



Avocent.

DSR™ 1021

Installer/User Guide





INSTRUCTIONS

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



DANGEROUS VOLTAGE

This symbol is intended to alert the user to the presence of uninsulated dangerous voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



POWER ON

This symbol indicates the principal on/off switch is in the on position.



POWER OFF

This symbol indicates the principal on/off switch is in the off position.



PROTECTIVE GROUNDING TERMINAL

This symbol indicates a terminal which must be connected to earth ground prior to making any other connections to the equipment.



• **DSR™ 1021**

Installer/User Guide

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USA Notification

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Canadian Notification

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Japanese Approvals

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

Korean Class A Statement

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오니 판매자 또는 사용자는 이 점을 주의하시기 바라며 만약
잘못 판매 또는 구입하였을 때에는 가정용으로 교환하시기 바랍니다.

Safety and EMC Standards

AS/NZS CISPR22, CSA C22.2 No. 950, EN61000-3-2, EN61000-3-3, EN55022
Class A, EN55024, EN60950, FCC1 Part 15 Class A, ICES-003 Class A, IEC60950,
VCCI V.3 Class A, UL 1950

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1

Product Overview

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Chapter 1: Product Overview

Features and Benefits

The Avocent DSR™1021 switch combines analog and digital technology to provide flexible, centralized control of data center servers and facilitate the OA&M (operations, activation and maintenance) of remote branch offices where trained operators may be unavailable. This solution provides enterprise customers with a significant reduction of cable volume, secure remote access and flexible server management from anywhere at anytime.

The DSR1021 switch is a rack mountable keyboard, video and mouse (KVM) switch configurable for analog (local) or digital (remote) connectivity. The DSR1021 switch has ports for connecting servers and serial devices via DSRIQ modules. A video resolution of 1280 x 1024 is supported for remote users of the DSR switching system. Enhanced video quality of up to 1600 x 1280 is available for the local user via the keyboard, video and mouse ports.

The DSR1021 switch includes an SPC, LAN and MODEM port. The SPC port may be used to connect an SPC power control device to the DSR1021 switch. An SPC device is an 8- or 16-outlet device that can be used to control the power state of any attached servers or serial devices using the DSView® software residing on the user PC. The LAN port is used to establish an Ethernet connection to the switch. The MODEM port may be used by remote users to access the switch using a dial-up connection when an Ethernet connection is not available.

The DSR1021 switch works over standard LAN connections. Users can access servers or serial devices using:

- A 100BaseT Ethernet connection
- A V.34, V.90 or V.92-compatible modem for remote KVM access and administration
- The local port

The IP-based DSR1021 switch gives you flexible server management control from anywhere in the world.

Reduce cable bulk

With server densities continually increasing, cable bulk remains one of the major concerns of every network Administrator. The DSR1021 switch significantly reduces KVM cable volume in the rack by utilizing the innovative DSRIQ module and single, industry-standard Unshielded Twisted Pair (UTP) CAT 5 cabling. This allows a higher server density while providing greater airflow and cooling capacity.

The DSRIQ module is powered directly from the server and provides Keep Alive functionality when the DSR1021 switch is not powered up.

The DSRIQ-SRL (serial) module is a DCE device that provides the primary interface between a serial device and a DSR1021 switch. It provides VT100 terminal emulation, break suppression and port history in a compact, convenient module.

Access the DSR1021 switch via network connection

No special software or drivers are required on the attached, or host, computers. Users access the DSR1021 switch and all attached systems via Ethernet or using a V.34, V.90 or V.92 modem from a PC running the DSView software application residing on the user PC. User PCs can be located anywhere a valid network connection exists. The DSR1021 switch can be configured on a separate network from your data network, allowing access to your servers even if your applications network is down.

Simple point and click access to any server

When a user activates DSView software, it will display a listing of all computers and serial devices to which the user has access permission. When a user selects a server from the list, the video of the selected server is displayed in a Video Viewer window. Multiple servers can be accessed by one user. Each additional computer's video will appear in a separate program window.

Create and manage user permissions with DES encrypted security

An Administrator describes the configuration of computers attached to the DSR1021 switch using the DSAdmin management application. Once the topology is described, the Administrator then establishes which computers a user has permission to access. Usernames and passwords are derived from Windows NT®, Windows® 2000 or Windows XP, eliminating the need for redundant user databases. Once the topology is established, the DSAAuth Server software manages the system's user permissioning. The DSView software polls the server running DSAAuth Server software for access permissions on power up and every time a switch is initiated for the most current permissions possible. A refresh is also available for immediate updates to a user's access profile. In addition to the permissioning function, the DSAAuth Server software also stores pertinent information about attached devices in a database. Room location, rack location and server type can all be stored for quick reference.

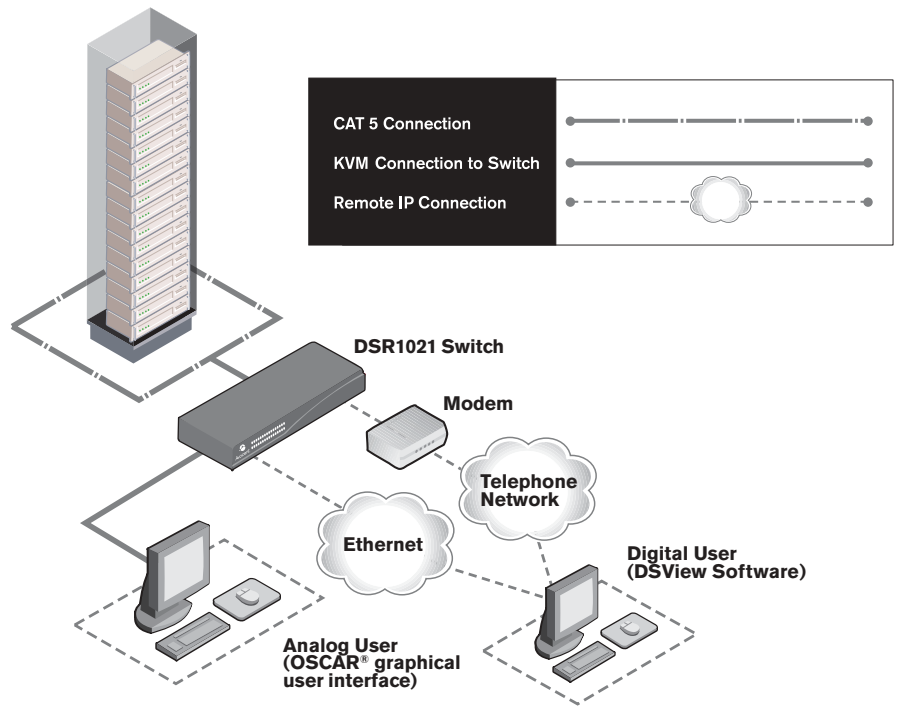
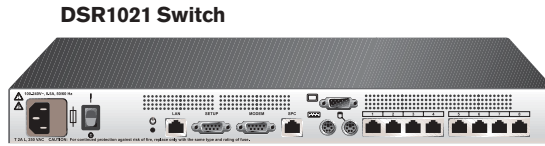


Figure 1.1: Example DSR1021 Switch Configuration



Number of servers	8
Ethernet Digital sessions/output	1
Modem Digital sessions/output	1
Analog user	1

Figure 1.2: The DSR1021 Switch

Safety Precautions

To avoid potential video and/or keyboard problems when using Avocent products:

- If the building has 3-phase AC power, ensure that the server and monitor are on the same phase. For best results, they should be on the same circuit.

To avoid potentially fatal shock hazard and possible damage to equipment, please observe the following precautions:

- Do not use a 2-wire power cord in any Avocent product configuration.
- Test AC outlets at the server and monitor for proper polarity and grounding.
- Use only with grounded outlets at both the server and monitor. When using a backup Uninterruptible Power Supply (UPS), power the server, the monitor and the DSR1021 switch off the supply.

NOTE: The AC inlet is the main disconnect.

Rack mount safety considerations

- **Elevated Ambient Temperature:** If installed in a closed rack assembly, the operation temperature of the rack environment may be greater than room ambient. Use care not to exceed the rated maximum ambient temperature of the appliance.
- **Reduced Air Flow:** Installation of the equipment in a rack should be such that the amount of airflow required for safe operation of the equipment is not compromised.
- **Mechanical Loading:** Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
- **Circuit Overloading:** Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits might have on overcurrent protection and supply wiring. Consider equipment nameplate ratings for maximum current.
- **Reliable Earthing:** Reliable earthing of rack mounted equipment should be maintained. Pay particular attention to supply connections other than direct connections to the branch circuit (for example, use of power strips).



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Installation

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Chapter 2: Installation

The DSR switching system requires that the DSView software, DSAdmin management application and DSAuth Server be installed prior to use. DSView software allows a user to view and control a server attached to the DSR switching system. The DSAdmin management application is used to configure and maintain the system. The DSAuth Server is a Windows NT or 2000 service used to prevent unauthorized access to the DSR switching system. More information on the DS Management Software suite can be found in your DSView Installer/User Guide.

The DSR switching system transmits keyboard, video and mouse (KVM) information between operators and connected computers on a network using either an Ethernet connection or a modem connection.

If you are using an Ethernet networking infrastructure, the TCP/IP protocol is used for communications with the DSR1021 switch. Although 10BaseT Ethernet may be used for an Ethernet connection, Avocent recommends a dedicated, switched 100BaseT network.

If communication with the DSR1021 switch will be made using a V.34, V.90 or V.92 modem, the PPP protocol will be used. You may specify Point-to-Point Protocol (PPP) parameters using the Terminal Applications menu. See Chapter 4 for more information.

Getting Started

Before installing your DSR1021 switch, refer to the following lists to ensure you have all items that shipped with the DSR1021 switch as well as other items necessary for proper installation.

Supplied with the DSR1021 switch

The following items are supplied with your DSR1021 switch:

- DSR1021 switch
- Local country power cord
- Rack mounting brackets
- Null modem cable
- DSR Installer/User Guide
- DSR1021 Quick Installation Guide

Additional items needed

The following are additional items needed to use your DSR1021 switch:

- One DSRIQ module per server or DSRIQ-SRL module per serial device
- One CAT 5 patch cable per server or serial device (4-pair UTP, up to 10 meters)
- DSR software
- V.34, V.90 or V.92-compatible modem and cables (for optional modem connection)

Verification of Internet/server connections

DSR switch

The front panel of the DSR1021 switch features two LEDs indicating the Ethernet connection. The top green LED is the *Link* indicator. It will illuminate when a valid connection to the network is established and blink when there is activity on the port. The lower amber LED, labeled *100M*, will indicate that you are communicating at the 100 Mb rate when using an Ethernet connection.

Additionally, there are two LEDs above each port number on the front of your DSR1021 switch: one green and one amber. The green LED will illuminate when the attached system is powered. The amber LED will illuminate when that port is selected.

DSRIQ modules

PS/2, Sun and USB DSRIQ modules are available for attaching computers to your DSR switch.

The DSRIQ-SRL serial module is used to connect serial devices to your DSR switch and features two green LEDs: a *POWER* LED and a *STATUS* LED. The *POWER* LED indicates that the attached server is powered. The *STATUS* LED indicates that a valid UTP connection has been made to a DSR switch. The DSRIQ-SRL module prevents a serial break from the attached device if the module loses power. However, a user can generate a serial break with the attached device by pressing **Alt-B** in the Terminal Applications menu.

Setting up your network

The DSR switching system uses IP addresses to uniquely identify the server running the DSAuth application, the DSR switch appliances and the computers running DSView software. The DSR1021 switch supports both Dynamic Host Configuration Protocol (DHCP) and static IP addressing. Avocent recommends that IP addresses be reserved for each appliance and that they remain static while the DSR switch appliances are connected to the network. For additional information on how the DSR switch uses the TCP protocol, see *Appendix B* of the DSView Installer/User Guide. Figure 2.1 shows the DSR1021 switch in a network configuration.

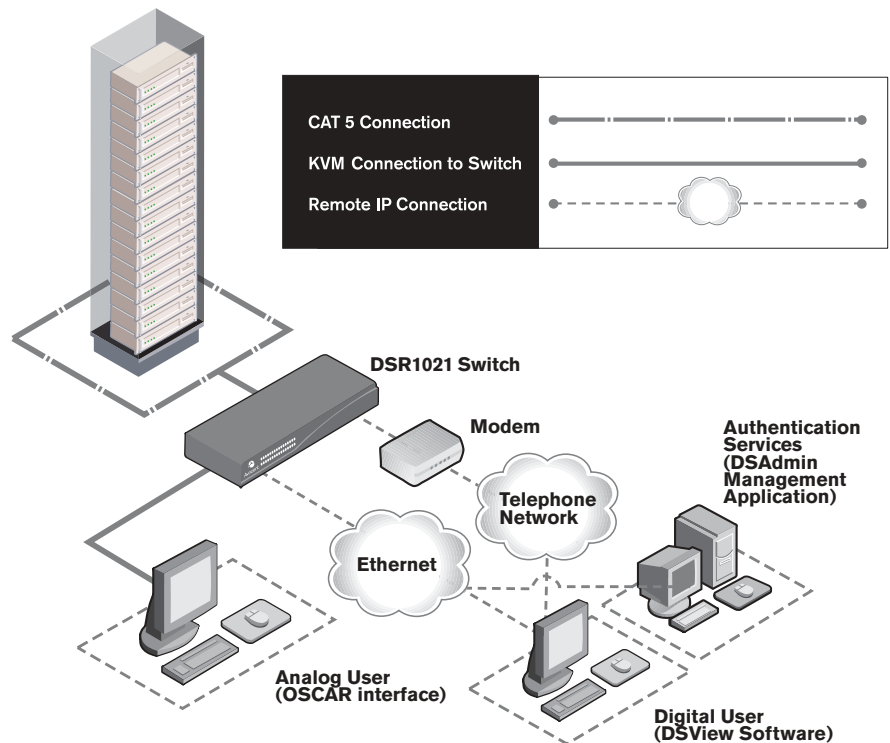


Figure 2.1: The DSR1021 Switch in a Network Configuration

Installing the DSR Switch

The following diagram illustrates one possible configuration for your DSR1021 switch. Follow the detailed instructions to successfully install your DSR1021 switch.

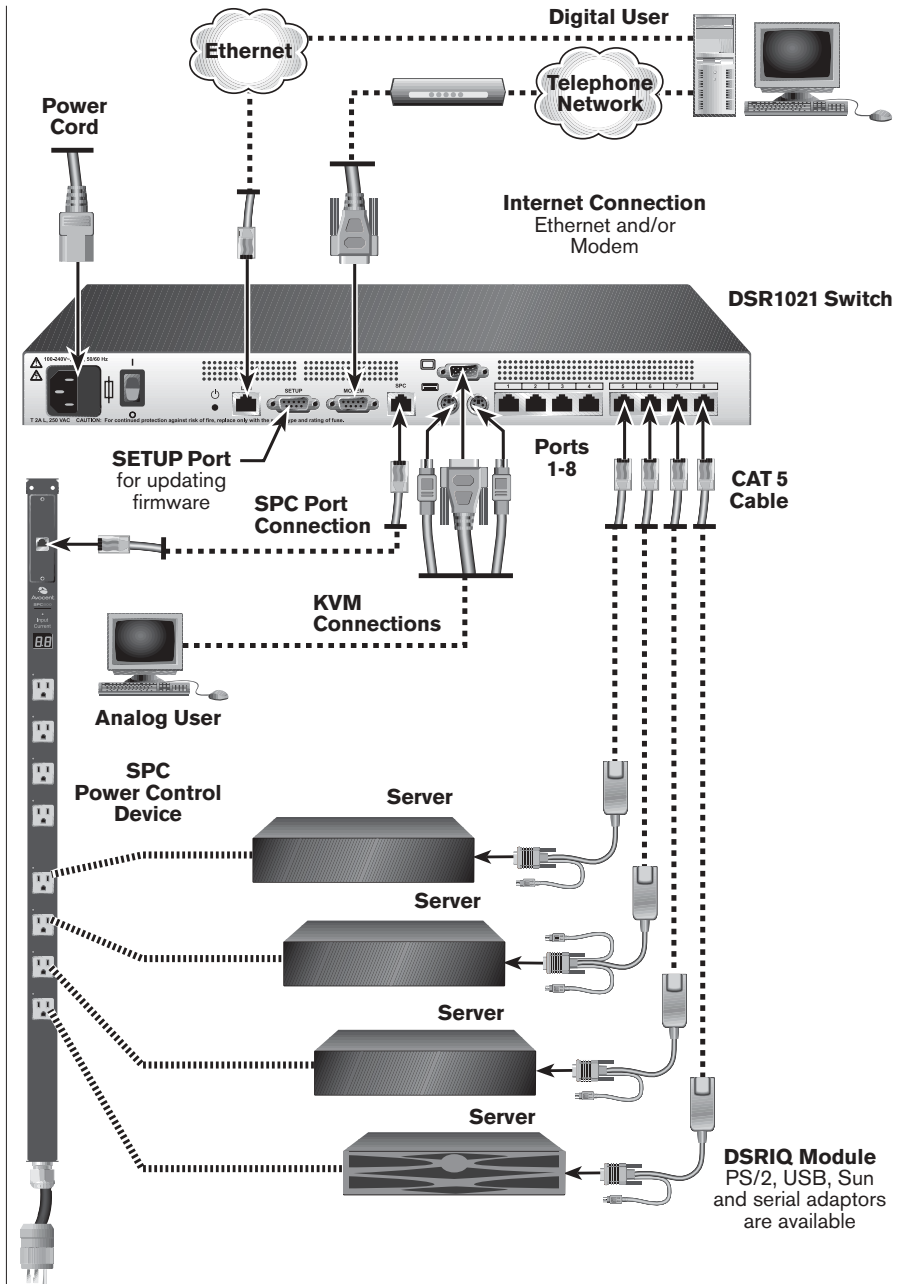


Figure 2.2: Basic DSR1021 Switch Configuration



WARNING: To reduce the risk of electric shock or damage to your equipment -

- Do not disable the power cord grounding plug. The grounding plug is an important safety feature.
 - Plug the power cord into a grounded (earthed) outlet that is easily accessible at all times.
 - Disconnect the power from the appliance by unplugging the power cord from either the electrical outlet or the appliance.
-

To install the DSR1021 switch hardware:

1. Remove the DSR1021 switch from the packing material.
 2. Connect a terminal or PC running terminal emulation software (such as HyperTerminal®) to the SETUP port on the back panel of the DSR1021 switch using the supplied null modem cable. The terminal should be set to 9600 baud, 8 bits, 1 stop bit, no parity and no flow control.
 3. Plug the supplied power cord into the back of the DSR1021 switch and then into an appropriate power source.
 4. When the power is switched on, the Power indicator on the front of the appliance will blink for approximately 30 seconds while performing a self-test. Approximately 10 seconds after it stops blinking, press the **Enter** key to access the main menu.
-

NOTE: The DSR1021 switch may be rack mounted in a 1U configuration. The DSR1021 switch does not support a 0U configuration.

To configure the DSR1021 switch hardware:

1. You will see the Terminal Applications menu with ten options. Select option 1, *Network Configuration*.

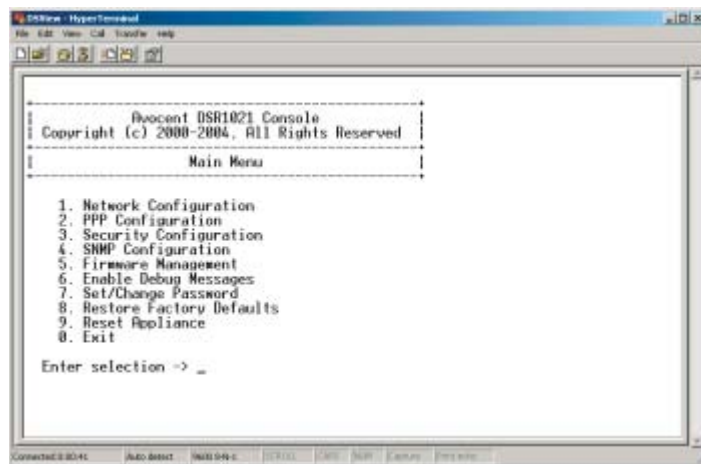


Figure 2.3: Network Configuration Menu

2. Select option 1 to set your network speed. When possible, you should set your connection manually without relying on the auto negotiate feature. Once you enter your selection, you will be returned to the Network Configuration menu.
3. Select option 2 and specify if you are using a static or Dynamic Host Configuration Protocol (DHCP) address. A static IP address may be used to provide a user-defined IP address, netmask and default gateway for the DSR1021 switch.

DHCP is a protocol that automates the configuration of TCP/IP-enabled computers. When DHCP is selected, the IP Address, Netmask and Default Gateway settings are automatically assigned to the DSR1021 switch and may not be modified by a DS user. If you are using the DHCP option, please configure your DHCP server to provide an IP address to the DSR1021 switch, skip step 4 and continue to the next procedure.

4. Select options 5-6 from the Terminal Applications menu, in turn, to finish configuring your DSR1021 switch for IP address, netmask, default gateway and ping response. Once this is completed, type a **Ø** and press **Enter** to return to the main menu.

Adjusting mouse settings on target machines

NOTE: We highly recommend that all Windows systems attached to the DSR1021 switch use the default Windows PS/2 mouse driver.

Before a PC running Windows NT, 2000 or XP that is connected to the DSR1021 switch may be used for remote user control, an adjustment to the target mouse's Motion tab must be made. Use the default Microsoft® Windows PS/2 mouse driver for all Microsoft Windows systems attached to the appliance.

For Microsoft Windows NT (using default drivers):

1. From the Desktop, select *Start - Settings - Control Panel - Mouse*. The Mouse Properties dialog box will appear.
2. Click on the *Motion* tab.
3. Set the Pointer speed to *Slow*. This will also need to be done for any NT user account that will be accessing the NT system through the DSR1021 switch.
4. Set Acceleration to *None* for mouse sync.
5. Click *OK*.
6. Click *Mouse Align* in the DSView software remote session window(s) to resynchronize the mouse.

For Windows 2000 (using default drivers):

1. From the Desktop, select *Start - Settings - Control Panel - Mouse*. The Mouse Properties dialog box will appear.
2. Click on the *Motion* tab.
3. Set Speed to the default of 50% (the sixth tick mark from the left).
4. Set Acceleration to *None* for mouse sync.
5. Click *OK*.
6. Click *Mouse Align* in the DSView software remote session window(s) to resynchronize the mouse.

For Windows XP or Windows Server 2003 (using default drivers):

1. From the Desktop, select *Start - Control Panel - Mouse*. The Mouse Properties dialog box will appear.
2. Click on the *Pointer Options* tab.
3. Set Speed to the default of 50% (the sixth tick mark from the left).
4. Uncheck the *Enhance pointer precision* checkbox.
5. Click *OK*.
6. Click *Mouse Align* in the DSView software remote session window(s) to resynchronize the mouse.

For IntelliPoint drivers:

1. From the Desktop, select *Start - Settings - Control Panel - Mouse*. The Mouse Properties dialog box will appear.
2. Click on the *Pointer Options* tab.
3. Set the speed setting to the default, which is the midpoint of the Pointer Speed slider (five tick marks on each side of the slider).
4. Click *Advanced*. The Advanced Pointer Speed dialog box will appear.
5. Uncheck the *Enable pointer acceleration* checkbox, then click *OK* to close the dialog box.
6. Click *OK* to close the Mouse Properties dialog box.
7. Click *Mouse Align* in the DSView software remote session window(s) to resynchronize the mouse.

For Red Hat® Linux® drivers:

1. From the Desktop Controls, select the mouse settings.
2. Set acceleration to 1.0 and apply the changes.
3. Click *Mouse Align* in the DSView software remote session window(s) to resynchronize the mouse.

For Sun Solaris™ drivers:

NOTE: To use a Sun Solaris driver, you must upgrade the DS Management Software suite to version 1.0.9.202 or later on your host system and DSR1021 switch firmware to version 1.0.0.106 or later. See *Installation* in the DSView Installer/User Guide for information on upgrading the DS Management Software Suite. See *Appendix A* for information on upgrading DSR1021 switch firmware.

1. From the Solaris Common Desktop Environment (CDE) front panel, select *File Manager - Applications*. The Application Manager will appear.
2. From the Application Manager, double-click *Desktop_Controls*. The Application Manager - Desktop_Controls will appear.
3. From the Application Manager - Desktop_Controls, double-click *Mouse Style Manager*. The Style Manager Mouse dialog box will appear.
4. Set Acceleration to 1.0 for mouse sync.
5. Click *OK*.
6. In the DSView software remote session windows, select *Video - Scaling - Auto Scale*.
7. In the DSView software remote session windows, select *Mouse - Scale*. The Mouse Scaling dialog box will appear.
8. In the Scaling Type area, select *Normal*, then click *OK*.
9. Click *Mouse Align* in the DSView software remote session window(s) to resynchronize the mouse.

To connect a DSRIQ module to each server:

1. Attach the appropriately color-coded connectors of a DSRIQ module to the keyboard, monitor and mouse ports on the first server you will be connecting to this DSR1021 switch.
2. Attach one end of the CAT 5 cabling that will run from your DSRIQ module to the DSR1021 switch to the RJ-45 connector on the DSRIQ module.

3. Connect the other end of the CAT 5 cable to the desired port on the back of your DSR switch.
4. Repeat this step for all servers you wish to attach.

NOTE: When connecting a Sun DSRIQ module, you must use a multi-sync monitor to accommodate Sun computers that support both VGA and sync-on-green or composite sync.

NOTE: Power down the DSR1021 switch before servicing. Always disconnect the power cord from the wall outlet.

To connect serial devices to the DSR1021 switch:

1. Attach the DSRIQ-SRL module 9-pin serial connector to the serial port of the device to be connected to your DSR1021 switch.
2. Attach one end of the CAT 5 cable to the RJ-45 connector on the DSRIQ-SRL module. Connect the other end of the CAT 5 cable to the desired port on the back of your DSR1021 switch.

NOTE: The DSRIQ-SRL module is a DCE device and only supports VT100 terminal emulation.

3. Connect the power supply to the power connector on your DSRIQ-SRL module. The cable expander can be used to power up to four DSRIQ-SRL modules from a single power supply.
4. Connect the DSRIQ-SRL module power supply to an appropriate AC wall outlet. Power up your serial device. See *Appendix C* for more information on DSRIQ-SRL modules.

To connect the local port keyboard, monitor and mouse:

Attach your keyboard, monitor and mouse cable connectors to the appropriate ports on the back of your DSR1021 switch.

NOTE: You must install both a keyboard and mouse on the local port or the keyboard will not initialize properly.

To connect and power up your DSR1021 switch:

1. Power down all servers that will be part of your DSR switching system. Locate the power cord that came with the DSR1021 switch. Plug one end into the power socket on the rear of the DSR1021 switch. Plug the other end into an appropriate AC wall outlet.
2. Plug your VGA monitor, keyboard and PS/2 mouse cables into appropriately labeled DSR1021 switch ports.

3. Choose an available port on the rear of your DSR1021 switch. Plug one end of a CAT 5 cable (4-pair, up to 10 meters) into a numbered port and plug the other end into the RJ-45 connector of a DSRIQ module.
4. Plug the DSRIQ module into the appropriate ports on the back of the server. Repeat this procedure for all servers that are to be connected to the DSR1021 switch.
5. Plug a CAT 5 cable from your Ethernet network into the LAN connector on the back of your DSR1021 switch. Network users will access the DSR appliance through this port.
6. (Optional) The DSR1021 switch may also be accessed using a ITU V.92, V.90 or V.34-compatible modem. Plug a 9-pin serial cable into the MODEM connector on the back of your DSR1021 switch. Plug the other end into the connector on the back of the modem.

NOTE: Using a modem connection instead of a LAN connection will limit the performance capability of your DSR1021 switch.

7. (Optional) Plug one end of the cable supplied with the SPC power control device into the SPC connector on the DSR1021 switch and plug the other end into an SPC device. Plug the power cords from the target servers into the SPC device power outlets. Plug the SPC device into an appropriate AC wall outlet.
8. Power up each target server and then power up the DSR1021 switch.

To install your DSR software:

See the *DSView Installer/User Guide* that ships with your software.

NOTE: Your software registration key will be necessary for installing the DSAuth Server used with your DSR1021 switch.



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Local Port Operation

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Chapter 3: Local Port Operation

Controlling Your System at the Local Port

The DSR1021 switch includes a local port on the back of the appliance. This port allows you to connect a keyboard, monitor and mouse to the appliance for direct access. The DSR1021 switch uses the OSCAR® graphical user interface, which has intuitive menus to configure your system and select computers. Computers can be identified by name or number, allowing you to customize server names.

Viewing and Selecting Ports and Servers

Use the Main dialog box to view, configure and control servers in the DSR switching system. You may view your servers by name, port or by the unique Electronic ID number (EID) embedded in each DSRIQ module. You will see an OSCAR interface-generated port list by default when you first launch the OSCAR interface.

The Port column indicates the port to which a server is connected.

To access the Main dialog box:

Press **Print Screen** to launch the OSCAR interface. The Main dialog box will appear.







Figure 3.1: Main Dialog Box

Viewing the status of your DSR switching system

The status of servers in your system is indicated in the far right columns of the Main dialog box. The following table describes the status symbols.

OSCAR Interface Status Symbols

Symbol	Description
	(green circle) Server connected, powered up and the DSRIQ module is online.
	(red X) Connected server is powered down or is not operating properly and the DSRIQ module is offline.
	(yellow circle) The designated DSRIQ module is being upgraded. When this symbol displays, do not cycle power to the DSR1021 switch or connected servers and do not disconnect DSRIQ modules. Doing so may render the module permanently inoperable and require the DSRIQ module to be returned to the factory for repair.
	(green letter) DSRIQ module is being accessed by the indicated user channel.

Selecting servers and serial devices

Use the Main dialog box to select servers and serial devices. When you select a server or serial device, the DSR1021 switch reconfigures the keyboard and mouse to the settings for the selected server or serial device.

To select servers or serial devices:

Double-click the server or serial device name, EID or port number.

-or-

If the display order of your list is by port (*Port* button is depressed), type the port number and press **Enter**.

-or-

If the display order of your list is by name or EID (*Name* or *EID* button is depressed), type the first few letters of the name of the server or serial device, or the EID number to establish it as unique, and press **Enter**.

To select the previous server or serial device:

Press **Print Screen** and then **Backspace**. This key combination toggles you between the previous and current connections.

To disconnect from a server or serial device:

Press **Print Screen** and then **Alt+Ø**. This leaves the user in a free state, with no server or serial device selected. The status flag on your desktop displays *Free*.

Soft switching

Soft switching is the ability to switch servers using a hotkey sequence. You can soft switch to a server by pressing **Print Screen** and then typing the first few characters of its name or number. If you have set a Screen Delay Time and you press the key sequences before that time has elapsed, the OSCAR interface will not display.

To configure servers for soft switching:

1. Press **Print Screen** to launch the OSCAR interface. The Main dialog box appears.
2. Click *Setup - Menu*. The Menu dialog box appears.
3. For Screen Delay Time, type the number of seconds of delay desired before the Main dialog box is displayed after **Print Screen** is pressed.
4. Click *OK*.

To soft switch to a server:

1. To select a server, press **Print Screen**. If the display order of your server list is by port (*Port* button is depressed), type the port number and press **Enter**.
-or-
If the display order of your server list is by name (*Name* button is depressed), type the first few letters of the name of the server to establish it as unique, and press **Enter**.
2. To switch back to the previous server, press **Print Screen** then **Backspace**.

Navigating the OSCAR Interface

This table describes how to navigate the OSCAR interface using the keyboard and mouse.

OSCAR Interface Navigation Basics

This Keystroke	Does This
Print Screen	Opens the OSCAR interface. Press Print Screen twice to send the Print Screen keystroke to the currently selected DSRIQ module.
F1	Opens the Help screen for the current dialog box.

OSCAR Interface Navigation Basics (continued)

This Keystroke	Does This
Escape	Closes the current dialog box without saving changes and returns to the previous one. If the Main dialog box is displayed, pressing Escape closes the OSCAR interface and displays a status flag if status flags are enabled. See <i>Controlling the Status Flag</i> in this chapter for more information. In a message box, it closes the pop-up box and returns to the current dialog box.
Alt	Opens dialog boxes, selects or checks options and executes actions when used with underlined or other designated letters.
Alt+X	Closes the current dialog box and returns to the previous one.
Alt+O	Selects the <i>OK</i> button, then returns to the previous dialog box.
Enter	Completes a switch operation in the Main dialog box and exits the OSCAR interface.
Single-click, Enter	In a text box, it selects the text for editing and enables the Left and Right Arrow keys to move the cursor. Press Enter again to quit the edit mode.
Print Screen, Backspace	Toggles back to previous selection.
Print Screen, Alt+Ø	Immediately disengages user from a server; no server is selected. Status flag displays <i>Free</i> . (This only applies to the Ø on the keyboard and not the keypad.)
Print Screen, Pause	Immediately turns on screen saver mode and prevents access to that specific console, if it is password protected.
Up/Down Arrows	Moves the cursor from line to line in lists.
Right/Left Arrows	Moves the cursor between columns. When editing a text box, these keys move the cursor within the column.
Page Up/Page Down	Pages up and down through Help pages.
Home/End	Moves the cursor to the top or bottom of a list.
Backspace	Erases characters in a text box.
Delete	Deletes current selection in the scan list or characters in a text box.
Shift-Del	Deletes from the current selection to the end of the list when editing a scan list.
Numbers	Type from the keyboard or keypad.

Configuring OSCAR Interface Menus

You can configure your DSR switching system from the Setup menu within the OSCAR interface. Select the *Names* button when initially setting up your DSR switching system to identify servers by unique names. Select the other setup features to manage routine tasks for your servers from the OSCAR interface menu.

Setup Features to Configure the OSCAR Interface

Feature	Purpose
Menu	Change the server list between numerical by port or EID number and alphabetical by name Change the Screen Delay Time before the OSCAR interface displays after pressing Print Screen
Flag	Change display, timing, color or location of the status flag
Broadcast	Simultaneously send mouse movements and keystrokes to multiple servers
Scan	Set up a custom scan pattern for up to eight servers
Security	Set passwords to protect or restrict server access Enable the screen saver
Keyboard	Set the keyboard country code to send to Sun servers
Names	Identify servers by unique names

To access the Setup menu:

1. Press **Print Screen** to launch the OSCAR interface. The Main dialog box appears.
2. Click *Setup*. The Setup dialog box appears.



Figure 3.2: Setup Dialog Box

Assigning server or serial device names

Use the Names dialog box to identify servers or serial devices by name rather than by port number. The Names list is always sorted by port order. You can toggle between displaying the name or the EID number of each DSRIQ module, so even if you move the module/server/serial device to another port, the name and configuration will be recognized by the appliance.

NOTE: If a server is turned off, its respective DSRIQ module will not appear in the Names list.

To access the Names dialog box:

1. If the OSCAR interface is not open, press **Print Screen**. The Main dialog box appears.
2. Click *Setup - Names*. The Names dialog box appears.



Figure 3.3: Names Dialog Box

NOTE: If new DSRIO modules are discovered by the DSR1021 switch, the on-screen list will be automatically updated. The mouse cursor will change into an hourglass during the update. No mouse or keyboard input will be accepted until the list update is complete.

To assign names to servers or serial devices:

1. In the Names dialog box, select a server or serial device name or port number and click *Modify*. The Name Modify dialog box appears.

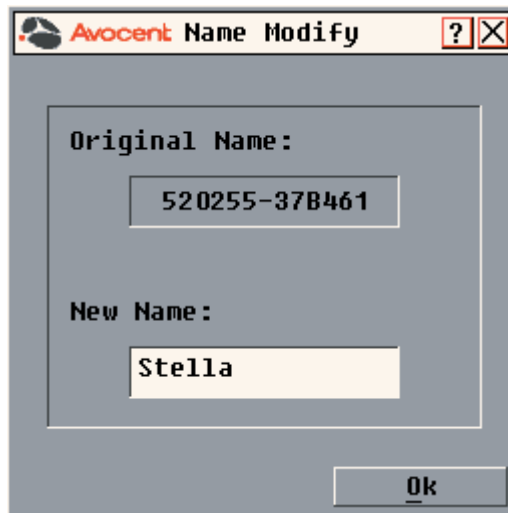


Figure 3.4: Name Modify Dialog Box

2. Type a name in the New Name box. Names of servers or serial devices may be up to 15 characters long. Legal characters include: A-Z, a-z, Ø-9, space and hyphen.
3. Click *OK* to transfer the new name to the Names dialog box. Your selection is not saved until you click *OK* in the Names dialog box.
4. Repeat steps 1-3 for each server or serial device in the system.
5. Click *OK* in the Names dialog box to save your changes.
-or-
Click *X* or press **Escape** to exit the dialog box without saving changes.

NOTE: If a DSRIQ module has not been assigned a name, the EID is used as the default name.

To list servers alphabetically by name:

Press **Alt+N** or click *Name* in the Main dialog box.

Changing the Display Behavior

Use the Menu dialog box to change the display order of servers and set a Screen Delay Time for the OSCAR interface. The display order setting alters how servers will display in several screens including the Main and Broadcast dialog boxes.

To access the Menu dialog box:

1. Press **Print Screen** to launch the OSCAR interface. The Main dialog box appears.
2. Click *Setup - Menu* in the Main dialog box. The Menu dialog box appears (see *Figure 3.5*).

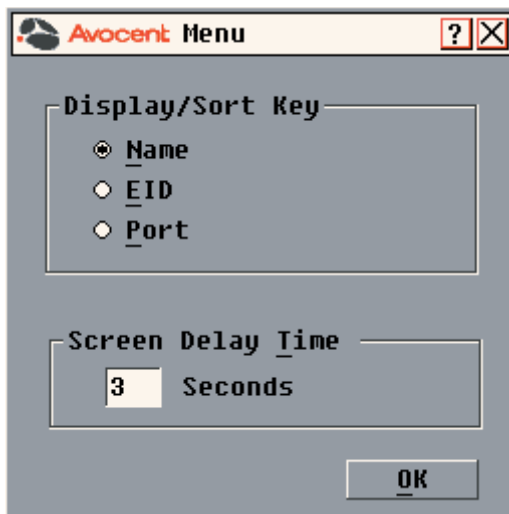


Figure 3.5: Menu Dialog Box

To choose the display order of servers:

1. Select *Name* to display servers alphabetically by name.
-or-
Select *EID* to display servers numerically by EID number.
-or-
Select *Port* to display servers numerically by port number.
2. Click *OK*.

Depending on the display method selected, the corresponding button will be depressed in the Main dialog box.

To set a Screen Delay Time for the OSCAR interface:

1. Type in the number of seconds (0-9) to delay the OSCAR interface display after you press **Print Screen**. Entering 0 will instantly launch the OSCAR interface with no delay.
2. Click *OK*.

Setting a Screen Delay Time allows you to complete a soft switch without the OSCAR interface displaying. To perform a soft switch, see *Soft switching* in this chapter.

Controlling the Status Flag

The status flag displays on your desktop and shows the name or EID number of the selected server or the status of the selected port. Use the Flag dialog box to configure the flag to display by server name or EID number, or to change the flag color; opacity, display time and location on the desktop.

OSCAR Interface Status Flags

Flag	Description
Barrell	Flag type by name
520255-73F344	Flag type by EID number
Free	Flag indicating that the user has been disconnected from all systems
Barrell →	Flag indicating that broadcast mode is enabled

To access the Flag dialog box:

1. If the OSCAR interface is not open, press **Print Screen**. The Main dialog box will appear.
2. Click *Setup - Flag*. The Flag dialog box appears.



Figure 3.6: Flag Dialog Box

To determine how the status flag is displayed:

1. Select *Name* or *EID* to determine what information will be displayed.
2. Select *Displayed* to show the flag all the time or select *Timed* to display the flag for only five seconds after switching.

3. Select a flag color in *Display Color*. The following flag colors are available:
 - *Flag 1* - Grey flag with black text
 - *Flag 2* - White flag with red text
 - *Flag 3* - White flag with blue text
 - *Flag 4* - White flag with violet text
4. In Display Mode, select *Opaque* for a solid color flag or select *Transparent* to see the desktop through the flag.
5. To position the status flag on the desktop:
 - a. Click *Set Position* to gain access to the Position Flag screen.



Figure 3.7: Position Flag

- b. Left-click on the title bar and drag to the desired location.
- c. Right-click to return to the Flag dialog box.

NOTE: Changes made to the flag position are not saved until you click *OK* in the Flag dialog box.

6. Click *OK* to save settings.
-or-
Click *X* to exit without saving changes.

Broadcasting to Servers

The local user can simultaneously control multiple servers in a system to ensure that all selected servers receive identical input. You can choose to broadcast keystrokes and/or mouse movements independently.

NOTE: You can broadcast to as many as eight servers at a time, one server per port.

To access the Broadcast dialog box:

1. If the OSCAR interface is not open, press **Print Screen**. The Main dialog box will appear.
2. Click *Setup - Broadcast*. The Broadcast dialog box appears.



Figure 3.8: Broadcast Dialog Box

NOTE: Broadcasting Keystrokes - The keyboard state must be identical for all servers receiving a broadcast to interpret keystrokes identically. Specifically, the **Caps Lock** and **Num Lock** modes must be the same on all keyboards. While the appliance attempts to send keystrokes to the selected servers simultaneously, some servers may inhibit and thereby delay the transmission.

Broadcasting Mouse Movements - For the mouse to work accurately, all systems must have identical mouse drivers, desktops (such as identically placed icons) and video resolutions. In addition, the mouse must be in exactly the same place on all screens. Because these conditions are extremely difficult to achieve, broadcasting mouse movements to multiple systems may have unpredictable results.

To broadcast to selected servers:

- From the Broadcast dialog box, select the mouse and/or keyboard checkboxes for the servers that are to receive the broadcast commands.
-or-
Press the **Up** or **Down Arrow** keys to move the cursor to the target server. Then press **Alt+K** to select the keyboard checkbox and/or **Alt+M** to select the mouse checkbox. Repeat for additional servers.
- Click **OK** to save the settings and return to the Setup dialog box. Click **X** or press **Escape** to return to the Main dialog box.
- Click **Commands**. The Commands dialog box appears.
- Click the **Broadcast Enable** checkbox to activate broadcasting.
- From the user station, type the information and/or perform the mouse movements you want to broadcast.

To turn broadcasting off:

From the Commands dialog box, clear the *Broadcast Enable* checkbox.

Using Scan Mode

In scan mode, the DSR1021 switch automatically scans from port to port (server to server). You can scan up to eight servers, specifying which servers to scan and the number of seconds that each server will display. The scanning order is determined by placement of the server in the list. The list is always shown in scanning order. You can, however, choose to display the server's name or EID number by pressing the appropriate button.

NOTE: Scanning is only available to the local user.

To add servers to the scan list:

1. If the OSCAR interface is not open, press **Print Screen**. The Main dialog box will appear.
2. Click *Setup - Scan*. The Scan dialog box appears.

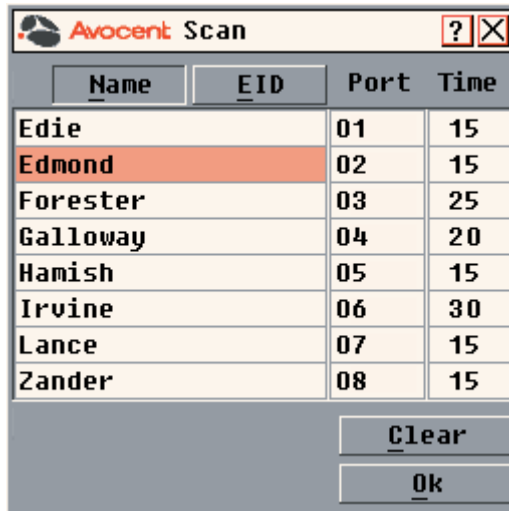


Figure 3.9: Scan Dialog Box

3. Determine the order within the list to add the server. If there are no servers in the scan list, your cursor will appear in a blank line at the top of the list.
-or-
To add a server to the end of the list, place your cursor in the last server entry and press the **Down Arrow** key.
-or-

To add a server in the midst of an existing list, place your cursor in the line below where you want to insert a new server and press **Insert**.

4. Type the first few characters of a server name or port number to scan. The first matching server will appear in the line.
-or-
To move through the list, press the following keyboard commands in the Name, Port or Time column to move through the list of servers available to scan.
 - a. Press **Alt+Down Arrow** to move the cursor down through the list of servers.
 - b. Press **Alt+Up Arrow** to move the cursor up through the list of servers.
 - c. Press **Alt+Home** to move the cursor to the first server in the list.
 - d. Press **Alt+End** to move the cursor to the last server in the list.
5. In the Time column, type the number of seconds (from 3-255) of desired time before the scan moves to the next server in the sequence.
6. Move the cursor to the next line or press **Down Arrow** and repeat steps 2-5 for each of the remaining servers to be included in the scan pattern.
7. Click *OK*.

To remove a server from the scan list:

1. In the Scan dialog box, click the server to be removed.
2. Press **Delete**.
-or-
Press **Shift+Delete** to remove the selected server and all entries below it.
3. Click *OK*.

To start the scan mode:

1. If the OSCAR interface is not open, press **Print Screen**. The Main dialog box will appear.
2. Click *Commands*. The Commands dialog box appears.

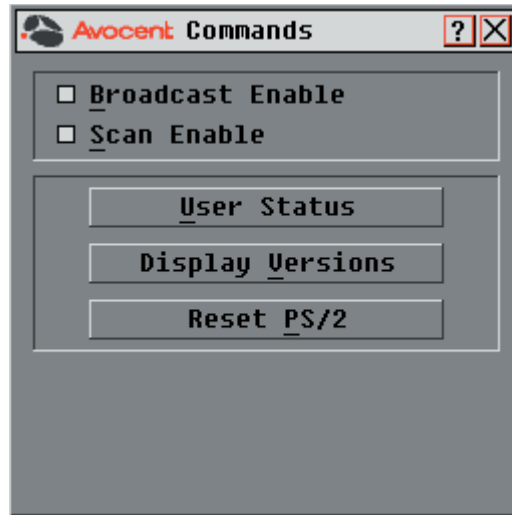


Figure 3.10: Commands Dialog Box

3. Select *Scan Enable* in the Commands dialog box.
4. Click *X* to close the Commands dialog box.

NOTE: Scanning will begin as soon as the scan button is checked.

To cancel scan mode:

1. Select a server if the OSCAR interface is open.
-or-
Move the mouse or press any key on the keyboard if the OSCAR interface is not open. Scanning will stop at the currently selected server.
-or-
If the OSCAR interface is not open, press **Print Screen**. The Main dialog box will appear.
2. Click *Commands*. The Commands dialog box appears.
3. Clear *Scan Enable*.

Setting Console Security

Use the Security dialog box to set security on your local port console. You can establish a screen saver mode that engages after your console remains unused for a specified Inactivity Time. Once engaged, your console will remain locked until you press any key or move the mouse. You will then need to type in your password to continue.

Use the Security dialog box to lock your console with password protection, set or change your password and enable the screen saver.

NOTE: If a password has been previously set, you will have to enter the password before you can access the Security dialog box.

To access the Security dialog box:

1. If the OSCAR interface is not open, press **Print Screen**. The Main dialog box will appear.
2. Click *Setup - Security*. The Security dialog box appears.

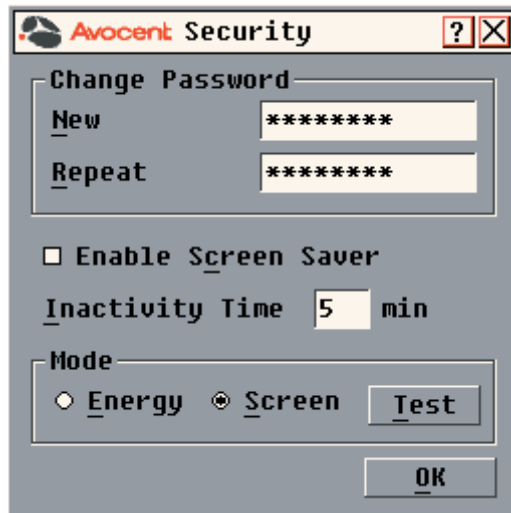


Figure 3.11: Security Dialog Box

To set or change the password:

1. Single-click and press **Enter** or double-click in the New text box.
2. Type the new password in the New text box and press **Enter**. Passwords must contain both alpha and numeric characters, are case sensitive and may be up to 12 characters long. Legal characters are: A-Z, a-z, 0-9, space and hyphen.
3. In the Repeat box, type the password again and press **Enter**.
4. Click *OK* to change only your password, and then close the dialog box.

NOTE: If you should lose or forget your password, you will need to return your switch to have it reset to the factory default setting. See *Appendix G: Technical Support* for contact information.

**To password protect your console:**

1. Set your password as described in the previous procedure.
2. Select *Enable Screen Saver*.
3. Type the number of minutes for Inactivity Time (from 1-99) to delay activation of password protection and the screen saver feature.
4. For Mode, select *Energy* if your monitor is ENERGY STAR® compliant; otherwise select *Screen*.

CAUTION: Monitor damage can result from the use of Energy mode with monitors not compliant with ENERGY STAR®.

5. (Optional) Click *Test* to activate the screen saver test which lasts 10 seconds then returns you to the Security dialog box.
6. Click *OK*.

To log in to your console:

1. Press any key or move the mouse.
2. The Password dialog box appears. Type your password, and then click *OK*.
3. The Main dialog box appears if the password was entered correctly.

To remove password protection from your console:

1. From the Main dialog box, click *Setup - Security*; the Password dialog box appears. Type your password, and then click *OK*.
2. In the Security dialog box, single-click and press **Enter** or double-click in the New box. Leave the box blank. Press **Enter**.
3. Single-click and press **Enter** or double-click in the Repeat box. Leave the box blank. Press **Enter**.
4. Click *OK* to eliminate your password.

To enable the screen saver mode with no password protection:

1. If your console does not require a password to gain access to the Security box, go to step 2.
-or-
If your console is password protected, see the previous procedure, then go to step 2.
2. From the Main dialog box, click *Setup - Security*. The Security dialog box will appear.
3. Select *Enable Screen Saver*.



4. Type the number of minutes for Inactivity Time (from 1–99) to delay activation of the screen saver.
5. Choose *Energy* if your monitor is ENERGY STAR compliant; otherwise select *Screen*.

CAUTION: Monitor damage can result from the use of Energy Mode with monitors not compliant with ENERGY STAR®.

6. (Optional) Click *Test* to activate the screen saver test which lasts 10 seconds then returns you to the Security dialog box.
7. Click *OK*.

NOTE: Activation of the screen saver mode disconnects the user from a server; no server is selected. The status flag displays *Free*.

To exit the screen saver mode:

Press any key or move your mouse. Any previous server connection will be restored.

To turn off the screen saver:

1. From the Main dialog box, click *Setup - Security*. The Security dialog box will appear.
2. In the Security dialog box, clear *Enable Screen Saver*.
3. Click *OK*.

To immediately turn on the screen saver:

Press **Print Screen**, then press **Pause**. This command only works when the user is connected to a server.

Setting the Keyboard Country Code

NOTE: Using a keyboard code that supports a language different from that of your DSR switch firmware will cause incorrect keyboard mapping.

Sun servers may use key mappings for non-US keyboards. By default, the DSR1021 switch sends the US keyboard country code to Sun and USB modules attached to servers, and the code is applied to the servers when they are powered up or rebooted. Codes are then stored in the DSRIQ module.

Issues may arise when you use the US keyboard country code with a keyboard of another country. For example, the **Z** key on a US keyboard is in the same location as the **Y** key on a German keyboard. Sun servers will interpret pressing the **Y** key on a German keyboard as pressing the **Z** key when the US keyboard country code is used.

The Keyboard command enables you to send a different keyboard country code than the default US setting. The specified country code is sent to all servers attached to the DSR1021 switches when they are powered up or rebooted, and the new code is stored in the DSRIQ module.

NOTE: If a DSRIQ module is moved to a different server, the keyboard country code will need to be reset.

See *Appendix F* for information on emulating certain Sun keys using a PS/2 keyboard and special considerations for Japanese and Korean Sun USB keyboards.

NOTE: Only local users can view or change keyboard country code settings.

To set the keyboard country code for Sun servers:

1. If the OSCAR interface is not open, press **Print Screen**. The Main dialog box will appear.
2. Click *Setup - Keyboard*. The Keyboard dialog box appears.



Figure 3.12: Keyboard Dialog Box

3. Select a country code and click *OK*.
4. Reboot the Sun servers. After rebooting, each Sun server will request the country code setting stored in the DSRIQ module.

NOTE: If you wish to reboot the servers by power-cycling them, you must wait 90 seconds before rebooting. A soft reboot may be performed without waiting 90 seconds.

Managing Server Tasks Using the OSCAR Interface

From the OSCAR interface Commands menu, you can manage your DSR switching system and user connections, engage the scan and broadcast modes and update your firmware.

Commands to Manage Routine Tasks for Your Servers

Feature	Purpose
Broadcast Enable	Begin broadcasting to your servers. Configure a server list for broadcasting under the Setup dialog box.
Scan Enable	Begin scanning your servers. Set up a server list for scanning in the Setup dialog box.
User Status	View and disconnect users.
Reset PS/2	Re-establish operation of PS/2 keyboard and mouse.
Display Versions	View version information for the DSR1021 switch as well as view and upgrade firmware for individual DSRIQ modules.

To access the Commands menu:

1. Press **Print Screen** to launch the OSCAR interface. The Main dialog box appears.
2. Click *Commands*. The Commands dialog box appears.



Figure 3.13: Commands Dialog Box

Viewing and Disconnecting User Connections

You can view and disconnect users through the User Status dialog box. The username (U) will always be displayed; however, you can display either the server name or EID number to which a user is connected. If there is no user currently connected to a channel, the user field will be blank and the server field will display *Free*.

To view current user connections:

1. If the OSCAR interface is not open, press **Print Screen**. The Main dialog box will appear.
2. Click *Commands - User Status*. The User Status dialog box appears.

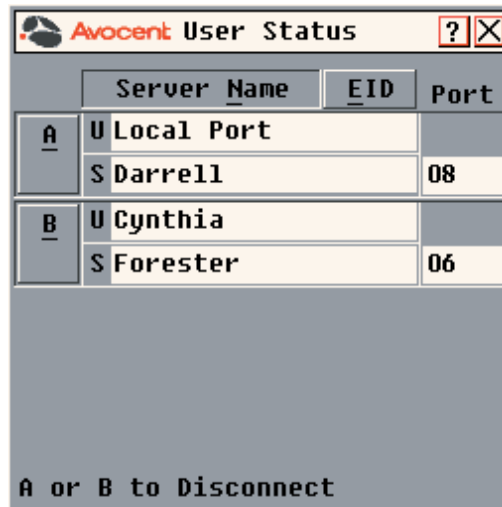


Figure 3.14: User Status Dialog Box

To disconnect a user:

1. If the OSCAR interface is not open, press **Print Screen**. The Main dialog box will appear.
2. Click *Commands - User Status*. The User Status dialog box appears.
3. Click the letter corresponding to the user to disconnect. The Disconnect dialog box will appear.



Figure 3.15: Disconnect Dialog Box

4. Click *OK* to disconnect the user and return to the User Status dialog box.
-or-
Click *X* or press **Escape** to exit the dialog box without disconnecting a user.

NOTE: If the User Status list has changed since it was last displayed, the mouse cursor will turn into an hourglass as the list is automatically updated. No mouse or keyboard input will be accepted until the list update is complete.

Resetting Your PS/2 Keyboard and Mouse

If your PS/2 keyboard or mouse locks up, you may be able to re-establish operation of these peripherals by issuing a reset command. The reset command sends a hot-plug sequence to the server which causes the mouse and keyboard settings to be sent to the DSR1021 switch. With communication re-established between the server and the DSR1021 switch, functionality is restored to the user.

NOTE: This function is for Microsoft Windows-based computers only. Resetting the PS/2 on a server running any other operating system may require that you reboot that server.

To reset the PS/2 mouse and keyboard values:

1. If the OSCAR interface is not open, press **Print Screen**. The Main dialog box will appear.
2. Click *Commands - Reset PS/2*. A message box displays requesting that you confirm the reset. Click *OK*.
 - a. A message appears indicating that the mouse and keyboard have been reset.

- b. Click *X* to close the message box.

-or-

Click *X* or press **Escape** to exit without sending a reset command to the PS/2 mouse and keyboard.

Displaying Version Information

The OSCAR interface enables you to display the version number of the appliance firmware and any auxiliary devices connected to the appliance. This information facilitates system troubleshooting and support. For optimum performance, keep your firmware current.

To display version information:

1. If the OSCAR interface is not open, press **Print Screen**. The Main dialog box will appear.
2. Click *Commands - Display Versions*. The Version dialog box appears. The top half of the box lists the subsystem versions in the DSR1021 switch.



Figure 3.16: Version Dialog Box

3. Click *DSRIQ* (see *Figure 3.16*) to view individual DSRIQ module version information. The DSRIQ Selection dialog box appears.

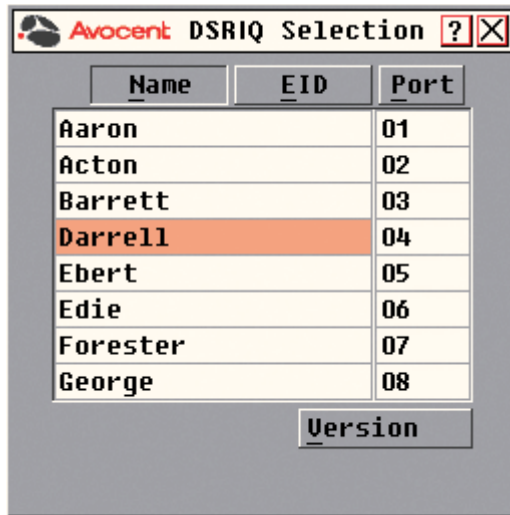


Figure 3.17: DSRIQ Selection Dialog Box

4. Select a DSRIQ module to view and click the *Version* button. The DSRIQ Version dialog box appears. For more information on loading firmware, see *Appendix A*.



Figure 3.18: DSRIQ Version Dialog Box

5. Click *X* to close the DSRIQ Version dialog box.



4

Terminal Operations

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Chapter 4: Terminal Operations

Accessing the Terminal Applications Menu

Each DSR1021 switch may be configured at the appliance level through the SETUP port on the back of the switch. All terminal commands are accessed through a terminal or PC running terminal emulation software.

To access the Terminal Applications menu:

1. Connect a terminal or PC running terminal emulation software (such as HyperTerminal) to the SETUP port on the back panel of the DSR switch using the supplied null modem cable. The terminal should be set to 9600 baud, 8 bits, 1 stop bit, no parity and no flow control. The terminal may be connected at any time, even when the appliance is powered.
2. Press any key to access the Main menu.

Terminal Applications menu commands

The Terminal Applications menu of the DSR1021 switch features ten selections: Network Configuration, PPP Configuration, Security Configuration, SNMP Configuration, Firmware Management, Enable Debug Messages, Set/Change Password, Restore Factory Defaults, Reset Appliance and Exit. Each is discussed below.

Network Configuration

The DSR1021 switch is configured for network access through this option. When it is selected, you will have access to the addressing that allows the DSR1021 switch to be positioned in your network.

PPP Configuration

The DSR1021 switch contains an internal database that may be used when establishing a modem link to the appliance. The internal database provides DSView software remote authentication if the DSAuth Server is unavailable.

The PPP Configuration menu contains the following options:

- Enabling the adding, editing and deleting of users to the DSR1021 switch database
- Specifying the amount of time a DSR switch user has to log in during a remote operation over a modem connection before the connection is disconnected (the Authentication Timeout value)
- Specifying the amount of time a DSR switch user may remain inactive within a remote DSView software session over a modem connection before the modem connection is disabled (the Inactivity Timeout value)

When you use the options to add, edit or delete a user, a list of existing users will appear. You may enter **N** to display the next page of users in the database or enter **P** to go back to the previous page of users.

To add a user to the DSR1021 switch database:

1. Select the *PPP Configuration* menu option.
2. Select option 1, *Authentication Database*. A list of users already within the database will appear.
3. Enter **A**.
4. You will be prompted to enter the username to add. Type a username and press **Enter**.
5. You will be prompted to type a password for the user. Type a password and press **Enter**.
6. You will be prompted to re-type the password. Type the password again and press **Enter**.
7. Enter **Ø** to exit.

To rename a user in the DSR1021 switch database:

1. Select the *PPP Configuration* menu option.
2. Select option 1, *Authentication Database*. A list of users already within the database will appear.
3. Enter **E**.
4. You will be prompted to enter the number of the user you wish to rename. Type the user's number then press **Enter**.
5. You will be prompted to type a new username for the user. Type a new username and press **Enter**.
6. You will be prompted to re-type the password. Type the password again and press **Enter**.
7. Enter **Ø** to exit.

To remove a user from the DSR1021 switch database:

1. Select the *PPP Configuration* menu option.
2. Select option 1, *Authentication Database*. A list of users already within the database will appear.
3. Enter **D**.

4. You will be prompted to enter the number of the user you wish to delete. Type the user's number then press **Enter**.
5. You will be prompted to confirm deletion of the user from the DSR1021 switch database. Enter a **Y** to remove the user.
6. Enter **Ø** to exit.

To set an Authentication Timeout:

1. Select the *PPP Configuration* menu option.
2. Select option 2, *Authentication Timeout*.
3. Type a time-out value between 30-300 seconds and press **Enter**.
4. Enter **Ø** to exit.

To set an Inactivity Timeout:

1. Select the *PPP Configuration* menu option.
2. Select option 2, *Inactivity Timeout*.
3. Type a time-out value between 1-60 minutes and press **Enter**.
4. Enter **Ø** to exit.

Security Configuration

This menu option allows you to configure DSR switch authentication security. When it is selected, you will be given two menu options: Reset Authentication Tokens (certificates of server running DSAuth Server) and the connection status of the server running DSAuth Server.

The DSR switch operates in one of two modes: All or Secure. In the default All mode, the DSR1021 switch allows any server running the DSAuth Server to initiate a session between the DSR switch and DSView software. In secure mode, only one specific DSAuth Server is allowed to initiate this session; other DSAuth Servers are locked out.

NOTE: In secure mode, the ability to select a backup DSAuth Server through the DSView software is eliminated.

When a DSR1021 switch is added to the database with the DSAdmin management application, the appropriate DSAuth Server certificate is added to the DSR1021 switch automatically. If the DSAuth Server cannot contact the DSR1021 switch to add the certificate, an error message is displayed and the DSR1021 switch is not added to the database.

When the last reference to a DSR1021 switch is removed from the database, the DSAuth Server certificate is removed from the DSR1021 switch, which allows the DSR switch to be moved from one DSAuth Server to another. The DSAuth Server certificate can also be removed from the Security menu on the DSR1021 switch console port via the Reset Authentication Tokens option.

When the DSR1021 switch is in All mode, the DSAdmin management application displays a warning message when the DSR1021 switch is added to the database, stating that the certificate could not be installed. If you intend to operate in All mode, you may safely ignore this warning. Otherwise, you may wish to change the Security settings on the console port of the DSR1021 switch.

SNMP Configuration

This menu option allows you to enable SNMP and to specify parameters for SNMP operation. The following SNMP parameters may be configured:

- SNMP - Enables or disables SNMP
- Read community name - Specifies the community from which traps will be read
- Write community name - Specifies the community to which traps will be written
- Trap community name - Indicates the name of the community containing a trap
- Trap destination address (1-4) - Indicates the addresses of up to four trap hosts to which you want to send SNMP traps
- Trap configuration - Displays the SNMP Trap Configuration menu. You may select *Enable All Traps*, *Disable All Traps* or choose to enable or disable any of the following traps:

Cold Start - No display

Link Down - Displays the index of the Ethernet interface (Ethernet connections only)

Link Up - Displays the index of the Ethernet interface (Ethernet connections only)

SNMP Authentication Failure - No display

Reboot Started - Displays the username

Video Session Started - Displays the user, port and channel number

Video Session Stopped - Displays the user, port and channel number

Video Session Terminated - Displays the user who terminated the session, the user who was terminated, port and channel number

Local Port Viewing Started - Displays the local port

Local Port Viewing Stopped - Displays the local port

Local Port Viewing Terminated - Displays user who terminated the session and the local port

Image Upgrade Started - Displays the user who initiated the upgrade, the type of image being upgraded and the current and new image versions

DSRIQ Added - Displays the DSRIQ module EID and port number

DSRIQ Removed - Displays the DSRIQ module EID and port number

Subsystem Upgrade Started - Displays the DSRIQ module EID, port number and information on the subsystem being upgraded

Subsystem Restarted - Displays the DSRIQ module EID, port number and information on the upgraded subsystem

Screen Resolution Changed - Displays the user, port and channel numbers and the previous and current screen resolutions

SPC Device Online - Displays the SPC power control device location name and appliance port number for an SPC device that is detected to be online

SPC Device Offline - Displays the SPC device location name and appliance port number for an SPC device that is detected to be offline

SPC Login Error - Displays the user name, SPC device location name and appliance port number for an SPC device with an unsuccessful login

SPC Socket On - Displays the user name, SPC device location name, SPC socket (outlet) number, name or group and appliance port number for an SPC socket issued an off command

SPC Socket Off - Displays the user name, SPC device location name, SPC socket (outlet) number, name or group and appliance port number for an SPC socket issued an off command

SPC Socket Reboot - Displays the user name, SPC device location name, SPC socket (outlet) number, name or group and appliance port number for an SPC socket issued a reboot command

SPC Socket On Sense Fail - Displays the SPC device location name, SPC socket (outlet) number, name or group and appliance port number for an SPC socket that should be on but has an "off" status

SPC Socket Off Sense Fail - Displays the SPC device location name, SPC socket (outlet) number, name or group and appliance port number for an SPC socket that should be off but has an “on” status

SPC Total Load Too High - Displays the SPC device location name and appliance port number for an SPC device that has exceeded the total load high alarm

SPC Total Load Too Low - Displays the SPC device location name and appliance port number for an SPC device that is below the total load low alarm

SPC Status Socket On - Displays the SPC device location, SPC socket (outlet) number, name or group and appliance port number for an SPC socket that has been polled and found to have an “on” status

SPC Status Socket Off - Displays the SPC device location, SPC socket (outlet) number, name or group and appliance port number for an SPC socket that has been polled and found to have an “off” status

When you have configured SNMP, enter **Ø** to apply your changes. You will then be asked to confirm and returned to the main SNMP Configuration menu.

NOTE: The DSR1021 switch supports an SNMP MIB agent that provides read/write access to the MIB-II variables except for the External Gateway Protocol (EGP) group.

Firmware Management

This menu contains the FLASH Download selection. Use this selection to connect to Avocent and download the latest DSR1021 switch firmware. For more information see *Appendix A: FLASH Upgrades*.



CAUTION: Do not cycle power to the DSR1021 switch or connected servers, and do not disconnect DSRIQ modules during a FLASH upgrade. Doing so may render the module permanently inoperable and require the DSRIQ module to be returned to the factory for repair.

Enable Debug Messages

This menu option allows you to configure the DSR switch to display messages regarding the status of the DSR1021 switch. Once you select the level of detail you wish to receive, the DSR1021 switch will begin to display information on your Terminal Screen. When you are finished viewing, press any key to exit this mode.

Set/Change Password

The DSR1021 switch can be set to a secure mode where the Terminal Applications menu cannot be accessed without first entering a password.

To activate security:

1. Select the *Set/Change Password* menu option. You will be prompted to decide if you wish to continue. Enter a **Y**.
2. Type a password for this DSR1021 switch and press **Enter**. This password may be up to 14 characters long.
3. You will be prompted to re-type the password. Once you complete this step, security will be active and you will not be able to access DSR1021 switch terminal operations without the password.

To change the password:

1. Select the *Set/Change Password* menu option.
2. You will be prompted to type the old password and a new one.
3. Re-enter the new password to verify.



CAUTION: This password places your DSR1021 switch terminal in a secure mode. This password should be guarded like any network password and care should be taken to avoid forgetting or misplacing it. There are no means for recovering a lost password.

Restore Factory Defaults

This menu option will restore the Network Configuration, the Security Configuration and the SNMP Configuration options to the default settings.

Reset Appliance

This menu option allows you to execute a soft reset of the DSR1021 switch.

Exit

This menu selection will return you to the ready prompt.



Appendices

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Appendices

Appendix A: FLASH Upgrades

The DSRIQ module is unavailable while an upgrade is in progress. When an upgrade is initiated, any current connection to the server via the DSRIQ module will be terminated. If you are using DSAuth or DSView software, a server experiencing a DSRIQ module firmware update may not display, or may display as disconnected. The server will appear normally when the FLASH update is completed.

NOTE: Firmware can also be upgraded using the *File - Update Firmware* command in the DSAdmin management application software. See the DSView Installer/User Guide for more information.

NOTE: During an OSCAR interface-initiated upgrade, the DSRIQ module status indicator in the Main dialog box will be yellow.

The DSR1021 switch FLASH upgrade feature allows you to update your appliance with the latest firmware available. To perform this update, you will first need a Trivial File Transfer Protocol (TFTP) server. If you do not have a TFTP server, there are several shareware and freeware programs that you can download.



CAUTION: Disconnecting a DSRIQ module during a firmware update or cycling power to the server will render the module inoperable and require the DSRIQ module to be returned to the factory for repair.

To upgrade the DSR switch firmware using the Terminal Applications menu:

1. Visit <http://www.avocent.com/support> and download the latest FLASH firmware from Avocent. Save the FLASH upgrade file to the appropriate directory on the TFTP server.
2. Connect a terminal or PC running terminal emulation software (such as HyperTerminal) to the SETUP port on the back panel of the DSR1021 switch using the supplied null modem cable. The terminal should be set to 9600 baud, 8 bits, 1 stop bit, no parity and no flow control.
3. If the DSR1021 switch is not on, turn it on now. After approximately 10 seconds, press any key to access the Main menu.
4. You will see the Terminal Applications menu with ten options. Select option 5, *Firmware Management*.

NOTE: The current version of your firmware will be displayed on the Firmware Management screen.

5. Select option 1, *FLASH Download*.
6. Enter the IP address of your TFTP server and press **Enter**.
7. Enter the name of the file that you downloaded from the Avocent site.
8. Confirm the TFTP download by typing a **y** or **yes** and pressing **Enter**.
9. The DSR1021 switch will verify that the file you downloaded is valid. Next, you will be prompted to confirm the upgrade. Type a **y** or **yes** and press **Enter** to confirm.
10. The DSR1021 switch will begin the FLASH upgrade process. On-screen indicators will display the upgrade progress. When the upload is complete, the DSR1021 switch will reset and upgrade the internal subsystems.
11. Once the upgrade is complete, a verification message will appear on-screen.

Upgrading the DSRIQ module firmware

NOTE: During an OSCAR interface-initiated upgrade, the DSRIQ module status indicator in the Main dialog box will be yellow.

To upgrade DSRIQ module firmware individually using the OSCAR interface:

1. If the OSCAR interface is not open, press **Print Screen**. The Main dialog box will appear.
2. Click *Commands - Display Versions*. The Version dialog box appears.



Figure A.1: Version Dialog Box

- Click *DSRIQ* to view individual module version information. The DSRIQ Selection dialog box appears.

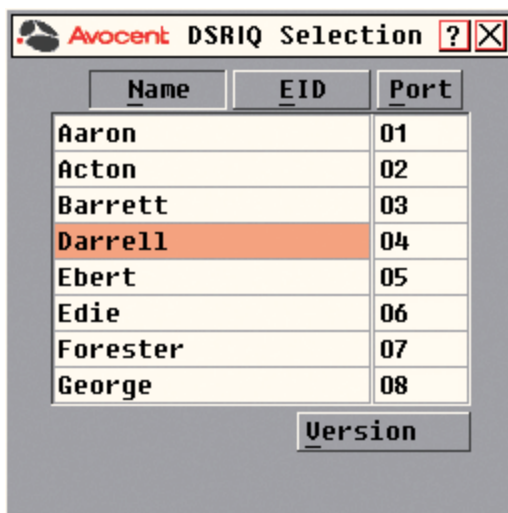


Figure A.2: DSRIQ Selection Dialog Box

- Select a DSRIQ module to upgrade and click the *Version* button. The DSRIQ Version dialog box appears.



Figure A.3: DSRIQ Version Dialog Box

- Click the *Load Firmware* button. The DSRIQ Load dialog box appears.

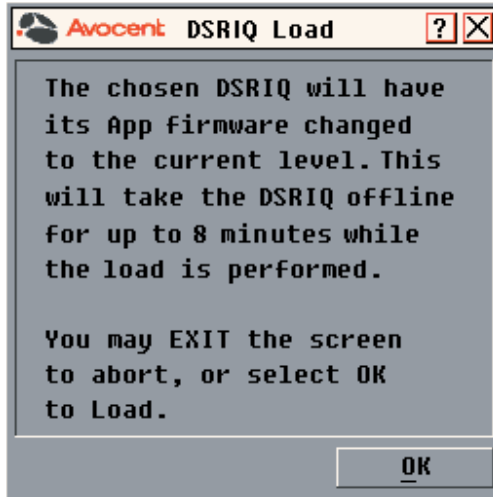


Figure A.4: DSRIQ Load Dialog Box

6. Click *OK* to initiate the upgrade.

Appendix B: Using the DSView Client Software Over a Modem Connection

An external modem may be attached to the DSR1021 switch. This modem may be used to access the appliance when an Ethernet connection is not available.

A modem/PPP dial-up connection must be established before the remote operation is enabled. The dial-up connection options should be set to 115200 baud, 8 bits, 1 stop bit, no parity and enabled hardware flow control. The remote operations must then be enabled within the Authentication Timeout specified in the Terminal Applications menu or the PPP link will be disconnected. See Chapter 4 for more information about setting the Authentication Timeout.

Once a modem dial-up connection is established, you select the DSView Client software window *Options - Remote Operations - Enable* command to establish a DSView software session with the DSR1021 switch over the modem link.

When a remote operation is enabled, the DSView Client software window will contain a topology tree with the single DSR1021 switch.

The following DSView software options are not available when using a modem connection:

- Specification of an authentication server
- Enabling of port status polling
- Displaying server views
- Global macros
- Privacy mode connections to the Video Viewer window
- Viewing connected users to a Video Viewer window

Before you begin

The following actions should be performed before using the DSView Client software over a modem connection:

- Ensure that the DSR1021 switch is configured. See *Getting Started* in Chapter 2 for more information.
- Ensure that DSR switch users have been added to the DSR1021 switch internal database. If the DSAuth Server is not available, the appliance database is used for appliance authentication. If neither are available, authentication cannot be performed for the DSR1021 switch, an error will display and the appliance will not be available in the DSView Client software topology tree. See *Accessing the Terminal Applications Menu* in Chapter 4 for more information.

- Ensure that an external modem is attached to the DSR1021 switch MODEM port. The modem should have auto-answer turned off (typically a modem's default setting).
- Ensure that your Client PC contains dial-up software and that the software is configured properly. See your operating system documentation for more information.

To establish a remote DSView Client software session over a modem connection:

1. Establish a dial-up connection to the DSR1021 switch from the DSView Client software PC. The IP address 10.0.0.2 will be assigned to the DSR1021 switch and the IP address 10.0.0.5 will be assigned to the DSView Client software PC.

NOTE: Windows displays a dialog box that prompts the DSR switch user for a username and password when a dial-up connection is established. It is not necessary to enter a username or password in the dialog box. When this dialog box appears, click *OK* to dismiss the dialog box.

2. When a connection is established, start the DSView software on the DSView Client software PC.
3. Select *Options - Remote Operations - Enable*. The Remote Login Authentication dialog box displays.

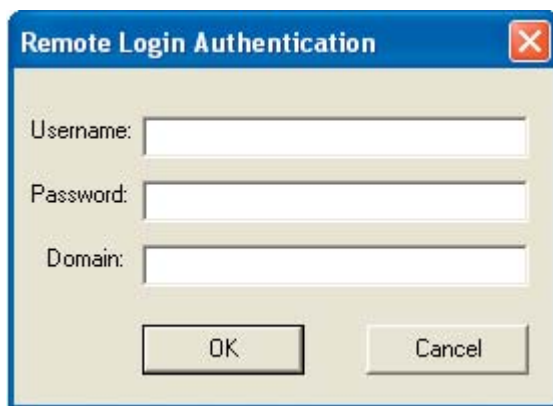


Figure B.1: Remote Login Authentication Dialog Box

NOTE: The DSR1021 switch will disconnect the modem connection if a DSR switch user does not log in within the time period specified by the Authentication Timeout value. The default authentication time-out value (120 seconds) may be changed using the Terminal Applications menu. See Chapter 4 for more information.

The DSR1021 switch will attempt to contact the DSAuth Server to authenticate the DSR switch user. If the DSAuth Server is unavailable, the DSR1021 switch will use its internal database to authenticate the DSR switch user.

4. Type the username, password and domain to which you wish to connect and then click *OK*. If authentication is successful, the DSR1021 switch, its ports and the outlets of any attached SPC power control device will appear in the DSView software topology view.

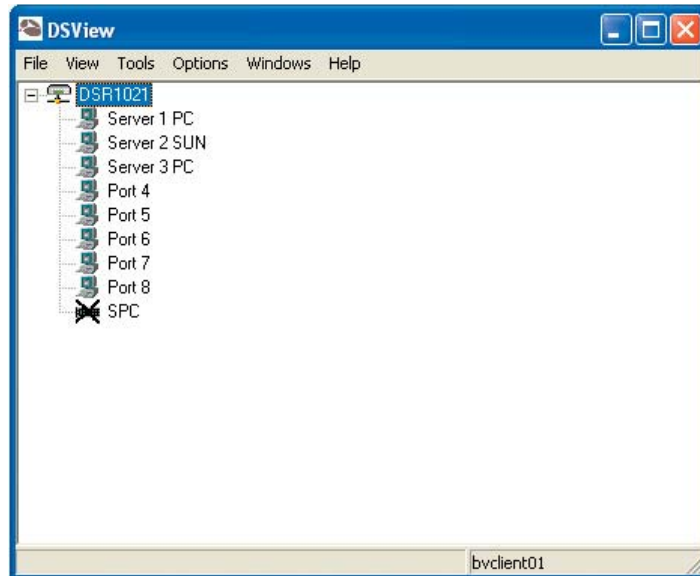


Figure B.2: DSR1021 Switch Modem Connection

NOTE: The DSR1021 switch will disconnect the modem connection if there is no activity on the modem connection for the time period specified by the Inactivity Timeout value. The default inactivity time-out value (15 minutes) may be changed using the Terminal Applications menu. See Chapter 4 for more information.

Appendix C: Using DSRIQ-SRL Modules

The DSRIQ-SRL module is a serial-to-VGA converter which permits VT100-capable devices to be viewed from the DSR switch local port or by using the DSView software. The actual serial data is not accessed, but is merely displayed. All serial data coming from the target device is displayed in a VT100 window, placed into a video buffer and sent to the DSR appliance as though it came from a VGA server. Likewise, keystrokes entered on a keyboard are sent to the attached device as though they were typed upon a VT100 terminal.

DSRIQ-SRL module modes

The following modes can be accessed from the DSRIQ-SRL module:

- On-Line - This mode enables you to send and receive serial data.
- History - This mode enables you to review serial data.
- Configuration - This mode enables you to specify DSR switch communication parameters, the appearance of the Terminal Applications menu and key combinations for specific actions and macros.

Configuring the DSRIQ-SRL module

NOTE: The DSRIQ-SRL module is a DCE device and only supports VT100 terminal emulation.

Pressing **CTRL-F8** will activate the Configuration Screen, which contains menu items that allow you to configure your DSRIQ-SRL module.

NOTE: When the Configuration Screen is active, pressing **Enter** saves changes and returns you to the previous screen. Pressing **Esc** returns you to the previous screen without saving changes.

Within the Configuration Screen, you can modify the following options:

- Baud Rate - This option allows you to specify the serial port communications speed in bauds per second (BPS). Available options are 300, 1200, 2400, 9600, 19200, 34800, 57600 or 115200. The default value is 9600.
- Parity - This option allows you to specify the serial port communications parity. Available options are EVEN, ODD or NONE. The default value is NONE.
- Flow Control - This option allows you to specify the type of serial flow control. Available options are NONE, XOn/XOff (software) and RTS/CTS (hardware). The default value is NONE. If you select a baud rate of 115200, the only available flow control is RTS/CTS (hardware).

- **DSR/CD Mode** - This option allows you to control how the DSR and CD lines operate. Available options are *Always on* and *Toggle*. When in *Toggle* mode, DSR and CD lines are turned off for one-half second and then turned on each time a module is selected or deselected. The default value is *Always on*.
- **Enter Sends** - This option enables you to specify the keys that are transmitted when **Enter** is pressed. Available options are `<CR>` (*Enter*), which moves the cursor to the left side of the screen, or `<CR><LF>` (*Enter-Line-feed*), which moves the cursor to the left side of the screen and down one line.
- **Received** - This option enables you to specify how the module translates a received **Enter** character. Available options are `<CR>` (*Enter*) or `<CR><LF>` (*Enter-Linefeed*).
- **Background** - This option changes the screen's background color. The currently-selected color displays in the option line as it is changed. Available colors are *Black, Light Grey, Yellow, Green, Teal, Cyan, Blue, Dark Blue, Purple, Pink, Orange, Red, Maroon and Brown*. The default color is *Black*. This value cannot be identical to the *Normal Text* or *Bold Text* value.
- **Normal Text** - This option changes the screen's normal text color. The currently-selected color displays in the option line as it is changed. Available colors are *Grey, Light Grey, Yellow, Green, Teal, Cyan, Blue, Dark Blue, Purple, Pink, Orange, Red, Maroon and Brown*. The default color is *Grey*. This value cannot be identical to the *Bold Text* or *Background* value.
- **Bold Text** - This option changes the screen's bold text color. The currently-selected color displays in the option line as it is changed. Available colors are *White, Yellow, Green, Teal, Cyan, Blue, Dark Blue, Purple, Pink, Orange, Red, Maroon, Brown and Light Grey*. The default color is *White*. This value cannot be identical to the *Normal Text* or *Background* value.
- **Screen Size** - This option allows you to specify the screen's text width size. Available values are widths of 80 columns or 132 columns. The length for both widths is 26 lines.

The following Configuration Screen options enable you to define the function keys that will perform a selected action. To specify a new function key, press and hold the **Ctrl** key, then press the function key that you want to associate with the action. For example, if you want to change the Configuration (Config) Key Sequences option from `<CTRL-F8>` to `<CTRL-F7>`, press and hold the **Ctrl** key and then press **F7**.

- **Config Key Sequences** - This option allows you to define the key combination that causes the Configuration Screen to appear. The default key sequence is **Ctrl-F8**.

- On-Line Key Sequence - This option allows you to define the key sequence that displays the On-Line mode. The default key sequence is **Ctrl-F10**.
- Help Key Sequence - This option allows you to define the key combination that displays the Help System screen. The default key sequence is **Ctrl-F1**.
- History Key Sequence - This option allows you to define the key combination that enables History mode. The default key sequence is **Ctrl-F9**.
- Clear History Key Sequence - This option allows you to define the key combination that clears the history buffer while in History mode. The default key sequence is **Ctrl-F11**.
- Break Key Sequence - This option allows you to configure the key combination that generates a break condition. The default key sequence is **Alt-B**.

To configure a DSRIQ-SRL module:

1. Press **Ctrl-F8**. The Configuration Screen will appear.
2. Select a parameter to change. You can navigate the Configuration Screen using the **Up Arrow** and **Down Arrow** keys.
3. Modify the selected value using the **Left Arrow** and **Right Arrow** keys.
4. Repeat steps 2 and 3 to modify additional values.
5. Press **Enter** to save your changes and exit the Configuration Screen.
-or-
Press **Esc** to exit the Configuration Screen without saving the changes.

Creating a DSRIQ-SRL module macro

Pressing the **Page Down** key when the Configuration Screen is displayed will provide access to the Macro Configuration screen. The DSRIQ-SRL module can be configured with up to 10 macros. Each macro can be up to 128 characters in length.

To create a macro:

1. Select the DSRIQ-SRL module you wish to configure and press **Ctrl-F8** to activate the Configuration menu.
2. When the Configuration menu appears, press **Page Down** to view the Macro Configuration screen. The Macro Configuration screen shows the 10 available macros and the associated key sequences, if any, for each.
3. Using the **Up Arrow** and **Down Arrow** keys, scroll to an available macro number and highlight the listed keystroke sequence. Type the new macro keystroke sequence over the default. Any combination of **Ctrl** or **Alt** and a single key may be used. When you have finished entering the keystroke sequence that will activate the new macro, press the **Down Arrow** key.

4. On the line below the macro keystroke sequence you just entered, type the keystroke sequence that you wish the macro to perform.
5. Repeat steps 3 and 4 to configure additional macros.
6. When finished, press **Enter** to return to the previous screen.

Using History mode

History mode allows you to examine the contents of the history buffer, which contains the events that have occurred.

The DSRIQ-SRL module maintains a buffer containing 240 lines minimum, or 10 screens, of output. When the history buffer is full, it will add new lines at the bottom of the buffer and delete the oldest lines at the top of the buffer.

NOTE: The Config Key Sequence, On-Line Key Sequence and Clear History Key Sequence used in the following procedure are the default values. These key combinations can be changed using the Configuration Screen.

To use History mode:

1. Press **Ctrl-F9**. The mode will display as History.
2. Press one of the following key combinations to perform the indicated action:
 - **Home** - Move to the top of the buffer.
 - **End** - Move to the bottom of the buffer.
 - **Page Up** - Move up one buffer page.
 - **Page Down** - Move down one buffer page.
 - **Up Arrow** - Move up one buffer line.
 - **Down Arrow** - Move down one buffer line.
 - **Ctrl-F8** - Enters Configuration mode. The Configuration Screen will appear. Press **Ctrl-F9** to return to the previous screen with History mode enabled, or **Ctrl-F10** to return to the previous screen with On-Line mode enabled.
 - **Ctrl-F11** - Clears the history buffer. If you choose this option, a warning screen will appear. Press **Enter** to delete the history buffer, or **Esc** to cancel the action. The previous screen will reappear.
3. When finished, press **Ctrl-F10** to exit History mode and return to On-Line mode.

DSRIQ-SRL module pinouts

The following table lists the pinouts for the DSRIQ-SRL module and is provided for your reference.

DSRIQ-SRL Module Pinouts

DB9-F Pin	Host Signal Name/Description	Signal Flow	SRLSignal Name/Description
1	DCD - Data Carrier Detect	Out of SRL	DTR - Data Terminal Ready
2	RXD - Receive Data	Out of SRL	TXD - Transmit Data
3	TXD - Transmit Data	In to SRL	RXD - Receive Data
4	DTR - Data Terminal Ready	In to SRL	DSR - Data Set Ready
5	GND - Signal Ground	N/A	GND - Signal Ground
6	DSR - Data Set Ready	Out of SRL	DTR - Data Terminal Ready
7	RTS - Request to Send	In to SRL	CTS - Clear to Send
8	CTS - Clear to Send	Out of SRL	RTS - Request to Send
9	N/C - Not Connected	N/A	N/C - Not Connected

Appendix D: UTP Cabling

The following information is intended to brief you on various aspects of connection media. The performance of a DSR switching system depends on high quality connections. Poor quality or poorly installed or maintained cabling can diminish DSR system performance.

NOTE: This appendix is for information purposes only. Please consult with your local code officials and/or cabling consultants prior to any installation.

DSR switching systems utilize UTP cabling.

UTP copper cabling

The following are basic definitions for the three types of UTP cabling that the DSR appliance supports:

- CAT 5 UTP (4-pair) high performance cable consists of twisted pair conductors, used primarily for data transmission. The twisting of the pairs gives this cable some immunity from the infiltration of unwanted interference. CAT 5 cable is generally used for networks running at 10 or 100 Mbps.
- CAT 5E (enhanced) cable has the same characteristics as CAT 5, but is manufactured to somewhat more stringent standards.
- CAT 6 cable is manufactured to tighter requirements than CAT 5E cable. CAT 6 has higher measured frequency ranges and significantly better performance requirements than CAT 5E cable at the same frequencies.

Wiring standards

There are two supported wiring standards for 8-conductor (4-pair) RJ-45 terminated UTP cable: EIA/TIA 568A and B. These standards apply to installations utilizing CAT 5, 5E and 6 cable specifications. The DSR switching system supports either of these wiring standards. Please refer to the following table for details.

DSR1021 Switch Wiring Standards

Pin	EIA/TIA 568A	EIA/TIA 568B
1	white/green	white/orange
2	green	orange
3	white/orange	white/green
4	blue	blue

DSR1021 Switch Wiring Standards (continued)

Pin	EIA/TIA 568A	EIA/TIA 568B
5	white/blue	white/blue
6	orange	green
7	white/brown	white/brown
8	brown	brown

Cabling installation, maintenance and safety tips

The following is a list of important safety considerations that should be reviewed prior to installing or maintaining your cables:

- Keep all CAT 5 runs to a maximum of 10 meters each.
- Maintain the twists of the pairs all the way to the point of termination, or no more than one-half inch untwisted. Do not skin off more than one inch of jacket while terminating.
- If bending the cable is necessary, make it gradual with no bend sharper than a one inch radius. Allowing the cable to be sharply bent or kinked can permanently damage the cable's interior.
- Dress the cables neatly with cable ties, using low to moderate pressure. Do not over tighten ties.
- Cross-connect cables where necessary, using rated punch blocks, patch panels and components. Do not splice or bridge cable at any point.
- Keep CAT 5 cable as far away as possible from potential sources of EMI, such as electrical cables, transformers and light fixtures. Do not tie cables to electrical conduits or lay cables on electrical fixtures.
- Always test every installed segment with a cable tester. "Toning" alone is not an acceptable test.
- Always install jacks so as to prevent dust and other contaminants from settling on the contacts. The contacts of the jack should face up on the flush mounted plates, or left/right/down on surface mount boxes.
- Always leave extra slack on the cables, neatly coiled in the ceiling or nearest concealed location. Leave at least five feet at the work outlet side and 10 feet at the patch panel side.
- Choose either 568A or 568B wiring standard before beginning. Wire all jacks and patch panels for the same wiring scheme. Don't mix 568A and 568B wiring in the same installation.
- Always obey all local and national fire and building codes. Be sure to firestop all cables that penetrate a firewall. Use plenum rated cable where it is required.

Appendix E: Technical Specifications

DSR1021 Switch Product Specifications

Server Ports	
Number	8
Types	DSRIQ-PS/2, DSRIQ-USB, DSRIQ-VSN (Sun VGA), DSRIQ-WSN (Sun 13W3) and DSRIQ-SRL modules
Connectors	RJ-45
Sync Types	Separate horizontal and vertical
Plug and Play	DDC2B
Video Resolution	640 x 480 @ 75 Hz (Local Port and Remote Port Minimum) 800 x 600 @ 75 Hz 960 x 700 @ 75 Hz 1024 x 768 @ 75 Hz 1280 x 1024 @ 75 Hz (Remote Port Maximum Input Resolution using a DSRIQ module)
Supported Cabling	4-pair UTP CAT 5 or CAT 6, 10 meters maximum length
SETUP Port	
Number	1
Type	Serial RS-232 Null Modem Cable
Connector	DB9 Male
Network Connection	
Number	1
Type	Ethernet: IEEE 802.3, 10BaseT, Fast Ethernet: IEEE 802.3U, 100BaseT
Connector	RJ-45
Local Port	
Number	1
Type	PS/2 and VGA
Connectors	PS/2 MiniDIN and 15-pin D-Sub
MODEM Port	
Number	1
Type	Serial RS-232
Connector	DB9 Male
SPC Device Port	
Number	1
Connector	RJ-45
Dimensions	
Dimensions (H x W x D)	1.72 x 17.00 x 8.075 in; 1U form factor (4.45 x 43.18 x 20.5 cm)
Weight	5.3 lbs (2.4 kg) without cables
AC-input Power	25 W maximum
AC-input Range	100-240 VAC
AC-input Current Rating	0.5A

DSR1021 Switch Product Specifications**Dimensions (continued)**

AC-input Cable	Three-wire cable, with a three-lead IEC-320 connector on the end of the cable that connects to the appliance and a plug suitable for the specific country or region on the end of the cable that connects to AC power mains
AC Frequency	50 - 60 Hz autosensing
Temperature	32-104 degrees Fahrenheit (Ø-40 degrees Celsius) operating; -4-158 degrees Fahrenheit (-20-70 degrees Celsius) nonoperating
Humidity	10-95% noncondensing

Safety and EMC Standards

Standards	AS/NZS CISPR22, CSA C22.2 No. 950, EN61000-3-2, EN61000-3-3, EN55022 Class A, EN55024, EN60950, FCC1 Part 15 Class A, ICES-003 Class A, IEC60950, VCCI V.3 Class A, UL 1950
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User Consoles

Type	PC running Windows NT or 2000 OS and DSR switching console application Minimum Configuration-300MHz Pentium III, 64 Mb RAM, 100BaseT NIC, XGA Video Recommended Configuration-450 MHz Pentium III , 128 Mb Ram, 100BaseT NIC, SXGA Video
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Appendix F: Sun Advanced Key Emulation

Certain keys on a standard Type 5 (US) Sun keyboard can be emulated by key press sequences on a PS/2 keyboard. To enable Sun Advanced Key Emulation mode and use these keys, press and hold **Ctrl+Shift+Alt** and then press the **Scroll Lock** key. The *Scroll Lock* LED blinks. Use the indicated keys in the following table as you would use the advanced keys on a Sun keyboard.

Sun Key Emulation

Sun Key (US)	PS/2 Key to Enable Sun Key Emulation
Compose	Application ⁽¹⁾
Compose	keypad * [†]
Power	F11
Open	F7
Help	Num Lock
Props	F3
Front	F5
Stop	F1
Again	F2
Undo	F4
Cut	F10
Copy	F6
Paste	F8
Find	F9
Mute	keypad /
Vol.+	keypad +
Vol.	keypad -
Command (left) ⁽²⁾	F12
Command (left) ⁽²⁾	Win (GUI) left ⁽¹⁾
Command (right) ⁽²⁾	Win (GUI) right ⁽¹⁾

(1) Windows 95 104-key keyboard

(2) The Command key is the Sun Meta (diamond) key.

For example: For **Stop + A**, press and hold **Ctrl+Shift+Alt** and press **Scroll Lock**, then **F1 + A**.

These key combinations will work with the DSRIQ-USB module (if your Sun system comes with a USB port) as well as the Sun DSRIQ-VSN and DSRIQ-WSN modules. With the exception of **F12**, these key combinations are not recognized by Microsoft Windows. Using **F12** performs a Windows key press.

When finished, press and hold **Ctrl+Shift+Alt** and then press the **Scroll Lock** key to toggle Sun Advanced Key Emulation mode off.

Special considerations for Japanese Sun USB and Korean Sun USB keyboards (DSRIQ-USB modules only)

Japanese Sun USB and Korean Sun USB keyboards assign usage IDs for certain keys that differ from standard USB usage IDs. If DSRIQ-USB modules are attached to your Sun servers, the Han/Zen and Katakana/Hiragana keys on Japanese Sun USB keyboards and Hangul and Hanja keys on Korean Sun USB keyboards must be accessed using alternate keystrokes.

Due to these keyboard-specific differences, keyboard mapping inconsistencies may be encountered when switching between servers using Sun DSRIQ-VSN and DSRIQ-WSN modules and servers using DSRIQ-USB modules. These keys function normally if your Sun servers are attached to the DSR switch using a DSRIQ-VSN or DSRIQ-WSN module.

The following table lists the keyboard mapping that will take place when a DSRIQ-USB module is used in this setting.

PS/2-to-USB Keyboard Mappings

PS/2 Keyboard	USB Usage ID	Sun US Keyboard	Korean Sun USB Keyboard	Japanese Sun USB Keyboard
Right-Alt	0xE6	AltGraph	Hangul	Katakana/Hiragana
Windows Application	0x65	Compose	Hanja	Compose
Hangul	0x90	N/A	N/A	N/A
Hanja	0x91	N/A	N/A	N/A
Katakana/Hiragana	0x88	N/A	N/A	Han/Zen
Han/Zen	0x35	` ~	` ~	N/A

Appendix G: Technical Support

Our Technical Support staff is ready to assist you with any installation or operating issues you encounter with your Avocent product. If an issue should develop, follow the steps below for the fastest possible service:

1. Check the pertinent section of the manual to see if the issue can be resolved by following the procedures outlined.
2. Check our web site at www.avocent.com/support to search the knowledge base or use the on-line service request.
3. Call Avocent Technical Support for assistance at (888) 793-8763. Visit the Avocent web site at <http://www.avocent.com/support> and click on *Support Phone Numbers* for current phone support hours.

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