CSR.
  - d. Click the Download the Certificate Signing Request button to download the CSR. Click the Download Key button to download the file containing the private key.
  - e. Send the 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, return to this page to upload it to the Dominion KX IV–101. After uploading, click Install to start using the new certificate. The page may refresh as the certificate loads.

New TLS Certificate

Subject		Key Parameters	
Country	US	Key Length	2048
State or Province	NJ	<b>Upload Certificate</b>	
Locality	Somerset	Browse... active_cert.pem	
Organization	not set	Upload	
Organizational Unit	not set		
Common Name	raritan		
Email Address	not set		

Download Certificate Signing Request   Download Key   Delete Certificate Signing Request

► **To upload a key and certificate:**

1. To activate the upload fields, click Security > TLS Certificate, then scroll down to the New TLS Certificate section.
2. Select the Upload Key and Certificate checkbox. The Browse and upload controls appear.

Upload key and certificate

Key File... Please choose a file to upload

Certificate file... Please choose a file to upload

Upload

---

*Note: If the self signed certificate is expired, HKC client will work only after clearing the browser cache.*

---

# Maintenance

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---

## Backup and Restore

You must be a member of the admin group to download a backup file, and to restore a Dominion KX IV–101 with a backup file.

Backups can be encrypted by adding password protection. The password must be entered when the file is used to perform a restore.

► **To download the Device Settings backup file:**


1. Click Maintenance > Backup/Restore.
2. To password protect the backup file, enter a password in the Password Protection Used For Backup/Restore (Optional) field.
3. Click Download Device Settings to automatically download the backup\_settings.rfp file.

The screenshot shows a web interface titled "Backup Restore". It contains three main sections:

- Password Protection Used For Backup/Restore (Optional):** A text input field for entering a password.
- Save Device Settings:** A button labeled "Download Device Settings".
- Restore Device Settings:** A "Browse..." button for selecting a file, followed by radio buttons for "Protected" (selected) and "Full", and an "Upload & Restore Device Settings" button.

At the bottom, it displays the status: "Last restore: 12/11/2020, 16:17:21 UTC+0000, status: OK".

► **To restore the Dominion KX IV–101 using a backup file:**

1. Click Maintenance > Backup/Restore.
2. Click  to select the backup file.
3. Select Protected or Full.
  - Protected: Restores all settings except for device specific settings: network information, names, preferred resolution.
  - Full: Restores everything.
4. If the file is password protected, enter the password in the Password Protection Used For Backup/Restore (Optional) field.
5. Click Upload & Restore Device Settings to upload the file.
6. Wait until the Dominion KX IV–101 resets and the Login page re-appears, indicating that the restore is complete. Note: In a full restore, the IP address may have been changed. You must start a new browser session to login to the new IP address.



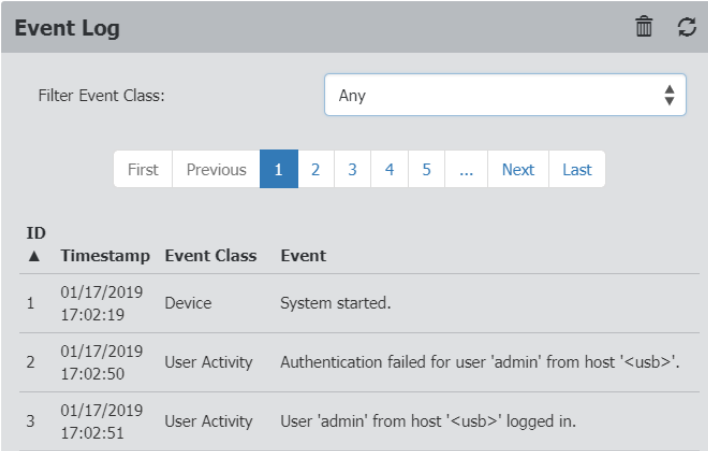
## Event Log

The Dominion KX IV–101 captures certain system events and saves them in a local event log.

You can view over 2000 historical events that occurred on the Dominion KX IV–101 in the local event log. When the log size exceeds 384KB, each new entry overwrites the oldest one.

### ▶ Event Classes:

- Device
- KVM Port
- Outlet Port
- User Activity
- User Administration
- Serial Port



The screenshot shows the 'Event Log' interface. At the top, there is a 'Filter Event Class:' dropdown menu set to 'Any'. Below it is a pagination bar with buttons for 'First', 'Previous', '1' (selected), '2', '3', '4', '5', '...', 'Next', and 'Last'. The main content is a table with the following data:



ID	Timestamp	Event Class	Event
1	01/17/2019 17:02:19	Device	System started.
2	01/17/2019 17:02:50	User Activity	Authentication failed for user 'admin' from host '<usb>'.
3	01/17/2019 17:02:51	User Activity	User 'admin' from host '<usb>' logged in.

### ▶ To display the event log:

- Choose Maintenance > Event Log.

Each event entry consists of:

- ID number of the event
- Timestamp of the event: The timestamp in the event log is automatically converted to your computer's time zone. To avoid time confusion, apply the Dominion KX IV–101 time zone settings to your computer or mobile device.
- Event class
- A description of the event

- Refresh the event log by clicking the refresh icon  in the top-right corner.
- ▶ **To view by event category:**
  - Select an option in the Filter Event Class field.
- ▶ **To clear the local event log:**
  1. Click the trash icon  on the top-right corner.
  2. Click Clear Log on the confirmation message.

## Firmware History

The firmware upgrade history is retained even after device reboot or firmware upgrade. The history is cleared in the event of a factory default reset.

- ▶ **To view the firmware update history:**
  - Choose Maintenance > Firmware History.

Each firmware update event consists of:

- Update date and time
- Previous firmware version
- Update firmware version
- Update result

Firmware Update History			
Timestamp ▼	Previous Version	Update Version	Status
4/28/2022, 11:21:30 AM UTC-0400	4.2.0.1.48621	4.2.0.1.48624	SUCCESSFUL
4/27/2022, 11:09:20 AM UTC-0400	4.2.0.1.48617	4.2.0.1.48621	SUCCESSFUL
4/26/2022, 10:53:22 AM UTC-0400	4.2.0.1.48604	4.2.0.1.48617	SUCCESSFUL
4/21/2022, 2:49:31 PM UTC-0400	4.2.0.1.48603	4.2.0.1.48604	SUCCESSFUL

## DSAM Firmware History

The DSAM firmware upgrade history is retained even after device reboot or firmware upgrade. The history is cleared in the event of a factory default reset.

- ▶ **To view the DSAM firmware update history:**
  - Choose Maintenance >DSAM Firmware History.

Each firmware update event consists of:

- Update date and time
- Serial Number
- Port number where DSAM is connected

- Previous firmware version
- Update firmware version
- Update result

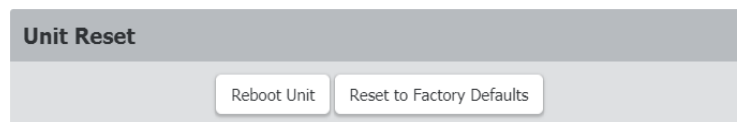
DSAM Firmware Update History					
Timestamp ▼	Serial Number	Port	Previous Version	Update Version	Status
5/5/2022, 2:22:21 PM UTC-0400	RKX6800025	2	1.0	1.0	SUCCESSFUL

*Note: This option is available only when DSAM is connected to the Dominion KX IV-101.*

## Unit Reset

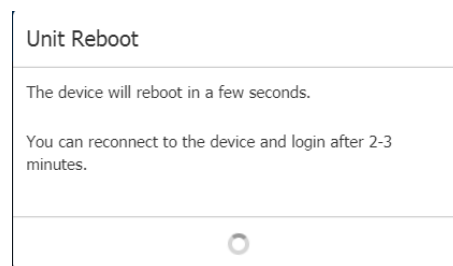
The Unit Reset section has options to remotely reboot or reset to factory defaults.

- Reboot Unit: Restarts the Dominion KX IV-101.
- Reset to Factory Defaults: Removes all customized settings and returns the Dominion KX IV-101 to the factory default settings. Requires admin privilege.



### ▶ To reboot the device:

1. Choose Maintenance > Unit Reset.
2. Click Reboot Unit.
3. A confirmation message appears. Click Reboot to proceed.  
A countdown timer appears.



4. When the restart is complete, the login page opens.

### ▶ To reset to factory defaults:

1. Click Maintenance > Unit Reset.
2. Click Reset to Factory Defaults. Click to confirm reset in the confirmation message.

3. A countdown timer appears. It takes about two minutes to complete.
4. When the reset is complete, proceed with initial configuration. See **Initial Configuration** (on page 4).

► **Other factory reset options:**

- Use the reset button on the Dominion KX IV–101 device. Press the reset button for 5 seconds. Device will reset and reboot.
- Perform the CLI command. See **CLI: reset** (on page 220)

---

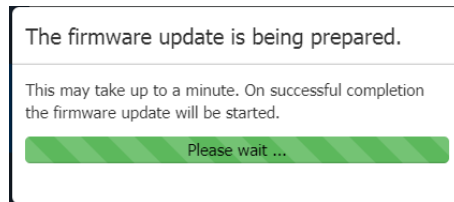
## Update Firmware

"Show Latest Firmware" link brings up Raritan's Support page: [www.raritan.com/support](http://www.raritan.com/support) where firmware files are available.

You must have the Maintenance privilege to update the Dominion KX IV–101 firmware.

► **To update the firmware:**

1. Click Maintenance > Update Firmware.
2. Click Browse to select an appropriate firmware file, then click Upload. A progress bar appears to indicate the upload process.

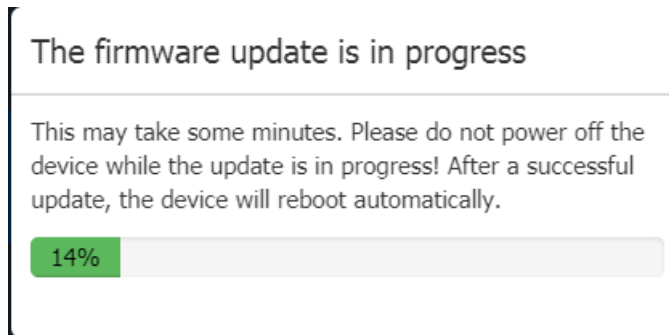


3. Once complete, information of both installed and uploaded firmware versions as well as compatibility and signature-checking results are displayed.



- To cancel, click Discard Upload.
  - To proceed with the update, click Update Firmware.
4. When the update begins, another progress bar appears.

Warning: Do NOT power off the Dominion KX IV–101 during the update. The power LED on the device fast-blinks green during update.



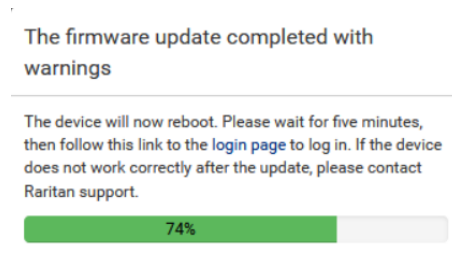
*Note: No users can successfully log in during the update. Logged in users are forced to suspend operations.*

1. When the update is complete, the Dominion KX IV–101 reboots, and the Login page re-appears. The update and reboot process should take around 5 minutes. If your device displays a "Loading" screen after update and reboot for longer, you can safely restart your browser and login to the Dominion KX IV–101 again to check the update results.

*After Updating: The Dominion KX IV–101 MIB may have changed. If you are using an SNMP manager, you may need to re-download the MIB and make update. See **SNMP Settings** (on page 155).*

#### ► The firmware update completed with warnings:

The message, "The firmware update completed with warnings" may appear before reboot if you completed your update while an iOS device was connected to the USB port on the Dominion KX IV–101. This warning does not indicate any problems or that the update failed.



## Update DSAM Firmware

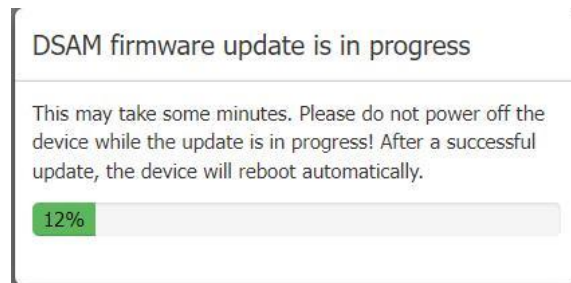
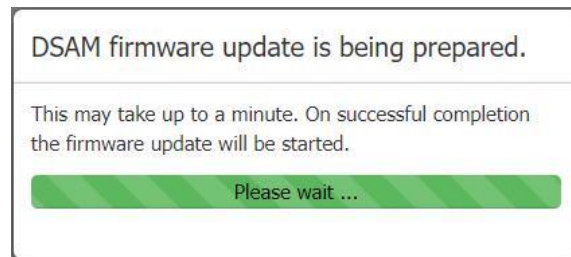
You must connect DSAM to the <ProductName>. To update the DSAM firmware you must have the Maintenance privilege.

► **To update the DSAM firmware:**

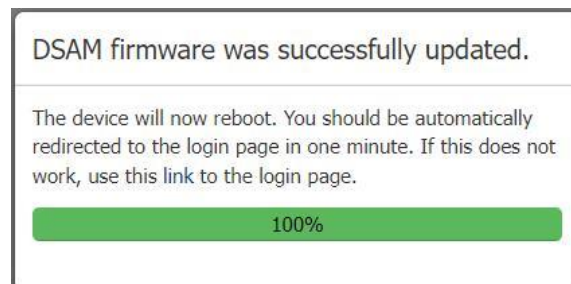
1. Click Maintenance > Update DSAM Firmware.
2. Select the DSAM and click the Update Firmware.



3. Click Update to confirm.
4. DSAM firmware update is being prepared message appears and after that progress bar appears to indicate the update progress.



5. The Dominion KX IV-101 reboots after the completion of DSAM Firmware upgrade.



---

## Update Firmware Using SCP

While updating firmware using SCP, all user management operations are suspended and all login attempts fail.

Warning: Do NOT perform the firmware upgrade over a wireless network connection.

### ▶ To update the firmware via SCP:

1. Type the following SCP command and press Enter.

```
scp <firmware file> <user name>@<device ip>:/fwupdate
```

- <firmware file> is the Dominion KX IV–101 firmware's filename. If the firmware file is not in the current directory, you must include the path in the filename.
- <user name> is the "admin" or any user profile with the Firmware Update permission.
- <device ip> is the IP address or hostname of the Dominion KX IV–101 where you want to upload the specified file.

2. Type the password when prompted, and press Enter.

The system transmits the specified firmware file to the Dominion KX IV–101, and shows the transmission speed and percentage.

When the transmission is complete, it exits without a message. Dominion KX IV–101 will start to update its firmware after transmission is done successfully.

3. Check the Dominion KX IV–101 web interface for update progress and success message when update is complete.

### ▶ SCP example

```
scp kx-kx4-040100-47253.rfp  
admin@192.168.87.50:/fwupdate
```

### ▶ Windows PSCP command:

PSCP in Windows works in a similar way to the SCP.

- pscp <firmware file> <user name>@<device ip>:/fwupdate

# Virtual Media

## In This Chapter

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---

## Overview

All Dominion KX IV–101 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 Dominion KX IV–101 comes equipped with virtual media to enable remote management tasks using the widest variety of media/images.

Virtual media sessions are secured using the strongest encryption offered by the browser, typically 256 bit AES. Older browsers may only support 128 bit AES.

HKC does not support all virtual media features. See HTML KVM Client (HKC) for details



---

## Virtual Media Performance Recommendations

Additional studies of virtual media performance show that KX4-101 virtual media performance can range up to 175 Mbps. This is significantly faster than the KX3 switches (8-10 Mbps).

► **For maximum performance:**

- Turn off encryption. Encryption has a large effect on performance.
- Utilize a high-speed laptop/PC with AKC or VKC KVM Clients.
- Utilize the KX IV User Station (DKX4-UST).
- Writing to a virtual media drive connected to the KVM Client may be slower than reading from the drive.
- There may be performance variations across different USB drives.
- Network performance is also a factor.

---

## Prerequisites for Using Virtual Media

---

### Dominion KX IV–101 Virtual Media Prerequisites

- For users requiring access to virtual media, the Dominion KX IV–101 permissions must be set to allow access to the relevant port, as well as virtual media access (VM Access port permission) for the port. Port permissions are set at the group-level.
- If you want to use PC-Share, Security Settings must also be enabled in the Security Settings page. **Optional**
- A USB connection must exist between the device and the target server.
- You must choose the correct USB connection settings for the KVM target server you are connecting to.

---

### Client PC VM Prerequisites

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

Note: If you are using Windows, 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.

---

## 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.

---

*Note: Some browsers may restrict access to local drives, folders or files and may not grant administrative permission.*

---

---

## 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

---

**Important: Once you are connected to a virtual media drive, do not change mouse modes in the KVM client if you are performing file transfers, upgrades, installations or other similar actions. Doing so may cause errors on the virtual media drive or cause the virtual media drive to fail.**

---

---

## Supported Virtual Media Types

The following virtual media types are supported for Windows®, Mac® and Linux™ clients when using AKC and VKC/VKCS.

- Internal and external hard drives
- Internal and USB-mounted CD and DVD drives
- USB mass storage devices
- PC hard drives
- ISO images (disk images)
- IMG files
- DMG files
- ISO9660 is the standard supported. However, other ISO standards can be used.

---

*Note: Due to browser limitations, HKC supports a different set of virtual media types.*

---

---

### 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

---

## 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 connection settings 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 settings support 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.

---

## 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.

---

### Mapped Drives

Mapped drives from Linux clients are not locked when mounted onto connected targets.

---

### 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.

---

### Connect Drive Permissions (Linux)

Linux users must have read-only permissions for the removable device they wish to connect to the target. For /dev/sdb1 run the following as root user:

```
root@administrator-desktop:~# chmod 664 /dev/sdb1
root@administrator-desktop:~# ls -l /dev/sdb1
brw-rw-r-- 1 root disk 8, 17 12-03-2010 12:02 /dev/sdb1
```

The drive is then available to connect to the target.

---

## 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.

---

### Connect Drive Permissions (Mac)

For a device to be available to connect to a target from a Mac® client, you must have read-only permissions to the removable device, and also unmount the drive after doing so.

For /dev/sdb1, run the following commands as root user:

```
root@administrator-desktop:~# chmod 664 /dev/sdb1
root@administrator-desktop:~# ls -l /dev/sdb1
brw-rw-r-- 1 root disk 8, 17 12-03-2010 12:02 /dev/sdb1
root@administrator-desktop:~# diskutil umount /dev/sdb1
```

---

### 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. However, other CD-ROM extensions may also work.

---

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

---

Use the Virtual Media Shared Images 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 70).

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

1. Choose Device Settings/Virtual Media Shared Images from the remote console. The Virtual Media Shared Images setup page opens.
2. Click New to open the Add Shared Image page.
3. Enter information about the file server ISO images that you want to access.
  - IP Address/Hostname
  - Share Name
  - Image Path
  - Select Enable SAMBA v1.0 as applicable.
4. Click Add Shared Image.

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

# Diagnostics

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---

## Download Diagnostic

---

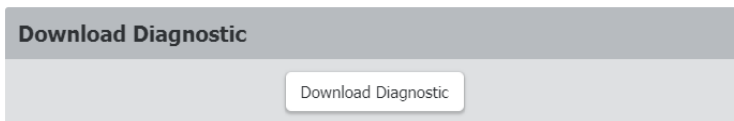
**Important: This function is for use by Raritan Field Engineers or when you are directed by Raritan Technical Support.**

---

You can download a diagnostic file from the Dominion KX IV–101 to a client machine. The file is compressed into a .zip file and should be sent to Raritan Technical Support.

You must be a member of the admin group.

► **To download a diagnostic file:**



1. Click Diagnostics> Download Diagnostic.
2. Click Download Diagnostic, then save the file.
3. Send this file as instructed by Raritan Technical Support.

## Network Diagnostics

Dominion KX IV–101 provides the following tools to diagnose potential networking issues.

- Ping
- Trace Route: Find out the route over the network between two hosts or systems.
- List TCP Connections: Display a list of TCP connections.
- DNS Lookup: Display a list of DNS records for the domain in priority order.
- List TCP/UDP Listen Sockets: Display a list of TCP/UDP Listen Sockets.

Choose Diagnostics > Network Diagnostics, and then perform any function below.

### ► Ping:

Enter the IP or hostname in the Network Host field, then set the of requests to send. Maximum is 20. This determines how many packets are sent for pinging the host. Click Run Ping to ping the host. The Ping results are then displayed.

**Ping Results**

```

PING 192.168.56.27 (192.168.56.27): 56 data bytes
64 bytes from 192.168.56.27: seq=0 ttl=64 time=0.219
ms
64 bytes from 192.168.56.27: seq=1 ttl=64 time=0.183
ms
64 bytes from 192.168.56.27: seq=2 ttl=64 time=0.179
ms
64 bytes from 192.168.56.27: seq=3 ttl=64 time=0.196
ms
64 bytes from 192.168.56.27: seq=4 ttl=64 time=0.171
ms
--- 192.168.56.27 ping statistics ---
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max = 0.171/0.189/0.219 ms

```

### ► Trace Route:

1. Type values in the following fields.

Field/setting	Description
Hostname	The IP address or name of the host whose route you want to check.
Timeout(s)	A timeout value in seconds to end the trace route operation. Maximum 900 seconds.

Field/setting	Description
Use ICMP packets	To use the Internet Control Message Protocol (ICMP) packets to perform the trace route command, select this checkbox.

- Click Run. The Trace Route results are displayed.

► **DNS Lookup:**

- Type value in the following field.

Field/Setting	Description
Hostname	The IP address or name of the host whose DNS lookup you want to check.

- Click Run. The DNS Lookup results are displayed.

► **List TCP Connections:**

- Click the List TCP Connections title bar to show the list of active connections.

#	State	Recv-Q	Send-Q	Local-Address:Port	Peer-Address:Port
1	ESTAB	0	0	::ffff:192.168.62.18]:443	::ffff:192.168.32.171]:52334
2	ESTAB	0	0	::ffff:192.168.62.18]:443	::ffff:192.168.55.17]:60027
3	ESTAB	0	0	::ffff:192.168.62.18]:443	::ffff:192.168.55.17]:60068
4	ESTAB	0	0	::ffff:192.168.62.18]:443	::ffff:192.168.32.171]:52337

- Click Refresh. The list will show latest connections.

► **List TCP/UDP Listen Sockets:**

- Click the List TCP/UDP Listen Sockets title bar to show the list of active connections.

#	Netid	State	Recv-Q	Send-Q	Local-Address:Port	Peer-Address:Port
1	udp	UNCONN	0	0	0.0.0.0:68	0.0.0.0:*
2	udp	UNCONN	0	0	0.0.0.0:161	0.0.0.0:*
3	udp	UNCONN	0	0	0.0.0.0%eth0:5353	0.0.0.0:*
4	udp	UNCONN	0	0	0.0.0.0%eth0:5355	0.0.0.0:*
5	udp	UNCONN	0	0	*:5000	*:*
6	udp	UNCONN	0	0	*:40092	*:*
7	udp	UNCONN	0	0	:::161	:::*
8	tcp	LISTEN	0	10	127.0.0.1:8181	0.0.0.0:*
9	tcp	LISTEN	0	10	*:22	*:*
10	tcp	LISTEN	0	10	*:443	*:*
11	tcp	LISTEN	0	10	*:5000	*:*
12	tcp	LISTEN	0	10	*:80	*:*

- Click Refresh. The list will show latest connections.





# CLI Commands

The Dominion KX IV–101 supports the following categories of commands in the CLI:

- check      Check services
- clear      Clear logs
- config     Enter configuration view
- connect    Connect to a target
- diag      Enter diagnostics view
- exit      Exit CLI session
- reset      Reset device
- show      Shows various device information

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---

### CLI: check

```
check
# check ntp
```

---

### CLI: clear

```
clear
# clear eventlog
Do you really want to clear the event log? [y/n]
```

---

**CLI: config**

config  
# config  
config:#

▶ **Available commands:**

apply	Save changed settings and leave config mode
authentication	Configure authentication settings
cancel	Discard changed settings and leave config mode
check	Check services
device	Configure Device
group	Configure user groups
keyword	Configure keyword for DSAM serial ports
network	Configure network settings
password	Change password of currently logged in user
port	Configure DSAM serial port settings
security	Configure security settings
serial	Configure serial port settings
terminalblock	Configure terminal block settings
time	Configure date/time settings
user	Configure users

**CLI: config authentication**

authentication

config # authentication

Available commands:

- ldap Configure LDAP server settings
- radius Configure Radius server settings
- type Configure authentication type (local/ldap/radius)

**▶ LDAP:**

add Add a new LDAP server

addClone Add a new LDAP server, cloning another server

delete Delete LDAP server

modify Modify an existing LDAP server

- config # authentication ldap add

```
authentication ldap add <host> <port> < type> <security> <bindtype> <basedn>
<loginnameattr> <userentryclass> [userSearchSubfilter <usersearchfilter>]
[groupInfoInUserEntry<Group membership info>] [groupMemberAttribute
<Group member attribute>] [groupEntryObjectClass <Group entry class>]
[groupSearchSubfilter <Group search subfilter>] [adDomain <addomain>]
[verifyServerCertificate <certverify>] [allowExpiredCertificate
<allowexpiredcert>] [bindDN <binddn>]
```

Add a new LDAP server

host IP address/host name

port Port number (0..4294967295)

type LDAP server type (openldap/activeDirectory)

security Security type (none/startTls/tls)

bindtype Bind type (anonymousBind/authenticatedBind)

basedn Base DN for search

loginnameattr Login name attribute

userentryclass User entry object class

userSearchSubfilter User search subfilter

groupInfoInUserEntry Group membership info in user entry (true/false)

groupMemberAttribute Group member attribute

groupEntryObjectClass Group entry object class

groupSearchSubfilter Group search subfilter

adDomain Active directory domain

verifyServerCertificate Enable validation of LDAP server certificate  
(true/false)

allowExpiredCertificate Allow expired and not yet valid server certificates (true/false)

bindDN Bind DN

- config # authentication ldap addClone

authentication ldap addClone <index> <host>

Add a new LDAP server, cloning another server

index Source server index

host IP address/host name

- config # authentication ldap delete

authentication ldap delete <index>

Delete LDAP server

index Server index

- config # authentication ldap modify

authentication ldap modify <index> [host <host>] [port <port>] [serverType <Server type>] [securityType <security>] [bindType <bindtype>] [searchBaseDN <basedn>] [loginNameAttribute <loginnameattr>] [userEntryObjectClass <userentryclass>] [userSearchSubfilter <usersearchfilter>] [groupInfoInUserEntry<Group membership info>] [groupMemberAttribute <Group member attribute>] [groupEntryObjectClass <Group entry class>] [groupSearchSubfilter <Group search subfilter>] [adDomain <addomain>] [verifyServerCertificate <certverify>] [certificate] [allowExpiredCertificate <allowexpiredcert>] [bindDN <binddn>] [bindPassword] [sortPosition <position>]

Modify an existing LDAP server

index Index

host IP address/host name

port Port number (0..4294967295)

serverType LDAP server type (openldap/activeDirectory)

securityType Security type (none/startTls/tls)

bindType Bind type  
(anonymousBind/authenticatedBind)

searchBaseDN Base DN for search

loginNameAttribute Login name attribute

userEntryObjectClass User entry object class

userSearchSubfilter User search subfilter

groupInfoInUserEntry Group membership info in user entry (true/false)

groupMemberAttribute Group member attribute

groupEntryObjectClass Group entry object class

groupSearchSubfilter Group search subfilter

adDomain	Active directory domain
verifyServerCertificate (true/false)	Enable validation of LDAP server certificate
certificate	Certificate CA chain
allowExpiredCertificate (true/false)	Allow expired and not yet valid server certificates
bindDN	Bind DN
bindPassword	Bind password
sortPosition	New position in server list

► **RADIUS:**

- config # authentication radius

Available commands:

- add  
Add a new Radius server  
authentication radius add <host> <type > <authport> <acctport> <timeout>  
<retries>  
host IP address/host name  
type Authentication type (pap/chap/msChapV2)  
authport Authentication port number (0..4294967295)  
acctport Accounting port number (0..4294967295)  
timeout Timeout (1..60)  
retries Number of retries (0..5)
- delete  
Delete Radius server  
index Server index
- modify  
Modify an existing Radius server  
config:# authentication radius modify  
authentication radius modify <index> [host <host>] [authType ] [authPort  
<authport>] [accountPort <acctport>] [timeout <timeout>] [retries  
<retries>] [secret] [sortPosition <position>]  
index Index  
host IP address/host name  
authType Authentication type (pap/chap/msChapV2)  
authPort Authentication port number (0..4294967295)  
accountPort Accounting port number (0..4294967295)  
timeout Timeout (1..60)  
retries Number of retries (0..5)



---

**CLI: config group**

group

config:# group create

group create [name <name>] [privileges <privs>]

Create a new group

name            Group name

privileges    Group privileges (one or more (separated by '/') of  
changeTerminalBlockSettings/deviceAccessUnderCcsg/deviceSettings/mainten  
ance/pcShare/portControl:1/portViewOnly:1/portVmROnly:1/portVmRW:1/sec  
uritySettings/userManagement)

config:# group delete [name <name>]

Delete group

name    Group name (Admin)

config:# group modify [name <name>] [description <desc>] [addPrivileges  
<addprivs>] [removePrivileges <removeprivs>]

Edit a group

name            Group name (Admin)

description    Group description

addPrivileges    Add group privileges (one or more (separated by '/') of  
changeTerminalBlockSettings/deviceAccessUnderCcsg/deviceSettings/mainten  
ance/pcShare/portControl:1/portViewOnly:1/portVmROnly:1/portVmRW:1/sec  
uritySettings/userManagement)

removePrivileges    Remove group privileges (one or more (separated by '/')  
of  
changeTerminalBlockSettings/deviceAccessUnderCcsg/deviceSettings/mainten  
ance/pcShare/portControl:1/portViewOnly:1/portVmROnly:1/portVmRW:1/sec  
uritySettings/userManagement)



---

**CLI: config keyword**

keyword

config:# keyword add

keyword add [key <key>] [port <port>]

Add a keyword.

keyword delete [key <key>]

Delete a keyword

keyword modify [key <key>] [port <port>]

Edit a keyword

---

**CLI: config password**

config:# password

Then press Enter key. System will prompt for current password, new password, and confirm new password.

config:# apply

The password is changed if confirm password is correct.

---

**CLI: config port**

port: Configure DSAM serial port settings

port [index <index>] [name <name>] [emulation <emulation>] [encoding <encoding>] [eqtype <eqtype>] [bps <bps>] [parity <parity>] [flowcontrol <flowcontrol>] [stopbits <stopbits>] [multiwrite <multiwrite>] [escapemode <escapemode>] [escapechar <escapechar>] [chardelay <chardelay>] [linedelay <linedelay>] [sendbreak <sendbreak>] [suppress <suppress>] [alwaysactive <alwaysactive>] [exitcommand <exitcommand>]

**CLI: config security**

```
config:# security groupBasedAccessControl ipv4
```

```
security groupBasedAccessControl ipv4 [enabled <enable>] [defaultPolicy <defpolicy>]
```

Configure group based access control settings for IPv4

enabled            Enable group based access control (true/false)

defaultPolicy    Default policy (allow/deny)

```
config:# security groupBasedAccessControl ipv6 [enabled <enable>] [defaultPolicy <defpolicy>]
```

Configure group based access control settings for IPv6

enabled            Enable group based access control (true/false)

defaultPolicy    Default policy (allow/deny)

```
config:# security ipAccessControl ipv4
```

```
security ipAccessControl ipv4 [enabled <enable>] [defaultPolicyIn <defpolicyin>] [defaultPolicyOut <defpolicyout>]
```

Configure IPv4 access control settings

enabled            Enable IP access control (true/false)

defaultPolicyIn    Default policy for inbound traffic (accept/drop/reject)

defaultPolicyOut    Default policy for outbound traffic (accept/drop/reject)

```
config:# security ipAccessControl ipv6 [enabled <enable>] [defaultPolicyIn <defpolicyin>] [defaultPolicyOut <defpolicyout>]
```

Configure IPv6 access control settings

enabled            Enable IP access control (true/false)

defaultPolicyIn    Default policy for inbound traffic (accept/drop/reject)

defaultPolicyOut    Default policy for outbound traffic (accept/drop/reject)

```
config:# security loginLimits [singleLogin <singlelogin>] [passwordAging <pwaging>] [passwordAgingInterval <pwaginginterval>] [idleTimeout <idletimeout>]
```

Configure login limitations

singleLogin            Prevent concurrent user login (enable/disable)

passwordAging            Enable password aging (enable/disable)

passwordAgingInterval    Set password aging interval (in days) (7..365)

idleTimeout                      Set user idle timeout (in minutes) (1..1440 or infinite)

config:# security restrictedServiceAgreement [enabled <enabled>]  
[bannerContent]

Configure the Restricted Service Agreement banner

enabled                      Enable Restricted Service Agreement enforcement (true/false)

bannerContent      The Restricted Service Agreement banner

config:# security strongPasswords [enabled <enable>] [minimumLength <minlength>] [maximumLength <maxlength>]  
[enforceAtLeastOneLowerCaseCharacter <forcelower>]  
[enforceAtLeastOneUpperCaseCharacter <forceupper>]  
[enforceAtLeastOneNumericCharacter <forcenumeric>]  
[enforceAtLeastOneSpecialCharacter <forcespecial>] [passwordHistoryDepth <historydepth>]

Configure strong password requirements

enabled                      Enable strong passwords (true/false)

minimumLength                      Minimum password length (8..32)

maximumLength                      Maximum password length (16..64)

enforceAtLeastOneLowerCaseCharacter      Enforce at least one lower case character (enable/disable)

enforceAtLeastOneUpperCaseCharacter      Enforce at least one upper case character (enable/disable)

enforceAtLeastOneNumericCharacter      Enforce at least one numeric character (enable/disable)

enforceAtLeastOneSpecialCharacter      Enforce at least one special character (enable/disable)

passwordHistoryDepth                      Password history depth (1..12)

config:# security userBlocking [maximumNumberOfFailedLogins <maxfails>]  
[blockTime <blocktime>]

Configure user blocking

maximumNumberOfFailedLogins      Set maximum number of failed logins before blocking a user (3..10 or unlimited)

blockTime                      Set user block time (in minutes) (1..1440 or infinite)

```
config:# security sshdpa [enabled <enabled>]
```

Configure SSH DPA

enabled    Enable/disable SSH DPA (true/false)

```
config:# security sshdpaport [id <id>] [port <port>]
```

Configure SSH DPA Ports

id        Port id (1.1, 1.2 ... 4.4)

port     SSH DPA port (0..65535)

---

**CLI: config serial**

```
config:# serial [consoleBaudRate <consolebps>] [modemBaudRate  
<modembps>] [deviceDetectionType <detecttype>]
```

Configure serial port settings

consoleBaudRate        Serial console baud rate  
(1200/2400/4800/9600/19200/38400/57600/115200)

deviceDetectionType    Device detection mode  
(automatic/forceConsole/forceAnalogModem/forceGsmModem)

**CLI: config network**

network

```
config:# network dns [firstServer <server1>] [secondServer <server2>]
[searchSuffixes <searchSuffixes>] [resolverPreference <resolverPreference>]
```

Configure DNS settings

firstServer	First DNS server
secondServer	Second DNS server
searchSuffixes	Search suffixes
resolverPreference	DNS resolver preference (preferV4/preferV6)

```
config:# network ethernet [speed <speed>] [duplexMode <duplexMode>]
[authMethod <authType>]
```

```
[eapIdentity <eapIdentity>] [eapPassword] [eapClientPrivateKey]
[eapClientCertificate]
```

```
[eapOuterAuthentication <eapOuterAuthMethod>] [eapInnerAuthentication
<eapInnerAuthMethod>]
```

```
[eapCACertificate] [enableCertVerification <enableCertVerification>]
[allowOffTimeRangeCerts <allowOffTimeRangeCerts>]
```

```
[allowConnectionWithIncorrectClock <allowConnectionWithIncorrectClock>]
[eapAuthServerName <eapAuthServerName>]
```

Configure ethernet interface

speed	Speed (1000Mbps/100Mbps/10Mbps/auto)
-------	--------------------------------------

duplexMode	Duplex mode (half/full/auto)
------------	------------------------------

authMethod	Authentication method (NONE/EAP)
------------	----------------------------------

eapIdentity	EAP identity
-------------	--------------

eapPassword	EAP password
-------------	--------------

eapClientPrivateKey	Set EAP client private key
---------------------	----------------------------

eapClientCertificate	Set EAP client certificate
----------------------	----------------------------

eapOuterAuthentication	Outer EAP authentication method (PEAP/TLS)
------------------------	--

eapInnerAuthentication	Inner EAP authentication method (MSCHAPv2/TLS)
------------------------	--

eapCACertificate	Set EAP CA certificate
------------------	------------------------

enableCertVerification	Enable Verification of TLS Certificate Chain (true/false)
------------------------	---

allowOffTimeRangeCerts	Allow expired and not yet valid TLS certificates (true/false)
------------------------	---

allowConnectionWithIncorrectClock	Allows a connection when a TLS certificate is not yet valid because the system time is before the firmware build time. (true/false)
-----------------------------------	---

eapAuthServerName EAP RADIUS authentication server name

```
config:# network ipv4 gateway
network ipv4 gateway <gateway>
Configure default IPv4 gateway
gateway Default IPv4 gateway
```

```
config:# network ipv4 interface [enabled <enabled>] [configMethod
<configMethod>] [preferredHostName <prefHostname>] [address <addrCidr>]
Configure interface IPv4 settings
enabled Enable/disable IPv4 protocol (true/false)
configMethod IPv4 Configuration method (dhcp/static)
preferredHostName Preferred host name
address IPv4 address/prefix-len
```

```
config:# network ipv6 gateway
network ipv6 gateway <gateway>
Configure default IPv6 gateway
gateway Default IPv6 gateway
```

```
config:# network ipv6 interface [enabled <enabled>] [configMethod
<configMethod>] [preferredHostName <prefHostname>] [address <addrCidr>]
Configure interface IPv6 settings
enabled Enable/disable IPv6 protocol (true/false)
configMethod IPv6 Configuration method (automatic/static)
preferredHostName Preferred host name
address IPv6 address/prefix-len
```

```
config:# network services discovery
network services discovery [port <port>]
Configure Discovery Port
port RDM discovery port (1..65535)
```

```
config:# network services http [enabled <enabled>] [port <port>] [enforceHttps
<enforcehttps>]
Configure HTTP access
enabled Enable/disable HTTP access (true/false)
```

```
port          HTTP access TCP port (1..65535)
enforceHttps  Enable HTTPS enforcement for web access (true/false)
```

```
config:# network services https [enabled <enabled>] [port <port>]
```

```
Configure HTTPS access
```

```
enabled      Enable/disable HTTPS access (true/false)
port         HTTPS access TCP port (1..65535)
```

```
config:# network services snmp [v1/v2c <v12enabled>] [v3 <v3enabled>]
[readCommunity <readcommunity>] [writeCommunity <writecommunity>]
[sysContact <syscontact>] [sysName <sysname>] [sysLocation <syslocation>]
```

```
Configure SNMP settings
```

```
v1/v2c       Enable SNMP v1/v2c access (enable/disable)
v3           Enable SNMP v3 access (enable/disable)
readCommunity SNMP read community string
writeCommunity SNMP write community string
sysContact   MIB-II sysContact
sysName      MIB-II sysName
sysLocation  MIB-II sysLocation
```

```
config:# network services ssh [enabled <enabled>] [port <port>]
[authentication <authmode>]
```

```
Configure SSH access
```

```
enabled      Enable/disable SSH access (true/false)
port         SSH access TCP port (1..65535)
authentication Authentication type
(passwordOnly/publicKeyOnly/passwordOrPublicKey)
```

---

**CLI: config terminalblock**

```
config:# terminalblock [inputEnable <inputEnable>] [inputRemote  
<inputRemote>] [inputLocal <inputLocal>] [outputEnable <outputEnable>]  
[outputAction <outputAction>] [blinkInterval <blinkInterval>]
```

Configure terminal block settings

inputEnable	Enable/Disable input switch (enable/disable)
inputRemote	Setup input remote console (fullAccess/videoOnly/noAccess)
inputLocal	Setup input local console (fullAccess/videoOnly/noAccess)
outputEnable	Enable/Disable output device (enable/disable)
outputAction	Setup output action (deviceOff/deviceOn/blinkDevice)
blinkInterval	Setup device blink interval(in half-seconds) (1..10)

---

**CLI: config time**

```
config:# time [method <method>] [zone] [autoDST <autodst>]
```

Configure date/time settings

method	Time setup method (manual/ntp)
zone	Select time zone
autoDST	Automatic daylight saving time adjustment (enable/disable)

---

**CLI: config user**

```
config:# user create
```

```
user create [name <name>] [enabled <enabled>] [groups <groups>]
```

Create a new user

name	User name
enabled	User enabled state (true/false)
groups	Groups (comma separated list of group names) (Admin)

- If user wants to create a new user "cccc" into groups "aaa" and "bbb bbb", you must use quotes around the group names, because spaces in the group names cannot be accepted. Example command:
  - user create name cccc enabled true groups "aaa/bbb bbb"



```
config:# user delete [name <name>]
```

Delete user

name User name (admin)

```
config:# user modify [name <name>] [newName <newname>] [password]
[password] [fullName <fullname>] [telephoneNumber <telephone>]
[eMailAddress Info@Acme.com] [enabled <enabled>]
[forcePasswordChangeOnNextLogin <forcepwchange>] [snmpV3Access
<snmpv3>] [securityLevel <seclvl>]
[userPasswordAsAuthenticationPassphrase <pwauthpass>]
[authenticationPassPhrase] [useAuthenticationPassPhraseAsPrivacyPassPhrase
<authpassasprivpass>] [privacyPassPhrase] [authenticationProtocol
<authproto>] [privacyProtocol <privproto>] [groups <groups>] [sshPublicKey]
```

Create or edit user

name (admin)	User name
newName	New name
password	Account password
fullName	Full name
telephoneNumber number	Telephone
eMailAddress	E-mail address
enabled state (true/false)	User enabled
forcePasswordChangeOnNextLogin user needs to change his password on next login (true/false)	Select whether the user needs to change his password on next login (true/false)
snmpV3Access SNMPv3 access (enable/disable)	Enable/disable
securityLevel level (noAuthNoPriv/authNoPriv/authPriv)	SNMPv3 security
userPasswordAsAuthenticationPassphrase SNMPv3 authentication passphrase (true/false)	Use password as
authenticationPassPhrase phrase	Authentication pass
useAuthenticationPassPhraseAsPrivacyPassPhrase phrase as privacy pass phrase (true/false)	Use authentication pass
privacyPassPhrase	Privacy pass phrase
authenticationProtocol protocol (MD5/SHA-1)	Authentication

privacyProtocol (DES/AES-128)	Privacy protocol
groups separated list of group names) (Admin)	Groups (Comma
sshPublicKey	Set SSH public key

---

**CLI: connect**

connect <port index> (1.1/1.2.../2.4)

See **Supported CLI Commands** (on page 32).

---

**CLI: diag**

diag

diag:# netstat

netstat <mode>

Netstat

diag:# netstat connections

TCP Connections.

State Recv-Q Send-Q Local-Address:Port Peer-Address:Port

ESTAB 0 0 [::ffff:192.168.59.146]:443 [::ffff:192.168.62.56]:57858

ESTAB 0 0 [::ffff:192.168.59.146]:443 [::ffff:192.168.62.56]:57857

diag:# netstat ports

List TCP/UDP Listen Sockets

Netid State Recv-Q Send-Q Local-Address:Port Peer-Address:Port

udp UNCONN 0 0 0.0.0.0%eth0:5353 0.0.0.0:\*

udp UNCONN 0 0 0.0.0.0%eth0:5355 0.0.0.0:\*

udp UNCONN 0 0 \*:55213 \*:\*

tcp LISTEN 0 10 127.0.0.1:8181 0.0.0.0:\*

tcp LISTEN 0 10 \*:80 \*:\*

tcp LISTEN 0 10 \*:2130 \*:\*

mode Specify the netstat mode (ports/connections)

diag:# nslookup <host>

Name server query

host Host name or IP address to query DNS information for

diag:# ping <dest> [count <num\_echos>] [size <packet\_size>] [timeout <timeout>]

Ping

dest Target host name or IP address

count Specify the number of echo requests to be sent (1..20) [5]

```
diag:# traceroute <dest> [useICMP]
```

Trace route

dest Target host name or IP address

useICMP Use ICMP packets instead of UDP packets

timeout Maximum amount of time (in s) until traceroute will be terminated (1..900)

```
diag:# nslookup
```

```
nslookup <host>of device
```

DNS lookup

host Host name to lookup

```
diag:# nslookup <IP address>of device
```

NOTE: This may take up to 30 seconds if a DNS server is unreachable!

DNS search suffixes:

raritan.com.

DNS resolver preference: IPv6 address

Results from DNS server <IP address>:

<IP address>of device.

Results from DNS server <IP address>:

<IP address> of device.

---

## CLI: reset

```
reset
```

```
# reset
```

```
reset <command> [arguments...]
```

► **Available commands:**

factorydefaults Reset device to factory defaults

unit Reset and reboot device

```
# reset factorydefaults
reset factorydefaults /y ...
    Reset device to factory defaults

/y ...    Assume 'yes' as answer to questions

# reset unit /y ...
    Reset and reboot device

/y ...    Assume 'yes' as answer to questions
```

---

### CLI: exit

```
exit
# exit
```

---

### CLI: show

```
show

# show <command> [arguments...]
```

▶ **Available commands:**

authentication	Shows info about authentication settings
connectedusers	Shows connected user information
device	Shows Device info. Shows DSAM info if connected
eventlog	Shows event log
groups	Shows group information
history	Shows session command history
keyword	Shows configured serial port keywords
network	Shows all network information
port	Shows DSAM serial port parameters
security	Shows security settings
serial	Shows serial port parameters
terminalblock	Shows terminal block settings
time	Shows date/time information
user	Shows user information

```
# show authentication
Authentication type: Local

Configured LDAP servers:

# IP address  Server type
-----
No servers are currently configured.

Configured Radius servers:

# IP address  Authentication type  Ports (auth./acc.)
-----
No servers are currently configured.
#
# show connectedusers
-----
User Name          IP Address  Client Type  Idle Time
-----
admin              192.168.55.11  CLI (SSH)    0m
#
# show device
Device 'KX4101_5989'
Product:           KX4
Model:             DKX4-101
Firmware Version: 4.2.0.5.48758
Hardware ID:       2
Serial Number:     1IT8C00002
Internal Temperature Current Value: 40.6 C / 105.1 F
Internal Temperature Maximum Value: 46.1 C / 115.0 F

# show eventLog
Event Time          Event Class  Event Message
```

```

-----
-----
2019-03-01 09:17:34 EST    User Activity  User 'admin' from host
'192.168.32.187' logged out.
2019-03-01 09:17:34 EST    User Activity  Session of user 'admin' from host
'192.168.32.187' timed out.
2019-03-01 09:44:54 EST    User Activity  User 'admin' from host
'192.168.32.206' logged in.
2019-03-01 09:55:00 EST    User Activity  User 'admin' from host
'192.168.32.206' logged out.
2019-03-01 09:55:00 EST    User Activity  Session of user 'admin' from host
'192.168.32.206' timed out.
2019-03-01 16:03:52 EST    User Activity  Authentication failed for user
'admin' from host '192.168.32.187'.
2019-03-01 16:03:56 EST    User Activity  User 'admin' from host
'192.168.32.187' logged in.
2019-03-01 16:15:00 EST    User Activity  User 'admin' from host
'192.168.32.187' logged out.
2019-03-01 16:15:00 EST    User Activity  Session of user 'admin' from host
'192.168.32.187' timed out.
2019-03-04 06:32:19 EST    User Activity  User 'admin' from host
'192.168.32.184' logged in.
2019-03-04 06:33:17 EST    Device          Firmware upgrade started from
version '4.0.0.1.45553' to version '4.0.0.1.45557' by user 'admin' from host
'192.168.32.184'.
2019-03-04 06:35:52 EST    Device          The ETHERNET network
interface link is now up.
2019-03-04 06:35:54 EST    Device          Firmware upgraded successfully
from version '4.0.0.1.45553' to version '4.0.0.1.45557' by user 'admin' from
host '192.168.32.184'.
2019-03-04 06:35:54 EST    Device          System started.
2019-03-04 06:36:34 EST    User Activity  Authentication failed for user
'admin' from host '192.168.32.184'.
2019-03-04 06:36:39 EST    User Activity  User 'admin' from host
'192.168.32.184' logged in.
2019-03-04 06:45:00 EST    User Activity  User 'admin' from host
'192.168.32.184' logged out.
2019-03-04 06:45:00 EST    User Activity  Session of user 'admin' from host
'192.168.32.184' timed out.
2019-03-06 07:43:24 EST    User Activity  User 'admin' from host
'192.168.55.11' logged in.

```

```
2019-03-06 07:55:10 EST User Activity User 'admin' from host
'192.168.55.11' logged out.
2019-03-06 07:55:10 EST User Activity Session of user 'admin' from host
'192.168.55.11' timed out.
2019-03-07 09:39:44 EST User Activity User 'admin' from host
'192.168.55.11' logged in.
2019-03-07 09:53:22 EST User Activity User 'admin' from host
'192.168.55.11' logged out.
2019-03-07 09:53:22 EST User Activity Session of user 'admin' from host
'192.168.55.11' timed out.
2019-03-11 13:14:34 EDT User Activity User 'admin' from host
'192.168.55.11' logged in.
2019-03-11 13:16:39 EDT User Activity User 'admin' from host
'192.168.55.11' logged in.
2019-03-11 13:24:46 EDT User Activity User 'admin' from host
'192.168.55.11' logged out.
2019-03-11 13:24:46 EDT User Activity Session of user 'admin' from host
'192.168.55.11' timed out.
2019-03-11 13:29:13 EDT User Activity User 'admin' from host
'192.168.55.11' logged out.
2019-03-11 13:30:32 EDT User Activity User 'admin' from host
'192.168.55.11' logged in.
```

```
# show groups
```

```
Group 'Admin':
```

```
Description: System defined administrator group including all privileges.
```

```
Privileges: adminPrivilege
```

```
# show keyword
```

```
Keyword: Example
```

```
Port: 1.1
```

```
# show network
```

```
DNS resolver
```

```
Servers: 192.168.50.115
          192.168.50.116
```

```
Search suffix: raritan.com.
```



Resolver preference: Prefer IPv6 addresses

#### Routing

##### IPv4

Default gateway: 192.168.50.126

Static routes: None

##### IPv6

Default gateway: None

Static routes: None

#### Interface 'ETHERNET'

##### Link

Configured speed: Automatic

Configured duplex: Automatic

Link state: Autonegotiation On, 1 Gbit/s, Full Duplex, Link OK

Authentication: EAP (Current status:Pending)

EAP outer auth: PEAP

EAP inner auth: MSCHAPv2

EAP identity: radtest

Auth server certificate

Verification: Enabled

CA certificate: Example Certificate Authority

Auth server : Not set

MAC address: 00:0d:5d:00:02:d5

MTU: 1500

##### IPv4

Config method: DHCP

Address: 192.168.50.35/24

Preferred hostname: Not configured

DHCP server: 192.168.50.115

##### IPv6

Disabled

# show security

IPv4 access control: Disabled

IPv6 access control: Disabled

Group based access control for IPv4: Disabled

Group based access control for IPv6: Disabled

Password aging: Disabled

Prevent concurrent user login: No

Strong passwords: Disabled

Restricted Service Agreement: disabled

SSH DPA: Disabled

# show serial

Configured baud rate: 9600 bit/s

Device detection type: Force console

Detected device: Console

# show terminalblock

External input switch: Disabled

Input state for access control: Closed

Current external switch state: Open

Give remote console user: Full Access

Give local console user: Full Access

External output device: Disabled

External device state: Disabled

Output action: Turn Device Off

Device blink interval: 1 (half-seconds)

Turn on based on KVM status: busy\_connected / idle"

# show time

Device Time: 2019-03-11 13:50:26 EDT

Time Zone: (UTC-05:00) Eastern Time (US & Canada)  
Setup Method: NTP synchronized

# show user  
User 'admin':  
Enabled: Yes  
Groups: Admin

SNMP v3 Access: Disabled

#show security details  
IPv4 access control: Disabled

IPv6 access control: Disabled

Group based access control for IPv4: Disabled

Group based access control for IPv6: Disabled

Password aging: Disabled

Prevent concurrent user login: No  
Maximum number of failed logins: 3  
User block time: 5 minutes

User idle timeout: 20 minutes  
Strong passwords: Enabled  
Allowed password length: 8 - 64 characters  
Enforce at least one lower case character: Yes  
Enforce at least one upper case character: Yes  
Enforce at least one numeric character: Yes  
Enforce at least one special character: Yes  
Password history depth: 5

Restricted Service Agreement: disabled  
Restricted Service Agreement Banner Content:

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.

SSH DPA: Disabled

SSH DPA port settings:

Port Id: 2.1	SSH Port: 2225
Port Id: 2.2	SSH Port: 0
Port Id: 2.3	SSH Port: 0
Port Id: 2.4	SSH Port: 0

## Appendix A Specifications

<b>Case Dimension:</b>	<ul style="list-style-type: none"> <li>140mm (W) x 144mm (D)x 30mm (H), 5.51" (W) x 5.67" (D) x " 1.18(H)</li> </ul>
<b>Weight (excluding power adapter):</b>	<ul style="list-style-type: none"> <li>0.65kg (1.42lb)</li> </ul>
<b>Operating Temperature:</b>	<ul style="list-style-type: none"> <li>0 °C -- 55 °C (32 °F --131 °F)</li> </ul>
<b>Storage Temperature: -</b>	<ul style="list-style-type: none"> <li>20 °C -- 80 °C (-4 °F --176 °F)</li> </ul>
<b>Operating Humidity:</b>	<ul style="list-style-type: none"> <li>20%-80% RH</li> </ul>
<b>Storage Humidity:</b>	<ul style="list-style-type: none"> <li>10%-90% RH</li> </ul>
<b>Maximum Power Consumption:</b>	<ul style="list-style-type: none"> <li>12.5W under 4K@30 video stream and without local USB device. DKX4-101 can support two USB devices with up to 500mA for each.</li> </ul>
<b>Power adapter:</b>	<ul style="list-style-type: none"> <li>ATS024T-W050V with different plugs:</li> <li>Input: Universal 100VAC-240VAC 50/60Hz</li> <li>Output: 5VDC/4A</li> <li>C14 Socket</li> <li>Safety certification: UL / CUL / PSE / BSMI / RCM / GS</li> <li>EMI: FCC / CE Class B ; Conduction and Radiation Met.</li> </ul>
<b>Additional power adapter:</b>	<ul style="list-style-type: none"> <li>ATS24T-P050 with C14 socket input.</li> <li>Input: Universal 100VAC-240VAC 50/60Hz</li> <li>Output: 5VDC/4A</li> <li>Plug: US, EU, AU, UK, CN, Korea</li> <li>Safety certification: UL / CUL / PSE / BSMI / RCM / GS</li> <li>EMI: FCC / CE Class B ; Conduction and Radiation Met.</li> </ul>
<b>Terminal block output:</b>	<ul style="list-style-type: none"> <li>Dry contact output supports load with up to 2A/30VDC, or 0.5A/60VDC, or 0.3A/125VAC.</li> </ul>
<b>Terminal block input:</b>	<ul style="list-style-type: none"> <li>Dry contact input only. Does not support any power input.</li> </ul>
<b>Cables and adapters for additional interface support: See <i>D4CBL Adapters</i> (on page 231)</b>	<ul style="list-style-type: none"> <li>D4CBL-DP-HDMI</li> <li>D4CBL-MDP-HDMI</li> <li>D4CBL-DVI-HDMI</li> <li>D4CBL-USBC-HDMI</li> <li>D4CBL-VGA-HDMI</li> </ul>
<b>Mounting bracket:</b>	<ul style="list-style-type: none"> <li>Includes Bracket "L" KX101 (part number 250-62-3011-00 )</li> </ul>

<b>Optional mounting hardware:</b>	<ul style="list-style-type: none"> <li>▪ Metal Hook DSAM-4</li> <li>▪ 1U bracket RACK-KIT-DKX4-101-3 for mounting three DKX4-101 units</li> <li>▪ Universal HDMI Cable Lock P/N: 254-01-0055-00</li> </ul>
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---

## TCP and UDP Ports Used

### ▶ Listening TCP Ports:

- \* 80: http access (configurable)
- \* 443: https access (configurable)
- \* 5000: CC-SG and KXUS access (configurable)
- \* 22: SSH access (if enabled, configurable)
- \* 68: DHCP access (if DHCP is enabled)

### ▶ Listening UDP Ports:

- \* 162: SNMP access (if SNMP Agent is enabled)
- \* 5001: CC\_SG event notification (if under CC-SG management)

### ▶ TCP Ports Outgoing:

- \* 389: LDAP authentication (if LDAP is enabled, configurable)
- \* 636: LDAPS/StartTLS (if LDAPS/StartTLS is enabled, configurable)
- \* 25: SMTP (email) (if enabled)
- \* 445: SMB (Windows File System) access (Remote ISO image access).

### ▶ UDP Ports Outgoing:

- \* 514: Syslog (if enabled, configurable)
- \* 5001: CC\_SG event notification (if under CC-SG management, configurable)
- \* 1812: RADIUS authentication (if enabled, configurable)
- \* 1813: RADIUS authentication (if enabled, configurable)

---

## Apple Mac M1 BIOS Access

BIOS access to the MAC M1 is only through the power button. It requires the power button to be pressed for 10 seconds.

It is not possible to access from KVM connections or using shortcuts.

---

## D4CBL Adapters

D4CBL adapters are used for additional interface support. Following are the video resolutions supported by these adapters.

D4CBL-DP-HDMI, D4CBL-MDP-HDMI, and D4CBL-USBC-HDMI: support up to 4K@30 video resolution.

D4CBL-DVI-HDMI: support up to 1920 x 1200 x60 with RB.

D4CBL-VGA-HDMI: support following video resolutions, but not limited to these.

- 800x600 56Hz/60Hz/72Hz/75Hz
- 1024x768 60Hz/70Hz/75Hz
- 1152x864 60Hz/70
- 1280x720 50Hz/60Hz/75Hz
- 1280x768 50Hz/60Hz/75Hz
- 1280x1024 60Hz/72Hz/75Hz
- 1366x768 60Hz
- 1400x1050 60Hz/75Hz
- 1440x900 60Hz/75Hz
- 1600x900 60Hz/75Hz
- 1600x1024 60Hz/75Hz
- 1600x1200 60Hz/65Hz/70Hz/75Hz
- 1680x1050 60Hz/75Hz
- 1920x1080i 50Hz/60Hz
- 1920x1080P 50Hz/60Hz
- 1920x1200x60 with RB0Hz
- 1920x1200x60 with RB

## Appendix B LDAP Configuration

This section provides an LDAP example for illustrating the configuration procedure using Microsoft Active Directory® (AD). To configure LDAP authentication, four main steps are required:

- a. Determine user accounts and roles (groups) intended for the device
- b. Create user groups for the device on the AD server
- c. Configure LDAP authentication on the device
- d. Configure roles on the device

---

**Important: TLS is used due to published security vulnerabilities in SSL 3.0. Make sure your network infrastructure, such as LDAP and mail services, uses TLS rather than SSL 3.0.**

---

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### Configure User Groups on the AD Server

You must create the groups for the Dominion KX IV–101 on the AD server, and then make appropriate users members of these groups.

In this illustration, we assume:

- The groups for the Dominion KX IV–101 are named *KX\_Admin* and *KX\_User*. See **Configure Group on the Dominion KX IV–101** (on page 119).
- User accounts *kxuser*, *kxuser2*, *usera* and *userb* already exist on the AD server.

► **To configure user groups on the AD server:**

1. On the AD server, create new groups -- *KX\_Admin* and *KX\_User*.

---

*Note: Refer to the documentation or online help accompanying Microsoft AD for detailed instructions.*

---

2. Add the *kxuser2* and *usera* accounts to the *KX\_User* group.
3. Add the *kxuser* and *userb* accounts to the *KX\_Admin* group.



4. Verify whether each group comprises correct users.

The image shows two screenshots of Active Directory Group Properties windows. The top window is for the 'KX\_Admin' group, and the bottom window is for the 'KX\_User' group. Both windows have the 'Members' tab selected, showing a list of group members.

**KX\_Admin Properties - Members**

Name	Active Directory Domain Services Folder
loxuser	techdc12.com/Users
userb	techdc12.com/Users

**KX\_User Properties - Members**

Name	Active Directory Domain Services Folder
loxuser2	techdc12.com/Users
usera	techdc12.com/Users



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