

Dominion[®] KX II



Question	Answer
General Questions	
What is Dominion KX II?	<p>Dominion KX II is a second generation digital KVM (keyboard, video, mouse) switch that enables one, two, four or eight IT administrators to access and control 8, 16, 32 or 64 servers over the network with BIOS-level functionality. Dominion KX II is completely hardware- and OS-independent; users can troubleshoot and reconfigure servers even when servers are down.</p> <p>At the rack, Dominion KX II provides the same functionality, convenience, and space and cost savings as traditional analog KVM switches. However, Dominion KX II also integrates the industry's highest performing KVM-over-IP technology, allowing multiple administrators to access server KVM consoles from any networked workstation.</p>
How does Dominion KX II differ from remote control software?	<p>When using Dominion KX II remotely, the interface, at first glance, may seem similar to remote control software such as pcAnywhere[™], Windows[®] Terminal Services/Remote Desktop, VNC, etc. However, because Dominion KX II is not a software but a hardware solution, it's much more powerful:</p> <ul style="list-style-type: none"> • Hardware- and OS-independent – Dominion KX II can be used to manage servers running many popular OSs, including Intel[®], Sun[™], PowerPC running Windows, Linux[®], Solaris[™], etc. • State-independent/Agentless – Dominion KX II does not require the managed server OS to be up and running, nor does it require any special software to be installed on the managed server. • Out-of-band – Even if the managed server's own network connection is unavailable, it can still be managed through Dominion KX II. • BIOS-level access – Even if the server is hung at boot up, requires booting to safe mode, or requires system BIOS parameters to be altered, Dominion KX II still works flawlessly to enable these configurations to be made.
How do the new features of the Dominion KX II compare to the KX I?	<p>Dominion KX II has many new and exciting features, including virtual media, Absolute Mouse Synchronization[™], dual power, dual gigabit Ethernet, common Web-based user interfaces, next-generation local ports, etc. See the "Features and Benefits" tab on the KX II Web pages at www.raritan.eu/KXII</p>
How do I migrate from the Dominion KX I to Dominion KX II?	<p>In general, KX I customers can continue to use their existing switches for many years. As their data centers expand, customers can purchase and use the new KX II models. Raritan's centralized management appliance, CommandCenter[®] Secure Gateway (CC-SG), and the Multiplatform Client (MPC) both support KX I and KX II switches seamlessly.</p>

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Will my existing KX I CIMs work with Dominion KX II switches?	Yes. Existing KX I CIMs will work with the Dominion KX II switch. In addition, select Paragon CIMs will work with the KX II. This provides an easy migration to KX II for Paragon I customers who wish to switch to KVM over IP. However, you may want to consider the D2CIM-VUSB and D2CIM-DVUSB CIMs that support virtual media and Absolute Mouse Synchronization.
Can the Dominion KX II be rack mounted?	Yes. The Dominion KX II ships standard with 19" rack mount brackets. It can also be reverse rack mounted so the server ports face forward.
How large is the Dominion KX II?	Dominion KX II is only 1U high (except the KX2-864 and KX2-464, which are 2U), fits in a standard 19" rack mount and is only 29 cm deep. The Dominion KX2-832 and KX2-864 are 36 cm deep.
Remote Access	
How many users can remotely access servers on each Dominion KX II?	Dominion KX II models offer remote connections for up to eight users per user channel to simultaneously access and control a unique target server. For one-channel devices like the DKX2-116, up to eight remote users can access and control a single target server. For two-channel devices, like the DKX2-216, up to eight users can access and control the server on channel one and up to another eight users on channel two. For four-channel devices, up to eight users per channel, for a total of 32 (8 x 4) users, can access and control four servers. Likewise, for the eight-channel devices, up to eight users can access a single server, up to an overall maximum of 32 users across the eight channels.
Can two people look at the same server at the same time?	Yes. Actually, up to eight people can access and control any single server at the same time.
Can two people access the same server, one remotely and one from the local port?	Yes. The local port is completely independent of the remote "ports." The local port can access the same server using the PC-Share feature.
In order to access Dominion KX II from a client, what hardware, software or network configuration is required?	<p>Because Dominion KX II is completely Web-accessible, it doesn't require customers to install proprietary software on clients used for access. (An optional installed client is available on www.raritan.com; this is required for access by an external modem.)</p> <p>Dominion KX II can be accessed through major Web browsers, including: Internet Explorer® and Firefox®. Dominion KX II can now be accessed on Windows, Linux and Macintosh® desktops, via Raritan's new Windows Client, and the Java™-based Multiplatform and Virtual KVM Client™.</p> <p>Dominion KX II administrators can also perform remote management (set passwords and security, rename servers, change IP address, etc.) using a convenient browser-based interface.</p>
What is the file size of the applet that's used to access Dominion KX II? How long does it take to retrieve?	The Virtual KVM Client (VKC) applet used to access Dominion KX II is approximately 500KB in size. The following chart describes the time required to retrieve Dominion KX II's applet at different network speeds:

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How do I access servers connected to Dominion KX II if the network ever becomes unavailable?	<p>You can access servers at the rack or via modem.</p> <p>Dominion KX II offers a dedicated modem port for attaching an external modem.</p>															
Do you have a Windows KVM Client?	Yes. In Release 2.2, we have a native .NET Windows Client called the Raritan Active KVM Client.															
Do you have a non-Windows KVM Client?	Yes. Both the Virtual KVM Client (VKC) and the Multiplatform Client (MPC) allow non-Windows users to connect to target servers in the data center. MPC can be run via Web browsers and stand-alone and access servers connected to both Dominion KX I and KX II switches. Please refer to Raritan's Dominion KX II and KVM Client User Guides for more information.															
Do your KVM Clients support dual LCD monitors?	Yes. For customers wishing to enhance their productivity by using multiple LCD monitors on their desktops, the Dominion KX II can launch KVM sessions to multiple monitors, either in full screen or standard modes.															
Universal Virtual Media™																
Which Dominion KX II models support virtual media?	All Dominion KX II models support virtual media. It is available stand-alone and through CommandCenter Secure Gateway, Raritan's centralized management appliance.															
Which types of virtual media does the Dominion KX II support?	Dominion KX II supports the following types of media: internal and USB-connected CD/DVD drives, USB mass storage devices, PC hard drives and ISO images.															
What is required for virtual media?	<p>A Dominion KX II virtual media CIM is required. There are two of these CIMs: the D2CIM-VUSB and the D2CIM-DVUSB.</p> <p>The D2CIM-VUSB has a single USB connector and is for customers who will use virtual media at the OS level.</p> <p>The D2CIM-DVUSB has dual USB connectors and should be purchased by customers who wish to utilize virtual media at the BIOS level. The D2CIM-DVUSB is also required for smart card authentication.</p>															

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What is required for virtual media? (continued)	Both support virtual media sessions to target servers supporting the USB 2.0 interface. Available in economical 32 and 64 quantity CIM packages, these CIMs support Absolute Mouse Synchronization as well as remote firmware updates.
Is virtual media secure?	Yes. Virtual media sessions are secured using 256-bit AES, 128-bit AES or 128-bit RC4 encryption.
What is a USB profile?	Certain servers require a specifically configured USB interface for USB-based services such as virtual media. The USB profile tailors the KX II's USB interface to the server to accommodate these server-specific characteristics.
Why would I use a USB profile?	USB profiles are most often required at the BIOS level where there may not be full support for the USB specification when accessing virtual media drives. However, profiles are sometimes used at the OS level, for example, for mouse synchronization for Macintosh and Linux servers.
How is a USB profile used?	Individual ports or groups of ports can be configured by the administrator to use a specific USB profile in the KX II's port configuration page. A USB profile can also be selected in the KX II Client when required. See the user guide for more information.
Do I always need to set a USB profile when I use virtual media?	No. In many cases, the default USB profile is sufficient when using virtual media at the OS level or operating at the BIOS level without accessing virtual media.
What profiles are available? Where can I find more information?	Consult the user guide for the available profiles and for more information.
Bandwidth and KVM-over-IP Performance	
How is bandwidth used in KVM-over-IP systems?	<p>Dominion KX II offers next-generation KVM-over-IP technology – the very best video compression available. Raritan has received numerous technical awards confirming its high video quality transmissions and the low bandwidth utilization.</p> <p>The Dominion KX II digitizes, compresses and encrypts the keyboard, video and mouse signals from the target server and transmits IP packets over the IP network to the remote client to create the remote session to the user. The KX II provides an at-the-rack experience based on its industry-leading video processing algorithms.</p> <p>Screen changes, i.e., video accounts for the majority of the bandwidth used – and keyboard and mouse activity are significantly less.</p> <p>It is important to note that bandwidth is only used when the user is active. The amount of bandwidth used is based on the amount of change to the server's video display screen.</p> <p>If there are no changes to the video – the user is not interacting with the server – there is generally no bandwidth used. If the user moves the mouse or types a character, then there is a small amount of bandwidth used. If the display is running a complex screen saver or playing a video, then there can be a larger amount of bandwidth used.</p>

Question	Answer
How does bandwidth affect KVM-over-IP performance?	<p>In general, there is a trade-off between bandwidth and performance. The more bandwidth available, the better performance can be. In limited bandwidth environments, performance can degrade. The Dominion KX II has been optimized to provide strong performance in a wide variety of environments.</p>
What factors affect bandwidth?	<p>There are many factors that determine how much bandwidth will be used. The primary factor, noted above, is the amount of change in the target server's video display. This is dependent on the user's task and actions.</p> <p>Other factors include the server's video resolution, networking speed and characteristics, client PC resources and video card noise.</p> <p>The Dominion KX II has very sophisticated video processing algorithms that optimize bandwidth and performance for a variety of environments. In addition, they are highly configurable; there are many settings to optimize bandwidth usage. In particular, the connection speed setting in the remote clients (VKC, MPC) can be set to reduce the bandwidth used.</p> <p>Unlike the KX I, the noise filter parameter does not generally have a large role in reducing bandwidth or improving performance of the Dominion KX II.</p>
How much bandwidth does KX II use for common tasks?	<p>Bandwidth primarily depends on the user's task and actions. The more the server's video screen changes, the more bandwidth is utilized.</p> <p>The table below summarizes some standard use cases at Dominion KX II's default and with two reduced bandwidth settings (connection speed setting of 1Mb with 15- and 8-bit color) on a Windows XP target server (1024x768 resolution) over a 100 Mb/s LAN:</p>

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<p>How can I reduce bandwidth?</p>	<p>KX II provides a variety of settings in our remote clients for the user to optimize bandwidth and performance. The default settings will provide an at-the-rack level of performance in standard LAN/WAN environments with economical use of bandwidth.</p> <p>Bandwidth management settings include the connection speed and color depth. To reduce bandwidth:</p> <p>Connection speed. Reducing the connection speed can significantly reduce the bandwidth used. In a standard LAN/WAN environment, setting the connection speed to 1.5 or 1 Mb per second will reduce bandwidth while maintaining good performance. Settings below this will further reduce bandwidth and are appropriate for slow bandwidth links.</p>																																																																																												

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How can I reduce bandwidth? (continued)	<p>Color depth. Reducing the color depth will also significantly decrease bandwidth and increase performance, but fewer colors will be used, resulting in video degradation. This may be acceptable for certain system administration tasks.</p> <p>For slow Internet connections, the use of 8-bit color or lower bit depths can reduce bandwidth and improve performance.</p> <p>Other tips to decrease bandwidth include:</p> <ul style="list-style-type: none"> • Use a solid desktop background instead of a complex image • Disable screensavers • Use a lower video resolution on the target server • Uncheck the “Show window contents while dragging” option in Windows • Use simple images, themes and desktops (e.g., Windows Classic)
What should I do on slower bandwidth links?	<p>The connection speed and color depth settings can be tweaked to optimize performance for slower bandwidth links.</p> <p>For example, in the Multiplatform Client or the Virtual KVM Client, set the connection speed to 1.5 Mb or 1 Mb; and the color depth to 8 bit.</p> <p>Even lower connection speeds and color depths can be used for very low bandwidth situations.</p> <p>For modem connections, the KX II will automatically default to a very low connection speed and reduced color depth to optimize performance.</p>
I want to connect over the Internet. What type of performance should I expect?	<p>It depends on the bandwidth and latency of the Internet connection between your remote client and the KX II. With a cable modem or high speed DSL connection, your performance can be very similar to a LAN/WAN connection. For lower speed links, use the suggestions above to improve performance.</p>
I have a high bandwidth environment. How can I optimize performance?	<p>The default settings will provide strong performance in a high bandwidth environment.</p> <p>Ensure that the connection speed is set to 100 Mb or 1 Gb and the color depth is set to 15-bit RGB color.</p>
What is the maximum remote (over IP) video resolution supported?	<p>The Dominion KX II is the first and only KVM-over-IP switch to support full High Definition (HD) remote video resolution – 1920x1080.</p> <p>In addition, popular widescreen formats are supported, including 1600x1200, 1680x1050 and 1440x900, so remote users can work with today’s higher resolution monitors.</p>

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What about servers with DVI ports?	<p>Servers with DVI ports that support DVI-A (analog) and DVI-I (integrated analog and digital) can use a simple, passive adapter to convert the DVI port to a VGA plug that can be connected to a KX II CIM's VGA plug.</p> <p>The adapter should be DVI male on one side and VGA female on the other side. These adapters are readily available and inexpensive.</p> <p>Servers with DVI ports that only support DVI-D (digital) would need a more expensive adapter, but customers should check to see if the server's video card can be configured to support DVI-I or DVI-A.</p>
Ethernet and IP Networking	
What is the speed of Dominion KX II's Ethernet interfaces?	Dominion KX II supports gigabit as well as 10/100 Ethernet. KX II supports two 10/100/1000 speed Ethernet interfaces, with configurable speed and duplex settings (either auto detected or manually set).
Can I access Dominion KX II over a wireless connection?	Yes. Dominion KX II not only uses standard Ethernet, but also very conservative bandwidth with very high quality video. Thus, if a wireless client has network connectivity to a Dominion KX II, servers can be configured and managed at the BIOS level wirelessly.
Does the Dominion KX II offer dual gigabit Ethernet ports to provide redundant failover or load balancing?	Yes. Dominion KX II features dual gigabit Ethernet ports to provide redundant failover capabilities. Should the primary Ethernet port (or the switch/router to which it is connected) fail, Dominion KX II will failover to the secondary network port with the same IP address – ensuring that server operations are not disrupted. Note that automatic failover must be enabled by the administrator.
Can I use Dominion KX II with a VPN?	Yes. Dominion KX II uses standard Internet Protocol (IP) technologies from Layer 1 through Layer 4. Traffic can be easily tunneled through standard VPNs.
Can I use KX II with a proxy server?	Yes. KX II can be used with a SOCKS proxy server, assuming the remote client PC is configured appropriately. Contact the user documentation or online help for more information.
How many TCP ports must be open on my firewall in order to enable network access to Dominion KX II?	Two ports are required: TCP port 5000 to discover other Dominion devices and for communication between Raritan devices and CC-SG; and, of course, port 443 for HTTPS communication.
Are these ports configurable?	Yes. Dominion KX II's TCP ports are configurable by the administrator.
Can Dominion KX II be used with Citrix®?	Dominion KX II may work with remote access products like Citrix if configured appropriately, but Raritan cannot guarantee it will work with acceptable performance. Customers should realize that products like Citrix utilize video redirection technologies similar in concept to digital KVM switches so that two KVM-over-IP technologies are being used simultaneously.
Can the Dominion KX II use DHCP?	DHCP addressing can be used; however, Raritan recommends fixed addressing since the Dominion KX II is an infrastructure device and can be accessed and administered more effectively with a fixed IP address.

Question	Answer
I'm having problems connecting to the Dominion KX II over my IP network. What could be the problem?	<p>The Dominion KX II relies on your LAN/WAN network. Some possible problems include:</p> <ul style="list-style-type: none"> • Ethernet auto-negotiation. On some networks, 10/100 auto-negotiation does not work properly and the Dominion KX II unit must be set to 100 Mb/full duplex or the appropriate choice for its network. • Duplicate IP address. If the IP address of the Dominion KX II is the same as another device, network connectivity may be inconsistent. • Port 5000 conflicts. If another device is using port 5000, the Dominion KX II default port must be changed (or the other device must be changed). • When changing the IP address of a Dominion KX II, or swapping in a new Dominion KX II, sufficient time must be allowed for its IP and Mac addresses to be known throughout the Layer 2 and Layer 3 networks.
IPv6 Networking	
What is IPv6?	<p>IPv6 is the acronym for Internet Protocol Version 6. IPv6 is the “next generation” IP protocol which will replace the current IP Version 4 (IPv4) protocol.</p> <p>IPv6 addresses a number of problems in IPv4, such as the limited number of IPv4 addresses. It also improves IPv4 in areas such as routing and network auto-configuration. IPv6 is expected to gradually replace IPv4, with the two coexisting for a number of years.</p> <p>IPv6 treats one of the largest headaches of an IP network from the administrator’s point of view – configuring and maintaining an IP network.</p>
Why does Dominion KX II support IPv6 networking?	U.S. government agencies and the Department of Defense are now mandated to purchase IPv6 compatible products. In addition, many enterprises and foreign countries, such as China, will be transitioning to IPv6 over the next several years.
What is “dual stack” and why is it required?	Dual stack is the ability to simultaneously support both IPv4 and IPv6 protocols. Given the gradual transition from IPv4 to IPv6, dual stack is a fundamental requirement for IPv6 support.
How do I enable IPv6 on the Dominion KX II?	Use the “Network Settings” page, available from the “Device Settings” tab. Enable IPv6 addressing and choose manual or auto-configuration. Consult the user guide for more information.
What if I have an external server with an IPv6 address that I want to use with my Dominion KX II?	<p>The Dominion KX II can access external servers via their IPv6 addresses, for example, an SNMP Manager, syslog server or LDAP server.</p> <p>Using the Dominion KX II’s dual-stack architecture, these external servers can be accessed via: (1) an IPv4 address, (2) IPv6 address or (3) hostname. So the Dominion KX II supports the mixed IPv4/IPv6 environment many customers will have.</p>
Does the Dominion KX I (the previous generation KX) support IPv6?	No. The Dominion KX I does not support IPv6 addresses.

Question	Answer
What if my network doesn't support IPv6?	The Dominion KX II's default networking is set at the factory for IPv4 only. When you are ready to use IPv6, then follow the above instructions to enable IPv4/IPv6 dual-stack operation.
Where can I get more information on IPv6?	See www.ipv6.org for general information on IPv6. The Dominion KX II user guide describes the Dominion KX II's support for IPv6.
Servers	
Does Dominion KX II depend on a Windows server to operate?	<p>Absolutely not. Because users depend on the KVM infrastructure to always be available in any scenario whatsoever (as they will likely need to use the KVM infrastructure to fix problems), Dominion KX II is designed to be completely independent from any external server.</p> <p>For example, should the data center come under attack from a malicious Windows worm or virus, administrators will need to use the KVM solution to resolve the situation. Therefore, it is imperative that the KVM solution, in turn, must not rely on these same Windows servers (or any server, for that matter) to be operational in order for the KVM solution to function.</p> <p>To this end, Dominion KX II is completely independent. Even if a user chooses to configure the Dominion KX II to authenticate against an Active Directory® server – if that Active Directory server becomes unavailable, Dominion KX II's own authentication will be activated and fully functional.</p>
Do I need to install a Web server, such as Microsoft Internet Information Services (IIS), in order to use Dominion KX II's Web browser capability?	No. Dominion KX II is a completely self-sufficient appliance. After assigning an IP address to Dominion KX II, it's ready to use – with Web browser and authentication capabilities completely built in.
What software do I have to install in order to access Dominion KX II from a particular workstation?	None. Dominion KX II can be accessed completely via a Web browser (although an optional installed client is provided on Raritan's Web site, www.raritan.com , which is required for modem connections). A Java-based client is now available for non-Windows users.
What should I do to prepare a server for connection to Dominion KX II?	Simply set the mouse parameters in order to provide users with the best mouse synchronization during remote connections, as well as turning off the power management features that affect screen display.
What about mouse synchronization?	For many KVM-over-IP users, mouse synchronization is a frustrating experience. The Dominion KX II's Absolute Mouse Synchronization provides for a tightly synchronized mouse without requiring server mouse setting changes on Windows and Apple® Mac servers. For other servers, the Intelligent Mouse mode or the speedy, single mouse mode can be used to avoid changing the server mouse settings.
What comes in the Dominion KX II box?	The following is included: (1) Dominion KX II unit, (2) Quick Setup Guide, (3) standard 19" rack mount brackets, (4) user manual CD-ROM, (5) network cable, (6) crossover cable, (7) localized AC line cord and (8) warranty certificate and other documentation.
Blade Servers	
Can I connect blade servers to the Dominion KX II?	Yes. Dominion KX II supports popular blade server models from the leading blade server manufacturers: HP, IBM® and Dell®.

Question	Answer
Which blade servers are supported?	The following models are supported: Dell PowerEdge® 1855, 1955 and M1000e; HP BladeSystem c3000 and c7000; and IBM BladeCenter® H, E and S.
Are the Paragon Blade CIMs used?	No. The Dominion KX II does not require the use of special blade server CIMs like the Paragon II.
Which CIM should I use?	It depends on the type of KVM ports on the specific make and model of the blade server you are using. The following CIMs are supported: DCIM-PS2, DCIM-USBG2, D2CIM-VUSB and D2CIM-DVUSB.
Which types of access and control are available?	The Dominion KX II provides automated and secure KVM access: (1) at the rack, (2) remotely over IP, (3) via CommandCenter and (4) by modem.
Do I have to use hotkeys to switch between blades?	Some blade servers require you to use hotkeys to switch between blades. With the Dominion KX II, you don't have to use these hotkeys. Just click on the name of the blade server, and the Dominion KX II will automatically switch to that blade without the explicit use of the hotkey.
Can I access the blade server's management module?	Yes. You can define the URL of the management module and access it from the Dominion KX II or from our CommandCenter Secure Gateway. If configured, one-click access is available.
How many blade servers can I connect to a Dominion KX II ?	For performance and reliability reasons, you can connect up to eight blade chassis to a Dominion KX II, regardless of model. Raritan recommends connecting up to two times the number of remote connections supported by the device. For example, with a KX2-216 with two remote channels, we recommend connecting up to four blade server chassis. You can of course connect individual servers to the remaining server ports.
I'm an SMB customer with a few Dominion KX IIs. Must I use your CommandCenter Secure Gateway management station?	No, you don't have to. SMB customers are not required to use CommandCenter Secure Gateway to use the new blade features.
I'm an enterprise customer using CommandCenter Secure Gateway. Can I access blade servers via CommandCenter Secure Gateway?	Yes. Once blade servers are configured on the Dominion KX II, the CommandCenter Secure Gateway user can access them via KVM connections. In addition, the blade servers are organized by chassis as well as CommandCenter Secure Gateway custom views.
What if I also want in-band or embedded KVM access?	In-band and embedded access to blade servers can be configured within CommandCenter Secure Gateway.
I'm running VMware® on some of my blade servers. Is this supported?	Yes. With CommandCenter Secure Gateway, you can display and access virtual machines running on blade servers.
Is virtual media supported?	This depends on the blade server. HP blades can support virtual media. The IBM BladeCenter (except for BladeCenter T) supports virtual media if configured appropriately. A virtual media CIM – D2CIM-VUSB or D2CIM-DVUSB – must be used.

Question	Answer
Is Absolute Mouse Synchronization supported?	Servers with internal KVM switches inside the blade chassis typically do not support absolute mouse technology. For HP blade and some Dell blade servers, a CIM can be connected to each blade, so Absolute Mouse Synchronization is supported.
Is blade access secure?	Yes. Blade access uses all of the standard Dominion KX II security features such as 128-bit or 256-bit encryption. In addition, there are blade-specific security features such as per blade access permissions and hotkey-blocking that eliminates unauthorized access.
Does the Dominion KSX II or the KX II-101 support blade servers?	At this time, these products do <u>not</u> support blade servers.
Installation	
Besides the unit itself, what do I need to order from Raritan to install Dominion KX II?	Each server that connects to Dominion KX II requires a Dominion or Paragon computer interface module (CIM), an adapter that connects directly to the keyboard, video and mouse ports of the server.
Which kind of Cat5 cabling should be used in my installation?	Dominion KX II can use any standard UTP (unshielded twisted pair) cabling, whether Cat5, Cat5e or Cat6. Often in our manuals and marketing literature, Raritan will simply say "Cat5" cabling for short. In actuality, any brand UTP cable will suffice for Dominion KX II.
Which types of servers can be connected to Dominion KX II?	Dominion KX II is completely vendor independent. Any server with standards-compliant keyboard, video and mouse ports can be connected.
How do I connect servers to Dominion KX II?	Servers that connect to the Dominion KX II require a Dominion or Paragon CIM, which connects directly to the keyboard, video and mouse ports of the server. Then, connect each CIM to Dominion KX II using standard UTP (unshielded twisted pair) cable such as Cat5, Cat5e or Cat6.
How far can my servers be from Dominion KX II?	In general, servers can be up to 45 meter away from Dominion KX II, depending on the type of server. (See printed user manual or manual on the Raritan Web site.) For the new D2CIM-VUSB CIM that supports virtual media and Absolute Mouse Synchronization, a 30 meter range is recommended.
Some operating systems lock up when I disconnect a keyboard or mouse during operation. What prevents servers connected to Dominion KX II from locking up when I switch away from them?	Each Dominion computer interface module (DCIM) dongle acts as a virtual keyboard and mouse to the server to which it is connected. This technology is called KME (keyboard/mouse emulation). Raritan's KME technology is data center grade, battle-tested and far more reliable than that found in lower-end KVM switches: it incorporates more than 15 years of experience and has been deployed to millions of servers worldwide.
Are there any agents that must be installed on servers connected to Dominion KX II?	Servers connected to Dominion KX II do not require any software agents to be installed because Dominion KX II connects directly via hardware to the servers' keyboard, video and mouse ports.
How many servers can be connected to each Dominion KX II unit?	Dominion KX II models range from 8, 16 or 32 server ports in a 1U chassis, to 64 server ports in a 2U chassis. This is the industry's highest digital KVM switch port density.

Question	Answer
What happens if I disconnect a server from Dominion KX II and reconnect it to another Dominion KX II unit, or connect it to a different port on the same Dominion KX II unit?	Dominion KX II will automatically update the server port names when servers are moved from port to port. Furthermore, this automatic update does not just affect the local access port, but propagates to all remote clients and the optional CommandCenter Secure Gateway management appliance.
How do I connect a serially controlled (RS-232) device, such as a Cisco® router/switch or a headless Sun server, to Dominion KX II?	<p>If there are only a few serially controlled devices, they may be connected to a Dominion KX II using Raritan's P2CIM-SER serial converter.</p> <p>However, if there are four or more serially controlled devices, we recommend the use of Raritan's Dominion SX line of secure console servers. For multiple serial devices, Dominion SX offers more serial functionality at a better price point than Dominion KX II. This SX is easy to use, configure and manage, and can be completely integrated with a Dominion series deployment. In particular, many UNIX® and networking administrators appreciate the ability to directly SSH to a Dominion SX unit.</p>
Local Port	
Can I access my servers directly from the rack?	Yes. At the rack, Dominion KX II functions just like a traditional KVM switch – allowing control of up to 64 servers using a single keyboard, monitor and mouse. You can switch between servers by the browser-based user interface or via a hotkey.
Can I consolidate the local ports of multiple KX II's?	Yes. You can connect the local ports of multiple KX II switches to another KX II using the "tiering" feature of the KX II. You can then access the servers connected to your KX II devices from a single point in the data center via a consolidated port list.
When I am using the local port, do I prevent other users from accessing servers remotely?	No. The Dominion KX II local port has a completely independent access path to the servers. This means a user can access servers locally at the rack – without compromising the number of users that access the rack remotely at the same time.
Can I use a USB keyboard or mouse at the local port?	Yes. Dominion KX II offers both PS/2 and USB keyboard and mouse ports on the local port. The USB ports are USB v1.1, and support keyboards and mice only – not USB devices such as scanners or printers. Note that the KX2-832 and KX2-864 switches do not support PS/2 local ports.
Is there an onscreen display (OSD) for local, at-the-rack access?	Yes, but Dominion KX II's at-the-rack access goes way beyond conventional OSDs. Featuring the industry's first browser-based interface for at-the-rack access, Dominion KX II's local port uses the same interface for local and remote access. Moreover, most administrative functions are available at the rack.
How do I select between servers while using the local port?	The local port displays the connected servers using the same user interface as the remote client. Users connect to a server with a simple click of the mouse or via a hotkey.

Question	Answer
How do I ensure that only authorized users can access servers from the local port?	<p>Users attempting to use the local port must pass the same level of authentication as those accessing remotely. This means that:</p> <ul style="list-style-type: none"> • If the Dominion KX II is configured to interact with an external RADIUS, LDAP or Active Directory server, users attempting to access the local port will authenticate against the same server. • If the external authentication servers are unavailable, Dominion KX II failover to its own internal authentication database. <p>Dominion KX II has its own stand-alone authentication, enabling instant, out-of-the-box installation.</p>
If I use the local port to change the name of a connected server, does this change propagate to remote access clients as well? Does it propagate to the optional CommandCenter appliance?	Yes. The local port presentation is identical and completely in sync with remote access clients as well as Raritan's CommandCenter Secure Gateway management appliance. To be clear, if the name of a server via the Dominion KX II onscreen display is changed, this updates all remote clients and external management servers in real time.
If I use Dominion KX II's remote administration tools to change the name of a connected server, does that change propagate to the local port OSD as well?	Yes. If the name of a server is changed remotely, or via Raritan's optional CommandCenter Secure Gateway management appliance, this update immediately affects Dominion KX II's onscreen display.
Extended Local Port (Dominion KX2-832 and KX2-864 models only)	
What is the extended local port?	The Dominion KX2-832 and KX2-864 feature an extended local port. The KX II eight-user models have a standard local port, plus a new extended local port that extends the local port, via Cat5 cable, beyond the rack to a control room, another point in the data center or to a Dominion KX II or Paragon II switch.
Can I connect the extended local port to another KX II?	Yes, you can connect the extended local port to a server port of another KX II using the "tiering" feature of the KX II.
Is a user station required for the extended local port?	Yes. The following devices can function as the "user station" for the extended local port: Paragon II EUST, Paragon II UST and the Cat5 Reach [®] URKVMG device. In addition, the extended local port can be connected via Cat5 cable to a server port on a Dominion KX II or Paragon II switch. This configuration can be used to consolidate the local ports of many KX2-8xxx devices to a single switch.
How far can the user station be from the Dominion KX II?	The distance is 60 meter to 300 meter, but varies according to the type of user station, the video resolution and cable type and quality. See the user guide or Release Notes for more information.
Is a CIM required?	No CIM is required. Just connect a Cat5 cable.
Must I use the extended local port?	No. The extended local port is an optional feature and is disabled by default. Use the "Local Port Settings" page to enable it. You can also disable the standard local port if you are not going to use it for added security.
Dual Power Supplies	
Does Dominion KX II have a dual power option?	Yes. All Dominion KX II models come equipped with dual AC inputs and power supplies with automatic failover. Should one of the power inputs or power supplies fail, then the KX II will automatically switch to the other.

Question	Answer
Does the power supply used by Dominion KX II automatically detect voltage settings?	Yes. Dominion KX II's power supply can be used in AC voltage ranges from 100–240 volts, at 50–60 Hz.
If a power supply or input fails, will I be notified?	The Dominion KX II front panel LED will notify the user of a power failure. An entry will also be sent to the audit log and displayed on the KX remote client user interface. If configured by the administrator, then SNMP or syslog events will be generated.
Intelligent Power Distribution Unit (PDU) Control	
What type of remote power control capabilities does Dominion KX II offer?	Raritan's intelligent PDUs can be connected to the Dominion KX II to provide power control of target servers and other equipment. For servers, after a simple one-time configuration step, just click on the server name to power on, off or to recycle a hung server.
What type of power strips does Dominion KX II support?	Raritan's Dominion PX and Remote Power Control (RPC) power strips. These come in many outlet, connector and amp variations. Note that you should not connect the PM series of power strips to the Dominion KX II as these power strips do not provide outlet-level switching.
How many PDUs can be connected to a Dominion KX II?	Up to eight PDUs can be connected to a Dominion KX II device.
How do I connect the PDU to the Dominion KX II?	The D2CIM-PWR is used to connect the power strip to the Dominion KX II. The D2CIM-PWR must be purchased separately; it does not come with the PDU.
Does Dominion KX II support servers with multiple power supplies?	Yes. Dominion KX II can be easily configured to support servers with multiple power supplies connected to multiple power strips. Four power supplies can be connected per target server.
Does the Dominion KX II display statistics and measurements from the PDU?	Yes. PDU-level power statistics, including power, current and voltage, are retrieved from the PDU and displayed to the user.
Does remote power control require any special configuration of attached servers?	Some servers ship with default BIOS settings such that the server does not automatically restart after losing and regaining power. For these servers, see the server's documentation to change this setting.
What happens when I recycle power to a server?	Note that this is the physical equivalent of unplugging the server from the AC power line, and reinserting the plug.
Can I power on/off other equipment (non-servers) connected to a PDU?	Yes. You can power on/off other equipment attached to the PDU by outlet from the Dominion KX II's browser-based interface.
Local Port Consolidation, Tiering and Cascading	
How do I physically connect multiple Dominion KX II devices together into one solution?	To physically connect multiple KX II devices together for consolidated local access, you can connect the local ports of multiple "tiered" (or "cascaded") KX II switches to a "base" KX II using the "tiering" feature of the KX II. You can then access the servers connected to your KX II devices from a single point in the data center via a consolidated port list.

Question	Answer
<p>How do I physically connect multiple Dominion KX II devices together into one solution? (continued)</p>	<p>The D2CIM-DVUSB CIM must be used to connect the “tiered” KX II switch to the “base” switch. Or for the KX2-832 and KX2-864, the extended local port can be connected via CAT5/6 cable (no CIM required) to the base KX II switch.</p> <p>Access via the consolidated port list is available in the data center or even from a remote PC. All servers connected to the tiered KX II’s can be accessed via a hierarchical port list or via search (with wildcards).</p> <p>Two levels of tiering are supported; up to 1024 devices can be accessed in a tiered configuration. Remote power control is also supported.</p> <p>Virtual media, smart card and blade server access via tiered access will be supported in a future release. Of course these features are available when accessed via a standard remote connection.</p> <p>While remote IP server access via the consolidated port list is available as a convenience, remote accessing a “tiered” server from CommandCenter or via the KX II the server is connected to, is recommended for optimal performance.</p>
<p>Do I have to physically connect Dominion KX II devices together?</p>	<p>Multiple Dominion KX II units do not need to be physically connected together. Instead, each Dominion KX II unit connects to the network, and they automatically work together as a single solution if deployed with Raritan’s CommandCenter Secure Gateway (CC-SG) management appliance.</p> <p>CC-SG acts as a single access point for remote access and management. CC-SG offers a significant set of convenient tools, such as consolidated configuration, consolidated firmware update and a single authentication and authorization database.</p> <p>Customers using CC-SG for centralized remote access can make good use of the KX II’s tiering (cascading) feature to consolidate the local ports of multiple KX II switches and locally access up to 1024 servers from a single console when in the data center.</p>
<p>Is CC-SG required?</p>	<p>For customers wanting stand-alone usage (without a central management system), multiple Dominion KX II units still interoperate and scale together via the IP network. Multiple Dominion KX II switches can be accessed from the KX II Web-based user interface and from the Multiplatform Client (MPC).</p>
<p>Can I connect an existing analog KVM switch to Dominion KX II?</p>	<p>Yes. Analog KVM switches can be connected to one of Dominion KX II’s server ports. Simply use a PS/2 or USB computer interface module (CIM), and attach it to the user ports of the existing analog KVM switch.</p> <p>Analog KVM switches supporting hotkey-based switching on their local ports can be tiered to a Dominion KX II switch and switched via a consolidated port list, both remotely and in the data center.</p>

Question	Answer
Can I connect an existing analog KVM switch to Dominion KX II? (continued)	Please note that analog KVM switches vary in their specifications and Raritan cannot guarantee the interoperability of any particular third-party analog KVM switch. Contact Raritan technical support for further information.
Computer Interface Modules (CIMs)	
Can I use computer interface modules (CIMs) from Paragon, Raritan's analog matrix KVM switch, with Dominion KX II?	<p>Yes. Certain Paragon computer interface modules (CIMs) may work with Dominion KX II. (Please check the Raritan Dominion KX II Release Notes on the Web site for the latest list of certified CIMs.)</p> <p>However, because Paragon CIMs cost more than Dominion KX II CIMs (as they incorporate technology for video transmission of up to 300 meter), it is not generally advisable to purchase Paragon CIMs for use with Dominion KX II. Also note that when connected to Dominion KX II, Paragon CIMs transmit video at a distance of up to 45 meter, the same as Dominion KX II CIMs – not at 300 meter, as they do when connected to Paragon.</p>
Can I use Dominion KX II computer interface modules (CIMs) with Paragon, Raritan's analog matrix KVM switch?	No. Dominion KX II computer interface modules (CIMs) transmit video at ranges of 15 meter to 45 meter and thus do not work with Paragon, which requires CIMs that transmit video at a range of 30 meter. To ensure that all Raritan's customers experience the very best quality video available in the industry – a consistent Raritan characteristic – Dominion series CIMs do not interoperate with Paragon.
Does Dominion KX II support Paragon Dual CIMs?	<p>Yes. The Dominion KX II now supports Paragon II Dual CIMs (P2CIM-APS2DUAL and P2CIM-AUSB2DUAL), which can connect servers in the data center to two different Dominion KX II switches.</p> <p>If one KX II switch is not available, the server can be accessed through the second KX II switch, providing redundant access and doubling the level of remote KVM access.</p> <p>Please note these are Paragon CIMs, so they do not support the KX II advanced features such as virtual media, absolute mouse, etc.</p>
Security	
Is the Dominion KX II FIPS 140-2 Certified?	The Dominion KX II, as of Release 2.2.0, uses an embedded FIPS 140-2 validated cryptographic module running on a Linux platform per FIPS 140-2 implementation guidelines. This cryptographic module is used for encryption of KVM session traffic consisting of video, keyboard, mouse, virtual media and smart card data.
What kind of encryption does Dominion KX II use?	Dominion KX II uses industry-standard (and extremely secure) 256-bit AES, 128-bit AES or 128-bit encryption, both in its SSL communications as well as its own data stream. Literally no data is transmitted between remote clients and Dominion KX II that is not completely secured by encryption.
Does Dominion KX II support AES encryption as recommended by the U.S. government's NIST and FIPS standards?	<p>Yes. The Dominion KX II utilizes the Advanced Encryption Standard (AES) for added security. 256-bit and 128-bit AES is available.</p> <p>AES is a U.S. government-approved cryptographic algorithm that is recommended by the National Institute of Standards and Technology (NIST) in the FIPS Standard 197.</p>

Question	Answer
Does Dominion KX II allow encryption of video data? Or does it only encrypt keyboard and mouse data?	Unlike competing solutions, which only encrypt keyboard and mouse data, Dominion KX II does not compromise security – it allows encryption of keyboard, mouse and video data.
How does Dominion KX II integrate with external authentication servers such as Active Directory, RADIUS or LDAP?	Through a very simple configuration, Dominion KX II can be set to forward all authentication requests to an external server such as LDAP, Active Directory or RADIUS. For each authenticated user, Dominion KX II receives from the authentication server the user group to which that user belongs. Dominion KX II then determines the user's access permissions depending on the user group to which he or she belongs.
How are usernames and passwords stored?	Should Dominion KX II's internal authentication capabilities be used, all sensitive information, such as usernames and passwords, is stored in an encrypted format. Literally no one, including Raritan technical support or product engineering departments, can retrieve those usernames and passwords.
Does Dominion KX II support strong passwords?	Yes. The Dominion KX II has administrator-configurable, strong password checking to ensure that user created passwords meet corporate and/or government standards and are resistant to brute force hacking.
Can I upload my own digital certificate to the Dominion KX II?	Yes. Customers can upload self-signed or certificate authority-provided digital certificates to the Dominion KX II for enhanced authentication and secure communication.
Does the KX II support a configurable security banner?	Yes. For government, military and other security conscious customers requiring a security message before user login, the KX II can display a user-configurable banner message and optionally require acceptance.
My security policy does not allow the use of standard TCP port numbers. Can I change them?	Yes. For customers wishing to avoid the standard TCP/IP port numbers to increase security, the Dominion KX II allows the administrator to configure alternate port numbers.
Smart Cards and CAC Authentication	
Does Dominion KX II support smart card and CAC authentication?	Yes. Smart cards and DoD common access cards (CAC) authentication to target servers is supported by Release 2.1.10 and greater.
What is CAC?	Mandated by Homeland Security Presidential Directive 12 (HSPD-12), CAC is a type of smart card created by the U.S. government and used by U.S. military and government staff. The CAC card is a multi-technology, multipurpose card; the goal is to have a single identification card. For more information, see the FIPS 201 standards.
Which KX II models support smart cards/CAC?	All Dominion KX II models are supported. The Dominion KX II-101 do not currently support smart cards and CAC.
Do enterprise and SMB customers use smart cards, too?	Yes. However, the most aggressive deployment of smart cards is in the U.S. federal government.
Which CIMs support smart card/CAC?	The D2CIM-DVUSB is the required CIM. This CIM must be upgraded with the Release 2.1.10 firmware.
What firmware version is required?	Dominion KX II Release 2.1.10 and later is required.

Question	Answer
Which smart card readers are supported?	The required reader standards are USB CCID and PC/SC. Consult the version 2.1.10 user documentation for a list of certified readers and more information.
Can smart card/CAC authentication work on the local port and via CommandCenter?	Yes. Smart card/CAC authentication works on both the local port and via CommandCenter. For the local port, connect a compatible smart card reader to the USB port of the Dominion KX II.
Are the Paragon smart card-enabled UST and CIM used?	No. The P2-EUST/C and P2CIM-AUSB-C are not part of the Dominion KX II solution.
Where can I get more information on KX II smart card support?	See www.raritan.eu/smart-card-reader , version 2.1.10 Release Notes and the Dominion KX II User Guide for more information.
Manageability	
Can Dominion KX II be remotely managed and configured via Web browser?	Yes. Dominion KX II can be completely configured remotely via Web browser. Note that this does require that the workstation have an appropriate Java Runtime Environment (JRE) version installed. Besides the initial setting of Dominion KX II's IP address, everything about the solution can be completely set up over the network. (In fact, using a crossover Ethernet cable and Dominion KX II's default IP address, you can even configure the initial settings via Web browser.)
Can I back up and restore Dominion KX II's configuration?	Yes. Dominion KX II's device and user configurations can be completely backed up for later restoration in the event of a catastrophe. Dominion KX II's backup and restore functionality can be used remotely over the network, or through your Web browser.
What auditing or logging does Dominion KX II offer?	For complete accountability, Dominion KX II logs all major user events with a date and time stamp. For instance, reported events include (but are not limited to): user login, user logout, user access of a particular server, unsuccessful login, configuration changes, etc.
Can Dominion KX II integrate with syslog?	Yes. In addition to Dominion KX II's own internal logging capabilities, Dominion KX II can send all logged events to a centralized syslog server.
Can Dominion KX II integrate with SNMP?	Yes. In addition to Dominion KX II's own internal logging capabilities, Dominion KX II can send SNMP traps to SNMP management systems such as HP Openview and Raritan's CommandCenter NOC.
Can Dominion KX II's internal clock be synchronized with a timeserver?	Yes. Dominion KX II supports the industry-standard NTP protocol for synchronization with either a corporate timeserver, or with any public timeserver (assuming that outbound NTP requests are allowed through the corporate firewall).
Documentation and Support	
Where do I find documentation on the Dominion KX II?	The documentation is available at raritan.com on the KX II firmware and documentation page: www.raritan.eu/support/dominion-kx-ii . The documentation is listed by firmware release.
What documentation is available?	A Quick Setup Guide, User Guide and a KVM and Serial Client Guide, as well as Release Notes and other information are available.
Is online help available?	Yes. Online help is available at raritan.com with the documentation and from the KX II User Interface.

Question	Answer
What CIM should I use for a particular server?	Consult the CIM Guide available with the KX II documentation.
How long is the hardware warranty for the KX II ?	The Dominion KX II comes with a standard two-year warranty, which can be extended to 5 years of warranty coverage.
Miscellaneous	
What is Dominion KX II's default IP address?	192.168.0.192
What is Dominion KX II's default username and password?	The Dominion KX II's default username and password are admin/raritan (all lower case). However, for the highest level of security, the Dominion KX II forces the administrator to change the Dominion KX II default administrative username and password when the unit is first booted up.
I changed and subsequently forgot Dominion KX II's administrative password; can you retrieve it for me?	Dominion KX II contains a hardware reset button that can be used to factory reset the device, which will reset the administrative password on the device to the default password.