



KVM Over the NET™
KN9108 / KN9116
User Manual

www.ALTUSEN.com

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Regulatory Information

1. This is an FCC Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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.

2. This product is RoHS compliant.



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.**

Safety Instructions

General

- ◆ 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.
- ◆ 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.

- ◆ To help protect your system from sudden, transient increases and decreases in electrical power, use a surge suppressor, line conditioner, or un-interruptible 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.

Rack Mounting

- ◆ 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.
- ◆ 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.

Package Contents

The complete KN9108 / KN9116 package consists of:

- ◆ 1 KN9108 or KN9116 KVM Over the NET™
- ◆ 2 Custom KVM Cable Sets
- ◆ 1 Power Cord
- ◆ 1 Rack Mounting Kit (Brackets and Phillips head hex M3 x 8 screws)
- ◆ 4 Foot Pads
- ◆ 1 User Manual
- ◆ 1 Quick Start Guide
- ◆ 1 Warranty Registration Card

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 KN9108 / KN9116 installation.

- * Features may have been added to the KN9108 / KN9116 since this user manual was written. Please visit our website to download the latest version of this user manual.

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About This Manual

This User Manual is provided to help you get the most from your KN9108 / KN9116 system. It covers all aspects of installation, configuration and operation. An overview of the information found in the manual is provided below.

Overview

Chapter 1, Introduction, introduces you to the KN9108 / KN9116 System. Its purpose, features, and benefits are presented.

Chapter 2, Hardware Setup, shows the KN9108 / KN9116's front and rear panel components, and provides step-by-step instructions for setting up your installation.

Chapter 3, Administration, explains the administrative procedures that are employed to configure the KN9108 / KN9116's working environment, as well as how to operate the KN9108 / KN9116 from the local console.

Chapter 4, Browser Operation describes how to log into the KN9108 / KN9116 with your browser, and explains the functions of the icons and buttons on the KN9108 / KN9116 web page.

Chapter 5, The Windows Client, explains how to connect to the KN9108 / KN9116 with the Windows Client software, and describes how to use the OSD to access and control the computers connected to the switch.

Chapter 6, The Java Client, describes how to connect to the KN9108 / KN9116 with the Java Client software, and explains how to use the OSD to access and control the computers connected to the switch.

Chapter 7, The Log File, describes how to use the log file utility to view all the events that take place on the KN9108 / KN9116.

Chapter 8, The Log Server, describes how to install and configure the Log Server.

Chapter 9, AP Operation, describes how to install and use the Windows and Java AP programs to connect to the KN9108 / KN9116.

An Appendix at the end of the manual provides technical and other important information regarding the KN9108 / KN9116.

Conventions

This manual uses the following conventions:

- Courier* Indicates text that you should key in.
- [] Indicates keys you should press. For example, [Enter] means to press the **Enter** key. If keys need to be *chorded*, they appear together in the same bracket with a plus sign between them: [Ctrl+Alt].
 - 1. Numbered lists represent procedures with sequential steps.
 - ◆ Bullet lists provide information, but do not involve sequential steps.
 - > Indicates selecting an option on a menu. For example, Start > Run means to open the *Start* menu, and then select *Run*.
 - ▲ Indicates critical information.

Getting Help

For additional help, advice, and information, ALTUSEN provides several support options. If you need to contact ALTUSEN technical support with a problem, please have the following information ready beforehand:

- ◆ Product model number, serial number, and date of purchase.
- ◆ Your computer configuration, including operating system, revision level, expansion cards, and software.
- ◆ Any error messages displayed at the time the error occurred.
- ◆ The sequence of operations that led up to the error.
- ◆ Any other information you feel may be of help.

ALTUSEN Technical Support

North America Technical Phone Support	Registered ALTUSEN product owners are entitled to telephone technical support. Call the ALTUSEN Technical Support Center: 949-453-8885.
International Technical Phone Support	1. Contact your local dealer. 2. Call the ALTUSEN Technical Support Center: (866-2) 8692-6959.
Email Support	Email your questions and concerns to: support@altusen.com
Online Troubleshooting	The ALTUSEN support website: http://www.altusen.com/support provides online troubleshooting that describes the most commonly encountered problems and offers possible solutions to them.
Online Documentation	User Manuals are available electronically at the ALTUSEN support website: http://www.altusen.com/support
Software Updates	Download the latest drivers and firmware for your product from the ALTUSEN support website: http://www.altusen.com/support

Product Information

For information about all of ALTUSEN's products and how they can help you connect without limits, visit ALTUSEN on the web at <http://www.altusen.com>

ALTUSEN Authorized Resellers

ALTUSEN provides the following ways to find an authorized reseller in your area:

- ◆ In the United States of America, call: 866-ALTUSEN (866-258-8736)
- ◆ In Canada and South America, call: 949-453-8885
- ◆ In all other locations, call: 886-2-8692-6789
- ◆ Visit ALTUSEN on the web at <http://www.altusen.com> for a list of locations and telephone numbers

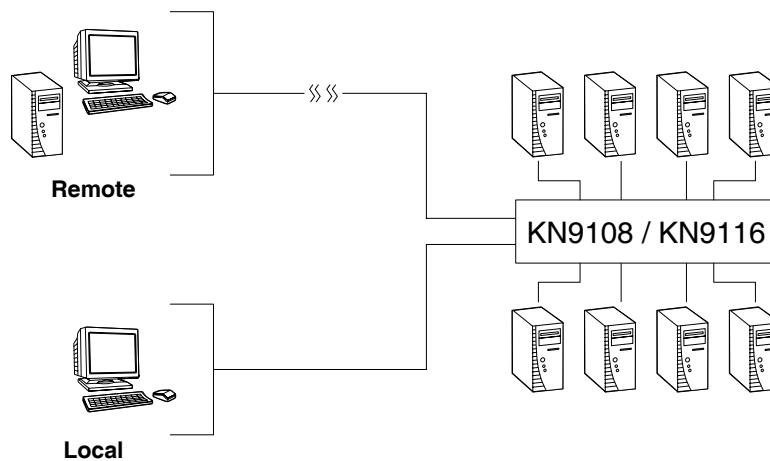
Chapter 1.

Introduction

Overview

The KN9108 / KN9116 is an IP-based KVM control unit that allows both local and remote operators to monitor and access multiple computers from multiple consoles. A single KN9108 / KN9116 can control up to 8 / 16 computers.

Since the KN9108 / KN9116 uses TCP/IP for its communications protocol, it can be accessed from any computer on the Net - whether that computer is located down the hall, down the street, or halfway around the world.



Access to any computer connected to the installation from the local console is easily accomplished by means of a powerful mouse driven graphical OSD (On Screen Display) menu system. A convenient *Auto Scan* feature also permits automatic scanning and monitoring of the activities of all computers running on the installation one by one.

Remote consoles connect to the KN9108 / KN9116 via its IP address. Software utilities are provided with the KN9108 / KN9116 that make remote access smooth and efficient. System administrators can handle a multitude of

maintenance tasks with ease - from installing and running GUI applications, to BIOS level troubleshooting, routine monitoring, concurrent maintenance, system administration, rebooting and even pre-booting functions - all from the remote console.

Remote operators can log in from anywhere on the LAN, WAN, or Internet via their browsers. Once they successfully log in, operators can take control using either the *Windows Client* or *Java Client* utility. Inclusion of a Java-based client ensures that the KN9108 / KN9116 is platform independent, and is able to work with all operating systems.

The client software allows operators to exchange keyboard, video and mouse signals with the computers attached to the KN9108 / KN9116 just as if they were present locally and working on the equipment directly.

With the KN9108 / KN9116's *Panel Array* feature, the video output of up to 8 / 16 computers can be displayed at the same time.

The *Message Board* allows widely separated users to conveniently and instantly communicate with one other. It also includes features that allow users to take control of share ports.

The KN9108 / KN9116 features high density 15 pin CPU port connectors instead of the usual 25 pin connectors. This space-saving innovation allows a full 8 / 16 port switch to be conveniently installed in one unit of system rack space.

Setup is fast and easy - plugging cables into their appropriate ports is all that is entailed. Because the KN9108 / KN9116 intercepts keyboard input directly, there is no need to get involved in complex installation routines or to be concerned with incompatibility problems.

Since the KN9108 / KN9116's firmware is upgradable over the Internet, you can stay current with the latest functionality improvements simply by downloading firmware updates from our website as they become available.

With its advanced security features, the KN9108 / KN9116 is the fastest, most reliable, most cost effective way to remotely access and manage widely distributed multiple computer installations.

Features

- ◆ 8 (KN9108) / 16 (KN9116) port remote access KVM switch - monitor and control up to 8 / 16 computers from a single KVM (Keyboard, Video, Mouse) console
- ◆ Remotely access computers via LAN, WAN, or the Internet - control your installation when and where you want
- ◆ Dual-bus: one local and one remote user can simultaneously control separate ports
- ◆ Internet browser access, Windows Client and Java Client provided, Java Client works with all operating systems*
- ◆ Graphical OSD and graphical toolbars for convenient, user-friendly operation
- ◆ Up to 64 user accounts - up to 32 concurrent logins
- ◆ Panel Array Mode - view all 8 or 16 ports at the same time
- ◆ Message board feature allows logged in users to communicate with each other and allows a user to take exclusive control of the KVM functions
- ◆ Windows-based Log Server
- ◆ Remote power control for attached Power over the Net™ devices
- ◆ Three level login security: 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
- ◆ RADIUS server support
- ◆ Flash upgradable firmware over network connection
- ◆ Ports can be set to Exclusive, Occupy and Share
- ◆ Supports 10Base-T, 100Base-T, TCP/IP, HTTP, and HTTPS
- ◆ High video resolution: up to 1280 x 1024 @ 75Hz; 1600 x 1200 @ 60Hz
- ◆ Front panel can separate from main chassis for convenient front and rear 1U rack mounting

* Browsers must support 128 bit SSL encryption.

System Requirements

Remote Computers

- ◆ For best results, computers that remotely access the KN9108 / KN9116 should have at least a P III 1 GHz processor, with their screen resolution set to 1024 x 768.
- ◆ Users who want to access the KN9108 / KN9116 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 web site: <http://www.microsoft.com/downloads>.
- ◆ Users who want to access the KN9108 / KN9116 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.

Computers

The following equipment must be installed on the computers that connect to the KN9108 / KN9116's CPU ports:

- ◆ A VGA, SVGA or Multisync port.
- ◆ A 6-pin mini-DIN (PS/2 style) keyboard port.
- ◆ A 6-pin mini-DIN (PS/2 Style) mouse port.

Cables

Substandard cables may damage the connected devices or degrade overall performance. If you need additional cables, we strongly recommend that you see your dealer to purchase our high quality CS Custom Cable sets.

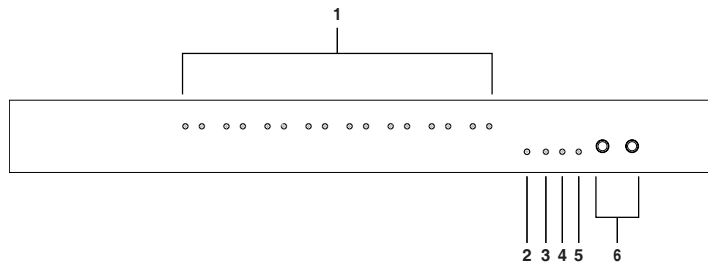
Cable Type	Length	Part Number
PS/2 KVM	1.2m	2L-5201P
PS/2 KVM	1.8m	2L-5202P
PS/2 KVM	3m	2L-5203P
PS/2 KVM	6m	2L-5206P
PS/2 KVM	1.8m	2L-5702P

Notes:

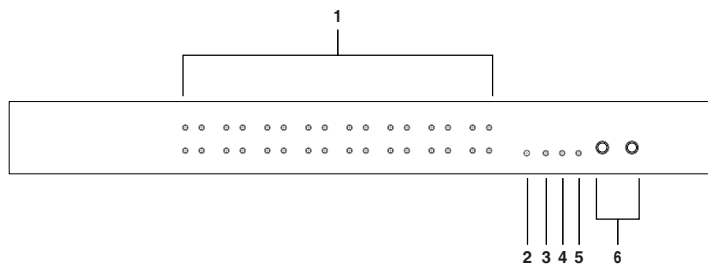
Chapter 2. Hardware Setup

Front View

KN9108



KN9116



1. Port LEDs

The Port LEDs provide status information about their corresponding CPU Ports. There is one pair of LEDs for each Port. The one on the left is the *On Line* LED; the one on the right is the *Selected Port* LED:

- ◆ An *On Line* LED lights GREEN to indicate that the computer attached to its corresponding port is up and running.
- ◆ A *Selected* LED lights ORANGE to indicate that the computer attached to its corresponding port is the one that has the KVM focus. The LED is steady under normal conditions, but flashes when its port is accessed under *Auto Scan Mode* (see p. 70).
- ◆ When the KN9108 / KN9116 is first powered on, the *On Line* and *Selected* LEDs blink in sequence as the Switch performs a self-test.

2. Reset Switch

- ◆ Pressing and holding this switch in while powering on the KN9108 / KN9116 makes the switch use the factory installed firmware version rather than the firmware version that the switch has been upgraded to. This allows you to recover from a failed firmware upgrade and gives you the opportunity to try upgrading the firmware again.
- ◆ Pressing and holding this switch in for more than three seconds performs a system reset.

Note: This switch is recessed and must be pushed with a thin object - such as the end of a paper clip, or a ballpoint pen.

3. Link LED

Flashes GREEN to indicate that a Client program is accessing the device.

4. 10/100 Mbps Data LED

- ◆ The LED lights ORANGE to indicate 10 Mbps data transmission speed.
- ◆ The LED lights GREEN to indicate 100 Mbps data transmission speed.

5. Power LED

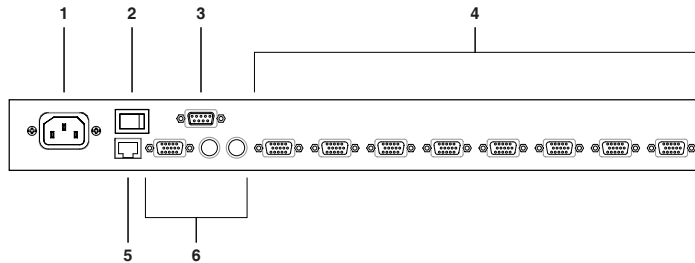
Lights when the KN9108 / KN9116 is powered up and ready to operate.

6. Port Switching Buttons

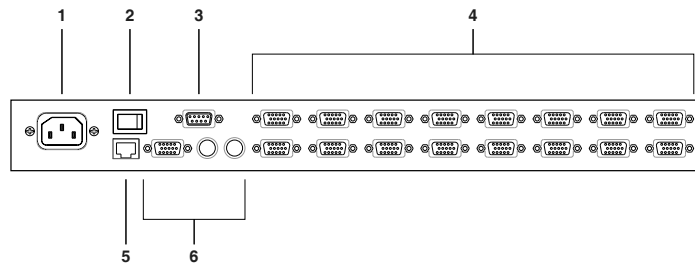
- ◆ Press **Port UP** to switch from the current port to the next port on the installation.
- ◆ Press **Port DOWN** to switch from the current port to the previous port on the installation.

Rear View

KN9108



KN9116



1. Power Jack

The power cable plugs in here.

2. Power Switch

This standard rocker switch powers the unit on and off.

3. PON Port

This connector is provided for a Power over the Net™ (PON) unit to plug into. A PON device allows computers attached to the KN9108 / KN9116 to be booted remotely over the LAN, WAN, or Internet. Contact your dealer for more details.

4. CPU Ports

The cables that link to the computers plug in here. The shape of these connectors has been specifically modified so that only cables designed to work with this switch can plug in (see the *Cables* section on p. 5 for details).

5. LAN Port

The cable that connects the KN9108 / KN9116 to the LAN, WAN, or Internet plugs in here.

6. Local Console Section

The KN9108 / KN9116 can be accessed via a local console as well as over the LAN, WAN or Internet. The cables for the local console (keyboard, monitor, and mouse) plug in here. Each port is color coded and marked with an appropriate icon to indicate itself.

Installation

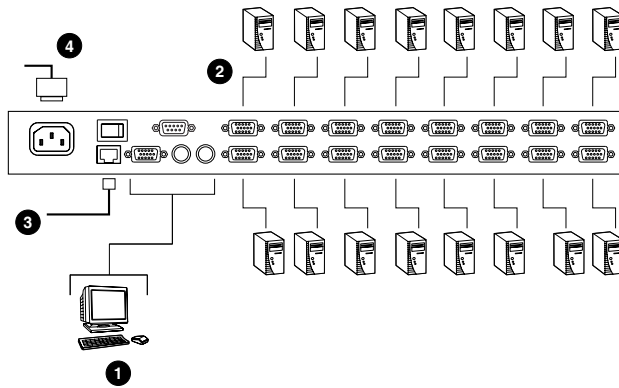


1. Important safety information regarding the placement of this device is provided on p. iv. Please review it before proceeding.
2. Make sure that power to all the devices you will be connecting up have been turned off. You must unplug the power cords of any computers that have the Keyboard Power On function.

Installing your new KN9108 / KN9116 KVM Switch involves the following six steps (refer to the diagram below).

1. Plug your keyboard, mouse, and monitor into the unit's Console Ports.
2. Use KVM cable sets (as described in the *Cables* section on p. 5), to connect any available CPU Port to the Keyboard, Video and Mouse ports of the computer you are installing.
3. Plug the LAN, WAN or Internet cable into the KN9108 / KN9116's RJ-45 socket.
4. Plug the female end of the power cord into the KN9108 / KN9116's Power Socket; plug the male end into an AC power source.
5. Turn on the power to the KN9108 / KN9116.
6. After the KN9108 / KN9116 is powered up, turn on the computers.

Note: Although the KN9116 is pictured in the diagram, the installation process is the same for the KN9108.



Hot Plugging

The KN9108 / KN9116 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, however, in order for the OSD menus to correspond to the CPU port changes, you must manually edit the Port Names for the OSD to reflect the new Port information. See *Port Names* (p. 18) for details.

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

Port ID Numbering

Each CPU port on the installation is assigned a unique Port ID. The Port ID is a two digit number which reflects the CPU Port on the KN9108 / KN9116 that the computer is connected to. Port numbers from 1 - 9 are padded with a preceding zero, so they become 01 - 09.

For example, a computer attached to **Port 6** would have a Port ID of: **06**.

Powering Off and Restarting

If it becomes necessary to power off the KN9108 / KN9116, 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.

Port Selection

Port Selection is accomplished either by entering Hotkey combinations from the keyboard, or by means of the OSD (On Screen Display). *Hotkey Port Selection* is discussed in the next chapter; *OSD Operation* is discussed in detail in Chapter 4.

Chapter 3.

Administration

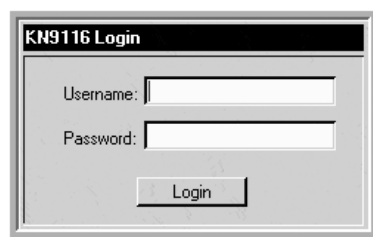
Overview

The OSD's *Administration* page lets the Administrator (and users with administration permission - see *User Management*, p. 22) configure and control the overall operations of the KN9108 / KN9116. The *Administration* tab is disabled (grayed out) for users who do not have administration permission.

The Local Console

Once the KN9108 / KN9116 has been installed, the next step that the Administrator needs to perform is to set up the unit for user operation. The most convenient way to do this for the first time is from the local console.

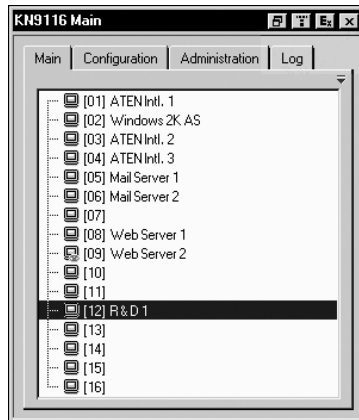
After the local console has been connected and the KN9108 / KN9116 turned on, a login prompt appears on the console monitor:



The image shows a screenshot of a login window titled "KN9116 Login". It features two text input fields, one for "Username:" and one for "Password:". Below these fields is a "Login" button. The window has a standard gray border and a title bar.

Since this is the first time you are logging in, use the default Username: *administrator*; and the default Password: *password*. For security purposes, we strongly recommend that you use the User Management function (see p. 22) to remove these and give yourself a unique Username and Password with the appropriate permissions.

After you successfully log in, the Local Console OSD appears:



There are four buttons on the title bar at the top right. They are described below starting from the left and moving to the right:

- ◆ **Screen View:** toggles the display between full screen and window view.
- ◆ **Transparent:** clicking this button causes the OSD display to become semi-transparent, allowing whatever the OSD screen is covering to show through. Clicking the button again causes the OSD display to revert back to normal opacity.
 - Note:** 1. It is recommend that you set the refresh rate of the monitor higher than 75Hz before using this feature.
 - 2. When the transparent feature is enabled, if you switch to a null port the feature will be disabled.
- ◆ **Log out:** clicking this button (or pressing F8) closes the OSD display and logs you out of the session.
- ◆ **Close:** clicking this button closes the OSD display but does not log you out of the session. You can bring the display back with the OSD hotkeys (see OSD Hotkey, p. 70).

The OSD consists of four pages, each with a specific set of functions: Main, Configuration, Administration, and Log.

The 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), an *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.

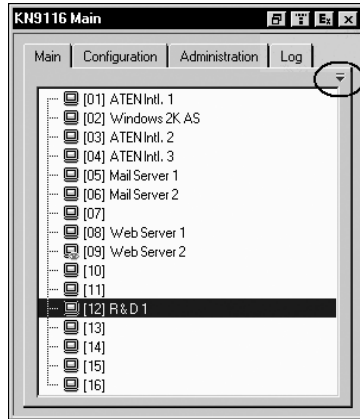
Quick View Ports

Selecting certain ports as Quick View ports is a way of limiting which ports are included when the KN9108 / KN9116 is in Auto Scan mode. If the KN9108 / KN9116 is configured to only auto scan ports that have Quick View status (see p. 70), designating a port as a Quick View port in this dialog box means that it will be included when auto scanning is in effect.

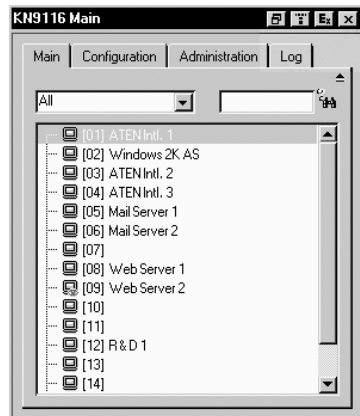
The spacebar toggles a port's Quick View status. To select/deselect a port, highlight it and press the **spacebar**. When a port has been selected as a Quick View port, an *eye* icon displays in the port icon column to indicate so. When a port isn't selected, there are no *eye* icons in the column.

The List Function

The List Function lets you broaden or narrow the scope of which ports the OSD displays (lists) 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 (see p. 15)
Quick View + Powered On	Lists only the ports that have been selected as Quick View Ports (see p. 15), and that 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. Wildcards (? and *) are acceptable, so that more than one port can show up in the list. For example, if you key in **Web***, both Web Server 1 and Web Server 2 would show up in the list, as shown in the screen shot below:

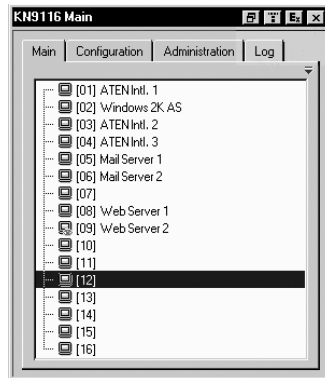


- ◆ After you key in your string, either click the binoculars icons to the right of the box, or press **[Enter]**.
- ◆ To go back to the default view, erase the string and either click the binoculars to the right of the box, or press **[Enter]**.
- ◆ To dismiss the List function, click the arrow or press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

Port Names

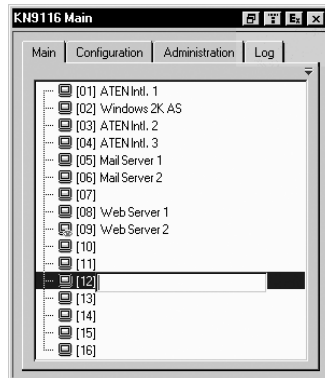
To help remember which computer is attached to a particular port, every port can be given a name. This field allows the Administrator to create, modify, or delete port names. To configure a port name:

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.)



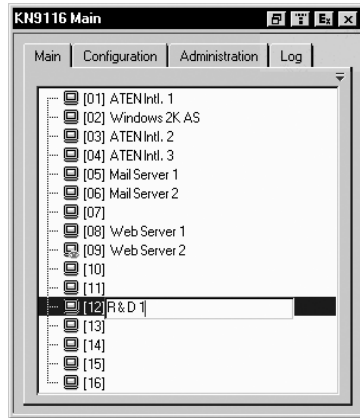
Note: This is not a double-click. It involves two separate clicks. A double-click will switch you to the device attached to the port.

After a second or two, the bar changes to provide you with a text input box:



2. Key in the new Port Name, or modify/delete the old one.

The maximum number of characters allowed for a Port Name is 19. 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, click anywhere outside of the input box to complete the operation.

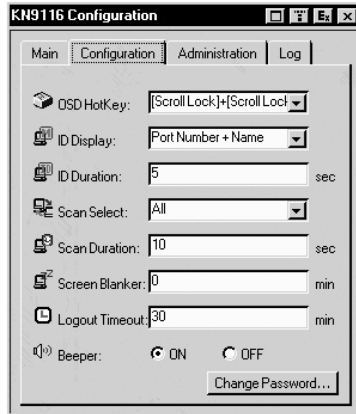
Port Operation

Since port operation is the same as for the Windows and Java Client OSDs, the procedures are discussed in Chapters 5 and 6 (see pp. 47 and 71).

When accessing servers in the switch from the local console, if you invoke the OSD while in the port you can press the F6 function key to hide the background and enlarge the OSD box. Press [F6] again to show the background.

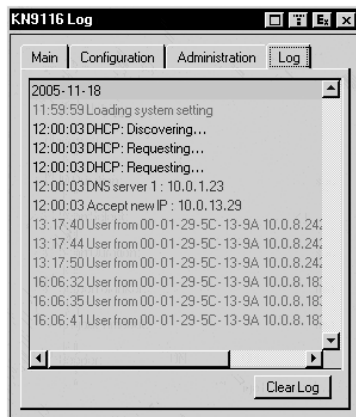
The Configuration Page

The Configuration Page sets the operating parameters for each user. The Configuration Page settings are the same for the local console, the Windows Client and the Java Client. Their use is discussed in Chapter 5 (see p. 69).



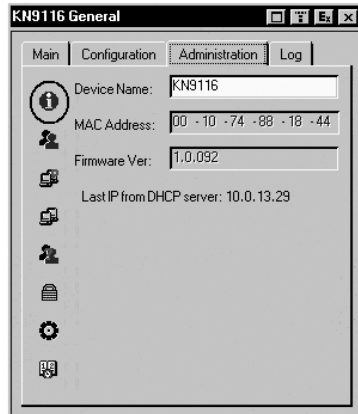
The Log Page

Clicking the Log tab brings up the contents of the log file. The log file is discussed in Chapter 7 (see p. 79).



The 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 General Page presents four items of information. This is the same information that displays after you log in from a browser, or when you click the *General* icon at the top left of the browser main page. The meaning of these items is described in the table below.

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 KN9108 / KN9116's MAC address.
Firmware Ver	This item displays the current firmware version number. You can reference it to see if there are newer versions available on the Altusen website.
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, to inform the Users which IP to use when logging in.

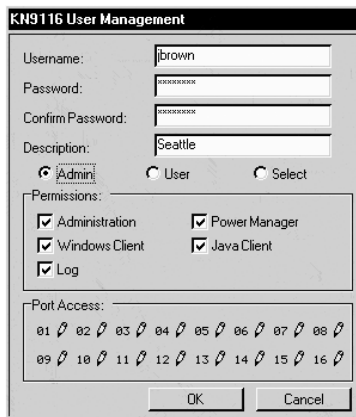
User Management

The User Management dialog box is used to create, delete 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:

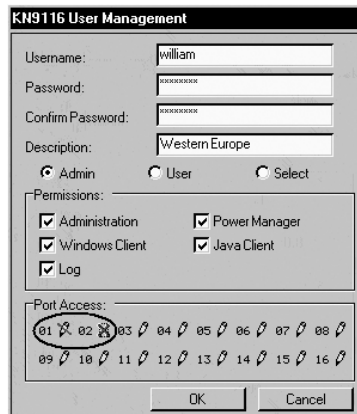


Fill in the required information for a new User profile, or modify the existing information to edit a previous profile. A description of the field headings is given in the table below:

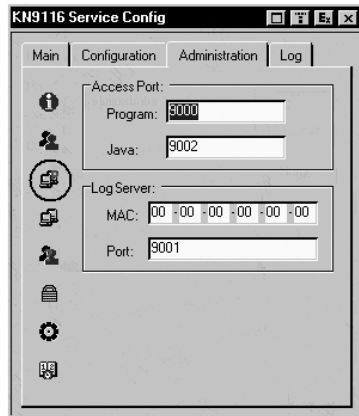
Heading	Description
Username	A minimum of 6 and a maximum of 15 characters is allowed.
Password	A minimum of 8 and a maximum of 15 characters is allowed.
Confirm Password	To be sure there is no mistake in the password you are asked to enter it again. The two entries must match.
Description	Additional information about the user that you may wish to include. (optional)
Admin	Gives the user Administrator level access to the KN9108 / KN9116. All permissions are granted (see below).
User	Gives the user User level access to the KN9108 / KN9116. Windows Client, Power Manager, and Java Client permissions are granted (see below).
Select	If the permissions selected for the account do not match those specified for Administrators or Users, Select is automatically chosen as the account type.
Permissions	<ol style="list-style-type: none"> 1. Checking <i>Administration</i> assigns administrative privileges to the account, which allows the user to modify the KN9108 / KN9116's Administration page settings. 2. Checking <i>Windows Client</i> allows the user to access the KN9108 / KN9116 via the Windows Client software. 3. Checking <i>Log</i> causes the Log Server and Log buttons to appear on the Main webpage when the user logs in and allows the user to access these features. 4. Checking <i>Power Manager</i> causes the PON button to appear on the Main webpage when the user logs in and allows the user to access attached Power over the Net™ devices. 5. Checking <i>Java Client</i> allows the user to access the KN9108 / KN9116 via the Java Client software.

(continues on next page)

Heading	Description
Port Access	<p>This function allows the Administrator or a User with <i>Administration</i> permission to define the selected User's access to the computers on a Port-by-Port basis.</p> <p>For each User profile, select a port and click it to cycle through the choices:</p> <p>Full - The user can view the screen and can perform operations on the system from the keyboard and mouse.</p> <p>View - A diagonal line through the port icon indicates the port access is View. The user can view the screen, but cannot perform operations on the system.</p> <p>Null (no access rights) - An X through the port icon indicates no port access. The Port will not show up on the User's list on the Main Screen.</p> <p>Repeat until access rights have been set for all ports.</p> <p>The default is Full for all users on all Ports.</p>



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 KN9108 / KN9116. If an invalid port number (or no port number) is specified, the KN9108 / KN9116 will not be found.

- Note:**
1. 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.
 2. You must set different values for each of the service ports.

An explanation of the fields is given in the table below:

Field	Explanation
Program	This is the port number that must be specified when connecting from the Windows Client software program. Valid entries are from 1024 - 60,000. The default is 9000.
Java	This is the port number used for Java Client connections. Valid entries are from 0 - 65535. Entering 0 disables the Java Client feature and prohibits users from connecting to the KN9116 via the Java Client. The default is 9002.

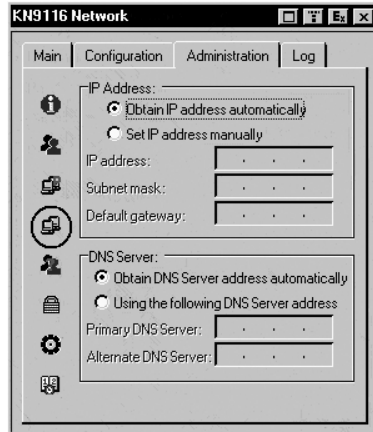
Log Server

Important transactions that occur on the KN9108 / KN9116, such as logins and internal status messages, are kept in an automatically generated log file. In this panel, you specify the MAC address and a port number for the computer that the Log Server resides on.

Installation and operation of the Log Server is discussed in Chapter 8. The Log File is discussed on page 79.

Network

The Network dialog is used to specify the KN9108 / KN9116's network environment. The box is divided into two panels: IP Address and DNS Server.



IP Address

The KN9108 / KN9116 can either have its IP address assigned dynamically (DHCP), or it can be given a fixed IP address.

- ◆ For dynamic IP address assignment, select the *Obtain IP address automatically* radio button.
- ◆ To specify a fixed IP address, select the *Set IP address manually* radio button and fill in the IP address, subnet mask and default gateway.

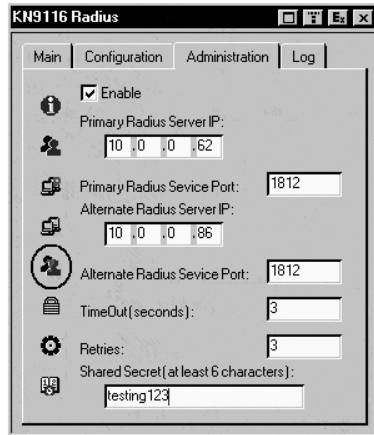
DNS Server

You can set the KN9108 / KN9116 to automatically obtain the DNS server address, or you can specify the primary and alternate DNS servers' addresses.

- ◆ To automatically obtain the DNS server address, select the *Obtain DNS Server address automatically* radio button.
- ◆ To specify the address of the DNS server, select the *Use the following DNS Server address* radio button and fill in the addresses for the primary DNS server (mandatory) and alternate DNS server (optional).

RADIUS

If you are using a RADIUS server, RADIUS Configuration allows you to set up its parameters:



1. Check Enable.
2. Fill in the IP addresses and Service Ports for the Primary and Alternate RADIUS servers.
3. Set the time in seconds that the KN9108 / KN9116 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 Security* character string that you want to use for authentication between the KN9108 / KN9116 and the RADIUS Server in this field.

(continues on next page)

6. On the RADIUS server, set the access rights for each user according to the information in the table below:

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.
P	Allows the user to access an attached Power Over the Net™ device.
L	Allows the user to access log information via the user's browser.
PN	Restricts the user from accessing the OSD port list. Syntax: pn/1/2/3/4
PV	Limits the user's access to viewing of the OSD port list only. Syntax: pv/1/2/3/4
UHK	Defines the OSD Hotkey (see <i>OSD Hotkey</i> on p. 70).. (uhk0: Scroll Lock + Scroll Lock; uhk1: Ctrl + Ctrl) Syntax: uhk0
UOL	Defines the OSD List Function (see p. 16). (uol0: All; uol1: Powered On; uol2: Quick View; uol3: Quick View + Powered On) Syntax: uol0
UODM	Selects how the Port ID displays (see <i>ID Display</i> on p. 70). (uodm0: Port Number + Port Name; uodm1: Port Number; uodm2: Port Name) Syntax: uodm0
UODT	Determines the length of time in seconds that the Port ID displays on the monitor after a port change (see <i>ID Duration</i> on p. 70). Syntax: uodtn (where <i>n</i> represents a number from 0-255)
UBUZ	Turns the beeper on or off (see <i>Beeper</i> on p. 70). (ubuz0: Beeper Off; ubuz1: Beeper On) Syntax: ubuz0
ULT	When there is no input from the user for the amount of time set with this function, the user is automatically logged out. The user will need to log in again. Set the Logout Timeout from 0-180 minutes. Syntax: ultn (where <i>n</i> represents a number from 0-180)

(continues on next page)

Character	Meaning
USM	Selects which computers are accessed under Auto Scan Mode (see <i>Scan Select</i> on p. 70). (usm0: All; usm1: Powered On; usm2: Quick View; usm3: Quick View + Powered On) Syntax: usm0
UST	Determines the length of time in seconds the KVM focus dwells on each port in Auto Scan Mode (see <i>Scan Duration</i> on p. 70). Syntax: ustn (where n represents a number from 0-255)

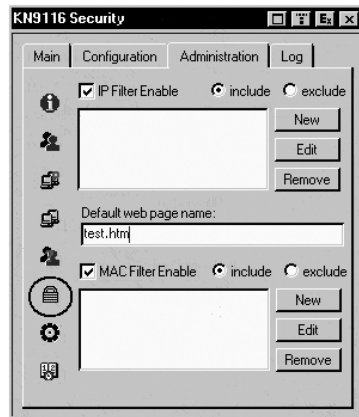
- Note:**
1. The characters are not case sensitive. Capitals or lower case work equally well.
 2. Characters are comma delimited.
 3. An invalid character in the configuration string will prohibit access to the KN9108 / KN9116 for the user.

Examples:

String	Meaning
c,w,p	User has administrator privileges; user can access the system via the Windows Client; user can access the attached PN0108.
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 browser.

Security

The Security page controls access to the KN9108 / KN9116.



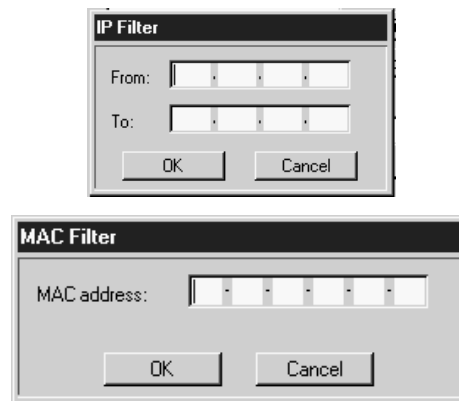
- ◆ The *Default web page name* lets the Administrator specify a login string (in addition to the IP address) that the user must include when accessing the KN9108 / KN9116 with a browser. For example:

192.168.0.126/abcdefg
- ◆ 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: 1. If no string is specified here, anyone will be able to access the KN9108 / KN9116 with the Windows client using the IP address alone. This is a very insecure situation.

2. If no string is specified here, the KN9108 / KN9116 cannot be accessed with the Java client.

- ◆ *IP* and *MAC Filters* control access to the KN9108 / KN9116 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** to put a check mark in 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 to the KN9108 / KN9116; all other addresses are denied access.
- ◆ If the exclude button is checked, all the addresses within the filter range are denied access to the KN9108 / KN9116; all other addresses are allowed access.
- ◆ To add a filter, Click **New**. A dialog box similar to the one below appears:



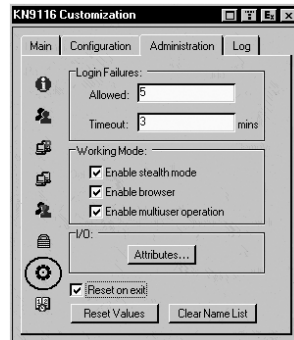
Note: Each IP filter can consist of a single address, or a range of addresses. To filter a single IP address, key in the same address in both the *From* and *To* fields. To filter a continuous range of IP addresses, key in the start of the range in the *From* field; key in the end of the range in the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

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

- ◆ To delete a filter, select it and Click **Remove**.
- ◆ To modify a filter, select it 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.

Customization

The Customization dialog box is arranged in four major sections, as described below:



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 KN9108 / KN9116 refuses ICMP "echo request" packets.
- ◆ To permit browser access to the KN9108 / KN9116, click to put a check mark in the *Enable Browser* checkbox. If browser access is not enabled, users will not be able to log into the unit via their browsers.
- ◆ To permit multiple users to simultaneously access the KN9108 / KN9116, check *Enable multiuser operation*.

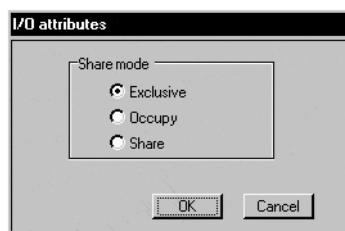
I/O

■ Attributes

Attributes allows you to set attribute parameters for each of the ports.

To change the port attribute:

1. Click **Attributes...** on the *Customization* dialog box. The *Setting I/O Attributes* dialog box appears. The port numbers are listed in the column on the left. The port's attributes are shown to its right.
2. Double-click on a port entry. The *I/O attributes* dialog box appears:



(continues on next page)

3. Select a *Share Mode* attribute for the port (see the table below).

Attribute	Definition
Exclusive	The first user to switch to the port has exclusive control over the port. No other users can view the port. The <i>Timeout</i> function does not apply to ports which have this setting.
Occupy	The first user to switch to the port has control over the port. However, up to 32 users may view the video from the port. If the user who controls the port is inactive for longer than the time set in the <i>Timeout</i> box, port control is transferred to the next user to move the mouse or strike the keyboard.
Share	Up to 32 users simultaneously share control over the port. Input from the users is placed in a queue and executed chronologically. Users should take advantage of the Message Board feature, which allows a user to take control of the keyboard and mouse or keyboard, mouse, and video of a Share port (see <i>Message Board</i> on p. 64).

4. Click **OK**. (To exit without saving your changes, click **Cancel**.) The dialog box closes.
5. On the *Setting I/O Attributes* dialog box click **Apply** to keep your changes. (To exit without saving your changes, click **Cancel**.)

■ Timeout

The Timeout setting applies to ports with the *Occupy I/O* attribute. It controls the amount of time (0-255 seconds) that elapses before an inactive user is timed out when other users are waiting to take control of the port. Once the first user becomes inactive (i.e. stops sending keyboard and mouse input), it begins to countdown the amount of time specified in the Timeout field. If the user does not send input before the time expires, that user is timed out and the port is released. The next user to send mouse or keyboard input gains control of the port.

To apply Timeout settings:

1. Click **Attributes...** on the *Customization* dialog box. The *Setting I/O Attributes* dialog box appears (see *Attributes* on p. 34).
2. In the Timeout field, enter the Timeout time in seconds.
3. Click Apply. (To exit without saving your changes, click **Cancel**.)

Note: The Timeout setting applies to all ports on the KN9108 / KN9116.

Miscellaneous

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

Parameter	Explanation
Reset on exit	Placing a check here causes the KN9108 / KN9116 to reset itself and implement all the new changes when you log out. Following the reset, wait approximately 30 to 60 seconds before logging back in. For example, if you change the IP address in the Network dialog box, you must open this page and enable <i>Reset on exit</i> before logging out. Otherwise, the change will not take effect.
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>Factory Default Settings</i> , p. 106).
Clear Name List	This function clears the Port Names on the Main page.

Date/Time

The Date/Time dialog box lets the Administrator set up the KN9108 / KN9116's time parameters:



- ◆ If your country or region employs Daylight Saving Time (Summer Time), check the corresponding box.
- ◆ To establish the time zone that the KN9108 / KN9116 is located in, drop down the *Time Zone* list and choose the city that most closely corresponds to where it is at.
- ◆ To set the year and day, use the Calendar graphic.
 - ◆ Clicking << or >> moves you backward or forward by one year increments.
 - ◆ Clicking < or > moves you backward or forward by one month increments.
 - ◆ In the calendar, click on the day.
- ◆ To set the time, use the 24 hour HH:MM:SS format.
- ◆ Click **Synchronize** to save your settings.

Upgrading the Firmware

As new versions of the KN9108 / KN9116 firmware become available, they can be downloaded from our website.

Note: Although upgrading the firmware isn't on the OSD Administration page, it is an administrative function, so we will discuss it in this chapter.

To upgrade the firmware, do the following:

1. Download the new firmware file to a computer that is not part of your KN9108 / KN9116 installation.
2. From that computer, open your browser and log in to the KN9108 / KN9116 (see *Logging In* on p. 41).
3. Click the **Firmware** icon (see p. 42) to open the *Firmware configuration* dialog box:



4. Click **Browse**; navigate to the directory that the new firmware file is in and select the file.
5. Click **Upgrade**.
6. After the upload completes, click the **Logout** icon to exit and reset the KN9108 / KN9116.

Notes:

Chapter 4.

Browser Operation

Overview

An On Screen Display (OSD) interface governs KN9108 / KN9116 computer control and switching operations. The OSD can be accessed remotely with a Windows-based client or a Java-based client. You must log in via an Internet browser to connect to the KN9108 / KN9116 and to invoke the OSD.

Logging In

To log in from an Internet browser:

1. Open the browser and specify the IP address of the KN9108 / KN9116 in the URL bar.

Note: If you don't know the IP address, get it from the KN9108 / KN9116 administrator.

2. When the *Security Alert* dialog box appears, accept the certificate.
3. A login page appears:



KN9116 Login	
Username:	<input type="text"/>
Password:	<input type="password"/>
<input type="button" value="Login"/>	<input type="button" value="Reset"/>

(continues on next page)

4. Provide a valid Username and Password (set up by the KN9108 / KN9116 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*, p. 22).

After you have successfully logged in, the KN9108 / KN9116 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.

Web Page Layout

The General Dialog Box

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 KN9108 / KN9116
MAC Address	The KN9108 / KN9116's MAC Address displays here.
Firmware Version	Indicates the KN9108 / KN9116's current firmware version level.
Reset on exit	To save any configuration/administration changes that you have made in the KN9108 / KN9116's OSD, place a check here to have the KN9108 / KN9116 implement the changes you have made and reset itself when you log out. Note: This checkbox is only enabled for users who have administration privileges.
Last IP from DHCP server	Displays the current IP address of the KN9108 / KN9116.

Note: New versions of the KN9108 / KN9116's firmware can be downloaded from our website as they become available. See p. 39 for details.


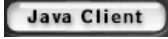
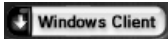
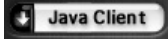
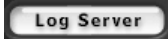

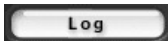
Web Page Icons

The purpose of the other icons at the top of the web page are explained in the table below:

Icon	Function
Sync	<p>Click this icon to synchronize the KN9108 / KN9116's time with your computer's time.</p> <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.
Firmware	<p>Click this icon to install new versions of the KN9108 / KN9116's firmware. See p. 39 for details.</p> <p>Note: The Firmware icon only displays for users with administrative permission. It doesn't appear on the web pages of users who don't have the proper permission.</p>
Logout	<p>You should always click this icon to log out and end your KN9108 / KN9116 session. If you close the browser without first logging out, you will have to wait approximately one minute before logging in again.</p>

Web Page Buttons

The purpose of the buttons at the left of the web page are explained in the table below:

Icon	Purpose
	<p>Click this button to download the Windows Client software to remotely control the connected server (or servers via a KVM switch).</p> <p>Note: This Windows Client isn't permanent. It is removed when you exit the program. You must download a new Windows Client each time you log in from your browser.</p>
	<p>For platform independence, the Java client allows users that have Java installed to connect to the KN9108 / KN9116. Click this button to download the Java Client software to remotely control the connected server (or servers via a KVM switch).</p> <p>Note: This Java Client isn't permanent. It is removed when you exit the program. You must download a new Java Client each time you log in from your browser.</p>
	<p>In some instances, administrators don't want the KN9108 / KN9116 to be accessible by browser. Clicking this button allows the user to download the API version of the Windows Client. Once a user has downloaded the API program, the administrator can turn off browser access. API operation is discussed in chapter 9.</p>
	<p>In some instances, administrators don't want the KN9108 / KN9116 to be accessible by browser. Clicking this button allows the user to download the API version of the Java Client. Once a user has downloaded the API program, the administrator can turn off browser access. API operation is discussed in chapter 9.</p>
	<p>Clicking this button allows the administrator to download and install the Log Server application. See Chapter 8 for Log Server details.</p>
	<p>If a Power on the NET™ (PON) module is connected to the KN9108 / KN9116, clicking this button brings up it's interface.</p>
	<p>All the events that take place on the KN9108 / KN9116 are recorded in a log file. Clicking this icon displays the contents of the log file.</p>

Notes:

Chapter 5.

The Windows Client

Activating the Browser OSD

After you have successfully logged in (see p. 41), to activate the browser-based Windows Client OSD do the following:

1. Click the *Windows Client* button (the one without the arrow) at the left of the web page.

Note: 1. You must have DirectX 7.0 or higher installed on your computer. If not, the Windows Client will not load. If you don't already have it, DirectX is available for free download from Microsoft's website: <http://www.microsoft.com/downloads>.

2. The Windows Client button with the arrow is for running the AP version of the Windows Client (see p. 89 for details).

2. When the file download security warning dialog box appears, click **Run**.

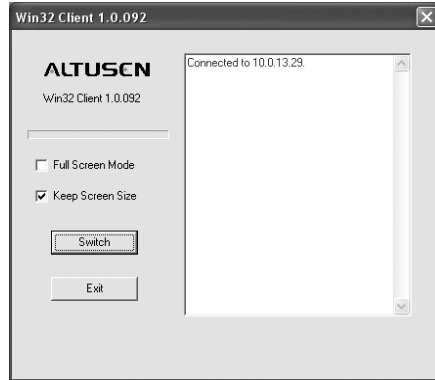
3. If a second security warning dialog box appears, click **Run** again.

Note: 1. If the browser cannot run the file, save it to disk, instead. Then, with your browser still open to the KN9108 / KN9116 web page, run the file from your disk.

2. If you use the *save to disk* method, for security purposes, you cannot simply run a previously downloaded version of the program. Each time you want to access the KN9108 / KN9116, you must log in to the web page with a valid username and password to download a fresh copy of the program.

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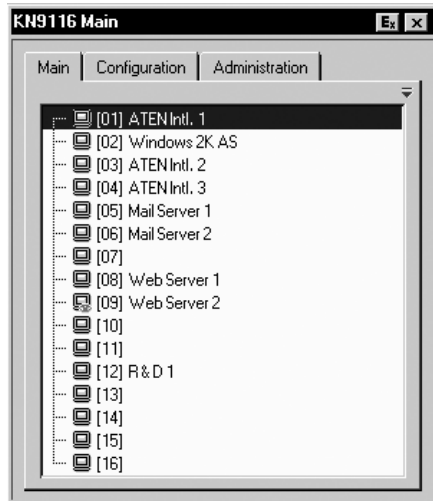
4. When a connection to the KN9108 / KN9116 has been established a screen similar to the one below appears:



- Note:**
1. If *Full Screen Mode* is enabled (the box is checked), the remote display fills the local monitor's entire screen.
 2. If *Full Screen Mode* is not enabled (the box is not checked), the remote display appears as a window on your desktop. If the remote screen is larger than what is able to fit in the window, move the mouse pointer to the screen border that is closest to the area you want to view and the screen will scroll.
 3. If *Keep Screen Size* is not enabled (the box is not checked), the remote screen is resized to fit the local monitor's resolution.
 4. If *Keep Screen Size* is enabled (the box is checked), the remote screen is not resized.
 - ◆ If the remote resolution is smaller, its display appears like a window centered on your screen.
 - ◆ If the remote resolution is larger, its display is centered on your screen. To access the areas that are off screen, move the mouse to the corner of the screen that is closest to the area you want to view and the screen will scroll.
5. Click on **Switch** to bring up the OSD.

The Main Page

The OSD comes up with the *Main* page displayed:



- Note:**
1. The *Administration* tab is disabled for users who don't have administration permission. For those who do have administration permission, administration operations are discussed in Chapter 3.
 2. There is a small Windows Client Control Panel at the lower right. The control panel is discussed in detail on p. 58.

There are two buttons on the title bar at the top right. They are described below starting from the left and moving to the right:

- ◆ *Log out*: clicking this button (or pressing F8) closes the OSD display and logs you out of the KN9108 / KN9116 session.
- ◆ *Close*: clicking this button closes the OSD display but does not log you out of the session. You can bring the display back with the OSD hotkeys (see OSD Hotkey, p. 70).

The Main Page lists all of the KN9108 / KN9116's ports. You access the computers connected to its ports by selecting them on this page.

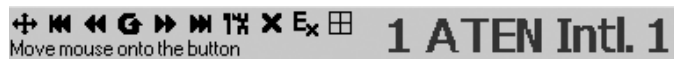
Details regarding the meaning and operation of the main page elements are provided in the Administration chapter, which begins on p. 13.

Port Operation

Select a port on the OSD Main Screen either by moving the highlight bar to it with the Up and Down Arrow keys and pressing **Enter**, or by **double-clicking** it. Once you select a port, its screen displays on your monitor, and your keyboard and mouse input affects the remote system.

The OSD Toolbar

The OSD provides a toolbar to help you control the KN9108 / KN9116 from within the captured port. To bring up the toolbar, tap the OSD Hotkey twice (Scroll Lock or Ctrl). The toolbar appears at the upper left corner of the screen:



Depending on the settings that were selected under *ID Display* (see p. 70), the Port Number and/or the Port Name display at the right of the toolbar.

Note: When the toolbar displays, mouse input is confined to the toolbar area and keyboard input has no effect. To carry out operations on the computer connected to the port, close the toolbar by clicking the **X** on it; or, recall the OSD and select the port again.

Recalling the OSD

To dismiss the toolbar and bring back the OSD display (the Main, Configuration, and Administration pages), do one of the following:

- ♦ tap the OSD Hotkey once;
- ♦ or, from the toolbar click the icon that opens the OSD (see p. 52).

The OSD Toolbar closes, and the main OSD display reappears.











OSD Hotkey Summary Table

The following table presents a summary of the OSD Hotkey actions.
See p. 70 to set the OSD Hotkey.

To...	When...	Do This...
Open the OSD Toolbar.	The OSD Toolbar is not open.	Click the OSD Hotkey twice.
Open the OSD.	The OSD Toolbar is open.	Click the OSD Hotkey once.
Open the OSD.	The OSD Toolbar is not open.	Click the OSD Hotkey three times.

The Toolbar Icons

The meanings of the toolbar icons are explained in the table below.

	Click and drag this icon to move the toolbar to a different location.
	Click to skip to the first accessible port on the entire installation without having to invoke the OSD.
	Click to skip to the first accessible port previous to the current one without having to invoke the OSD.
	Click to begin Auto Scan Mode. The KN9108 / KN9116 automatically switches among the ports that were selected for Auto Scanning under the Configuration <i>Scan Select</i> function (see p. 70). This allows you to monitor their activity without having to switch among them manually.
	Click to skip from the current port to the next accessible one without having to invoke the OSD.
	Click to skip from the current port to the last accessible port on the entire installation without having to invoke the OSD.
	Click to bring up the OSD.
	Click to close the toolbar.
	Click to logout and exit the Windows Client application.
	Click to invoke Panel Array Mode (see p. 55).

Note: The administrator selects which ports are accessible to each user with the *User Management* function (see p. 22 for details).

Hotkey Operation

Hotkeys allow you to provide KVM focus to a port directly from the keyboard. The KN9108 / KN9116 provides the following hotkey features:

- ◆ Auto Scanning
- ◆ Skip Mode Switching

The hotkeys are: **A** and **P** for Auto Scanning; and the Arrow Keys for Skip Mode.

Note: 1. In order for hotkey operations to take place, the OSD Toolbar must be visible (see *Port Operation*, p 51). To use the keys designated as hotkeys (i.e. A, P, etc.) for normal, non-hotkey purposes, you must first close the toolbar.

2. For issues affecting multiple user operation in Auto Scan Mode, see *Multiuser Operation* on p. 57.

Auto Scanning

The Auto Scan function automatically switches among all the ports that are accessible to the currently logged on User at regular intervals, so that the user can monitor their activity automatically. (See *Scan Select*, p. 70 for information regarding accessible ports.)

Setting the Scan Interval

The amount of time Auto Scan dwells on each port is set with the *Scan Duration* setting (see p. 70).

Invoking Auto Scan

To start Auto Scanning, tap the **A** key. The Auto Scan function cycles through the ports in order - starting from the first port on the installation. An **S** appears in front of the Port ID Display to indicate that the port is being accessed under Auto Scan Mode.

Pausing Auto Scan

While you are in Auto Scan Mode, you can pause the scanning in order to keep the focus on a particular computer by pressing **P**. During the time that Auto Scanning is paused, the **S** in front of the Port ID blinks On and Off.

Pausing when you want to keep the focus on a particular computer is more convenient than *Exiting Auto Scan Mode* because when you *Resume scanning*, you start from where you left off. If, on the other hand, you were to *exit and restart Auto Scan Mode*, the scanning would start from the very first computer on the installation. To resume Auto Scanning, press any key except Esc or the Spacebar. Scanning continues from where it left off.

Exiting Auto Scan

While Auto Scan Mode is in effect, ordinary keyboard functions are suspended. You must exit Auto Scan Mode in order to regain normal control of the keyboard. To exit Auto Scan Mode press **Esc** or the **Spacebar**. Auto Scanning stops when you exit Auto Scan Mode.

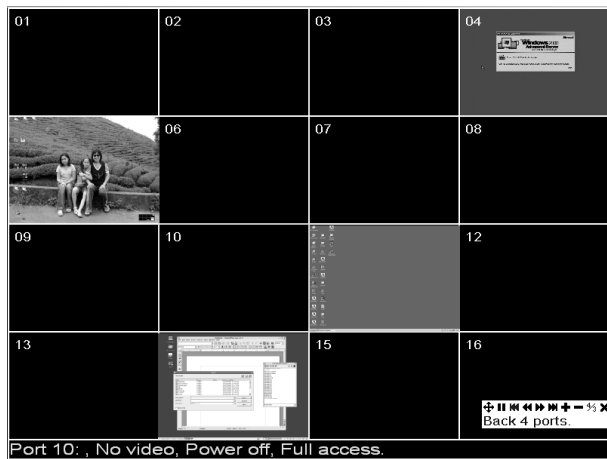
Skip Mode

Skip Mode allows you to switch ports in order to monitor the computers manually. You can dwell on a particular port for as long or as little as you like - as opposed to Auto Scanning, which automatically switches after a fixed interval. The Skip Mode hotkeys are the four Arrow keys. Their operation is explained in the table below:

←	Skips from the current port to the first accessible port previous to it. (See <i>Scan Select</i> , p. 70, for information regarding accessible ports.)
→	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.

Panel Array Mode

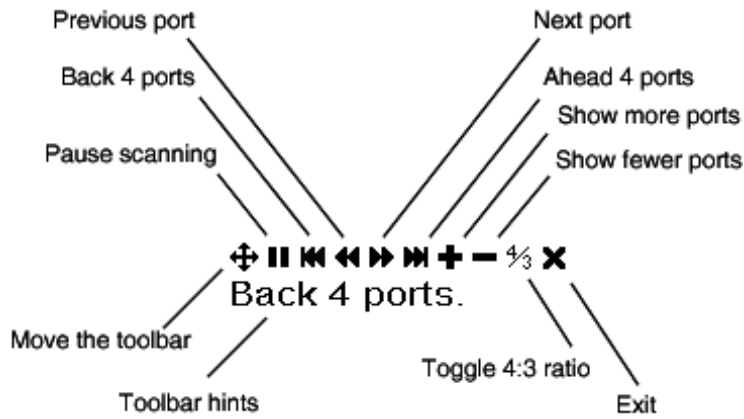
Clicking on the OSD Toolbar's *Panel* icon invokes Panel Array Mode. Under this mode, the OSD divides your screen into a 4 x 4 grid of 16 panels:



- ◆ Each panel represents one of the KN9108 / KN9116's ports. Starting with Port 1 at the upper left; going from left to right; top to bottom; Port 16 is at the lower right.
- ◆ When the Array is first invoked, it scans through each of the ports that were selected for Auto Scanning under the Configuration page's *Scan Select* function (see p. 70), and displays information about the port (port name, resolution, on line status, port access status), at the bottom of the panel.
- ◆ The number of panels in the array (16, 9, 4, or 1) can be selected by clicking **Show More Ports (+)**, and **Show Fewer Ports (-)** on the panel array toolbar.
- ◆ If the computer connected to a port is on line, its screen displays in its panel, otherwise the panel is blank.
- ◆ Only ports that are accessible to the currently logged in user display (see *Port Access*, p. 24). All other panels are blank.
- ◆ If you move the mouse pointer over a panel, information about the port displays at the bottom of the screen.

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- ◆ You can access a computer connected to a port by moving the mouse pointer over its panel and clicking. You switch to the computer exactly as if you had selected it from the OSD Main screen.
- ◆ The panel array toolbar, at the lower right of the screen, provides shortcut navigation and control of the panel array as described in the diagram below:



- ◆ For issues affecting multiple user operation in Panel Array Mode, see *Multiuser Operation* on p. 57.

Multiuser Operation







The KN9108 / KN9116 supports multiuser operation. Up to 32 users can log in at the same time. When multiple users simultaneously access the KN9108 / KN9116 switch from remote consoles, the rules of precedence that apply are shown in the following table:

Operation	Rule
General	<ul style="list-style-type: none"> ◆ Once a user invokes the OSD, no other user can invoke it until the original user closes it.
Auto Scan Mode	<ul style="list-style-type: none"> ◆ If a user has invoked Auto Scan Mode (see p. 53), 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 (see p. 55), all successive users automatically enter Panel Array Mode. Panel Array Mode continues until the original user stops it. (Administrators can override Panel Array Mode.) ◆ Only the user who starts Panel Array Mode can use the Skip Mode (see p. 54) function. ◆ 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. ◆ 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.

Note: ATEN recommends that the user who starts Panel Array Mode set it to display at least four panels; otherwise, it is possible that other users may receive only part of the picture.

Windows Client Control Panel

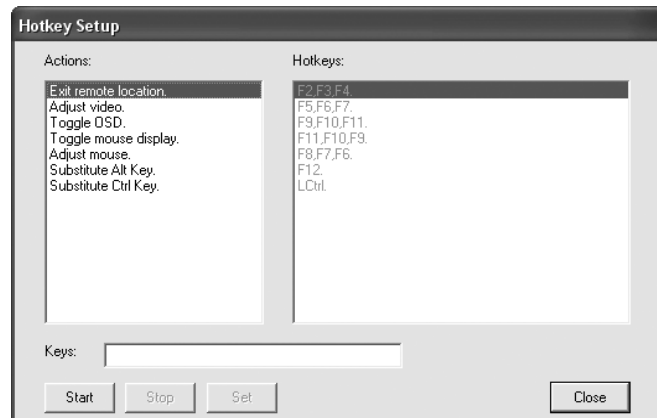
The control panel consists of an icon bar at the top, with two text bars below it. Initially, the text bars display the video resolution and IP address of the device at the remote location. As the mouse pointer moves over the icons in the icon bar, however, the text bar information changes to describe the icon's function. The functions that the icons perform are described in the table below.

Icon	Function
	Click on the hand icon and drag to move the control panel to another position on the screen.
	Click to bring up the Hotkey Setup dialog box (see p. 59 for details).
	Click to bring up the Video Options dialog box. Right-click to perform a quick Auto Sync (see p. 61 for details).
	Click to bring up the Message Board (see p. 64).
	Click to exit the remote view.
(Space)	Hover over the space to see the video resolution and IP address of the device at the remote location.
	These Lock Key LEDs show the Num Lock, Caps Lock, and Scroll Lock status of the remote computer. Click on the icon to toggle the status. Note: When you first connect, the LED display may not be accurate. To be sure, click on the LEDs to set them.

The *Hotkey Setup*, *Video Options* and *Message Board* functions are discussed in the sections that follow.

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 the *Keyboard* icon on the Control Panel. The actions performed by the Hotkeys are listed in the left column; the currently defined keys that invoke the actions are shown in the column to the right.



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An explanation of the Hotkey Setup *Actions* is given in the table below:

Action	Explanation
Exit remote location	Breaks the connection to the KN9108 / KN9116 and returns you to local operation.
Adjust Video	Brings up the video adjustment utility.
Toggle OSD	Toggles the OSD display Off and On.
Toggle mouse display	If you find the display of the two mouse pointers (local and remote) to be confusing or annoying, you can use this function to shrink the non-functioning pointer down to a barely-noticeable tiny circle - which can be ignored. Since this function is a toggle - use the hotkeys again to bring the mouse display back to its original configuration.
Adjust mouse	This utility synchronizes the local and remote mouse movements following a video resolution change. After invoking this utility, simply click the local mouse pointer on top of the remote mouse pointer.
Substitute Alt key	Although all other keyboard input is captured and sent to the KN9108 / KN9116, [Alt + Tab] and [Ctrl + Alt + Del] work on your local computer. In order to implement their effects on the remote system, another key may be substituted for the Alt key. If you substitute the F12 key, for example, you would use [F12 + Tab] and [Ctrl + F12 + Del].
Substitute Ctrl key	If your local computer captures Ctrl key combinations, preventing them from being sent to the remote system, you can implement their effects on the remote system by specifying a function key to substitute for the Ctrl key. If you substitute the F11 key, for example, pressing [F11 + 5] would appear to the remote system as [Ctrl + 5].

Note: To invoke an action, you must press and release the keys one key at a time.

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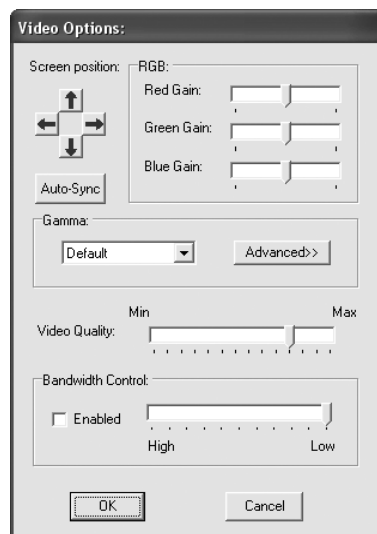
If you find the default Hotkey combinations inconvenient, you can re-configure them by following these five steps:

1. Highlight the Action, and then Click **Start**.
2. Key in the Function keys (one at a time). The key names appear in the *Key* field as you press them.
3. When you have finished keying in your sequence, Click **Stop**.
4. Click **Set**. Repeat for any other actions for which you wish to re-assign Hotkeys.
5. Click **Close**.

Note: You can use the same function keys for more than one action, *as long as the first key is not the same*. For example, you can use **F1 F2 F3** for one action; **F2 F1 F3** for another; **F3 F2 F1** for a third, etc.

Video Adjustment

You can adjust the placement and the picture quality of the remote screen (as displayed on your local monitor) with the Video Options function. To do so, either click on the Hammer icon on the Control Panel, or use the *Adjust Video* hotkeys (see p. 60). The following screen appears:



The meanings of the adjustment options are given in the table below:

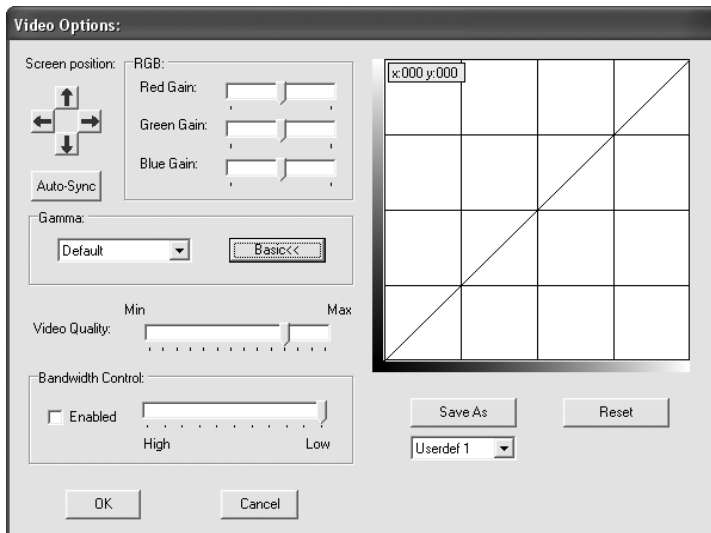
Option	Usage
Screen Position	Adjust the horizontal and vertical position of the remote computer window by Clicking the Arrow buttons.
Auto-Sync	<p>Click Auto-Sync to have the function detect the vertical and horizontal offset values of the remote screen and automatically synchronize it with the local screen.</p> <p>If the local and remote mouse pointers are out of sync, in most cases, performing this function will bring them back into sync.</p> <p>Note: This function works best with a bright screen.</p> <p>If you are not satisfied with the results, use the Screen Position arrows to position the remote display manually.</p>
RGB	Drag the slider bars to adjust the RGB (Red, Green, Blue) values. When an RGB value is increased, the RGB component of the image is correspondingly increased.
Gamma	This section allows you to adjust the video display's gamma level. This function is discussed in detail in the next section, <i>Gamma Adjustment</i> .
Video Quality	Drag the slider bar to adjust the overall Video Quality. Values can be from 20 to 100. The larger the value, the clearer the picture and the more video data goes through the network. Depending on the network bandwidth, a high value may adversely effect response time.
Bandwidth Control	This setting adjusts the ratio between picture quality and network speed. For slow data connections, drag the slider bar to a lower setting to decrease the amount of video data transferred. This ensures screen refresh at workable speeds.

Gamma Adjustment

If it is necessary to correct the gamma level for the remote video display, use the *Gamma* function of the Video Adjustment dialog box.

Under *Basic* configuration, there are ten preset and four user-defined levels to choose from. Drop down the list box and choose the most suitable one.

For greater control, clicking the *Advanced* button brings up the following dialog box:



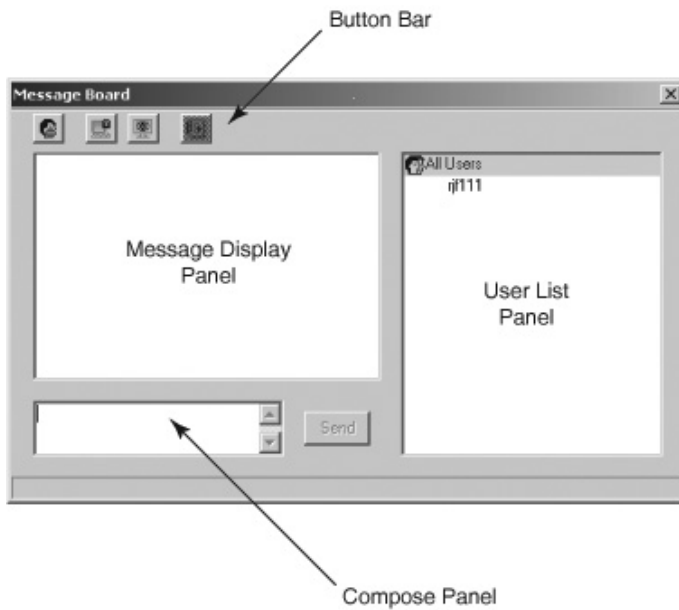
- ◆ Click and drag the diagonal line at as many points as you wish to achieve the display output you desire.
- ◆ Click **Save As** to save up to four user-defined configurations derived from this method. Saved configurations can be recalled from the list box at a future time.
- ◆ Click **Reset** to abandon any changes and return the gamma line to its original diagonal position.
- ◆ Click **OK** to save your changes and close the dialog box.
- ◆ Click **Cancel** to abandon your changes and close the dialog box.

Note: For best results, change the gamma while viewing a remote computer.

The Message Board





The KN9108 / KN9116 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 toolbar (see p. 58), a screen similar to the one below appears:



The Button Bar

The buttons on the Button Bar are toggles. Their actions are described in the table below:

Button	Action
	Enable/Disable Chat. When disabled, messages posted to the board are not displayed. The button is shadowed when Chat is disabled. The icon displays next to the user's name in the User List panel when the user has disabled Chat.
	Occupy/Release Keyboard/Video/Mouse. When you Occupy the KVM, other users cannot see the video, and cannot input keyboard or mouse data. The button is shadowed when the KVM is occupied. The icon displays next to the user's name in the User List panel when the user has occupied the KVM.
	Occupy/Release Keyboard/Mouse. When you Occupy the KM, other users can see the video, but cannot input keyboard or mouse data. The button is shadowed when the KM is occupied. The icon displays next to the user's name in the User List panel when the user has occupied the KM.
	Show/Hide User List. When you Hide the User List, the User List panel closes. The button is shadowed when the User List is open.

Message Display Panel

Messages that users post to the board - as well as system messages - display in this panel. If you disable Chat, however, messages that get posted to the board won't appear.

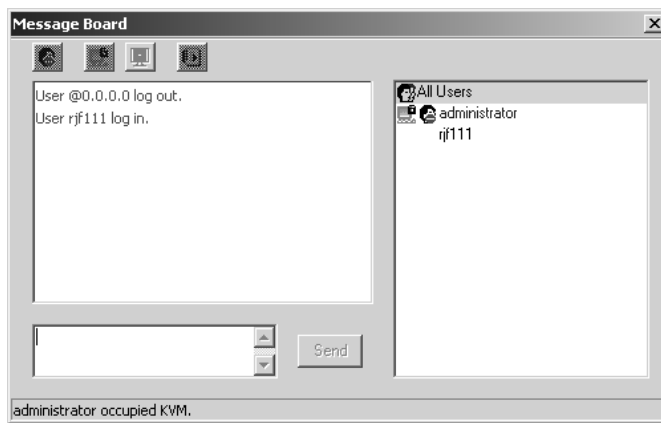
Compose Panel

Key in the messages that you want to post to the board in this panel. Click **Send**, or press **[Enter]** to post the message to the board.

User List Panel

The names of all the logged in users are listed in this panel.

- ◆ Your name appears in blue; other users' names appear in black.
- ◆ By default, messages are posted to all users. To post a message to one individual user, select the user's name before sending your message.
- ◆ If a user's name is selected, and you want to post a message to all users, select All Users before sending your message.
- ◆ If a user has disabled Chat, its icon displays before the user's name to indicate so.
- ◆ If a user has occupied the KVM or the KM, its icon displays before the user's name to indicate so.



Keyboard and Mouse Considerations

Keystrokes

Except for [Alt + Tab] and [Ctrl + Alt + Del], all keyboard input is sent to the remote system. The above two chorded key combinations are retained on the local system to switch among applications and to recover from disaster. In order to provide the [Alt + Tab] and [Ctrl + Alt + Del] functions on the remote system, Function keys (F1 -F12) can be selected as substitute keys for both the **Alt** and **Ctrl** keys.

For example, the **F11** key could substitute for the **Ctrl** key and the **F12** key could substitute for the **Alt** key, in which case [F12 + Tab] substitutes for [Alt + Tab]; and [F11 + F12 + Del] substitutes for [Ctrl + Alt + Del]. See *Hotkeys* on p. 59 for details on setting up a substitute key.

- Note:**
1. While any key may be used as a Substitute key, you *must not* use one that is being used as the first position Hotkey for another action.
 2. When the KN9108 / KN9116 is being accessed with Win 98 under Full Screen Mode, if you mistakenly press Ctrl + Alt + Del, you will have to exit the Windows Client (by clicking the arrow on the Windows Client control panel), and restart the Windows Client from the KN9108 / KN9116 Main Web Page.

Mouse Synchronization

Until you close the KN9108 / KN9116 connection, mouse movements have no effect on your local system, but instead are captured and sent to the remote system.

From time to time, especially if you change video resolution, the local mouse movement may no longer be synchronized with the remote system's mouse pointer. There are three quick methods that can be used to bring the two pointers back into sync:

- ◆ Right-clicking on the hammer icon in the Windows Client Control Panel.
- ◆ Moving the mouse pointer into the Control Panel and back out again.
- ◆ Performing an *Auto Sync* with the Video Adjustment function (see *Video Adjustment*, p. 61 for details).

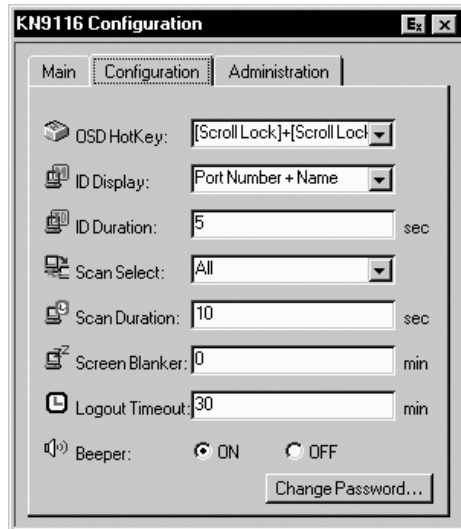
If performing these actions does not resolve the problem, do the following:

1. Invoke the *Adjust Mouse* function with the *Adjust Mouse* hotkeys (see *Adjust Mouse*, p. 60 for details).
2. Move the local mouse pointer exactly on top of the remote mouse pointer and click.

If this procedure still does not help, you should set the mouse speed and acceleration for each problematic computer attached to the switch. See *Additional Mouse Synchronization Procedures*, p. 103 in the Troubleshooting section of this manual for instructions.

The Configuration Page

The OSD *Configuration* page allows users to set up their own, individual, working environments. The KN9108 / KN9116 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.



(continues on next page)

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. (See p. 52 for Hotkey usage.)
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. 0 is Always On.
Scan Select	Selects which computers will be accessed under Auto Scan Mode (see pp. 52 and 53). Choices are: ALL - All the Ports which have been set Accessible (see p. 24); 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 (see p. 15); 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 (see pp. 52 and 53). 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 KN9108 / KN9116 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 (see pp. 52 and 53), 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.

Chapter 6.

The Java Client

Activating the OSD

After you have successfully logged in (see p. 41), to activate the Java Client OSD do the following:

1. Click the *Java Client* button (the one without the arrow) at the left of the web page.

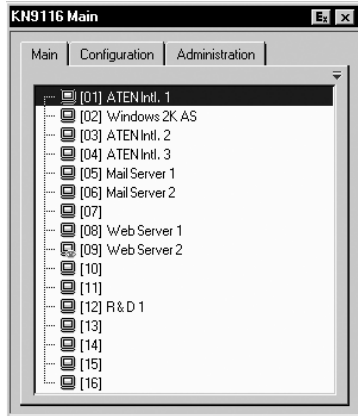
Note: You must have Sun's Java 2 JRE 1.4.2 or higher installed on your computer before running the Java Client. (At the time of writing, JRE 5.0 Update 5 was the latest release.) Java is available for free download from the Sun Java website: <http://java.sun.com>.

2. Accept the security certificates.
3. When the browser dialog asks what to do with the program file, click **Open**.

Note: 1. If the browser cannot run the file, save it to disk, instead. Then, with your browser still open to the KN9108 / KN9116 web page, run the file from your disk.

2. If you use the *save to disk* method, for security purposes, you cannot simply run a previously downloaded version of the program. Each time you want to access the KN9108 / KN9116, you must log in to the web page with a valid username and password to download a fresh copy of the program.

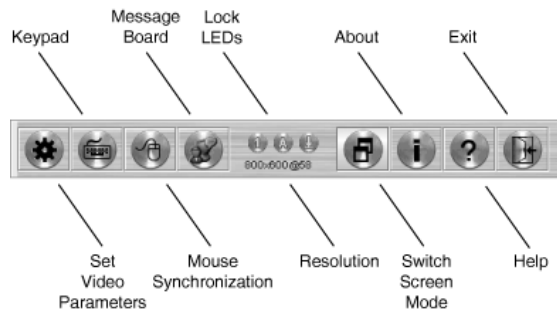
When you bring up the OSD, the Main Screen comes up in the center of your monitor.



This is the same OSD Main Screen that appears when the Windows Client is invoked. For an explanation of this screen refer to the discussion in the *Windows Client Main Page* section, p. 49.

The Java Client Control Panel

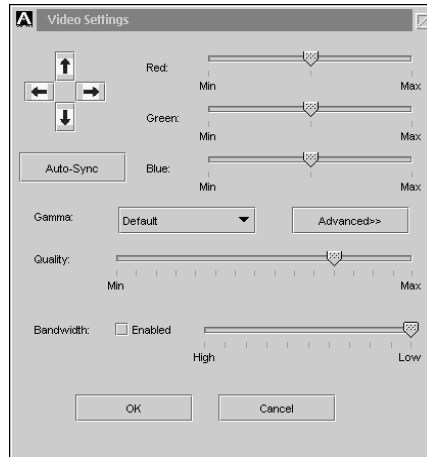
Instead of a control panel like the one that the Windows Client uses, the Java Client has a hidden control panel, located at the bottom center of the screen. The Java Control Panel becomes visible when the mouse pointer is moved over it.



The functions of the Control Panel icons are described in the sections that follow.

Set Video Parameters

Clicking this button brings up the *Video Adjustment* dialog box:



It is similar to the Windows Client Video Adjustment dialog box. See p. 61 for details.

Keypad

Some keyboard combinations cannot be captured and sent to the KN9108 / KN9116. In order to implement their effects on the remote system, this function provides a one-click implementation of some common window control combinations.



Mouse Synchronization

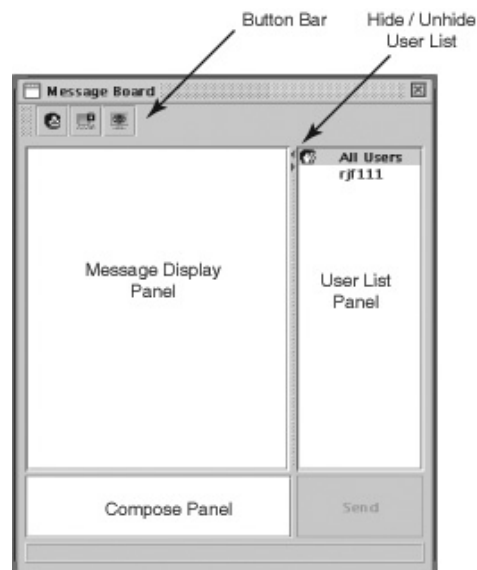
At times the local mouse movement may lose sync with the remote mouse movement. The Mouse Synchronization function gets them back into sync. There are two methods available to bring the pointers into sync:

1. Click the Mouse Synchronization button; wait for the remote mouse pointer to move to the upper left corner of the screen; move your local mouse pointer directly on top of the remote pointer, and click.
2. Move your local mouse pointer over the Java Client Control Panel, and click.

Message Board




The KN9108 /KN9116 supports multiple user logins, which can possibly give rise to access conflicts. To alleviate this problem, a message board feature, similar to an Internet chat program, allows users to communicate with each other.

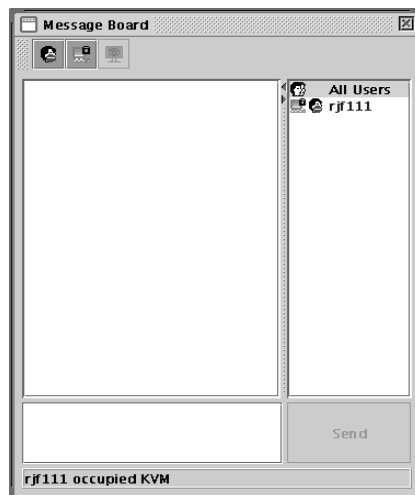
When you click the Message Board icon on the Java Client toolbar (see p. 72), a screen similar to the one below appears:



The Button Bar

The buttons on the Button Bar are toggles. Their actions are described in the table below:

Button	Action
	Enable/Disable Chat. When disabled, messages posted to the board are not displayed. The button is shadowed when Chat is disabled. The icon displays next to the user's name in the User List panel when the user has disabled Chat.
	Occupy/Release Keyboard/Video/Mouse. When you Occupy the KVM, other users cannot see the video, and cannot input keyboard or mouse data. The button is shadowed when the KVM is occupied. The icon displays next to the user's name in the User List panel when the user has occupied the KVM.
	Occupy/Release Keyboard/Mouse. When you Occupy the KM, other users can see the video, but cannot input keyboard or mouse data. The button is shadowed when the KM is occupied. The icon displays next to the user's name in the User List panel when the user has occupied the KM.



- ◆ Messages that users post to the board - as well as system messages - display in the *Message Display* panel. If you disable Chat, however, messages that get posted to the board won't appear.
- ◆ Key in the messages that you want to post to the board in the *Compose* panel. Click **Send**, to post the message to the board.
- ◆ The names of all the logged in users appear in the *User List* panel.
 - ◆ By default, messages are posted to all users. To post a message to one individual user, select the user's name before sending your message.
 - ◆ If a user's name is selected, and you want to post a message to all users, select *All Users* before sending your message.
 - ◆ If a user has disabled Chat, its icon displays before the user's name to indicate so.
 - ◆ If a user has occupied the KVM or the KM, its icon displays before the user's name to indicate so.
 - ◆ To Hide/Unhide the *User List* panel, click on the arrows in the panel separator.

Lock Key LEDs

These LEDs show the Num Lock, Caps Lock, and Scroll Lock status of the remote computer. They turn Green when the Lock status is **On**. Click on the icon to toggle the status.

Note: When you first connect, the LED display may not be accurate. To be sure, click on the LEDs to set them.

Resolution

The video resolution of the device connected to the remote port displays directly below the Lock LEDs.

Switch Screen Mode

Clicking this button enables or disables Full Screen Mode. (By default the Java Client opens in Full Screen Mode.)

About

Clicking this button opens the About dialog box, which displays the Java Client Version information. Click the OK button to close the dialog box.

Help

Clicking this button brings up the online help screen for the Java Client.

Exit

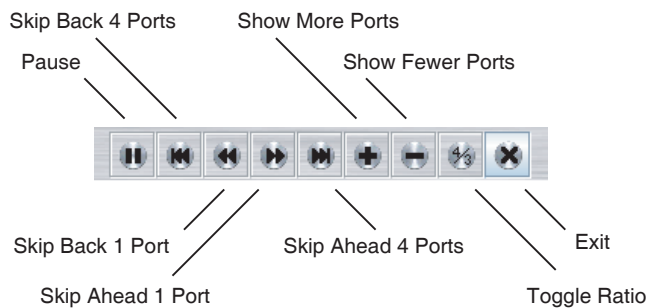
Clicking the Exit button terminates the Java Client session.

Port Operation

Java Client port operation is the same as for the Windows Client. See page 51 for port operation details.

Panel Array Mode

This is very similar to the Windows Client Panel Array Mode (see p. 55 for details), except for some differences in the toolbar. The Java Client Panel Array Mode Toolbar is shown in the figure below:



Note: When you click *Pause*, the Array stops scanning the ports. The button changes to an arrowhead and its caption changes to *Resume*. To resume scanning, click the Resume button.

Hotkey Operation

Hotkey operation is the same as for the Windows Client. See *OSD Hotkey* on page 70 for details.

The Configuration Page

The Java Client Configuration Page is the same as for the Windows Client. See page 69 for configuration details.

Chapter 7. The Log File

The Main Screen

The KN9108 / KN9116 logs all the events that take place on it. To view the contents of the log file, click the *Log* icon at the left of the webpage. A screen similar to the one below appears:



A maximum of 512 events are stored in the log file. To clear the log file, click on the *Clear Log* icon at the lower right of the screen.

Note: The Log File is a temporary file that is erased when the KN9108 / KN9116 is turned off or loses power. It is recommended that you install the Log Server to backup the contents of the log file.

Notes:

Chapter 8.

The Log Server

The Windows-based Log Server is an administrative utility that records all the events that take place on selected KN9108 / KN9116 units and writes them to a searchable database. This chapter describes how to install and configure the Log Server.

Installation

1. From the computer that you want to use as the Log Server, open your browser and log into the KN9108 / KN9116 (see p. 41).
2. Click the *Log Server* button at the left of the webpage to start the Log Server installation program.
3. If any security warning dialog boxes appear, ignore them and click **Run** or **Open**.

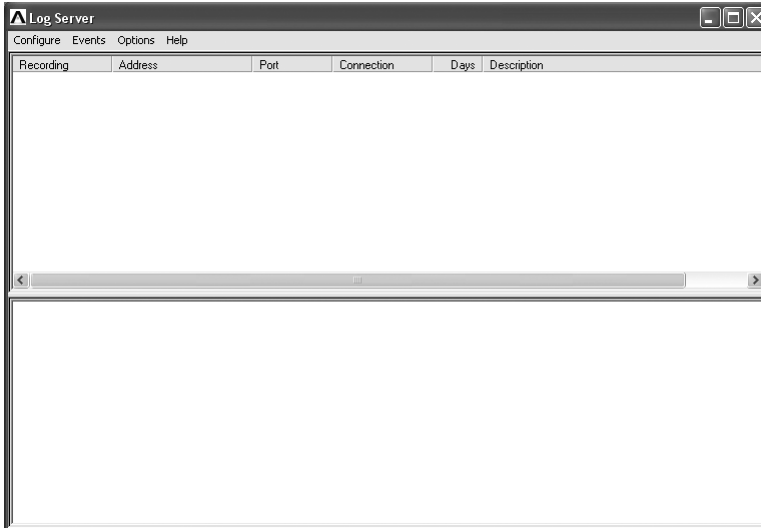
Note: If the browser cannot run the file, save it to disk, instead, and run the file from your disk.



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

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:**
1. The MAC address of the Log Server computer must be specified on the *Service Configuration* page of the *Administrator Utility* (see p. 25).
 2. The Log Server requires the Microsoft Jet OLEDB 4.0 driver in order to access the database.

The screen is divided into three components:

- ♦ A *Menu Bar* at the top
- ♦ A panel that will contain a list of *KN9108 / KN9116* units in the middle (see p. 87 for details).
- ♦ A panel that will contain an *Events List* at the bottom

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

The Menu Bar

The Menu bar consists of four items:

- ◆ Configure
- ◆ Events
- ◆ Options
- ◆ Help

These are discussed in the sections that follow.

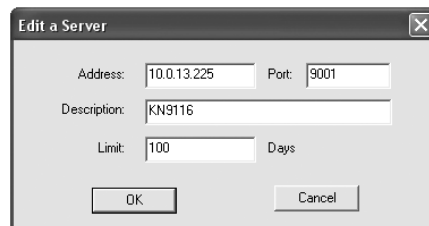
Note: If the Menu Bar appears to be disabled, click in the KN9108 / KN9116 List window to enable it.

Configure

The Configure menu contains three items: Add, Edit, and Delete. They are used to add new KN9108 / KN9116 units to the KN9108 / KN9116 List, edit the information for units already on the list, or delete KN9108 / KN9116 units from the list.

- ◆ To add a KN9108 / KN9116 to the KN9108 / KN9116 List, click **Add**.
- ◆ To edit or delete a listed KN9108 / KN9116, first select the one you want in the KN9108 / KN9116 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:



The dialog box titled "Edit a Server" contains the following fields and values:

Field	Value
Address	10.0.13.225
Port	9001
Description	KN9116
Limit	100 Days

Buttons: OK, Cancel

A description of the fields is given in the table, below:

Field	Explanation
Address	This can either be the IP address of the KN9108 / KN9116 or its DNS name (if the network administrator has assigned it a DNS name).
Port	The Port number assigned to the KN9108 / KN9116 (see p. 25).
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.

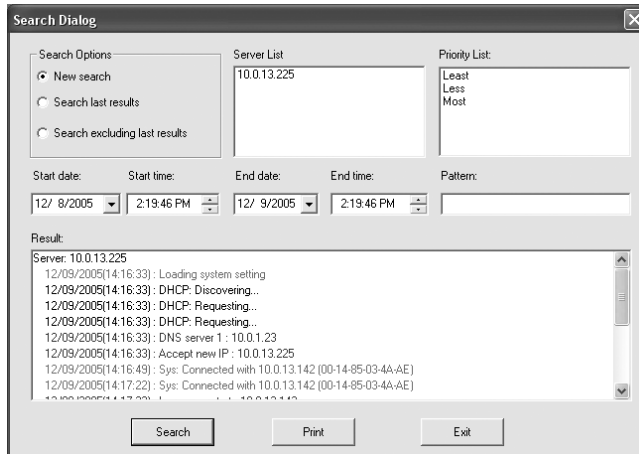
Fill in or modify the fields, then click **OK** to finish.

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:

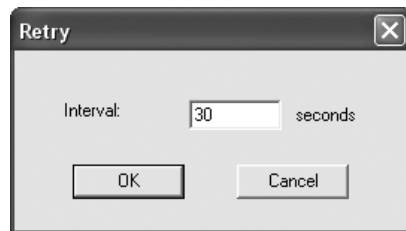
Item	Explanation
New search	This is one of three radio buttons that define the scope of the search. If it is selected, the search is performed on all the events in the database for the selected KN9108 / KN9116.
Search last results	This is a secondary search performed on the events that resulted from the last search.
Search excluding last results	This is a secondary search performed on all the events in the database for the selected KN9108 / KN9116 <i>excluding</i> the events that resulted from the last search.
Server List	KN9108 / KN9116 units 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. 1 is the most general; 3 is the most specific.
Start Date	Select the date that you want the search to start from. The format follows the MM/DD/YYYY convention, as follows: 11/04/2005
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 match <i>hands</i> and <i>hoods</i> .
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. He can use it to erase specified records before the expiration time that was set with the *Limit* setting of the Edit function (see p. 84).

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 below appears:



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

Help

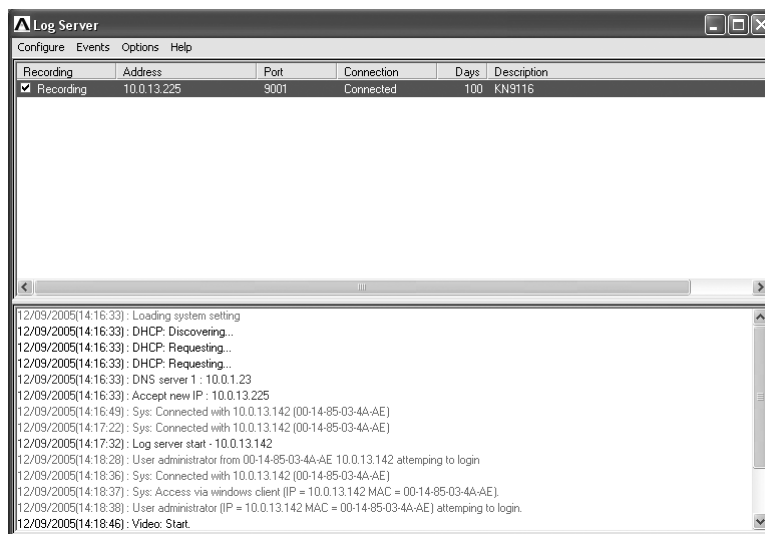
From the Help Menu, click Contents to access the online Windows Help file. The help file contains instructions about how to setup, operation and troubleshoot the Log Server.

The Log Server Main Screen

Overview

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

- ◆ The upper (List) panel lists the KN9108 / KN9116 units that have been selected for the Log Server to track (see *Configure*, p. 83).
- ◆ The lower (Event) panel displays the log events for the currently selected KN9108 / KN9116 (the highlighted one - if there are more than one). To select a KN9108 / KN9116 unit in the list, simply click on it.



The List Panel

The List panel contains six fields:

Field	Explanation
Recording	Determines whether the Log Server records log events for this KN9108 / KN9116 or not. If the Recording checkbox is checked, the field displays <i>Recording</i> , and log events are recorded. If the Recording checkbox is not checked, the field displays <i>Paused</i> , and log events are not recorded. Note: Even though a KN9108 / KN9116 is not the currently selected one, if its Recording checkbox is checked, the Log Server will still record its log events.
Address	This is the IP Address or DNS name that was given to the KN9108 / KN9116 when it was added to the Log Server (see Configure, p. 83).
Port	This is the Port number assigned to the KN9108 / KN9116 (see Configure, p. 83).
Connection	If the Log Server is connected to the KN9108 / KN9116, 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. It needs to be set on the <i>Service Configuration</i> page of the <i>Administrator Utility</i> (see p. 25).
Days	This field displays the number of days that the KN9108 / KN9116's log events are to be kept in the Log Server's database before expiration (see Configure, p. 83).
Description	This field displays the descriptive information given for the KN9108 / KN9116 when it was added to the Log Server (see Configure, p. 83).

The Event Panel

The lower panel displays log events for the currently selected KN9108 / KN9116. Note that if there are more than one KN9108 / KN9116 units, even though they aren't currently selected, if their *Recording* checkbox is checked, the Log Server records their log events and keeps them in its database.

Chapter 9.

AP Operation

Overview

In some cases, the Administrator may not want the KN9108 / KN9116 to be available via browser access. AP versions of the Windows Client and the Java Client are provided to enable direct access of the KN9108 / KN9116 without having to go through a browser.

The programs are initially downloaded from the browser page. After they have been downloaded by the Users, the Administrator can disable browser access (see p. 33).

The Windows Client

Installation

To install the Windows Client on your computer, do the following:

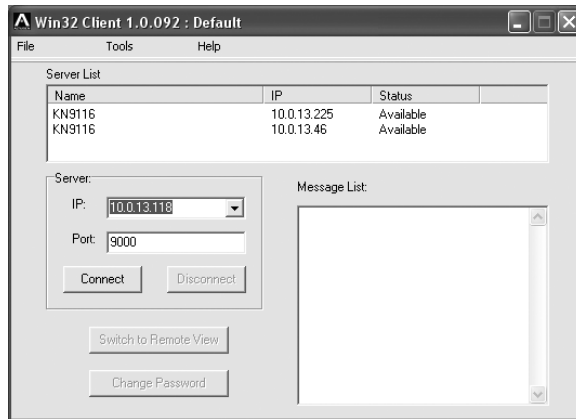
1. Log into the KN9108 / KN9116 with your browser, and click the second *Windows Client* button (the one with the arrow). A screen similar to the one below appears:



2. Click **Save**. In the dialog box that comes up specify a location on your hard disk to save it to.

Starting Up

To connect to the KN9108 / KN9116, go to the location on your hard disk that you saved the Windows Client program to, and double-click its icon (WinClient.exe) to bring up the Windows Client Connection Screen:



Note: You must have DirectX 7.0 or higher installed on your computer. If not, the Client program will not load.

(continues on next page)

A description of the Connection Screen is given in the following table:

Menu Bar	<p>The Menu Bar contains three items: File, Tools, and Help.</p> <ol style="list-style-type: none"> 1. The <i>File Menu</i> allows the operator to Create, Save, and Open user created Work files (see p. 92 for details). 2. The <i>Tools Menu</i> contains two entries: <i>Keyboard</i> and <i>Config</i>, (see p. 92 for details).
Server List	<p>Each time the WinClient.exe file is run, it searches the User's local LAN segment for KN9108 / KN9116 units, and lists whichever ones it finds in this box. If you want to connect to one of these units, double-click it.</p>
Server	<p>This area is used when you want to connect to a KN9108 / KN9116 at a remote location. You can drop down the <i>IP</i> list box and select an address from the list. If the address you want isn't listed, you can key in the IP address you want. Then, key in the Port number in the <i>Port</i> field. If you don't know the Port number, then contact the Administrator.</p> <p>When the IP address and Port number for the unit you wish to connect to have been specified, Click Connect to start the connection. When you have finished with your session, Click Disconnect to end the connection.</p>
Message List	<p>Lists status messages regarding the connection to the KN9108 / KN9116.</p>
Switch to Remote View	<p>Once contact with a KN9108 / KN9116 has been established, this button becomes active. Click it to switch and take over console control of the unit that is attached to the KN9108 / KN9116.</p> <p>The screen output of the unit appears on your monitor. Your keystrokes and mouse movements are captured and sent to the KN9108 / KN9116 to be executed on the attached unit.</p> <p>If the KN9108 / KN9116 is connected to a KVM switch, you can control the switch and the computers connected to it just as if you were connected locally.</p>
Change Password	<p>This button becomes active after a connection to a KN9108 / KN9116 unit has been established. It allows the User to change the password used to log in to the KN9108 / KN9116.</p>

The File Menu

The *File Menu* allows the operator to Create, Save, and Open user created Work files. A Work File consists of all the information specified in a Client session. This includes the Server List and Server IP list items, as well as the Hotkey settings.

Whenever a user runs the Client program, it opens with the values contained in the *current work file*. The current work file consists of the values that were in effect the last time the program was closed.

The File menu consists of three items, as follows:

New	Allows the user to create a named work file so its values will not be lost, and it will be available for future recall.
Open	Allows the user to open a previously saved work file and use the values contained in it.
Save	Allows the user to save the values presently in effect as the <i>current work file</i> .

The Tools Menu

Tools menu operations are performed after you connect, but before you switch to remote view. There are two entries on the Tools Menu: Keyboard and Config. They are explained in the sections that follow.

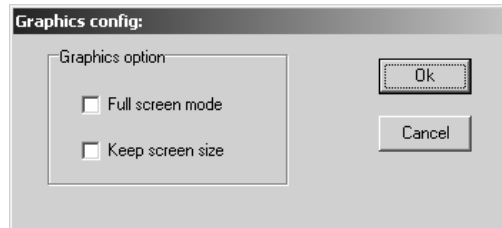
■ Keyboard

Various configuration actions related to the keyboard, video, and mouse can be performed via hotkey combinations. The Hotkey Setup utility is accessed by opening the *Tools* menu and selecting *Keyboard*. The Hotkey Setup Screen appears:

This is essentially the same dialog box discussed in the browser-based *Windows Client* chapter. Refer back to p. 59 for details.

■ Config

When you select *Config*, a screen similar to the one below appears:

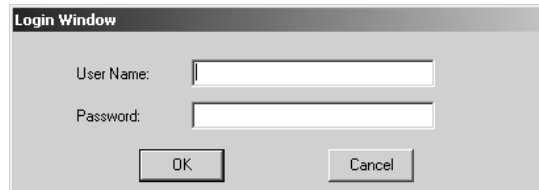


- ◆ If *Full Screen Mode* is enabled (there is a checkmark in the box), the remote display fills the entire screen of your local monitor.
- ◆ If *Full Screen Mode* is not enabled (there is no checkmark in the box), the remote display appears as a window on your desktop. If the remote screen is larger than what is able to fit in the window, move the mouse pointer to the screen border that is closest to the area you want to view and the screen will scroll.
- ◆ If *Keep Screen Size* is not enabled (there is no checkmark in the box), the remote screen is resized to fit the resolution of your local monitor.
- ◆ If *Keep Screen Size* is enabled (there is a checkmark in the box), the remote screen is not resized.
 - ◆ If the remote resolution is smaller, its display appears as a window centered on your screen.
 - ◆ If the remote resolution is larger, its display is centered on your screen. To access the areas that are off screen, move the mouse to the corner of the screen that is closest to the area you want to view and the screen will scroll.

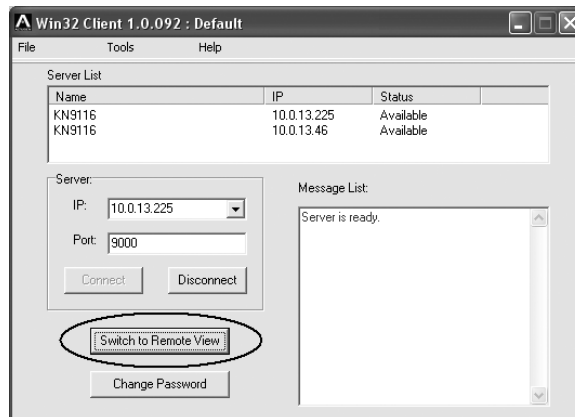
Connecting

To connect to a KN9108 / KN9116 unit:

1. From the *Server List* box, **double-click** the device that you wish to connect to. Or, specify the IP address and port number in the *Server IP* and *Port* input boxes, and then Click **Connect**. The *Login* dialog box appears:



2. Key in a valid Username and Password, and then click **OK**.
The program attempts to connect to the selected KN9108 / KN9116 unit. While it does so, you can check the *Message List* window for status messages regarding the operation's progress.
3. Once contact with the KN9108 / KN9116 has been established, the *Switch to Remote View* button becomes active. Click it to connect to the KN9108 / KN9116 and take over console control of the unit that is connected to it.



Operation

Once a connection to the KN9108 / KN9116 has been established, the remote system's video output is captured and displayed on your monitor. At the same time, your local keystroke and mouse input is captured and sent to the remote system.

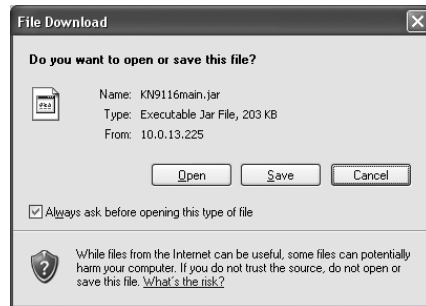
The look and feel of the AP Windows client operation is the same as for the browser version of the Windows client. Refer back to p. 47 for details.

The Java Client

Installation

To install the Java Client on your computer, do the following:

1. Log into the KN9108 / KN9116 with your browser, and click the second *Java Client* button (the one with the arrow). A screen similar to the one below appears:



2. Click **Save**. In the dialog box that comes up specify a location on your hard disk to save it to.

Starting Up

To connect to the KN9108 / KN9116 do the following:

1. Open a command line window and change to the directory where the Java Client file (KN9108main.jar or KN9116main.jar) is at.
2. From the command line, issue the following command:

```
java - jar KN9108main.jar
```

Or

```
java - jar KN9116main.jar
```

Note: You must install Java version 1.4.2 or higher before running the Java Client. It will not work with earlier versions of Java.

(continues on next page)

The *Address Input* dialog box appears:



3. Key in the IP address for the unit you want to connect to - including a forward slash followed by the login string (set by the administrator).

Note: For security purposes, the login string must be specified correctly as part of the IP address. The system administrator may change the string from time to time to thwart unauthorized access attempts. Be sure you have the correct string when you attempt to connect.

After you establish a connection, a Login dialog box appears:



4. Provide a valid Username and Password, and then click **OK**.
Once the authentication procedure completes successfully, the KN9108 / KN9116 main page displays on your monitor.

Operation

The look and feel of the AP Java client operation is the same as for the browser version of the Java client. Refer back to p. 71 for details.

Appendix

Troubleshooting

Administration

Symptom	Possible Cause	Action
After upgrading firmware, the KN9108 / KN9116 still appears to be using the old firmware version.	Your Internet browser is displaying cached webpages and has not fetched new versions of the KN9108 / KN9116 webpages.	Delete all temporary Internet files and cookies, close the Internet browser, and then open a new instance of the browser.

General Operation

Problem	Resolution
Erratic Operation	Press and hold the Reset button (see p. 8) for longer than three seconds.
Mouse and/or keyboard not responding due to improper mouse and/or keyboard reset.	Unplug the cable(s) from the console port(s), then plug it back in again.
Sudden loss of network connection due to local reset of KN9108 / KN9116.	Close your KN9108 / KN9116 connection. Wait approximately 30 seconds, and log in again.
Mouse Pointer Confusion	If you find the display of two mouse pointers (local and remote) to be confusing or annoying, you can use the <i>Toggle Mouse Display</i> function to shrink the non-functioning pointer. See p. 60 for details.

The Java Client

For mouse synchronization problems, refer to the discussion on page 74. For connection and operation problems, see the table below:

Problem	Resolution
Java Client won't connect to the KN9108 / KN9116.	<ol style="list-style-type: none"> 1. Java 2 JRE 1.4.2 or higher must be installed on your computer. 2. Make sure to include the correct name of the web page when you specify the KN9108 / KN9116's IP address (see p. 31). 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.	When entering national language characters, if your local keyboard is set to a non-English national language layout, you must set the remote computer's keyboard layout to English.

The Log Server

Problem	Resolution
The Log Server program does not run.	<p>The Log Server requires the Microsoft Jet OLEDB 4.0 driver in order to access the database.</p> <p>This driver is automatically installed with Windows ME, 2000, and XP.</p> <p>For Windows 98 and NT you will have to go to the Microsoft download site:</p> <p style="padding-left: 40px;">http://www.microsoft.com/data/download.htm</p> <p>to retrieve the driver file:</p> <p style="padding-left: 40px;">MDAC 2.7 RTM Refresh (2.70.9001.0)</p> <p>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.</p>

Panel Array Mode

Problem	Resolution
Low resolution video in Panel Array Mode.	Increase the number of panels that are displayed.
Some users only receive a partial image when multiple remote users are logged in concurrently.	The first user to invoke Panel Array Mode should set it to display a minimum of four panels.

The Windows Client

Problem	Resolution
Windows Client won't connect to the KN9108 / KN9116.	DirectX 7.0 or higher must be installed on your computer.
Remote mouse pointer is out of sync.	<ol style="list-style-type: none"> 1. Use the <i>AutoSync</i> feature (see <i>Video Adjustment</i>, p. 61), to sync the local and remote monitors. 2. If that doesn't resolve the problem, use the <i>Adjust Mouse</i> feature (see <i>Mouse Movement</i>, p. 68) to bring them back in sync. 3. If the two methods described above fail to resolve the problem, use the <i>Toggle Mouse Display</i> function (see p. 60).
Part of remote window is off my monitor.	If <i>Keep Screen Size</i> (see p. 48) is not enabled, use the <i>AutoSync</i> feature (see <i>Video Adjustment</i> , p. 61) to synchronize the local and remote monitors. If it is enabled, see the discussion under <i>Config</i> on p. 48.
The remote screen display is rotated 90 degrees.	Enable <i>Keep Screen Size</i> . See the discussion under <i>Config</i> on p. 48 for details.
I cannot run Net Meeting when the Windows Client is running.	Enable <i>Keep Screen Size</i> . (See the discussion under <i>Config</i> on p. 48 for details.)

Sun Systems

Problem	Resolution
Video display problems with HDB-15 interface systems (e.g. Sun Blade 1000 servers).	<p>The display resolution should be set to 1024 x 768.</p> <p>Under Text Mode:</p> <ol style="list-style-type: none"> Go to OK mode and issue the following commands: <pre>setenv output-device screen:r1024x768x60 reset-all</pre> <p>Under XWindow:</p> <ol style="list-style-type: none"> Open a console and issue the following command: <pre>m64config -res 1024x768x60</pre> <ol style="list-style-type: none"> Log out. Log in.
Video display problems with 13W3 interface systems (e.g. Sun Ultra servers).*	<p>The display resolution should be set to 1024 x 768.</p> <p>Under Text Mode:</p> <ol style="list-style-type: none"> Go to OK mode and issue the following commands: <pre>setenv output-device screen:r1024x768x60 reset-all</pre> <p>Under XWindow:</p> <ol style="list-style-type: none"> Open a console and issue the following command: <pre>ffbconfig -res 1024x768x60</pre> <ol style="list-style-type: none"> Log out. 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.

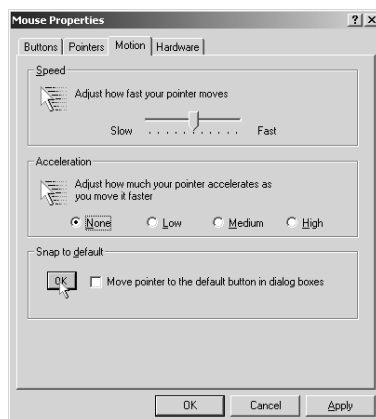
Additional Mouse Synchronization Procedures

If the mouse synchronization procedures mentioned in the manual fail to resolve mouse pointer problems for particular computers, try the following:

- Note:** 1. These procedures are to be performed on the computers attached to the KN9108 / KN9116's ports - not on the computer you are using to access the KN9108 / KN9116.
2. In order for the local and remote mice to synchronize, you must use the generic mouse driver supplied with the Windows operating system. If you have a third party driver installed - such as one supplied by the mouse manufacturer - you must remove it.

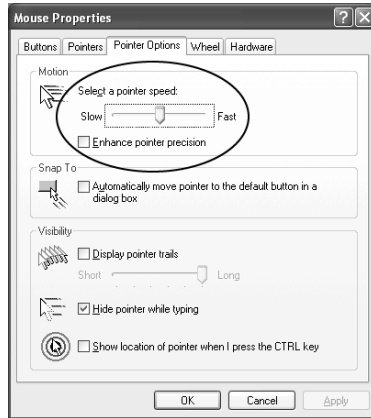
1. Windows 2000:

Set the mouse speed to the middle position; set the mouse acceleration to *None* (Control Panel → Mouse → Mouse Properties → Motion):



2. Windows XP / Windows Server 2003:

Set the mouse speed to the middle position; disable *Enhance Pointer Precision* (Control Panel → Printers and Other Hardware → Mouse → Pointer Options):



3. Windows ME / Windows 95:

Set the mouse speed to the middle position; disable mouse acceleration (click Advanced to get the dialog box for this).

4. Windows NT / Windows 98:

Set the mouse speed to the slowest position.

5. Sun / Linux:

Open a terminal session and issue the following command:

Sun: `xset m 1`

Linux: `xset m 0`

Specifications

Function		KN9108	KN9116
Console Connections	Local	1	
	Remote	1	
Computer Connections	Direct	8	16
	Maximum	64 (via Cascade - KH88)	128 (via Cascade - KH88)
Computer Port Selection		OSD / Hotkey / Push Buttons	
Connectors	Console VGA	1 x HDB-15 female	
	Console K/M	2 x 6 pin mini-DIN female (Keyboard: purple; Mouse: green)	
	Computer Ports	8 x SPHD-15 female	16 x SPHD-15 female
	LAN	1 x RJ-45	
	Power On Port	1 x DB-9 male	
	Power Socket	3 pin IEC AC power inlet	
Switches	Power	1 x Rocker switch	
	Reset	1 x Semi-recessed push button	
	Port Up / Port Down	2 x push button	
LEDs	On Line	8 (green)	16 (green)
	Selected	8 (orange)	16 (orange)
	Link	1 (green)	
	10 / 100 Mbps	1 (orange / green)	
	Power	1 (blue)	
Input Rating		100V~240V, 50/60Hz; 250mA	
Power Consumption		120V / 60Hz 12W; 230V / 50Hz 12W	
Keyboard / Mouse Emulation		PS/2	
Scan Interval		User Specified: 1 - 255 secs.	
Video		1600 x 1200 @ 60Hz; DDC2B	
Environment	Operating Temperature	0 - 40° C	
	Storage Temperature	-20 - 60° C	
	Humidity	0 - 80% RH, Non-condensing	
Physical Properties	Housing	Metal	
	Weight	4 kg	4.2 kg
	Dimensions (L x W x H)	43.7 x 26 x 4.4 cm (19" 1U)	43.7 x 26 x 4.4 cm (19" 1U)

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

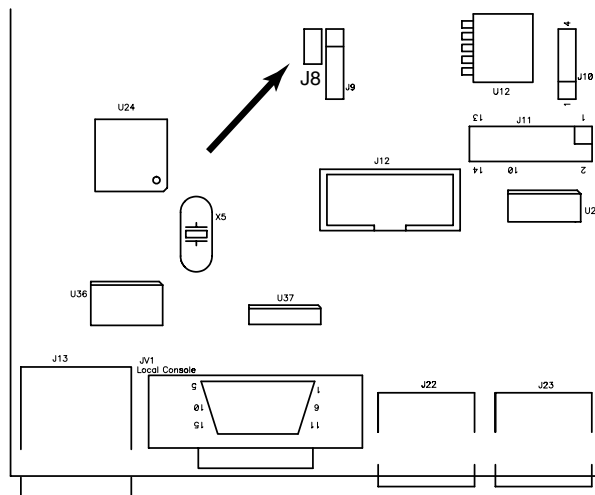
Administrator Login Failure

If you are unable to perform an Administrator login (because the Username and Password information has become corrupted, or you have forgotten it, for example), there is a procedure you can use to clear the login information.

Note: Performing this procedure also returns all settings to their defaults.

To clear the login information (and return all settings to their defaults), do the following:

1. Power off the KN9108 / KN9116 and remove its housing.
2. Using a jumper cap, short the jumper on the mainboard labeled J8.

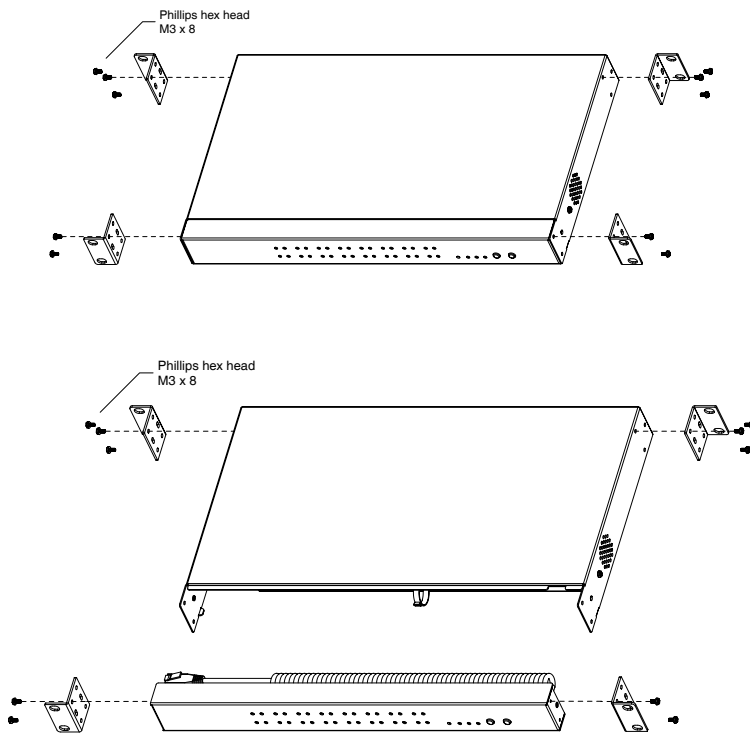


3. Power on the switch.
4. When the front panel LEDs flash, power off the switch.
5. Remove the jumper cap from J8.
6. Close the housing and power on the KN9108 / KN9116.
After powering on the unit, you can use the default Username and Password (see p. 13) to log in.

Rack Mounting

The KN9108 / KN9116 can be mounted in a 1U system rack. For convenience and flexibility, the mounting brackets can screw into either the front or the back of the unit so that it can attach to the front or the back of the rack. Alternately, the front and rear modules can be separated so that the front module can be mounted at the front of the rack while the rear module is mounted at the rear. To rack mount the unit do the following:

1. Remove the four screws that attach the front and rear modules.
2. Using the screws provided with the rack mounting kit, screw the rack mounting brackets into the sides of the unit at the front and/or the rear, as shown in the diagrams below.
3. Slide the unit into the rack and secure it to the rack.



Limited Warranty

ALTUSEN warrants this product against defects in material or workmanship for a period of one (1) year from the date of purchase. If this product proves to be defective, contact ALTUSEN's support department for repair or replacement of your unit. ALTUSEN will not issue a refund. Return requests can not be processed without the original proof of purchase.

When returning the product, you must ship the product in its original packaging or packaging that gives an equal degree of protection. Include your proof of purchase in the packaging and the RMA number clearly marked on the outside of the package.

This warranty becomes invalid if the factory-supplied serial number has been removed or altered on the product.

This warranty does not cover cosmetic damage or damage due to acts of God, accident, misuse, abuse, negligence or modification of any part of the product. This warranty does not cover damage due to improper operation or maintenance, connection to improper equipment, or attempted repair by anyone other than ALTUSEN. This warranty does not cover products sold AS IS or WITH FAULTS.

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