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Owner's Manual

Console KVM Switch with IP Access

Model # B020-016-17-IP



1111 W. 35th Street, Chicago, IL 60609 USA
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1. FCC Information

FCC Notice, Class A

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. The user must use shielded cables and connectors with this equipment. Any changes or modifications to this equipment not expressly approved by Tripp Lite could void the user's authority to operate this equipment.

2. User Notice

All information, documentation, and specifications contained in this manual are subject to change without prior notification by the manufacturer. The manufacturer makes no representations or warranties, either expressed or implied, with respect to the contents hereof and specifically disclaims any warranties as to merchantability or fitness for any particular purpose. Any of the manufacturer's software described in this manual is sold or licensed "as is." Should the programs prove defective following their purchase, the buyer (and not the manufacturer, its distributor, or its dealer), assumes the entire cost of all necessary servicing, repair and any incidental or consequential damages resulting from any defect in the software.

The manufacturer of this system is not responsible for any radio and/or TV interference caused by unauthorized modifications to this device. It is the responsibility of the user to correct such interference.

The manufacturer is not responsible for any damage incurred in the operation of this system if the correct operational voltage setting was not selected prior to operation. PLEASE VERIFY THAT THE VOLTAGE SETTING IS CORRECT BEFORE USE.

3. Package Contents

This package consists of:

- (1) B020-008-17-IP or B020-016-17-IP Console KVM Switch with IP Access
- (1) PS/2 KVM Cable Kit
- (1) USB KVM Cable Kit
- (1) Power Cord
- (1) CD with Owner's Manual*

Check to make sure that all of the components are present and in good order. If anything is missing, or was damaged in shipping, contact your dealer.

Read this manual thoroughly and follow the installation and operation procedures carefully to prevent any damage to the switch or to any other devices on the installation.

4. Introduction



4.1 Features

- Console KVM Switch with built-in IP Access in a dual-rail housing with top and bottom clearance for smooth operation in 1U of rack space.
- Integrated KVM console with 17" LCD monitor, keyboard, and touchpad.
- Dual-Rail – LCD Monitor module can slide independently of the keyboard/touchpad module.
- A single console controls up to 16 computers – cascade additional units to control up to 256 computers.
- Remotely access computers via the LAN, WAN, or Internet – control your installation when and where you want.
- Grayscale option to improve transfer speed in low bandwidth situations.
- User-selectable network transfer rate.
- Optional external console ports located on the rear of the unit – manage computers in the LCD KVM switch from an external console (PS/2 keyboard, monitor, and PS/2 mouse).
- Optional external PS/2 mouse port on Keyboard panel – provides a convenient setup for an external mouse.
- Console lock – enables the console modules to remain securely locked away in position when not in use.
- Internet browser access – Windows Client and Java Client provided, Java Client works with most operating systems.
- AP Windows and Java Clients are available for non-browser IP access to the KVM.
- Graphical OSD and graphical toolbars for convenient, user-friendly operation.
- Up to 64 user accounts – up to 32 concurrent remote logins.
- Panel Array Mode – view all ports at the same time.
- Message board feature allows logged in users to communicate with each other and allows a remote user to take exclusive control of the KVM functions.
- Windows-based Log Server.
- Three user account types: Administrator, User, and Select.
- Advanced security features include password protection and advanced encryption technologies: 1024-bit RSA, 256-bit AES, 56-bit DES, and 128-bit SSL.
- Supports RADIUS server authentication.
- Flash firmware upgradable over a network connection.
- Ports can be set to Exclusive, Occupy and Share.
- Network Interfaces: TCP/IP, HTTP, HTTPS, UDP, RADIUS, DHCP, SSL, ARP, DNS, 10Base-T/100Base-TX, Auto Sense, and Ping.
- Built-in monitor supports video resolutions up to 1280 x 1024 @ 75Hz.
- Both IPv4 and IPv6 are supported.

4.2 System Requirements

4.2.1 Optional External Console

- A VGA, SVGA, or MultiSync monitor capable of displaying the highest resolution provided by any computer in the installation.
- PS/2 keyboard and mouse.

4.2.2 Computers

The following equipment must be installed on each computer:

- A VGA, SVGA or MultiSync video graphics card with an HD15 port.

Note: The integrated LCD monitor's maximum resolution is 1280 x 1024 @ 75Hz. Ensure that none of the computer resolution settings exceed the LCD monitor's maximum resolution.

Either:

- PS/2 mouse and keyboard ports (6-pin Mini-DIN).
- USB port.

4.2.3 Remote Computers

- For best results, computers that remotely access the KVM switch should have at least a Pentium III 1 GHz processor, with their screen resolution set to 1024 x 768.
- Users who want to access the KVM switch with the Windows Client must have DirectX 7.0 or higher installed.
- If you don't already have it, DirectX is available for free download from Microsoft's Website: <http://www.microsoft.com/downloads>.
- Users who want to access the KVM switch with the Java Client must have Sun's Java 2 (1.4.2 or higher) runtime environment installed. Java is available for free download from the Sun Java Website: <http://java.sun.com>.
- Browsers must support 128-bit SSL encryption.
- For best results, a network transfer speed of at least 128 Kbps is recommended.

4.2.4 Cables

Custom wired PS/2 and USB KVM cable kits are available via Tripp Lite for use with the NetDirector Console KVM Switch with IP Access. You must use these custom wired KVM cable kits when connecting to a computer/server to ensure the KVM operation.

Item	Length	Part Number
PS/2 KVM Cable Kit	6 ft.	P774-006
PS/2 KVM Cable Kit	10 ft.	P774-010
PS/2 KVM Cable Kit	15 ft.	P774-015
PS/2 KVM Cable Kit	25 ft.	P774-025
USB KVM Cable Kit	6 ft.	P776-006
USB KVM Cable Kit	10 ft.	P776-010
USB KVM Cable Kit	19 ft.	P776-019

4. Introduction *(continued)*

4.2 System Requirements *(continued)*

4.2.5 Converters and Adapters

Use a B015-000 PS/2 to USB Adapter to convert any P774-Series PS/2 KVM Cable Kit for use with a USB computer/server.

4.2.6 Operating Systems

Supported operating systems are shown in the table, below:

Operating System	Versions Supported
Windows	2000 and higher
Linux RedHat	6.0 and higher
Linux SuSE	8.2 and higher
Linux Mandriva (Mandrake)	9.0 and higher
UNIX AIX	4.3 and higher
UNIX Free BSD	3.51 and higher

Operating System	Versions Supported
UNIX Sun	Solaris 8 and higher
Novell Netware	5.0 and higher
Mac	8.6 and higher
OS/2	Warp and higher
DOS	6.2 and higher

4.2.7 Browsers

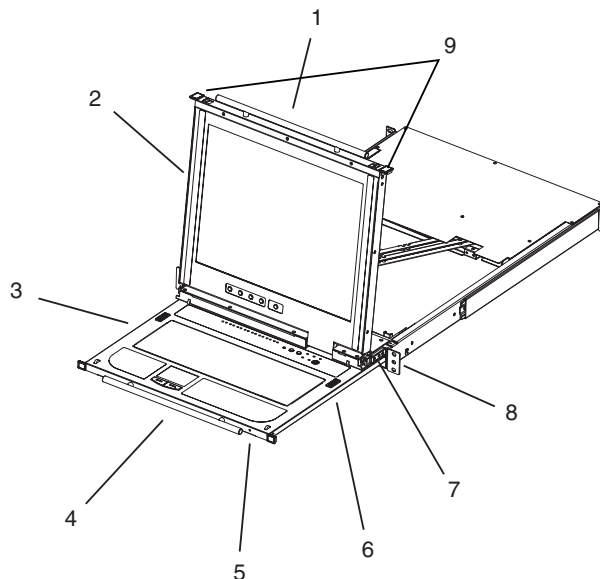
Supported browsers are shown in the table, below:

Browser	Versions Supported
Internet Explorer	6.0 and later
Firefox	1.5 and later
Mozilla	1.7 and later
Opera	9.0 and later
Netscape	8.1 and later

4.3 Components

4.3.1 Front View

- 1 Upper Handle:** Pull to slide the LCD module out; push to slide the module in.
- 2 LCD Module:** See *LCD Module* section
- 3 Keyboard Module:** See *Keyboard Module* section
- 4 Lower Handle:** Pull to slide the keyboard module out; push to slide the module in.
- 5 Power LED:** Lights (blue) to indicate that the unit is receiving power.
- 6 Keyboard Release Catch:** These catches (one on each side) release the keyboard module so you can slide it away.
- 7 LCD Release Catch:** These catches (one on each side) release the LCD module so you can slide it away.
- 8 Rack Mounting Tabs:** The rack mounting tabs located at each corner of the unit secure the chassis to a system rack. See *Standard Rack Mounting* section for details.
- 9 Console Release Tabs:** These tabs (one on each side) must be pressed inward to release the LCD and keyboard module, allowing them to be pulled out of the rack.

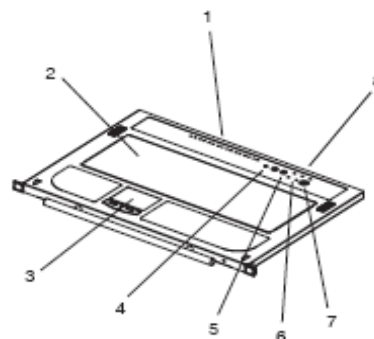


4. Introduction *(continued)*

4.3 Components *(continued)*

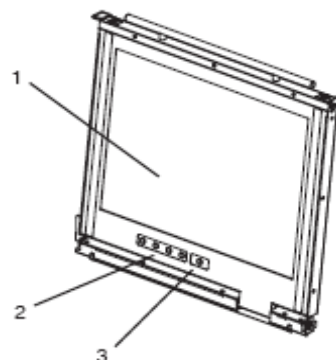
4.3.2 Keyboard Module

- 1 Port LEDs:** An On Line LED lights (amber) to indicate that the device attached to its corresponding port is up and running. A Selected LED lights (green) to indicate that the computer attached to its corresponding port has the KVM focus.
- 2 Keyboard:** 99-key keyboard.
- 3 Touchpad:** Standard mouse touchpad.
- 4 Reset Switch:** Pressing and holding this switch in while powering on the unit causes the KVM switch to revert to the original factory installed firmware version – allowing you to recover from a failed firmware upgrade. Pressing and holding this switch in for more than three seconds performs a system reset.
Note: The switch is recessed and must be pushed with a thin object – such as the end of a paper clip or a ballpoint pen.
- 5 Port Selection Switches:** The left button (DOWN), shifts the KVM focus down through the ports (port 7 → port 6, etc.). After port 1, it cycles back to the last port. The right button (UP), shifts the KVM focus up through the ports. After the last port, it cycles to port 1.
- 6 Connection LEDs:** The Link LED flashes (green) when a remote client connects to the KVM switch. The 10/100 Mbps LED lights (orange) to indicate 10 Mbps data transmission speed. It lights (green) for 100 Mbps.
- 7 External Mouse Port:** This PS/2-type mouse port is provided for users who prefer to use an external mouse.
- 8 Lock LEDs:** The Num Lock, Caps Lock, Scroll Lock LEDs are located here.



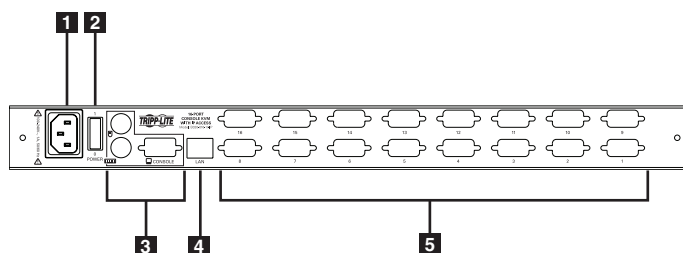
4.3.3 LCD Module

- 1 LCD Display:** To access the LCD monitor, slide the LCD module out and flip up the cover.
- 2 LCD Controls:** These buttons control the position and picture setting of the LCD display.
- 3 LCD On/Off Button:** Push this button to turn the LCD monitor on and off. The button lights (orange) when the LCD monitor is off to indicate that only the monitor is off – not the KVM switch itself.



4.3.4 Rear View

- 1 Power Socket:** This is a standard C14 AC power socket. The power cord that comes with the unit plugs in here.
- 2 Power Switch:** This is a standard rocker switch that powers the unit on and off.
- 3 External Console Ports:** For flexibility and convenience, the NetDirector Console KVM Switch with IP Access supports an external KVM console.
- 4 LAN Port:** The cable that connects the KVM switch to a LAN, WAN, or Internet plugs in here.
- 5 KVM Ports:** The custom wired KVM cable kits that connect to the computers plug in here.



Note: The shape of these 15-pin connectors has been specifically modified to work only with Tripp Lite P774-Series (PS/2) and P776-Series (USB) KVM Cable Kits.

5. Installation

5.1 General Safety Instructions



- Read all of these instructions. Save them for future reference.
- Follow all warnings and instructions marked on the device.
- Do not place the device on any unstable surface (cart, stand, table, etc.). If the device falls, serious damage will result.
- Do not use the device near water.
- Do not place the device near, or over, radiators or heat registers.
- The device cabinet is provided with slots and openings to allow for adequate ventilation. To ensure reliable operation, and to protect against overheating, these openings must never be blocked or covered.
- The device should never be placed on a soft surface (bed, sofa, rug, etc.) as this will block its ventilation openings. Likewise, the device should not be placed in a built in enclosure unless adequate ventilation has been provided.
- Never spill liquid of any kind on the device.
- Unplug the device from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.
- The device should be operated from the type of power source indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
- This device is designed for IT power distribution systems with up to 230V phase to phase voltage.
- The device is equipped with a 3-wire grounding type plug. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not attempt to defeat the purpose of the grounding-type plug. Always follow your local/national wiring codes.
- Do not allow anything to rest on the power cord or cables. Route the power cord and cables so that they cannot be stepped on or tripped over.
- If an extension cord is used with this device make sure that the total of the ampere ratings of all products used on this cord does not exceed the extension cord ampere rating. Make sure that the total of all products plugged into the wall outlet does not exceed 15 amperes.
- Consideration should be given to the connection of equipment to the supply circuit, and what effect overloading the supply circuit might have on overcurrent protection and supply wiring.
- To help protect your system from sudden, transient increases and decreases in electrical power, use a Tripp Lite Surge Suppressor, Line Conditioner, or Uninterruptible Power Supply (UPS).
- Position system cables and power cables carefully; be sure that nothing rests on any cables.
- When connecting or disconnecting power to hot pluggable power supplies, observe the following guidelines:
 - Install the power supply before connecting the power cable to the power supply.
 - Unplug the power cable before removing the power supply.
 - If the system has multiple sources of power, disconnect power from the system by unplugging all power cables from the power supplies.

- Never push objects of any kind into or through cabinet slots. They may touch dangerous voltage points or short out parts resulting in a risk of fire or electrical shock.
- Do not attempt to service the device yourself. Refer all servicing to qualified service personnel.
- If the following conditions occur, unplug the device from the wall outlet and bring it to qualified service personnel for repair:
 - The power cord or plug has become damaged or frayed.
 - Liquid has been spilled into the device.
 - The device has been exposed to rain or water.
 - The device has been dropped, or the cabinet has been damaged.
 - The device exhibits a distinct change in performance, indicating a need for service.
 - The device does not operate normally when the operating instructions are followed.
- Only adjust those controls that are covered in the operating instructions. Improper adjustment of other controls may result in damage that will require extensive work by a qualified technician to repair.
- Use of this equipment in life support applications where failure of this equipment can reasonably be expected to cause the failure of the life support equipment or to significantly affect its safety or effectiveness is not recommended. Do not use this equipment in the presence of a flammable anesthetic mixture with air, oxygen or nitrous oxide.

Rack Mounting

- The ambient operating temperature in the rack may be an issue and is dependent upon the rack load and ventilation. When installing in a closed or multi-unit rack assembly, make sure that the temperature will not exceed the maximum rated ambient temperature (0° to 40° C).
- Before working on the rack, make sure that the stabilizers are secured to the rack, extended to the floor, and that the full weight of the rack rests on the floor. Install front and side stabilizers on a single rack or front stabilizers for joined multiple racks before working on the rack.
- Always load the rack from the bottom up, and load the heaviest item in the rack first.
- Always load the rack so that a hazardous condition is not created due to uneven loading.
- Make sure that the rack is level and stable before extending a device from the rack.
- Use caution when pressing the device rail release latches and sliding a device into or out of a rack; the slide rails can pinch your fingers.
- After a device is inserted into the rack, carefully extend the rail into a locking position, and then slide the device into the rack.
- Do not overload the AC supply branch circuit that provides power to the rack. The total rack load should not exceed 80 percent of the branch circuit rating.
- Ensure that proper airflow is provided to devices in the rack.
- Do not step on or stand on any device when servicing other devices in a rack.



CAUTION!
Slide/rail-mounted
equipment is not to be
used as a shelf
or a workspace.

5. Installation *(continued)*

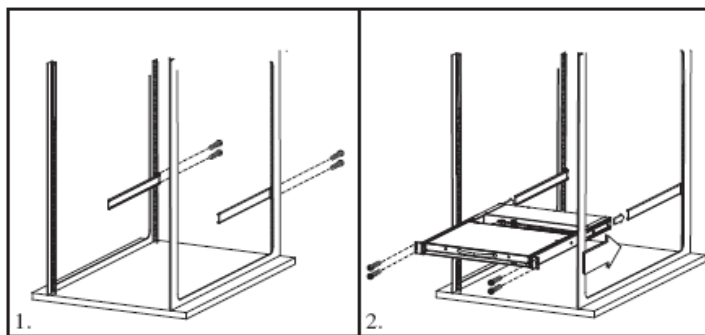
5.2 Standard Rack Mounting

The NetDirector Console KVM Switch with IP Access is designed for mounting in a 1U rack system. For convenience, a rack mounting kit is included with your console KVM switch for quick installation. The various mounting options are explained in the sections that follow.

Standard Rack Mounting

The standard rack mounting brackets that come attached to the console KVM switch allow the unit to be installed in a standard 1U rack by a single individual.

1. Slide out the rear mounting brackets from the console and mount both brackets (separate from the console) to the inside rear of a standard 1U rack system using user-supplied screws.
2. Take the console and gently slide it into the two rear-mounted brackets in the rack and secure the console in place by inserting user-supplied screws.



2-Post Rackmounting

The console KVM switch can also be mounted in a 2-post rack installation using the optional 2-Post Rack Mount Kit (model #: B019-000).

The mounting hardware allows for the console to be opened with the drawer in any position. Heavy-duty 14-gauge steel provides stability and prevents the console frame from twisting. See the B019-000 instructional manual for detailed mounting instructions.

5.3 Single-Stage Installation

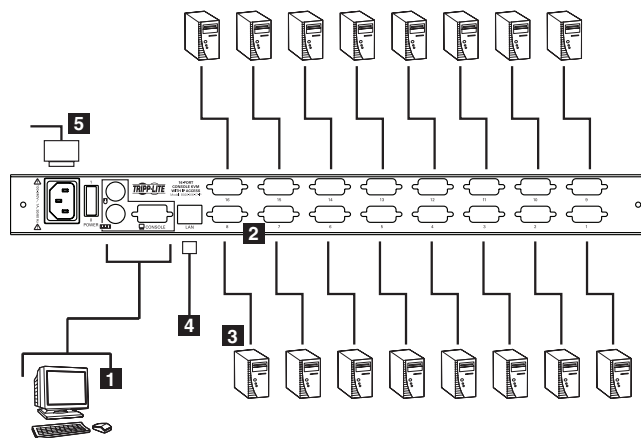
In a Single Stage installation, there are no additional switches cascaded down from the first unit. To set up a single stage installation, refer to the installation diagram (the numbers in the diagram correspond to the numbers of the installation steps) and do the following:

Note: Power off all computers before connecting them to the console KVM switch.

- 1 (Optional) If you choose to install an external console, plug your keyboard, monitor, and mouse into the Console Ports located on the rear panel. (The external mouse can also be connected to the external mouse port located on the Keyboard Panel of the unit.)
- 2 Using a P774-Series (PS/2) or P776-Series (USB) KVM Cable Kit, plug the yellow custom HD15 connector into any available KVM port on the switch.
- 3 At the other end of the cable, plug the keyboard, video (blue), and mouse connectors into their respective ports on the computer.

Repeat steps 2 and 3 for each additional computer/server you are connecting to the console KVM switch.

- 4 Plug the Cat5e/6 cable from the LAN into the LAN port on the rear panel.



- 5 Connect the power cord provided with this package to an AC source and the power socket.

After you are all cabled up, you can power on the switch. After the switch is powered on, power on the computers.

5.4 Two-Stage Installation

To expand the number of computers that can be controlled in your KVM installation, up to 16 additional KVM switches (model B007-008 or B022-U16) can be cascaded to a NetDirector Console KVM Switch with IP Access. As many as 256 computers can be controlled in a complete two stage installation. In a two stage installation, the NetDirector Console KVM Switch with IP Access is considered the first stage unit; the cascaded KVM switches are considered second stage units.

Note: In order for a B022-U16 to be cascaded, you must upgrade the B022-U16 firmware using the cascade firmware provided on Tripp Lite's website. See the Tripp Lite website or B022-U16 manual for details.

To set up a two stage installation, do the following:

1. Make sure that power to all the devices you will be connecting up, including all preexisting devices on the installation, have been turned off.

2. Use a P774-Series (PS/2) KVM Cable Kit to connect any available KVM port on the First Stage unit to the Console ports of the B007-008 Second Stage unit. Use either a P774- or P776-Series KVM Cable Kit to connect to the console ports of a B022-U16 Second Stage unit.
3. Use the appropriate KVM cable kits (as described in the Cables section of the B007-008 or B022-U16 owner's manual) to connect any available KVM port on the second stage KVM switch to the keyboard, video, and mouse ports of the computers you are installing.
(Repeat Steps 2 and 3 for any additional second stage KVM switches that you wish to cascade from the NetDirector Console KVM Switch with IP Access.)
4. Power on the NetDirector Console KVM Switch with IP Access.
5. Power on the second stage KVM switches.
6. Power on the connected computers.

5. Installation *(continued)*

5.5 IP Address Determination

When setting up the KVM for the first time, you must obtain the KVMs IP address in order to access it via the Internet.

DHCP Server Assigned IP Address – By default, the KVM is set to have its IP address assigned by a DHCP server. If the KVM is connected to a network with a DHCP server, contact your network administrator to obtain the IP address that it was assigned. *Note: The MAC address for your unit can be found on the sticker on the underside of the product.*

Default IP Address – If your KVM is connected to an IPv4 network without a DHCP server, it boots up with the default IP address 192.168.0.60. If the KVM is on an IPv6 network without a DHCP server, the default IP address is determined by the KVMs MAC address. For example, if the KVM has a MAC address of 00-10-74-13-81-01, the IPv6 address is FE80:0:0:0:0010:74FF:FE13:8101. The parts of the IP address that are bolded and underlined are fixed. *Note: The MAC address for your unit can be found on the sticker on the underside of the product.*

Static IP Address – If you wish to assign a static IP address, you will need to login to the local console, access the Network settings screen of the OSD, and modify the network settings from there. (See *Network* section details.)

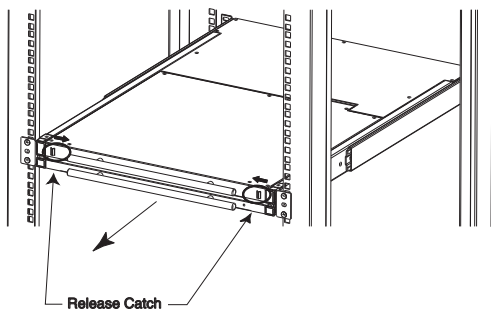
6. Basic Operation

6.1 Opening the Console

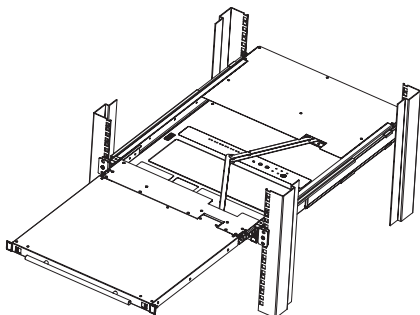
The console consists of two modules: an LCD display module located under the top cover and a keyboard / touchpad module below the LCD module. The modules can either slide together, or independently. This allows you to have the LCD display available for viewing while the keyboard / touchpad module is conveniently out of the way when not in use.

6.1.1 Opening Separately

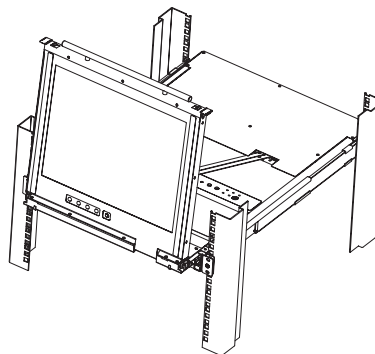
1. Release the console by sliding the front panel catches toward the center and pull the top panel a few centimeters toward you. Once the console has been released, you can let go of the catches.



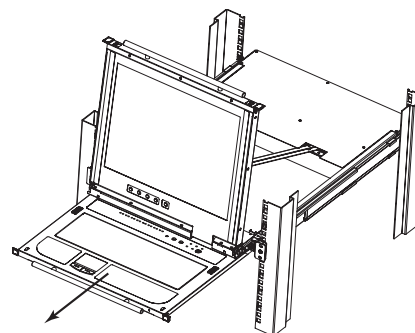
2. Pull the top panel all the way out until it clicks into place.



3. Rotate the top panel all the way back to expose the LCD screen.



4. Reach underneath and pull the keyboard module all the way out until it clicks into place.



6.1.2 Opening Together

Refer to the diagrams in the *Opening Separately* section as you do the following:

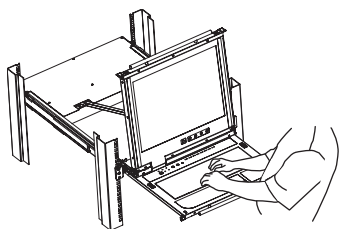
1. Push the release catches in and pull the top and bottom panels out until the keyboard module clicks into place. Once the console has been released, you can let go of the catches.
2. Pull the top panel the rest of the way out until it clicks into place.
3. Rotate the top panel all the way back to expose the LCD screen.

6.1.3 Operating Precautions

The maximum load bearing capacity of the keyboard module is 65 lbs. Failure to heed the information below can result in damage to the keyboard module.

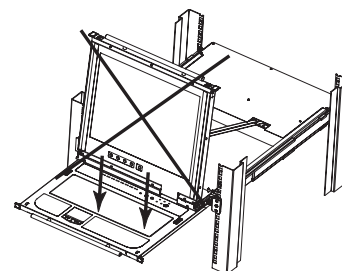
RIGHT

Rest your hands and arms lightly on the keyboard module as you work.



WRONG!

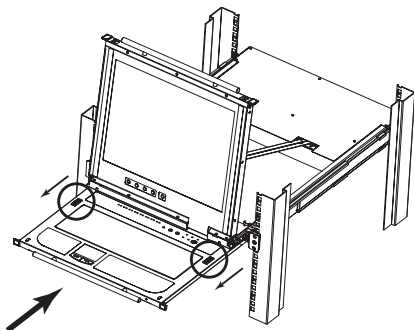
- **DO NOT** lean your body weight on the keyboard module.
- **DO NOT** place heavy objects on the keyboard module.



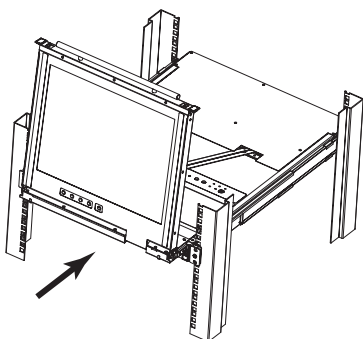
6. Basic Operation *(continued)*

6.2 Closing the Console

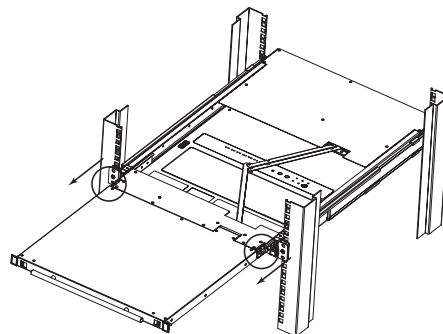
1. Pull the release catches located on either side of the keyboard toward you to release the keyboard module, then slide the module slightly in.



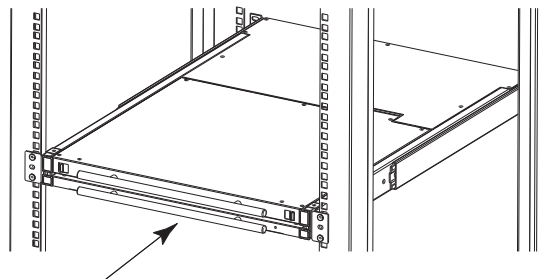
2. Let go of the catches. Using the front handle, push the keyboard module all the way in.



3. Rotate the LCD module all the way down, then pull the rear catches to release the LCD module.



4. Using the front handle, push the module all the way in.



6.3 LCD OSD Configuration

The LCD Buttons

The LCD OSD allows you to set up and configure the LCD display. Four buttons are used to perform the configuration, as described in the table below:

Button	Function
MENU	When you have not entered the LCD OSD Menu function, pressing this button invokes the Menu function and brings up the Main Menu.
▶ ▲	When navigating through the menus, this button moves you right or up. When making an adjustment, it increases the value.
◀ ▼	When navigating through the menus, this button moves you left or down. When making an adjustment, it decreases the value.
EXIT	<ul style="list-style-type: none">• When you have not entered the LCD OSD Menu function, pressing this button performs an auto adjustment. An auto adjustment automatically configures all the settings for the LCD panel to what the OSD considers their optimum values to be.• When you have entered the LCD OSD Menu function, pressing this button exits the current menu and returns you to the previous menu. Use it to leave an adjustment menu when you are satisfied with the adjustment you have made.• When you are at the Main Menu, pressing this button exits the LCD OSD.

The Adjustment Settings

An explanation of the LCD OSD adjustment settings is given in the table below:

Setting	Explanation
Brightness	Adjusts the background black level of the screen image.
Contrast	Adjusts the foreground white level of the screen image.
Phase	Adjusts the vertical size of the screen image.
Clock	Adjusts the horizontal size of the screen image.
H-Position	Positions the display area on the LCD panel horizontally (moves the display area left or right).
V-Position	Positions the display area on the LCD panel vertically (moves the display area up or down).
Color Temperature	Adjusts the color quality of the display. You can adjust the "warmth" value, color balance, etc. The <i>Adjust Color</i> selection has a further submenu that lets you fine tune the RGB values.
Language	Selects the language that the LCD OSD displays its menus in (English, French, German, Spanish or Italian).
OSD Duration	Lets you set the amount of time that the OSD displays on the screen. If there is no input for the amount of time you choose, the OSD display turns off.
Reset	Resets the menu and submenu adjustments (except for language settings) to the original factory default settings.

6. Basic Operation *(continued)*

6.4 Port Selection

The NetDirector Console KVM Switch with IP Access provides several ways to access the computers connected on the installation; Manual Pushbuttons (Local console only), On-Screen Display (OSD) and the OSD Toolbar. See *OSD Main Page* section for details on On-Screen Display (OSD) port operation, and *OSD Toolbar* section for details on the Toolbar.

6.4.1 Manual Pushbuttons (Local console only)

When accessing the KVM via the local console, you can use the pushbuttons located on the keyboard panel to toggle between ports. The left pushbutton will switch to the previous port in the installation. When the currently selected port is the first port in the installation, pressing this pushbutton will access the last port in the installation. The right pushbutton will switch to the next port in the installation. When the currently selected port is the last port in the installation, pressing this pushbutton will access the first port in the installation.

6.5 Hot Plugging

The NetDirector Console KVM Switch with IP Access supports *hot plugging* - components can be removed and added back into the installation by unplugging and replugging their cables from the ports without the need to shut the unit down.

If you change computer positions, in order for the OSD menus to correspond to the KVM port changes, you must manually edit the Port Names for the OSD to reflect the new port information. (See *Port Names* section for details.)

Note: If the computer's operating system does not support hot plugging, this function may not work properly.

6.6 Powering Off and Restarting

If it becomes necessary to power off the KVM switch, or if the switch loses power and needs to be restarted, wait 10 seconds before powering it back on. The computers should not be affected by this, but if any of them should fail, simply restart the affected computers.

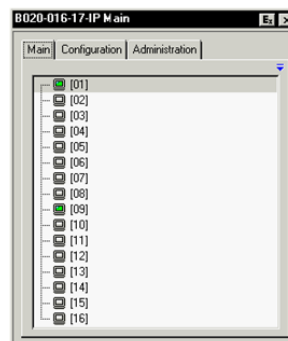
7. OSD Operation

7.1 Login

Once the NetDirector Console KVM Switch with IP Access has been installed, the administrator needs to set the unit up for operation via the OSD. This chapter describes the contents of the OSD, and how to use them to setup the KVM switch. The OSD can be accessed via the local console, the Windows and Java browser clients, and the AP Windows and Java non-browser clients. Regardless of how you access the OSD, its functionality is the same. To login to the OSD via the local console, turn the unit on and open up the LCD display. A login prompt appears, asking you to enter your username and password. If this is the first time you are accessing the KVM, use the default username administrator, and the default password *password*. For security purposes, it is strongly recommended that you change the username and password for the default administrator account to something unique. (See *User Management* section for details on changing the username and password.)



To login to the OSD remotely, you must initiate a remote session via the Windows or Java browser clients; or, via the AP Windows or Java non-browser clients. *Note: For details on the various ways to initiate a remote session, see the Browser Operation and Non-Browser Operation sections in this manual.*

After you successfully log in, or upon initiation of a remote session, the Local Console OSD appears:



The OSD consists of four pages, each with a specific set of functions: Main, Configuration, Administration, and Log (Local Console only). Each page is discussed in the sections that follow.

The functions of the two buttons at the right of the title bar are described in the table below. Functions can be invoked by clicking the icon, or by pressing its associated function key.

Button	Key	Function
	Esc	Close: Closes the OSD display but does not log you out of the session. You can bring the display back with the OSD hotkeys (Scroll Lock + Scroll Lock + Scroll Lock).
	F8	Log Out: Closes the OSD display and logs you out of the KVM switch. You must re-enter your username and password to regain access to the KVM switch.

7. OSD Operation (continued)

7.2 Main Page

The Main page governs port access. Selecting a port and double-clicking it switches you to the device on that port.

- A *monitor* icon is in front of the port number. The monitor icon is green for ports that have devices connected to them that are powered on; otherwise, it is gray.
- If a port has been specified as a Quick View port (see below), a red *eye* icon is displayed along with the monitor icon to indicate so.

In addition to using this page to select ports to switch to, the administrator can also use this page to enable/disable *Quick View* status for selected ports, and to create, modify, or delete names for each of the ports. The following sections describe how to enable Quick View and how to assign names to ports.

7.2.1 Quick View Ports

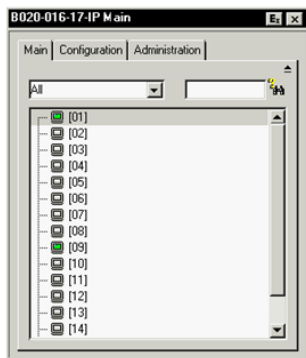
Selecting certain ports as Quick View ports is a way of limiting which ports are displayed in the OSD List, and which ports are accessed when performing an auto scan. Once marked as a Quick View port, you can set it up so only Quick View ports are listed in the OSD Menu and/or accessed during an auto scan.

The spacebar toggles a port's Quick View status. To select/deselect a port, highlight it and press the **spacebar**. When a port has been selected as a Quick View port, a red *eye* icon displays in the port icon column to indicate so. When a port isn't selected, there is no red *eye* icon.

7.2.2 List Function

The List Function lets you broaden or narrow the scope of which ports the OSD displays in the Main screen. To invoke the List Function, click the arrow at the upper right corner of the screen, or press [F3].

The screen changes to allow you to choose the ports that will be listed:



The drop down list on the left offers four fixed choices as shown in the table below:

Choice	Meaning
All	Lists all of the ports on the installation
Powered On	Lists only the ports that have their attached devices powered on
Quick View	Lists only the ports that have been selected as Quick View ports
Quick View + Powered On	Lists only the ports that have been selected as Quick View ports and have their attached computers powered on

The text input box on the right allows you to key in a port name so that only port names that match what you key in show up in the list.

- After you key in your string, either click the binoculars icons to the right of the box, or press [Enter].
- To go back to the default view, erase the string and either click the binoculars to the right of the box, or press [Enter].
- To dismiss the List function, click the arrow or press [F3].

7.2.3 Port Names

To help remember which computer is attached to a particular port, every port can be given a name. This field allows the Administrator to create, modify, or delete port names. To configure a port name:

1. Click once on the port you want to edit, wait one second and then click again. (Alternately, use the up and down arrow keys to move the highlight bar to the port, and then press the F2 function key.)
2. Key in the new Port Name, or modify/delete the old one. The maximum number of characters allowed for a Port Name is 15. You can use all letters, numbers, and symbols on the typewriter keys of keyboards with PC US English layout.
3. When you have finished editing the port name, press [Enter] or click anywhere outside of the input box to complete the operation.

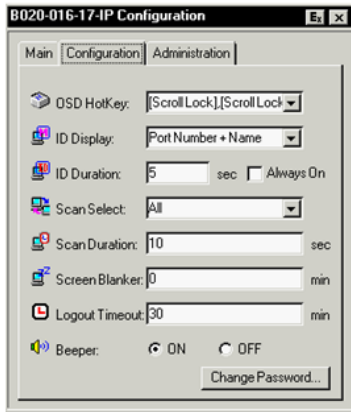
7.3 Port Access

To access a connected port via the OSD, simply double-click on it or highlight it and press the [Enter] key. Once you are accessing a connected computer, you can switch to another port by opening the OSD and selecting the desired port; or, by using the OSD toolbar. Pressing the [Scroll Lock] key twice will open the OSD toolbar. (See *OSD Toolbar* section for details.) Pressing the [Scroll Lock] key three times will open the OSD. **Note:** The [Scroll Lock] key of the built-in keyboard is combined with the [Num Lock] key. For the [Scroll Lock] key to take effect, you need to hold down the [Fn] key when you press it.

7. OSD Operation *(continued)*

7.4 Configuration Page

The *OSD Configuration* page allows users to set up their own, individual, working environments. The NetDirector Console KVM Switch with IP Access stores a separate configuration record for each user profile, and sets up the working configuration according to the *username* that is used to log in.



The *Configuration* page settings are explained in the following table:

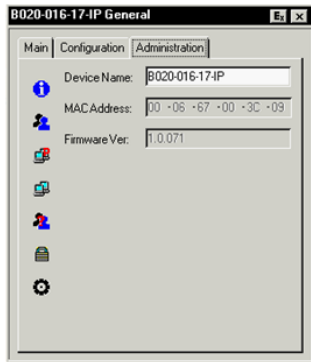
Setting	Function
OSD Hotkey	Selects which Hotkey controls the OSD function: [Scroll Lock] [Scroll Lock] or [Ctrl] [Ctrl] . Since the Ctrl key combination may conflict with programs running on the computers, the default is the Scroll Lock combination.
ID Display	Selects how the Port ID is displayed: the Port Number alone (PORT NUMBER); the Port Name alone (PORT NAME); or the Port Number plus the Port Name (PORT NUMBER + PORT NAME). The default is PORT NUMBER + PORT NAME.
ID Duration	Determines how long a Port ID displays on the monitor after a port change has taken place. You can choose an amount from 0 - 255 seconds. The default is 5 seconds. To leave the Port ID displayed at all times, check the Always On checkbox.

Setting	Function
Scan Select	Selects which computers will be accessed under Auto Scan Mode (To start Auto Scan Mode, see <i>OSD Toolbar Keyboard Hotkeys</i> section) Choices are: ALL - All the ports which have been set Accessible; POWERED ON - Only those ports which have been set Accessible and are Powered On; QUICK VIEW - Only those ports which have been set Accessible and have been selected as Quick View ports; QUICK VIEW + POWERED ON - Only those ports which have been set Accessible and have been selected as Quick View ports and are Powered On. The default is ALL.
Scan Duration	Determines how long the focus dwells on each port as it cycles through the selected ports in Auto Scan Mode. Key in a value from 0 - 255 seconds. The default is 10 seconds; a setting of 0 disables the Scan function.
Screen Blanker	If there is no input from the console for the amount of time set with this function, the screen is blanked. Key in a value from 1 - 30 minutes. A setting of 0 disables this function. The default is 0 (disabled).
Logout Timeout	If there is no Operator input for the amount of time set with this function, the Operator is automatically logged out. A login is necessary before the KVM switch can be accessed again. Enter a value from 0 - 180 minutes. The default is 30 minutes. 0 disables the function.
Beeper	When set to ON, the beeper sounds whenever the port is switched, when activating the Auto Scan function, or when an invalid entry is made on an OSD menu. The default is ON.
Change Password	Allows a user to change the account password. After clicking the Change Password button, a dialog box appears. Enter the old password. Then, enter a new password and confirm it by entering it again. Press OK to save changes, or press Cancel to discard changes.

7. OSD Operation *(continued)*

7.5 Administration Page

When you click the Administration tab, the Administration page comes up. Each of the administrative functions is represented by an icon at the left of the page. Clicking the icon brings up its associated dialog box. When the Administration page first comes up the *General* dialog box appears:



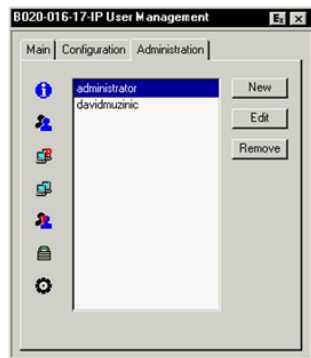
General

The table below describes the contents of the General Screen.

Item	Description
Device Name	This field lets you give the switch a unique name. This can be convenient when you need to differentiate among several devices in multi-station installations.
MAC Address	This item displays the KVM switch's MAC address.
Firmware Version	This item displays the current firmware version number.
Last IP from DHCP Server	If the switch is on a network that uses DHCP assigned IP addresses, this item is a convenient way of ascertaining what its IP address is.

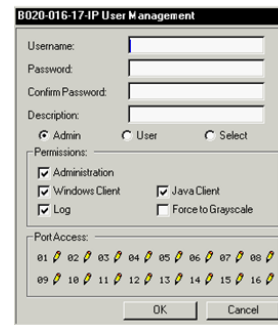
7.5.1 User Management

The User Management dialog box is used to create and manage user profiles. Up to 64 user profiles can be established.



- To delete a user profile, select it in the list box, and click **Remove**.
- To modify a user profile, select it and click **Edit**.
- To add a user, click **New**.

If you choose *Edit* or *New*, a dialog box similar to the one below appears:



7. OSD Operation (continued)

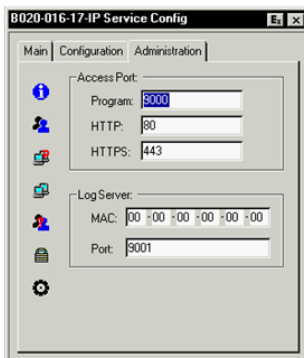
7.5 Administration Page (continued)

7.5.1 User Management (continued)

Fill in the required information for a new profile, or modify the existing information to edit a previous profile. A description of the field headings is given in the table below:

Field/Attribute	Description
Username	The account username is entered in here. A minimum of 6 and a maximum of 15 characters are allowed per username.
Password	The account password is entered in here. A minimum of 8 and a maximum of 15 characters is allowed per password.
Confirm Password	To ensure an incorrect password is not assigned, it must be entered in twice. If both entries do not match, you will not be able to save your changes.
Description	Additional information to describe the account can be entered in here. This field is optional.
Admin	Select this option to give the account administrator privileges to the KVM switch. This provides the account unlimited access to the KVM and the connected computers, and allows the account to modify all of the KVM settings found in the <i>Administration</i> tab of the OSD and to upgrade the KVM firmware.
User	Select this option to give the account user privileges to the KVM switch. This provides the account with access to the KVM switch via both browser and non-browser versions of the Windows and Java clients, although their port access rights are limited to those assigned to them by an administrator. Users do not have access to the OSD <i>Administration</i> tab or KVM log information, and are not allowed to upgrade the KVM firmware.
Select	Select this option to provide the account with whatever combination of permissions you want. When selected, the administrator determines the account permissions by selecting them from the permissions in the <i>User Management</i> screen.
Permissions	<ul style="list-style-type: none">• Administration – This permission allows the account to modify all settings in the OSD <i>Administration</i> tab.• Windows Client – This permission allows the account access to the KVM switch via both browser and non-browser versions of the Windows client.• Java Client – This permission allows the account access to the KVM switch via both browser and non-browser versions of the Java client.• Log – This permission allows the account access to the KVM log information and log server.• Force to Grayscale – This permission forces the account to view connected computers in black and white. This can speed up data transfer in low bandwidth situations, providing better keyboard and mouse response.
Port Access	<p>This section allows accounts with <i>Administration</i> permission to edit the port access rights of another account. To edit access to a port, click on the pencil icon next to the desired port number to toggle through the port access settings.</p> <ul style="list-style-type: none">• Full Access – The account has access to view and control the connected computer. This is the default port access setting, and is represented by a pencil icon with no check marks through it.• View Only Access – The account can only view the remote computer's video, and cannot control it. This setting is represented by a pencil icon with a diagonal line through it.• No Access – The account cannot access the corresponding port. This setting is represented by a pencil icon with an X through it. <p>Note: Any account's port access rights can be changed; however, those with <i>Administration</i> permission can go into the OSD and edit their own port access rights, giving them full access to all ports on the installation.</p>

7.5.2 Service Configuration



Access Port

As a security measure, if a firewall is being used, the Administrator can specify the port numbers that the firewall will allow, and set the firewall accordingly. Users must specify the port number when they log in to the NetDirector Console KVM Switch with IP Access. If an invalid port number (or no port number) is specified, the KVM switch will not be found.

An explanation of the *Access Port* fields is given in the table below:

Field	Explanation
Program	This is the port number that must be specified when connecting from non-browser AP Windows or Java Clients. Valid entries are from 1024 - 60,000. The default is 9000.
HTTP	The port number for a browser login. The default is 80.
HTTPS	The port number for a secure browser login. The default is 443.

Note: If there is no firewall (on an intranet, for example), it doesn't matter what these numbers are set to, since they have no effect. You must set different values for each of the service ports.

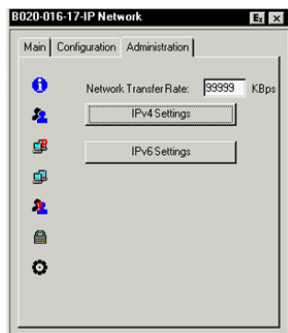
Log Server

The B020-016-17-IP comes with a Windows based log server to track events on the KVM installation, which can be installed on a computer not connected to the KVM. In order for the KVM switch to communicate with the log server computer, the MAC address of the computer that the log server resides on needs to be entered into the MAC address field on this page. The port number field is the port number that the firewall will let the log server use. This port number also needs to be set in the log server. (See *Log Server* section for details on setting up the Log Server.)

7. OSD Operation (continued)

7.5 Administration Page (continued)

7.5.3 Network



The *Network* screen allows accounts with *Administration* permission to modify the KVMs network settings. The settings found in this screen are described in the following section.

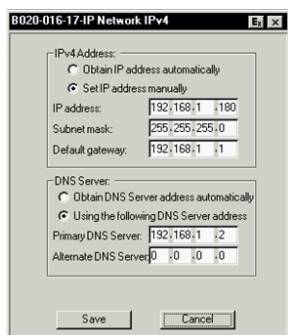
Network Transfer Rate – Use this field to set the rate at which the KVM switch transfers data to remote computers. The range is from 8 to 99999 KBps.

IP Address Assignment

DHCP Server Assigned IP Address – By default, the KVM is set to have its IP address assigned by a DHCP server. If the KVM is connected to a network with a DHCP server, contact your network administrator to obtain the IP address that it was assigned. *Note: The MAC address for your unit can be found on the sticker on the underside of the product.*

Default IP Address – If your KVM is connected to an IPv4 network without a DHCP server, it boots up with the default IP address 192.168.0.60. If the KVM is on an IPv6 network without a DHCP server, the default IP address is determined by the KVMs MAC address. For example, if the KVM has a MAC address of 00-10-74-13-81-01, the IPv6 address is **FE80:0:0:0010:74FE:FE13:8101**. The parts of the IP address that are bolded and underlined are fixed. *Note: The MAC address for your unit can be found on the sticker on the underside of the product.*

Static IP Address – If you wish to assign a static IP address, perform the following steps.



IPv4 Settings – To set up the KVM network parameters for an IPv4 network, click on the *IPv4 Settings* tab. This screen is broken up into sections for the *IPv4 Address* and the *DNS Server*.

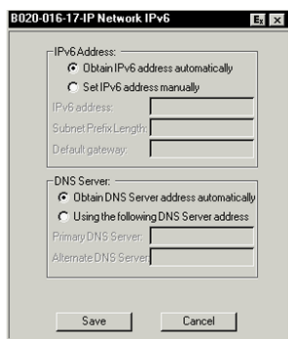
IPv4 Address:

- To have the IP address assigned to the KVM by a DHCP server, select the *Obtain IP address automatically* option.
- To assign a static IP address, select the *Set IP address manually* option. Once selected, you will be able to enter in the desired *IP address*, *Subnet mask* and *Default gateway*.

DNS Server:

- To have the DNS Server address assigned to the KVM by a DHCP server, select the *Obtain DNS Server address automatically* option.
- To assign a static DNS Server address, select the *Using the following DNS Server address* option. Once selected, you will be able to enter in the desired *Primary DNS Server* and *Alternate DNS Server* addresses. The *Alternate DNS Server* address is optional.

Once all changes have been made to the *IPv4 Settings*, click the *Save* button to save the changes and exit the screen.



IPv6 Settings – To set up the KVM network parameters for an IPv6 network, click on the *IPv6 Settings* tab. This screen is broken up into sections for the *IPv6 Address* and the *DNS Server*.

IPv6 Address:

- To have the IP address assigned to the KVM by a DHCP server, select the *Obtain IP address automatically* option.
- To assign a static IP address, select the *Set IP address manually* option. Once selected, you will be able to enter in the desired *IPv6 address*, *Subnet prefix length* and *Default gateway*.

DNS Server:

- To have the DNS Server address assigned to the KVM by a DHCP server, select the *Obtain DNS Server address automatically* option.
- To assign a static DNS Server address, select the *Using the following DNS Server address* option. Once selected, you will be able to enter in the desired *Primary DNS Server* and *Alternate DNS Server* addresses. The *Alternate DNS Server* address is optional.

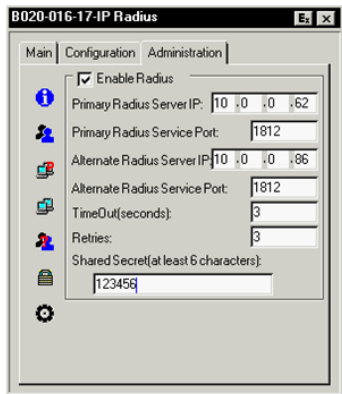
Once all changes have been made to the *IPv6 Settings*, click the *Save* button to save the changes and exit the screen.

7. OSD Operation (continued)

7.5 Administration Page (continued)

7.5.4 RADIUS Settings

To allow authorization for the NetDirector Console KVM Switch with IP Access through a RADIUS server, do the following:



1. Check **Enable Radius**.
2. Fill in the IP addresses and Service Ports for the primary and alternate RADIUS servers.
3. Set the time in seconds that the KVM switch waits for a RADIUS server reply before it times out in the Timeout field.
4. Set the number of RADIUS retries allowed in the Retries field.
5. Key the *Shared Secret* character string that you want to use for authentication between the KVM switch and the RADIUS Server in this field.

Note: Set the access rights for each user on the RADIUS server according to the information in the table to the right.

RADIUS Server Access Rights

Character	Meaning
C	Grants the user administrator privileges, allowing the user to configure the system.
W	Allows the user to access the system via the Windows Client program.
J	Allows the user to access the system via the Java Client program.
L	Allows the user to access log information via a Web browser.
PN	Restricts the user from accessing specified ports on the OSD port list. Syntax: PN/1/2/3/4 (etc.)
PV	Limits the user to only being able to view specified ports on the OSD port list. Syntax: PV/1/2/3/4 (etc.)
UHK	Defines the OSD Hotkey. UHK0: Scroll Lock + Scroll Lock UHK1: Ctrl + Ctrl
UOL	Defines the OSD List Function. UOL0: All UOL1: Powered On UOL2: Quick View UOL3: Quick View + Powered On
UODM	Selects how the Port ID displays. UODM0: Port Number + Port Name UODM1: Port Number UODM2: Port Name
UODT	Determines the length of time in seconds that the Port ID displays on the monitor after a port change. Syntax: UODT <i>n</i> (where <i>n</i> represents a number from 0–255)

7. OSD Operation (continued)

7.5 Administration Page (continued)

7.5.4 Radius (continued)

Character	Meaning
UBUZ	Turns the beeper on or off.
	UBUZ0: Beeper Off
	UBUZ1: Beeper On
ULT	Sets the Logout Timeout. When there is no input from the user for the amount of time set with this function, the user is automatically logged out and will need to log in again. The valid Logout Timeout range is from 0-180 minutes.
	Syntax: ULT <i>n</i> (where <i>n</i> represents a number from 0-180 minutes)
USM	Selects which computers the user can access under Auto Scan Mode.
	USM0: All
	USM1: Powered On
	USM2: Quick View
	USM3: Quick View + Powered On
UST	Determines the length of time in seconds the KVM focus dwells on each port in Auto Scan Mode.
	Syntax: UST <i>n</i> (where <i>n</i> represents a number from 0-255)

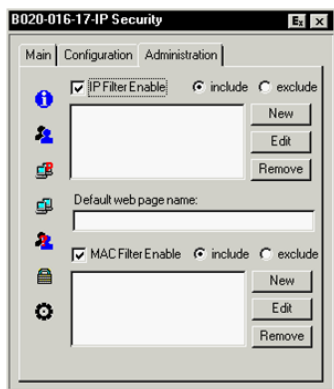
Note: Characters are not case sensitive. Upper or lower case works equally well. Characters are comma delimited. An invalid character in the configuration string will prohibit access to the KVM switch for the user.

Examples:

Character	Meaning
c,w	User has administrator privileges; user can access the system via the Windows Client.
w,j,l	User can access the system via the Windows Client; user can access the system via the Java Client; user can access log information via the user's Web browser.

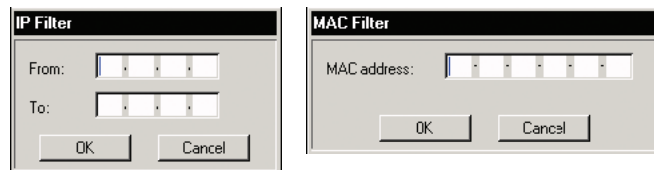
7.5.5 Security

The Security page controls access to the NetDirector Console KVM Switch with IP Access.



IP and MAC Filtering

- If any filters have been configured, they appear in the IP filter and/or MAC filter list boxes.
- IP and MAC filters control access to the KVM switch based on the IP and/or MAC addresses of the computers attempting to connect. A maximum of 100 IP filters and 100 MAC filters are allowed. To enable IP and/or MAC filtering, Click the *IP Filter Enable* and/or *MAC Filter Enable* checkbox.
- If the *include* button is checked, all the addresses within the filter range are allowed access; all other addresses are denied access.
- If the *exclude* button is checked, all the addresses within the filter range are denied access; all other addresses are allowed access.
- To add a filter, click **New**. A dialog box similar to the ones shown appear:



Note: Each IP filter can consist of a single address, or a range of addresses. To filter a single IP address, key in the same address in both the From and To fields. To filter a continuous range of IP addresses, key in the start of the range in the From field; key in the end of the range in the To field.

After you specify the filter addresses, click **OK**.

- To delete a filter, select it in the IP filter and/or MAC filter list boxes and click **Remove**.
- To modify a filter, select it in the IP filter and/or MAC filter list boxes and click **Edit**. The Edit dialog box is similar to the New Dialog box. When it comes up, simply delete the old address and replace it with the new one.

Default Webpage Name

- The Default web page name entry field lets the Administrator specify a login string (in addition to the IP address) that the user must include when accessing the KVM switch with a browser. For example: 192.168.0.126/abcdefgh
- The user must include the forward slash and the string along with the IP address. For security purposes, we recommend that you change this string from time to time.

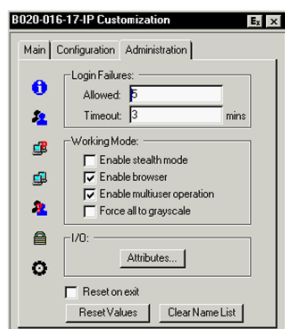
Note: If no string is specified here, anyone will be able to access the KVM switch with the Web browser using the IP address alone. This makes your installation less secure.

7. OSD Operation (continued)

7.5 Administration Page (continued)

7.5.6 Customization

The Customization dialog box is arranged in four major sections: Login Failures; Working Mode; I/O; and untitled miscellaneous functions at the bottom. The functions of each of the Customization items are described in the sections that follow.



Login Failures

- **Allowed:** sets the number of consecutive failed login attempts that are permitted from a remote computer.
- **Timeout:** sets the amount of time a remote computer must wait before attempting to login again after it has exceeded the number of allowed failures.

Working Mode

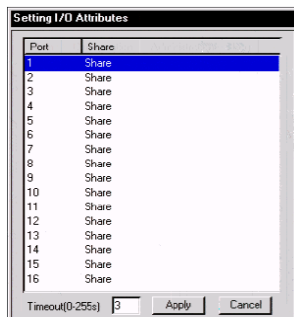
- If *Stealth Mode* is **enabled**, the NetDirector Console KVM Switch with IP Access cannot be pinged.
- To permit browser access to the KVM switch, click the *Enable Browser* checkbox. If browser access is not enabled, users will not be able to log into the unit via their browsers.

Note: Before you disable browser access, you will need to download the API versions of the Windows and Java Clients from the IP Home Page. (See section 8.2 for details) The only way to access the API versions is to access the KVM switch via a browser.

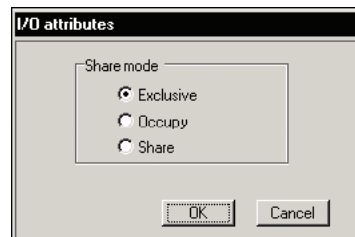
- If *Multiuser Operation* is enabled, up to 32 users can simultaneously access the KVM switch.
- If *Set default to grayscale* is enabled, the remote display is changed to grayscale. This can speed up I/O transfer in low bandwidth situations.

I/O

- Clicking the *Attributes* button brings up a dialog box that allows you to set *Share mode* and *Timeout* threshold for each of the ports:



- To set a port's Share mode, double click it to bring up the I/O attributes dialog box:



Set the port's Share mode according to the information in the following table:

Attribute	Action
Exclusive	The first user to occupy the port has exclusive control over it. No other user can view or access it.
Occupy	The first user to occupy the port has control over it. Up to 31 additional users can view its video output. The Timeout function applies to ports that have this setting selected.
Share	Allows up to 32 users to simultaneously share control over the port. User input is placed in a queue and executed sequentially. In addition, a user can access the KVM switch's <i>Message Board</i> function to gain control of the Share designated port. (See <i>Message Board</i> section.)

- The *Timeout* field sets a time threshold for users on ports whose Share Mode has been set to *Occupy*. If there is no activity from the user occupying the port for the amount of time set here, the user is timed out and the port is released. The first user to send keyboard or mouse input after the port has been released gets to occupy the port. Input a value from 0 to 255 seconds. The default is 3 seconds. A setting of 0 causes the port to be released the instant there is no input.

Miscellaneous

The functions performed by the remaining elements at the bottom of the screen are described in the table on the next page:

7. OSD Operation *(continued)*

7.5 Administration Page *(continued)*

7.5.6 Customization *(continued)*

Parameter	Explanation
Reset On Exit	Select this check box to reset the KVM switch and implement new settings when you log out. Following a reset, wait one to two minutes before logging back in. <i>Note: For some changes the Reset on exit check box is automatically selected and the KVM switch will reset when you log out. Clearing the check mark before logging out will cause the new settings to be discarded.</i>
Reset Values	Clicking this button undoes all changes that have been made to the Configuration and Administration pages (except for port names, usernames, and passwords) and returns the parameters to the original factory default settings (see <i>OSD Factory Default Settings</i> section).
Clear Name List	This function clears the Port Names on the Main page.

7.6 Log Page (Local Console only)

Those accessing the OSD via the local console will be able to access the log file via the *Log* tab. The log file can also be accessed by logging into the KVMs web browser main page and clicking on the *Log* button on the left side of the screen. Selecting the *Log* tab in the local console OSD or web browser main page will display the KVM log file. A maximum of 512 events are stored in the log file. To clear the contents of the log file, click the *Clear Log File* button in the bottom right corner of the screen. **Note:** *The log file is a temporary file that is erased when the KVM switch is turned off or loses power. It is recommended that you install the Log Server to provide a more reliable log of the events that take place on the installation. (See Log Server section for details.)*

8. Browser Operation

8.1 Logging In

To log in from an Internet browser:

1. Using the IP address (see *Network* section) and Default Web Page Name (see *Security* section under *OSD Operation*) given to you by your system administrator, log in to the KVM switch via your web browser.

Note: If browser access is denied (see *Customization* section), you will need to obtain the AP Windows or Java Client program from your system administrator to access the KVM switch.

2. When you log in to the KVM switch from your Web browser, a Security Alert message appears to inform you that the device's certificate is not trusted, and asks if you want to proceed. Click yes to proceed. The certificate can be trusted.

3. In the Login page that appears, provide a valid username and password (set up by the system administrator), then click **Login** to continue.

Note: 1. If you supply an invalid login, the authentication routine will return a message stating, Invalid Username or Password. Please try again. If you exceed the number of login failures set by the administrator, a message stating that The page cannot be displayed, appears. This is done to confuse and discourage hackers from trying to discover a valid username and password. If you see this message, try logging in again being careful with the username and password.

2. If you are the Administrator and are logging in for the first time, use the default Username: administrator; and the default Password: password. For security purposes, we strongly recommend you remove these and give yourself a unique username and password (see *User Management* section under *OSD Operation*).

4. After you have successfully logged in, the KVM switch's Main webpage appears with the General dialog box displayed:

Note: This is the same dialog box that appears whenever you click the General icon at the top left of the page.







8. Browser Operation *(continued)*

8.2 Webpage Layout

Webpage Icons

The purpose of the icons at the top of the Webpage are explained in the table below:

Icon	Function
 General	Click this icon to display the General dialog box. See <i>General Dialog Box</i> , for an explanation of the dialog box fields.
 Sync	Click this icon to synchronize the KVM switch's time with your computer's time. <ul style="list-style-type: none"> If both are in the same time zone, the device's time is changed to match the computer's time. If they are in different time zones, the device's time is changed to match the computer's time, except that the time zone difference is still maintained.
 Maintenance	Click this icon to install new versions of the NetDirector Console KVM Switch with IP Access firmware. The Maintenance page also allows you to install a private certificate. <i>Note: The Firmware icon only displays for users with administrative permission. It doesn't appear on the Webpages of users who don't have the proper permission.</i>
 Logout	You should always click this icon to log out and end your session. If you close the browser without first logging out, you will have to wait approximately one minute before logging in again unless multiuser operation is enabled (see <i>Customization</i> section under <i>OSD Operation</i>).





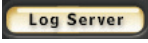
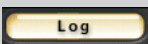
General Dialog Box

The General dialog box is the default Webpage. An explanation of the dialog box fields is given in the table below:

Field	Purpose
Device Name	To make it easier to manage installations that have more than one KVM switch, you can give the KVM switch a unique name here. The device name can only be changed via the OSD. It is grayed out in the browser main page.
MAC Address	The NetDirector Console KVM Switch with IP Access MAC address displays here.
Firmware Version	Indicates the KVM switch's current firmware version level.
Network Transfer Rate	Use this field to set the rate at which the KVM switch transfers data to remote computers. The range is from 8 to 99999 KBps. This field can only be modified by those with administration permission.
Reset on Exit	Select this check box to reset the KVM switch and implement new settings when you log out. Following a reset, wait one to two minutes before logging back in. (This check box is only enabled for users who have administration privileges.) <i>Note: For some changes, the Reset on exit check box is automatically selected and the KVM switch will reset when you log out. Clearing the check mark before logging out will cause the new settings to be discarded.</i>
Last IP from DHCP Server	Displays the current IP address of the NetDirector Console KVM Switch with IP Access. <i>Note: This field only appears when the System Administrator has chosen to obtain an IP Address via a DHCP server (see Network section).</i>

Webpage Buttons

The purpose of the icons at the left of the Webpage are explained in the table below:

Icon	Purpose
 Windows Client	Click this button to initiate a remote session using the Windows Client. The Windows Client can only be used when remotely accessing the KVM using Internet Explorer. <i>Note: When using the Windows Client for the first time, you will be prompted to install its ActiveX control. When prompted, you must proceed with the installation before a remote session can be initiated. (See Remote Session Operation section for details.)</i>
 Java Client	When remotely accessing the KVM using a browser other than Internet Explorer, click this icon to initiate a remote session using the Java Client. The Java Client requires that Java version 1.4.2 or higher be installed on the computer. Java is available for free download at www.java.com . <i>Note: When using the Java Client for the first time, a prompt will appear asking you if you trust the web site's certificate, followed by a prompt asking if you wish to run the application. It is ok to proceed in both cases. To avoid these prompts every time you access the Java Client, check the "Always trust content from this publisher" checkbox before clicking to continue. After proceeding with the prompts, the remote session will be initiated by the Java Client. (See Remote Session Operation section for details.)</i>
 Windows Client	In some instances, administrators don't want the KVM switch to be accessible by browser. Clicking this button allows the System Administrator to download the AP Windows Client. Once browser access is disabled, users will need to obtain the AP program from their System Administrator. (See <i>Non-Browser Operation</i> section for details.)
 Java Client	In some instances, administrators don't want the KVM switch to be accessible by browser. Clicking this button allows the System Administrator to download the AP Java Client. Once browser access is disabled, users will need to obtain the AP program from their System Administrator. (See <i>Non-Browser Operation</i> section for details.)
 Log Server	Those with log permission can click this button to download the Windows based log server. The Windows based log server is a program that can be installed on a computer not connected to the KVM switch, to provide a more reliable and robust logging solution than the KVMs built-in log. (See <i>Log Server</i> section for details on log server installation and operation.)
 Log	Those with log permission can click this button to display the KVM log file. A maximum of 512 events are stored in the log file. To clear the contents of the log file, click the Clear Log File button in the bottom right corner of the screen. <i>Note: The log file is a temporary file that is erased when the KVM switch is turned off or loses power. It is recommended that you install the Log Server to provide a more reliable log of the events that take place on the installation. (See Log Server section for details on log server installation and operation.)</i>

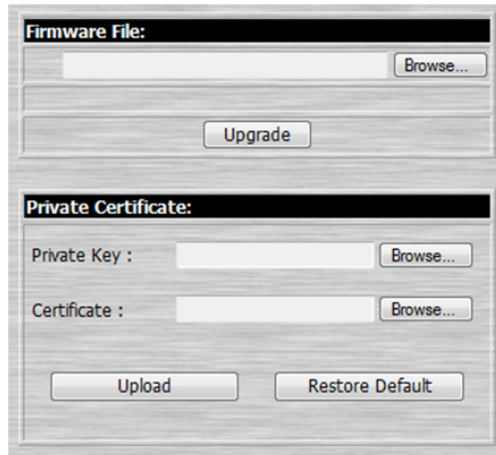
8. Browser Operation *(continued)*

8.2 Webpage Layout *(continued)*

8.2.1 Firmware Upgrade

As new versions of the KVM firmware become available, they can be downloaded from www.tripplite.com/support and installed via the *Maintenance* page of the KVM browser site. To upgrade the firmware, follow the steps below:

1. Download the new firmware file to a computer that is not part of the KVM installation.
2. From the computer you saved the firmware file to, log onto the KVM browser site, and navigate to the *Maintenance* page.

The screenshot shows a web interface for firmware upgrade. It has two main sections. The first section, titled 'Firmware File:', contains a text input field and a 'Browse...' button. Below this is an 'Upgrade' button. The second section, titled 'Private Certificate:', contains two rows. The first row is labeled 'Private Key :' and has a text input field with a 'Browse...' button. The second row is labeled 'Certificate :' and has a text input field with a 'Browse...' button. At the bottom of this section are two buttons: 'Upload' and 'Restore Default'.

3. Click on the *Browse* button in the *Firmware File* section, and navigate to and select the firmware file.
4. Click the *Upgrade* button to begin installing the new firmware.
5. After the upgrade completes, click the *Logout* icon in the KVM browser site to logout of and reset the KVM switch.

8.2.2 Private Certificate

When logging into the KVM switch over a secure (SSL) connection, a certificate is required to ensure you are logging into a secure site. If a certificate is not recognized as secure, you will be prompted each time you log in to verify you want to continue to the website. This section allows you to import an *Encryption Key* and *Certificate*.

To import a private *Encryption Key*, do the following:

1. Click the *Browse* button to the right of the *Private Key* field.
2. Browse to and select your *Encryption Key*.
3. Click the *Upload* button.

To import a *Certificate*, do the following:

1. Click the *Browse* button to the right of the *Certificate* field.
2. Browse to and select your *Certificate*.
3. Click the *Upload* button.

9. Non-Browser Operation

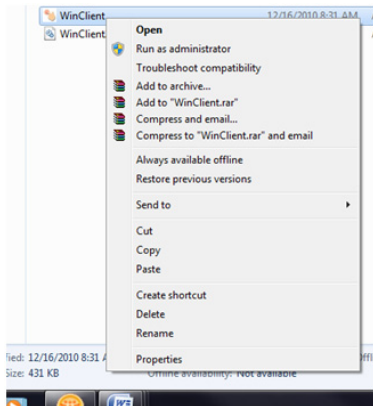
9.1 Overview

In some cases, system administrators may not want the KVM switch accessible via web browser. (See the *Customization* section for details on how to disable browser access) When browser access is disabled, the only way to remotely access the KVM is via the AP Windows and Java non-browser clients. The AP Windows Client can only be used in computers running a Windows operating system. Computers running non-Windows operating systems can use the AP Java Client, which only requires that Java version 1.4.2 or higher is installed on the computer. Java is available for free download at www.java.com. This section describes how to initiate a remote session via the non-browser clients. **Note:** *The only way to obtain the AP Windows and Java non-browser clients is via the web browser main page; so, the administrator must download the files from the browser main page prior to disabling browser access. Once browser access is disabled, users must obtain the AP Windows and Java non-browser clients from the KVM administrator.*

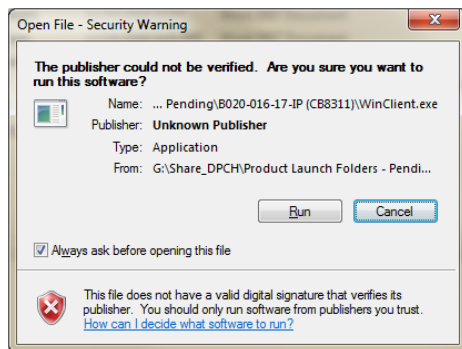
9.2 AP Windows Client

After obtaining the file from the KVM administrator, follow the steps below to open the AP Windows Client Connection screen and initiate a remote session.

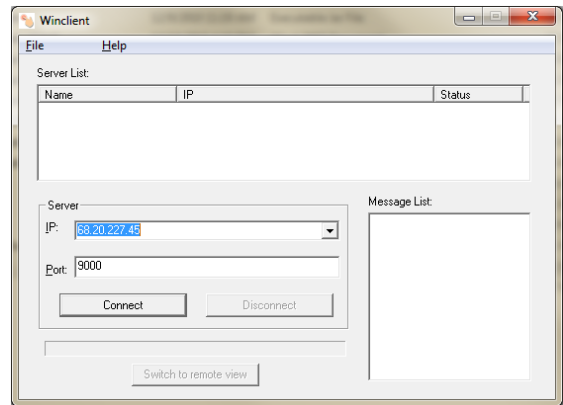
1. Double-click the WinClient.exe file to open it. Note: Users running Windows Vista and later must open the WinClient.exe file as an administrator. To do this, right-click the WinClient.exe file and choose the option to “Run as administrator.” If you do not have administrative access to your computer, you will need to contact the system administrator for the username and password required to continue.



2. Upon opening, a prompt appears asking you to run the program.



3. Click the Run button. The WinClient connection screen appears.



4. To initiate a remote session, see the Server section in the connection screen table.

9. Non-Browser Operation *(continued)*

9.2 AP Windows Client *(continued)*

9.2.1 AP Windows Client Connection Screen

The table below describes the contents of the WinClient connection screen:

Item	Description
Menu Bar	The Menu Bar contains two drop-down menus, <i>File</i> and <i>Help</i> . The <i>File</i> menu allows users to create, open and save work files, and is described in the section following this table. The <i>Help</i> menu allows you to display the WinClient version number.
Server List	When the WinClient opens, it searches the network for B020-016-17-IP KVM switches and displays the ones it finds here. In order for the WinClient to find a B020-016-17-IP, it must be on the same network as the computer accessing the WinClient, and the <i>Program</i> port in the OSD must match the port number displayed in the connection screen. (See the <i>Service Configuration</i> section for details.)
Server	<p>The <i>Server</i> section of the connection screen allows the user to initiate a remote session.</p> <p>IP – The IP address drop-down menu displays a list of B020-016-17-IP IP addresses that are available on the network. If the IP address of the KVM you are looking for does not show up, simply type it directly into the IP field.</p> <p>Port – The port number in this field must match the <i>Program</i> port in the OSD for the KVM to be displayed in the WinClient server list, and for a remote session to be initiated. If the port number is not the same as that in the KVM OSD, you will not be able to connect to the KVM remotely using the AP Windows Client.</p> <p>Connect – This button is active when the AP Windows Client is not connected to a KVM. To initiate a connection with a KVM, highlight it in the server list and click the <i>Connect</i> button; or, type the IP address of the KVM into the IP field and click the <i>Connect</i> button. Upon clicking the <i>Connect</i> button, you will be asked to enter in your username and password.</p> <p>Disconnect – This button is active when the AP Windows Client is connected to a KVM. Click this button to disconnect the KVM from the AP Windows Client.</p> <p>Switch to Remote View – This button is active when the AP Windows Client is connected to a KVM. Click the <i>Switch to remote view</i> button to initiate a remote session. When clicked on, the remote session opens with the OSD displayed. (See <i>Remote Session Operation section</i> for details.)</p>
Message List	The <i>Message List</i> displays messages describing the connection status of the AP Windows Client to the selected KVM IP address.

9.2.2 File Menu

The *File Menu* allows the operator to create, save and open work files. A work file consists of all the information specified in a client session, which includes the information in the *Server List* and *Server* sections of the WinClient connection screen. When a user runs the AP Windows Client, it opens with the values contained in the current work file, i.e., the values that were in effect when the program last closed. The contents of the *File Menu* are described in the table below.

Item	Description
New	Select this option to create a new work file. When clicked on, the <i>New setting file</i> screen appears, allowing the user to name the work file and save it in a desired location.
Open	When this option is selected, the <i>Open setting file</i> screen appears, allowing the user to browse to the location of the saved work file and select it.
Save	Clicking the <i>Save</i> option saves the client settings as the current work file.
Exit	Clicking the <i>Exit</i> option closes the AP Windows Client.

9.3 AP Java Client

After obtaining the AP Java Client from the KVM administrator, follow the steps below to initiate a remote session.

1. Double-click the Java client file to open it.
2. Upon opening, the AP Java Client Connection screen appears, asking you to enter the IP address of the KVM you wish to access and press the [Enter] key. A prompt then appears asking you to enter your username and password. **Note:** *The AP Java Client Connection screen does not include the features of the AP Windows Client, and will instead directly initiate a remote session with the KVM associated with the IP address you just entered.*
3. After entering your username and password, a remote session will be opened with the OSD displayed. (See *Remote Session Operation section* for details.)



10. Remote Session Operation

Once a remote session is initiated, the user is provided with tools that allow them to gain access to computers connected to the KVM switch, and to edit the KVMs remote settings to optimize functionality over IP. This chapter describes these tools and how to use them.

10.1 Port Access











There are two ways in which the user can gain access to the connected computers; the OSD and the OSD toolbar. Both the OSD and OSD toolbar are available when accessing connected computers remotely and via the local console.

10.1.1 OSD Toolbar

The OSD toolbar can be activated by pressing the [Scroll Lock] key twice. Pressing the [Scroll Lock] key three times will open the OSD. The toolbar that displays in the local console differs from that in a remote session in that it does not include the panel array mode icon, and that it contains a Transparent/Opaque icon.



The icons included in the OSD toolbars and their functionality is described in the table below.

Icon	Description
	Click to skip to the first accessible port on the entire installation.
	Click to skip to the first accessible port prior to the currently selected port.
	Click to initiate Auto Scan Mode. The KVM will automatically switch between the ports that were selected for scanning in the OSD Configuration section. (See <i>Configuration Page</i> section under <i>OSD Operation</i> for details.) When in Auto Scan Mode, press the [P] key to pause scanning at the currently selected port. To resume from a pause, press any key except [Esc] or [Spacebar]. Press the [Esc] or [Spacebar] key to exit Auto Scan Mode and return to the OSD toolbar.
	Click to skip to the first accessible port after the currently selected port.
	Click to skip to the last accessible port on the entire installation.
	Click to open the OSD. The OSD can also be opened when the OSD toolbar is closed by pressing the [Scroll Lock] key three times.
	Click to toggle the Port ID to display transparent or opaque.
	Click to close the OSD toolbar and return to the previously selected port.
	Click to logout. When in the local console or AP Java Client, you will be logged out completely, requiring that you re-access the KVM and enter in your username and password. When using the Windows or Java browser clients, the remote session will be ended and you will be taken back to the browser main page. When in the AP Windows non-browser client, the remote session will be ended and you will be taken back to the AP Windows Client Connection screen.
	Click to initiate Panel Array Mode. Panel Array Mode is explained in the <i>Panel Array Mode</i> section. This icon is not available via the local console.

10.1.2 OSD Toolbar Keyboard Hotkeys

When the OSD toolbar is activated, you can use keyboard hotkeys to perform port access commands instead of clicking on an icon in the toolbar. The available hotkeys are described below.

Auto Scan Mode

When the OSD toolbar is opened, you can initiate *Auto Scan Mode* by pressing the [A] key. When in *Auto Scan Mode*, press the [P] key to pause scanning at the currently selected port. To resume from a pause, press any key except [Esc] or [Spacebar]. Press the [Esc] or [Spacebar] key to exit *Auto Scan Mode* and return to the OSD toolbar.

Skip Mode

Skip Mode allows you to switch between ports manually, spending as much time as you like on each port. The *Skip Mode* keys are explained in the table below. When the OSD toolbar is opened, pressing any of these keys will automatically enter you into *Skip Mode* and skip to the corresponding port.

Hotkey	Action
←	Skips from the current port to the first accessible port previous to it.
→	Skips from the current port to the first accessible port that comes after it.
↑	Skips from the current port to the first accessible port on the installation.
↓	Skips from the current port to the last accessible port on the installation.

10. Remote Session Operation (continued)

10.1 Port Access (continued)

10.1.3 Panel Array Mode

After invoking *Panel Array Mode* using the icon in the OSD control panel, a 16 panel screen appears that will toggle through all the ports in the KVM installation and display the video of the computer connected to them. The features of *Panel Array Mode* are explained in this section.

When first invoked, *Panel Array Mode* scans through the ports selected in the *Scan Select* field of the *OSD Configuration* page. As the port is scanned, the following information will be displayed at the bottom of the screen; port name, video resolution, power status and the port access setting. **Note:** The scan duration defaults at 1 second intervals, and is not user-definable.



10.1.4 Panel Array Mode Toolbar

The *Panel Array Toolbar*, located in the lower-right of the screen, provides shortcut navigation and control of the panel array, as described in the table below.

Icon	Function
	Click and drag to move the toolbar to another position on the screen.
	Pause panel scanning, leaving the focus on the panel that currently has it.
	Move the attention of the panel array mode scan back four panels.
	Move the attention of the panel array mode scan to the previous panel.
	Move the attention of the panel array mode scan to the next panel.

	Move the attention of the panel array mode scan ahead four panels.
	Increase the number of panels in the array.
	Decrease the number of panels in the array.
	Toggle 4/3 aspect ratio for widescreen monitors.
	Exit Panel Array mode.

10.2 Manual Mouse Synchronization

When in a remote session, if the local mouse pointer goes out of sync with the remote mouse pointer, there are a number of methods to bring them back into sync.

Before trying any mouse synchronization procedures, it is always a good idea to ensure that you go to your *Mouse Properties Settings* and set them according to the instructions that follow. The *Mouse Properties Settings* should be set on the computers attached to the KVM Switch, not the computer you are using to access it. **Note:** In order for the local and remote mice to synchronize, you must use the generic mouse driver supplied with the MS operating system. If you have a third party driver installed - such as one supplied by the mouse manufacturer - you must remove it.

Windows 2000:

1. Open the *Mouse Properties* dialog box
2. Click the *Motion* tab
3. Set the mouse speed to the middle position (6 units in from the left)
4. Set the mouse acceleration to *None*

Windows XP and later:

1. Open the *Mouse Properties* dialog box
2. Click the *Pointer Options* tab
3. Set the mouse speed to the middle position (6 units in from the left)
4. Disable *Enhance Pointer Precision*

Sun / Linux:

Open a terminal session and issue the following command:

Sun: xset m 1

Linux: xset m 0

Mouse Synchronization Procedures

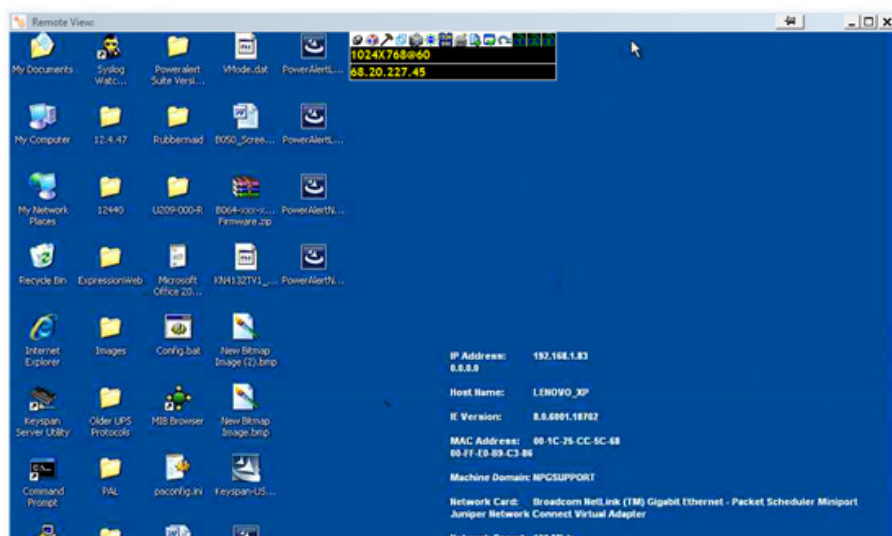
If you are having syncing problems after adjusting the remote computer's mouse properties, try the following methods to help synchronize the local and remote mouse pointers. **Note:** Mouse synchronization may require several seconds to take effect. Wait for 15 to 30 seconds to ensure that the mouse has had enough time to sync.

1. When in a remote session, move the mouse pointer to the upper-center of the screen to open the *Control Panel*, and then move it back into the remote screen. The mouse pointers should align.
2. Perform a *Video Auto Sync* by right-clicking over the *Video Settings* icon in the *Control Panel*; or, by opening up the *Video Options* screen and clicking on the *Auto Sync* button. In most cases, the local and remote mouse pointers will sync following the *Video Auto Sync*.
3. Invoke the *Adjust Mouse* hotkey command. (See *Hotkeys/User Macros* section for details.) This hotkey command defaults at F8, F7, F6.
4. Adjust the video settings to decrease the amount of information being transferred over the network. The less data that is being sent, the faster the response time. In particular, the *Quality* and *Color Depth Control* settings in the *Video Settings* screen (see *Video Settings* section for details) can help improve keyboard and mouse response time.
5. Go to the *Network* page in the OSD and reduce the *Network Transfer Rate* setting. (See *OSD Operation* section for details.)
6. Go to the display settings section of the remote computer and lower the video resolution, refresh rate and color settings.
7. If the remote computer has a graphic desktop background, change it to a solid color background.

10. Remote Session Operation *(continued)*

10.3 Control Panel

The *Control Panel* is provided as a way for the user to optimize and control the remote session. Regardless of whether you initiated a remote session via the Windows or Java browser and non-browser clients, the control panel and its functionality remain the same. To display the *Control Panel*, hover your mouse pointer over the top-center of the remote screen.



The *Control Panel* consists of an icon bar at the top and two text bars at the bottom. When the mouse pointer is hovered over an icon, the description of the icon is displayed in the text bar. When the mouse pointer is not over an icon, the text bars display the video resolution of the selected computer and the IP address of the KVM switch. You can drag the control panel to any location on the remote screen by hovering over the text bar, and then clicking-and-dragging it. Each of the icons contained in the *Control Panel* and their functionality is explained in the sections that follow.

10.3.1 Always on Top / Auto Hide



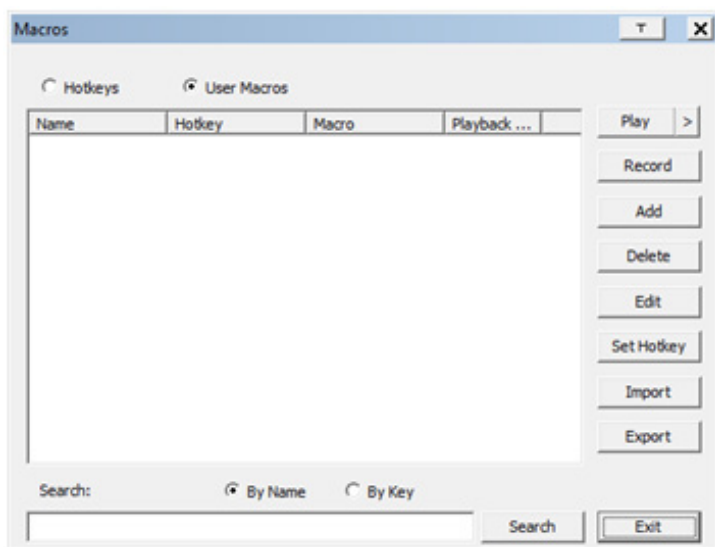
Click this button to toggle between displaying the control panel all the time, or to allow it to disappear after a few seconds of inactivity.

10.3.2 Hotkeys / User Macros



The NetDirector Console KVM Switch with IP Access allows the user to use Hotkeys and Macros to manipulate the remote computers. Click this icon to bring up the *Hotkeys / User Macros* screen, which allows Hotkeys and Macros to be enabled/edited.

User Macros



The *User Macros* page allows you to add macros to the KVM switch that can be performed on any of the connected computers using the *Macro List* feature of the control panel. (See *Macro List* section for details.) By default, the *User Macros* page is displayed when the *Hotkeys / User Macros* icon is clicked on. To display the page when it isn't selected, click on the *User Macros* button at the top of the *Hotkeys / User Macros* screen.

10. Remote Session Operation *(continued)*

10.3 Control Panel *(continued)*

10.3.2 Hotkeys / User Macros

To create a macro, follow the steps below.

1. Click the *Add* button on the right side of the screen.
2. In the name field that appears, key in a name for the macro you are adding.
3. With the new macro highlighted, click the *Record* button on the right side of the screen. Recording will begin and the following panel will be displayed in the upper-left corner of the remote screen.



4. Enter in the macro hotkey sequence and then click the *Done* button. You will be returned to the *User Macros* screen, with your macro name and hotkey combination added to the list. Repeat this procedure for any additional macros you wish to create. **Note:** Clicking the *Pause* button will pause/unpause the recording of the hotkey sequence. Clicking the *Cancel* button will cancel the recording of the hotkey sequence. Clicking the *Show* button will display the hotkeys as they are entered.

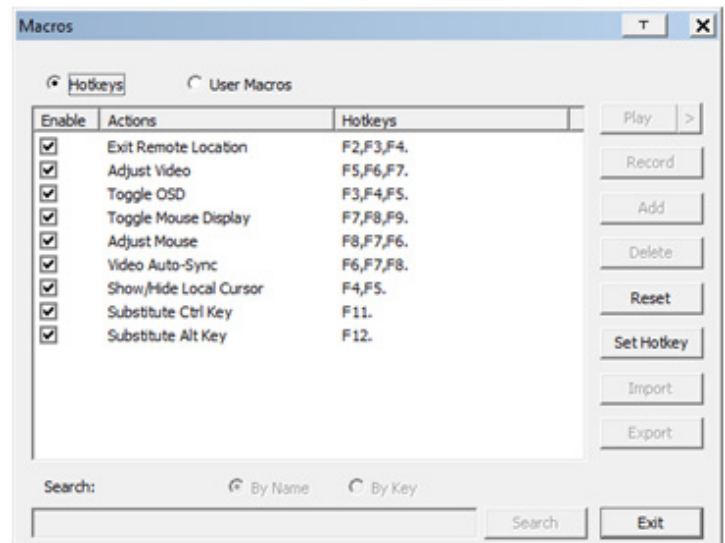
Hotkeys

Various configuration actions related to the keyboard, video and mouse can be performed via hotkey combinations. The *Hotkey* setup utility is accessed by clicking on the *Hotkey / User Macros* icon and then clicking on the *Hotkeys* button at the top of the screen. The *Hotkeys* screen displays the available hotkeys and their corresponding hotkey combinations.

By default, the only hotkeys that are enabled are the *Exit Remote Location* and *Substitute Alt Key* hotkeys. To enable/disable a hotkey, simply check/uncheck the box to the left of it. To change a hotkey command sequence, follow the steps below.

1. Highlight the desired hotkey and click on the *Set Hotkey* button.
2. Key in the desired hotkey combination, one key at a time. The keys will be displayed in the hotkey column as they are entered. **Note:** Clicking the *Cancel* button will cancel the recording process. Clicking on the *Clear* button will delete any keys that you entered while keeping the recording process active.
3. When finished entering the hotkey sequence, click on the *Save* button.

Note: Clicking the *Reset* button will restore all of the default hotkey command sequences, and enable/disable defaults. You can use the same function keys for more than one hotkey command sequence, as long as the first key is not the same. For example, you can use [F1, F2, F3] for one action and [F2, F1, F3] for another; but you cannot use [F1, F3, F2] once [F1, F2, F3] has been used.



The table below lists the default hotkeys, along with a description of their functions and their default command sequences.

Hotkey	Description	Command Sequence
Exit Remote Location	Closes you out of a remote session.	[F2, F3, F4]
Adjust Video	Opens the <i>Video Settings</i> screen.	[F5, F6, F7]
Toggle OSD	Toggles the <i>Control Panel</i> off and on. When off, you will not be able to access the control panel.	[F3, F4, F5]
Toggle Mouse Display	Toggles the local mouse pointer between an arrow and a tiny circle.	[F7, F8, F9]
Adjust Mouse	When the local and remote mouse pointers go out of sync, this command brings them back together again.	[F8, F7, F6]
Video Auto-Sync	Performs a video auto-sync	[F6, F7, F8]
Show/Hide Local Cursor	Toggles the local mouse pointer on/off.	[F4, F5]
Substitute Ctrl Key	By default, hotkey combinations that use the Ctrl key, such as [Ctrl, Alt, Delete], get sent to the local computer. This hotkey allows you to set a substitute Ctrl key that can be used for the remote computer.	F11
Substitute Alt Key	By default, hotkey combinations that use the Alt key, such as [Ctrl, Alt, Delete], get sent to the local computer. This hotkey allows you to set a substitute Alt key that can be used for the remote computer.	F12

10. Remote Session Operation *(continued)*

10.3 Control Panel *(continued)*

10.3.3 Video Settings



The *Video Settings* screen allows you to adjust the placement and picture quality of the remote screen. Click this icon to open the *Video Settings* screen.

The **Video Settings** dialog box contains the following controls:

- Screen Position:** A cross-shaped directional pad with arrows pointing up, down, left, and right, and an **Auto Sync** button below it.
- RGB:** Three horizontal sliders for **Red Gain**, **Green Gain**, and **Blue Gain**. A checkbox for **Set To Grayscale** is located below these sliders.
- Gamma:** A dropdown menu currently set to **Default**, with an **Advanced >>** button to its right.
- Network Type:** A dropdown menu currently set to **512K.ADSL**.
- Video Quality:** A horizontal slider with **Min** and **Max** labels at the ends.
- Refresh:** A checkbox for **Enable Refresh** and a text field for **Refresh every** (set to 5) **seconds**.
- Transparency:** A horizontal slider with **Low** and **High** labels, and a hand icon on the right side.
- Color depth control:** A checkbox for **Enabled** and a horizontal slider with **Low** and **High** labels.

At the bottom of the dialog are **OK** and **Cancel** buttons.

10. Remote Session Operation *(continued)*

10.3 Control Panel (continued)

10.3.3 Video Settings (continued)

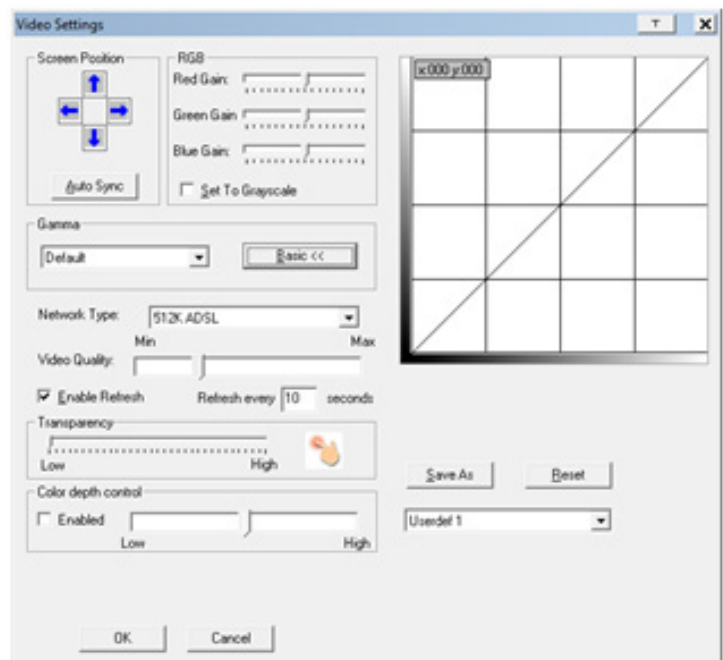
The table below describes the contents of the *Video Settings* screen.

Setting	Description
Screen Position	Adjust the horizontal and vertical position of the screen using the <i>Screen Position</i> arrows.
Auto Sync	Click this button to automatically detect the vertical and horizontal position settings of the remote screen. If the local and remote mouse pointers are not synced, performing this function will bring them together. If <i>Auto Sync</i> fails to align the screen properly, use the <i>Screen Position</i> arrows to make manual adjustments.
RGB	Move the RGB (Red, Green, Blue) slider bars to adjust the corresponding color component of the video image. Check the <i>Set to Grayscale</i> checkbox to display the video of the remote computer in black and white. If the remote keyboard and mouse response time is slow or choppy, checking the <i>Set to Grayscale</i> option can speed them up.
Gamma	This section allows you to adjust the video display's gamma level. This function is discussed in detail in the <i>Gamma Adjustment</i> section following this table.
Network Type	This drop-down menu allows you to choose from a list of network types. The video settings are then configured to optimize the remote session performance for the selected network type. You can also customize the video settings yourself instead of choosing a pre-determined configuration.
Video Quality	Drag the slider bar to adjust the overall quality of the video of the remote computer. Higher video quality settings send more data over the network, which can affect the remote keyboard and mouse response time. On slower networks, lowering the video quality will help improve performance.
Enable Refresh	The remote screen can be set to be redrawn every 1 to 99 seconds, eliminating unwanted artifacts that would otherwise remain on the screen. Click the <i>Enable Refresh</i> checkbox to activate this feature, and then enter in the desired refresh rate.
Transparency	Adjusts the transparency of the toolbars displayed by the Windows and Java clients. Move the slider bar until the transparency is set to the desired level.
Color Depth Control	This setting allows you to adjust the amount of color information that is being sent over the network for the remote monitor. For slower networks, setting the color depth control to a lower setting can help improve remote session performance. To adjust this setting, check the <i>Enabled</i> checkbox and then adjust the slider bar to the desired level.

Gamma Adjustment

If it is necessary to correct the gamma level for the remote computer, use the *Gamma* function in the *Video Settings* screen. Under the *Basic* configuration, the gamma drop-down list includes ten preset and four user defined gamma levels to choose from. Simply select the desired setting from the drop-down list. To set your own gamma levels, follow the instructions below.

1. Click the *Advanced* button to bring up the gamma adjustment settings.
2. Click and drag the diagonal line at as many points as you wish to achieve the display output you desire. Click the *Reset* button at any time to abandon changes and return to the default gamma settings. Click the *Cancel* button to abandon changes and close the *Video Settings* screen.
3. To save the new gamma settings, select a user defined setting from the drop-down list and click the *Save* button. Your gamma settings will be saved to the selected user defined option.



10. Remote Session Operation *(continued)*

10.3 Control Panel *(continued)*

10.3.4 Screen Mode



Click this icon to toggle *Full Screen* mode on/off. For those accessing the KVM via one of the Windows clients, right-clicking this icon will toggle *Keep Screen Size* on/off. When *Keep Screen Size* is enabled, turning on *Full Screen* mode will not change the size of the remote screen. For example, remote screens that are set to resolutions lower than that of the local monitor will be displayed as a box inside of the local display. When both *Keep Screen Size* and *Full Screen Mode* are enabled, the remote screen will be displayed as a box with a black background. If *Keep Screen Size* is disabled and *Full Screen Mode* is enabled, the screen will be stretched to fit the entire local monitor. **Note:** *Keep Screen Size can only be toggled on/off when using one of the Windows clients. When using one of the Java clients, Keep Screen Size is always enabled.*

10.3.5 Snapshot



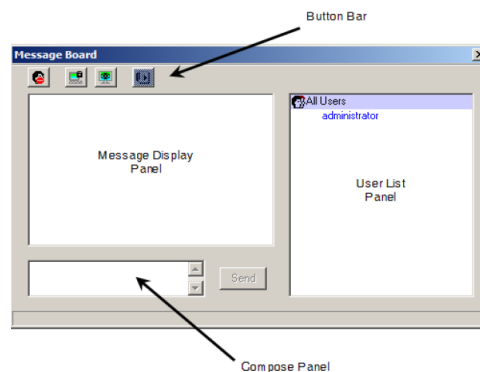
Clicking this icon will take a screenshot of the remote computer and save it to the local computer. By default, snapshots are saved to the local computer's desktop. The file type, quality and location can be changed via the *Customize Control Panel* page. (See *Customize Control Panel* section for details.)

10.3.6 Message Board



The NetDirector Console KVM Switch with IP Access supports multiple user logins, which can possibly give rise to access conflicts. To alleviate this problem, a message board feature has been provided, allowing users to communicate with each other.

The message board functions much like an Internet chat program does. When you click the Message Board icon on the Windows Client Control Panel, a screen similar to the one below appears:



10.3.7 Ctrl – Alt – Delete



Click this icon to send the [Ctrl, Alt, Delete] command to the remote computer.

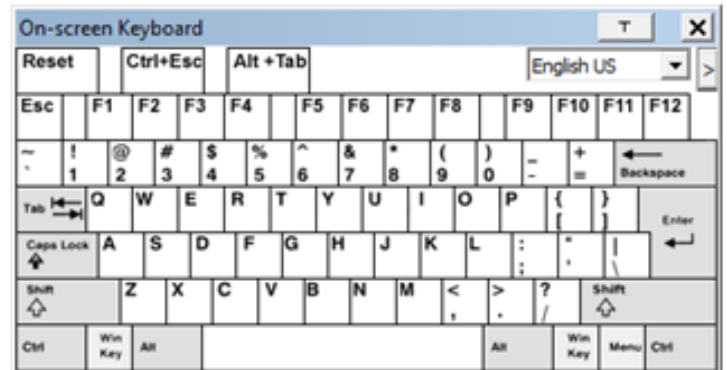
10. Remote Session Operation *(continued)*

10.3 Control Panel *(continued)*

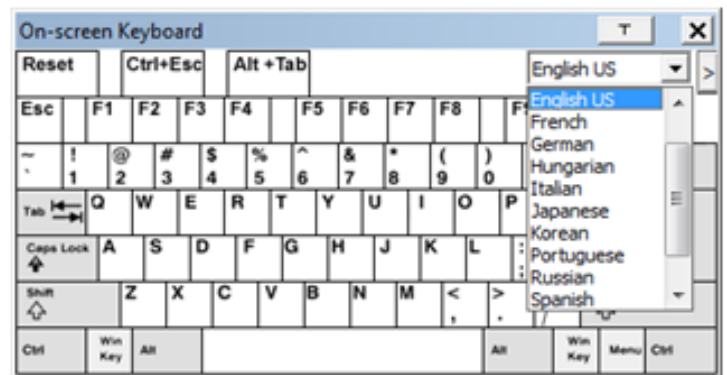
10.3.8 On-Screen Keyboard



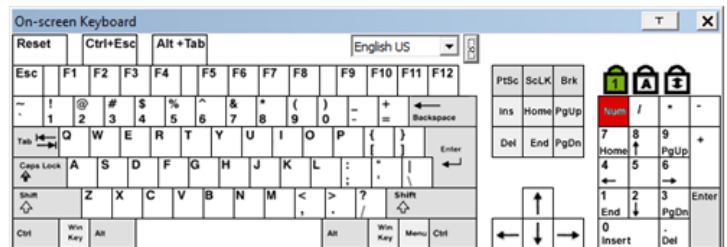
The NetDirector Console KVM Switch with IP Access features an on-screen keyboard, available in multiple languages, with all of the standard keyboard keys for each language. Click this icon to display the on-screen keyboard.



To switch to a different language keyboard, open the drop-down list in the upper-right of the on-screen keyboard and select the desired language.



To expand the keyboard to include the number pad, click on the arrow icon to the right of the language drop-down menu.



10.3.9 Macro List



Click this icon to display a drop-down list of the macros that have been added to the KVM switch. Select a macro to run it on the selected computer.

10. Remote Session Operation *(continued)*

10.3 Control Panel *(continued)*

10.3.10 Customize Control Panel

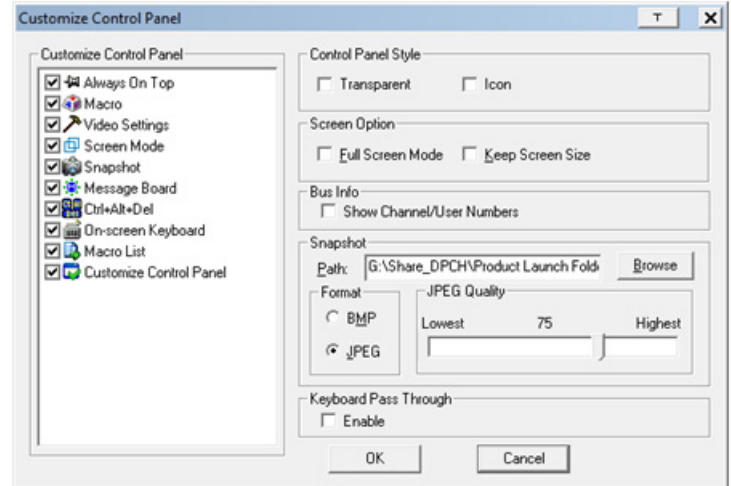


Click this icon to bring up the Customize Control Panel screen, which allows you to choose which icons are displayed in the control panel, as well as edit some of its features.

Customize Control Panel – The box on the left side of the screen displays a list of the available control panel features, with a checkbox next to each one. Check/uncheck a checkbox to display or remove the corresponding features icon from the control panel. By default, all features are included in the control panel.

Control Panel Style – This section allows you to determine how the control panel is displayed when it is dragged out of the default position in the top-center of the screen. *Note: There is a second default position for the control panel at the bottom-center of the screen.*

- When the *Transparent* checkbox is checked, dragging the control panel away from one of the default locations will leave it displayed transparently in whatever location it was dragged to.
- When the *Icon* checkbox is checked, dragging the control panel away from one of the default locations will leave it displayed as an icon in whatever location it was dragged to.
- When both the *Transparent* and *Icon* checkboxes are checked, dragging the control panel away from one of the default locations will leave it displayed as a transparent icon in whatever location it was dragged to.
- When neither checkbox is checked, dragging the control panel away from one of the default locations will leave it displayed as normal in whatever location it was dragged to.
- If the control panel is located in either the top-center or bottom-center default locations, checking these checkboxes will have no effect.



Screen Option – This section is only available when using one of the Windows clients. It allows you to make *Full Screen Mode* and *Keep Screen Size* the default settings when a remote session is activated.

- Check the *Full Screen Mode* checkbox to display the remote screen in *Full Screen Mode* starting with the next time you login to a remote session.
- Check the *Keep Screen Size* checkbox to enable the *Keep Screen Size* feature starting with the next time you login to a remote session.

Bus Info – The NetDirector Console KVM Switch with IP Access allows 1 local and 1 remote user to access the connected computers simultaneously, with each user accessing one of two buses. In addition, multiple users can log onto the same bus at the same time, and share a remote session. When the *Bus Info* checkbox in the *Customize Control Panel* screen is checked, the bus (channel) being accessed and the number of users on that bus (channel) is displayed in the control panel text bar. For example, C1/2 would signify that you are accessing the connected computers on bus (channel) 1, and there are 2 users currently accessing bus (channel) 1 at the same time.

Snapshot – The *Snapshot* section allows you to determine where snapshots are sent to, what file type they are saved as; and, if saved as a JPEG, the quality of the JPEG image. Although the *Snapshot* section is available to both Windows and Java users, the two differ in the types of files that can be saved. The Windows clients allow you to choose between a BMP and a JPEG file, whereas the Java clients allow you to choose between PNG and JPEG.

- **Path** – To select a location for snapshots to be saved in, click on the *Browse* button next to the Path field. Navigate to the desired location and select it.
- **Format** – Check the button of the file type that you want the snapshot to be saved in.
- **JPEG Quality** – If you select to save snapshots as JPEGs, you can adjust the quality of the JPEG image here. The higher the quality of the image, the larger the file size.

Keyboard Pass Through – This feature is only available to those using the Windows clients. When selected, the [Alt, Tab] function will be sent to the remote computer. When it is not selected, the [Alt, Tab] function is sent to the local computer. It is deactivated by default.

10. Remote Session Operation *(continued)*

10.3 Control Panel *(continued)*

10.3.11 Exit



Click this icon to exit the remote session.

10.3.12 Lock LEDs



These icons display the status of the keyboard Num Lock, Caps Lock and Scroll Lock LEDs. You can click on them to toggle the corresponding lock function on/off. When first initiating a remote session, you may have to toggle these off/on to make sure they are synced up with your keyboard.

10.4 Multiuser Operation

Multiuser Operation

The NetDirector Console KVM Switch with IP Access supports multiuser operation. Up to 32 users can log in at the same time. When multiple users simultaneously access the KVM switch from remote computers, the rules of precedence that apply are shown in the following table:

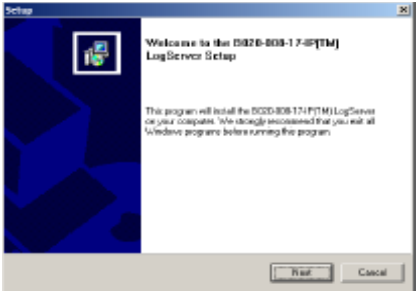
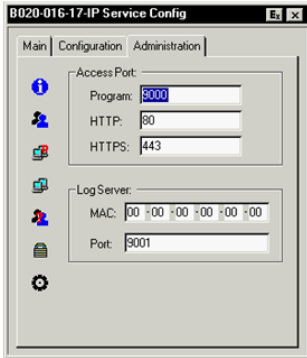
Operation	Rule
General	Once a user invokes the OSD, no other user can invoke it until the original user closes it.
Auto Scan Mode	If a user has invoked Auto Scan Mode, but the OSD has not been invoked, another user can interrupt Auto Scan Mode by invoking the OSD.
Panel Array Mode	<ul style="list-style-type: none">When a user has invoked Panel Array Mode, all successive users automatically enter Panel Array Mode. Panel Array Mode continues until the original user stops it. (Administrators can override Panel Array Mode.)
	<ul style="list-style-type: none">Only the user who starts Panel Array Mode can use the Skip Mode (see <i>OSD Toolbar Keyboard Hotkeys</i> section) function.
	<ul style="list-style-type: none">Only the user who starts Panel Array Mode can switch ports. Other users automatically switch to the ports that the original user selects. However, if an individual user does not have access rights to the port that the original user switches to, the user will not be able to view that port.
	<ul style="list-style-type: none">Individual users can increase or decrease the number of panels they wish to view in Panel Array Mode; however, the picture quality may decrease as the number of panels decreases.

11. Log Server

The Windows-based Log Server is an administrative utility that records all the events that take place on selected units and writes them to a searchable database.

11.1 Installation

1. Specify the MAC address of the Log Server computer on the *Service Configuration* page of the *Administrator Utility* (see *Service Configuration* section).



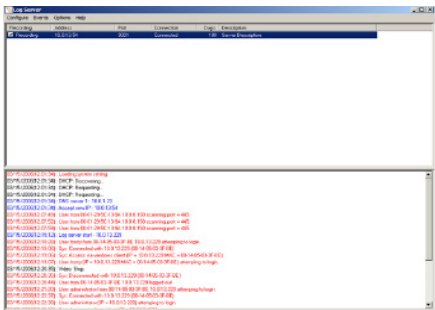
5. Click **Next**. Then follow the on-screen instructions to complete the installation and have the Log Server program icon placed on your desktop.

2. From the computer that you want to use as the Log Server, open your browser and log into the remote main page. The computer you are installing the log server on must be connected to the same network as the KVM switch.
3. Click the **Log Server** button at the left of the Webpage to start the Log Server installation program.
4. If any security warning dialog boxes appear, ignore them and click **Run** or **Open**.

Note: If the browser cannot run the file, save it on your computer and run it from there.

11.2 Starting Up

To bring up the Log Server, either double click the program icon, or key in the full path to the program on the command line. The first time you run it, a screen similar to the one below appears:



Note: The Log Server requires the Microsoft Jet OLEDB 4.0 driver in order to access the database. This driver comes standard in Microsoft OS installations.

The Log Server screen is divided into three components:

- A *Menu Bar* at the top.
- A panel that will contain a list of units in the middle (see *Log Server Main Screen* section for details).
- A panel that will contain an *Events List* at the bottom.

Each of the components is explained in the sections that follow.

11. Log Server (continued)

11.3 Menu Bar

The Menu bar consists of four items:

- Configure
- Events
- Options
- Help

Note: If the Menu Bar appears to be disabled, you may need to click in the list window to enable it.

11.3.1 Configure

The Configure menu contains three items: Add, Edit, and Delete. They are used to add new units to the list, edit the information for units already on the list, or delete units from the list.

- To add a KVM switch to the list, click **Add**.
- To edit or delete a listed KVM switch, first select the one you want in the list window, then open this menu and click **Edit** or **Delete**.

When you choose *Add* or *Edit*, a dialog box, similar to the one below appears:

Field	Explanation
Address	This can either be the IP address of the KVM switch or its DNS name (if the network administrator has assigned it a DNS name).
Port	The port number that was assigned to the Log Server in the KVM switch's OSD.
Description	This field is provided so that you can put in a descriptive reference for the unit to help identify it.
Limit	This specifies the number of days that an event should be kept in the Log Server's database before it expires and it is cleared out.

Fill in or modify the fields, then click **OK** to finish.

11.3.2 Events

The Events Menu has two items: *Search* and *Maintenance*.

Search

Search allows you to search for events containing specific words or strings.

When you access this function, a screen similar to the one below appears:

A description of the items is given in the table below:

Item	Explanation
New search	This is one of three radio buttons that define the scope of the search. If it is selected, the search is performed on all the events in the database for the selected KVM switch.
Search last results	This is a secondary search performed on the events that resulted from the last search.
Search excluding last results	This is a secondary search performed on all the events in the database for the selected KVM switch <i>excluding</i> the events that resulted from the last search.

Item	Explanation
Server List	KVM switches are listed according to their IP address. Select the unit that you want to perform the search on from this list. You can select more than one unit for the search. If no units are selected, the search is performed on all of them.
Priority List	Sets the level for how detailed the search results display should be.
Start Date	Select the date that you want the search to start from. The format follows the MM/DD/YYYY convention, as follows: 06/11/2007
Start Time	Select the time that you want the search to start from.
End Date	Select the date that you want the search to end at.
End Time	Select the time that you want the search to end at.
Pattern	Key in the pattern that you are searching for here. The multiple character wildcard (%) is supported. E.g., h%ds would display all records that contain a words that start with an h and end with ds.
Results	Lists the events that contained matches for the search.
Search	Click this button to start the search.
Print	Click this button to print the search results.
Exit	Click this button to exit the Search dialog box.

Maintenance

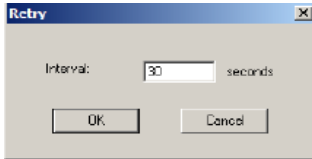
This function allows the administrator to perform manual maintenance of the database, such as erasing specified records before the expiration time that was set with the *Limit* setting of the Edit function.

11. Log Server *(continued)*

11.3 Menu Bar *(continued)*

11.3.3 Options

Network Retry allows you to set the number of seconds that the Log Server should wait before attempting to connect if the previous attempt to connect failed. When you click this item, a dialog box, similar to the one to the right appears:



Key in the number of seconds, then click **OK** to finish.

11.3.4 Help

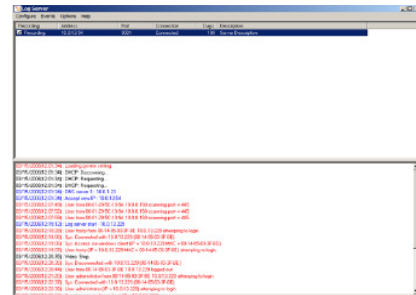
From the Help Menu, click Contents to access the online Windows Help file. The help file contains instructions about how to set up, operate and troubleshoot the Log Server.

11.4 Log Server Main Screen

11.4.1 Overview

The Log Server Main Screen is divided into two main panels.

- The upper (List) panel lists the KVM switches that have been selected for the Log Server to track (see *Configure* section).
- The lower (Event) panel displays the log events for the currently selected KVM switch (the highlighted one - if there are more than one). To select a KVM switch from the list, simply click on it.



11.4.2 List Panel

List Panel

The List panel contains six fields:

Field	Explanation
Recording	Determines whether the Log Server is recording log events for the corresponding KVM switch. If the Recording check box is the field displays <i>Recording</i> , and log events are recorded. If the Recording check box is not checked, the field displays <i>Paused</i> , and log events are not being recorded. <i>Note: Even if a KVM switch in the list is not highlighted, the Log Server will still record its log events if the Recording check box is checked.</i>
Address	This is the IP address or DNS name that was given to the KVM switch when it was added to the Log Server.
Port	This is the port number that was assigned to the Log Server in the KVM switch's OSD.
Connection	If the Log Server is connected to the KVM switch, this field displays <i>Connected</i> . If it is not connected, this field displays <i>Waiting</i> . This means that the Log Server's MAC address has not been set properly, and will need to be set up on the <i>Service Configuration</i> page of the KVM switch's OSD (see <i>Service Configuration</i> section).
Days	This field displays the number of days that the KVM switch's log events are to be kept in the Log Server's database before expiration.
Description	This field displays the descriptive information given for the KVM switch when it was added to the Log Server.

11.4.3 Event Panel

The lower panel displays event information for the currently selected KVM switch. Note that if the installation contains more than one KVM switch, the Log Server will still record its event information and keeps it in the database as long as the Recording check box is checked.

12. Appendix

12.1 Specifications

Specification	B020-016-17-IP
Number of Server Ports	16
Daisy-Chain/Cascadeable	Cascade
Cascadeable KVM Switch	B007-008, B022-U16
Max Number of Connected Computers	256
Port Selection	OSD, Hotkey, Pushbutton
External Console Connectors	(1) HD15 Female, (3) MiniDIN6 Female *(1) MiniDIN6 mouse port is located on the keyboard panel
KVM Port Connectors	(16) HD15 Female
KVM Cable Kits – PS/2	P774-Series KVM Cable Kits
KVM Cable Kits – USB	P776-Series KVM Cable Kits
Power Cord Port	IEC-320-C13
LAN Port	RJ45 Female
Reset Button	Yes
Power On/Off Switch	Yes
Port Selection Buttons	Yes
LCD Monitor Power On/Off Button	Yes
LCD Settings Menu	Yes
Online LEDs	(16) Green
Selected LEDs	(16) Green
KVM Switch Power LED	(1) Blue
LCD Monitor Power LED	(1) Orange
Num Lock LED	(1) Green

Specification	B020-016-17-IP
Caps Lock LED	(1) Green
Scroll Lock LED	(1) Green
Link LED	(1) Green
10/100 Mbps LED	(1) Orange/Green
Local LCD Video Resolution	1280 x 1024 @ 75Hz; DDC2B
Remote Monitor Video Resolution	1600 x 1200 @ 60Hz; DDC2B
Scan Interval	1 – 255 Seconds
Input Rating	100-240V AC, 50/60Hz, 1A
Power Consumption	120V/31W, 230V/39W
Operating Temperature	0° to 40° C
Storage Temperature	-20° to 60° C
Humidity	0% to 80% RH, Non-condensing
Housing	Metal
Weight	38.1 lbs (14.3 kg)
Dimensions (H x W x D, In)	1.7 x 19 x 27.8

12.2 OSD Factory Default Settings

The factory default settings are as follows:

Setting	Default
OSD Hotkey	[Scroll Lock] [Scroll Lock]
Port ID Display	Port Number + Name
Port ID Display Duration	5 Seconds
Scan / Skip Mode	All

Setting	Default
Scan Duration	10 Seconds
Screen Blanker	0 Minutes (disabled)
Beeper	On
Accessible Ports	F (Full) For all Users on all Ports

12. Appendix *(continued)*

12.3 Troubleshooting

12.3.1 Overview

Operation problems can be due to a variety of causes. The first step in solving them is to make sure that all cables are securely attached and seated completely in their sockets.

In addition, updating the product's firmware may solve problems that have been discovered and resolved since the prior version was released.

12.3.2 Administration Problems

Symptom	Action
After upgrading firmware, the KVM switch still appears to be using the old firmware version.	Delete all temporary Internet files and cookies, close the Web browser, and then open a new instance of the Web browser.
After making changes and checking Reset on exit and then logging out, the KVM switch doesn't reset after I exit.	Upgrade your browser to Internet Explorer 6.0.2800.1106 or higher.
After making changes and checking Reset on exit, when I log back in the calendar changes to an incorrect (much earlier) date.	Log in from a remote console to automatically recover the correct date. If you log in from the local console, go to the Administration page and reset the calendar to the correct date.

12.3.3 General Operation Problems

Symptom	Action
Erratic operation.	Press and hold the Reset button for at least three seconds.
Mouse and/or keyboard not responding.	Unplug the cable(s) from the console port(s), and then plug it back in again.
Sudden loss of network connection.	Close your KVM switch connection. Wait approximately 30 seconds, and then log in again.
When logging in from a browser, the following message appears: 404 Object Not Found.	Make sure to include the forward slash and correct login string when you specify the KVM switches IP address. (See <i>Security</i> section under <i>OSD Operation</i> .)
Two pointers appear when I login from a remote computer.	You can shrink the non-functioning pointer so that it is almost invisible or make the local pointer disappear altogether. (See <i>Hotkeys</i> section for details.)
I can't set the computers' screen resolutions higher than 1280 x 1024, even though the KVM switch supports 1600 x 1200 for remote computers.	You need to set the video resolution remotely. <i>Note: When set to above 1280 x 1024, you won't be able to access the computer via the local console.</i>
When I switch to one of the computers on my installation, the LCD monitor screen goes blank. All I see is a black screen.	To resolve the problem, connect an external KVM console (with a monitor capable of displaying the problem computer's screen resolution) to the KVM switches external console ports. Use the external console to access the problem computer and reduce its resolution to 1280 x 1024.
When viewing a computer with a high screen resolution from a remote computer, I can't see the entire desktop.	Try to move the pointer up and down, and side to side to expose the parts of the desktop that you can't see. If this doesn't work, toggling the mouse display will allow you to use the computer's own pointer to view the rest of the desktop.

12.3.4 Java Client Problems

Symptom	Action
Java Client won't connect to the KVM switch.	1. Java 2 JRE 1.4.2 or higher must be installed on your computer. 2. Make sure to include the forward slash and login string (see <i>Security</i> section under <i>OSD Operation</i>) when you specify the KVM switches IP address. 3. Close the Java Client, reopen it, and try again.
Pressing the Windows Menu key has no effect.	Java doesn't support the Windows Menu key.
Java Client performance deteriorates.	Exit the program and start again.
National language characters do not appear.	If the local keyboard is set to a non-English layout, you must set the remote computer's keyboard layout to English.
The Log Server program does not run.	The Log Server requires the Microsoft Jet OLEDB 4.0 driver in order to access the database. This driver is automatically installed with Windows ME, 2000, and XP. For Windows 98 and NT you will have to go to the Microsoft download site: http://www.microsoft.com/data/download.htm to retrieve the driver file: MDAC 2.7 RTM Refresh (2.70.9001.0) Since this driver is used in Windows Office Suite, an alternate method of obtaining it is to install Windows Office Suite. Once the driver file or Suite has been installed, the Log Server will run.

12. Appendix *(continued)*

12.3 Troubleshooting *(continued)*

12.3.5 Panel Array Mode Problems

Problem	Action
Low resolution video in Panel Array Mode.	Increase the number of panels that are displayed.
When multiple remote users are logged in concurrently, some of them only receive a partial image.	The first user to invoke Panel Array Mode should set it to display at least 4 panels.

12.3.6 Windows Client Problems

Symptom	Action
The Windows Client won't connect to the KVM switch.	DirectX 7.0 or higher must be installed on the remote computer.
The remote computer's pointer is out of sync.	1. Use the AutoSync feature (see <i>Video Adjustment</i> section), to sync the local and remote monitors. 2. If that doesn't resolve the problem, use the Adjust Mouse feature (see <i>Adjust Mouse</i> section) to bring them back in sync.
Part of the remote window is off my monitor.	1. If <i>Keep Screen Size</i> (see <i>Screen Mode</i> section) is not enabled, use the AutoSync feature (see <i>Video Settings</i> section) to synchronize the local and remote monitors. 2. If <i>Keep Screen Size</i> is enabled, you can scroll to the areas that are off the screen. (see <i>Screen Mode</i> section)
The remote computer's display is rotated 90 degrees.	Enable <i>Keep Screen Size</i> (see <i>Screen Mode</i> section).
I cannot run Net Meeting when the Windows Client is running.	Enable <i>Keep Screen Size</i> (see <i>Screen Mode</i> section).
When I log in, the browser generates a CA Root certificate is not trusted, or a Certificate Error response.	The certificate's name is not found on Microsoft's list of Trusted Authorities. However, the certificate can be trusted.

12.3.7 Sun Systems Problems

Symptom	Action
Video display problems with HDB-15 interface systems (e.g. Sun Blade 1000 servers).	The display resolution should be set to 1024 x 768 @ 60Hz. Under Text Mode: 1. Enter the ok prompt and issue the following firmware commands: setenv output-device screen:r1024x768x60 reset-all Under XWindow: 1. Open a console and issue the following command: m64config -res 1024x768x60 2. Log out. 3. Log in.
Video display problems with 13W3 interface systems (e.g. Sun Ultra servers).*	The display resolution should be set to 1024 x 768 @ 60Hz. Under Text Mode: 1. Enter the ok prompt and issue the following firmware commands: setenv output-device screen:r1024x768x60 reset-all Under XWindow: 1. Open a console and issue the following command: ffbconfig -res 1024x768x60 2. Log out. 3. Log in.

* These solutions work for most common Sun VGA cards. If using them fails to resolve the problem, consult the Sun VGA card's manual.

13. Warranty

1-YEAR LIMITED WARRANTY

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WEEE Compliance Information for Tripp Lite Customers and Recyclers (European Union)

Under the Waste Electrical and Electronic Equipment (WEEE) Directive and implementing regulations, when customers buy new electrical and electronic equipment from Tripp Lite they are entitled to:

- Send old equipment for recycling on a one-for-one, like-for-like basis (this varies depending on the country)
- Send the new equipment back for recycling when this ultimately becomes waste

The policy of TRIPP LITE is one of continuous improvement. Specifications are subject to change without notice.



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