Avocent

DSR ® Switch

Installer/User Guide

European Union Notification

Warning: This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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/her 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 Notification

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Korean Notification

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Safety and EMC Approvals and Markings

UL, FCC, cUL, ICES-003, CE, GS, VCCI, MIC, C-Tick, GOST

Safety certifications and EMC certifications for this product are obtained under one or more of the following designations: CMN (Certification Model Number), MPN (Manufacturer's Part Number) or Sales Level Model designation. The designation that is referenced in the EMC and/or safety reports and certificates is printed on the label applied to this product.

# DSR® Switch
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.
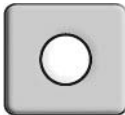
Power Off

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.

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Product Overview

Features and Benefits

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

The DSR KVM switch family has several available options depending on the model:

- a rack mountable keyboard, video and mouse (KVM) switch, configurable for analog (local) or digital (remote) connectivity
- video resolutions supported up to 1280 x 1024 for remote users
- enhanced video quality of up to 1600 x 1200 available to local users via the video port
- optional support for managing intelligent power devices
- virtual media capability accessed through USB ports
- accessibility to target devices across 10/100 or 1000BaseT (some models) LAN port(s)
- a MODEM port that supports V.34, V.90 or V.92-compatible modems that may be used to access the switch when an Ethernet connection is not available

The IP-based DSR switches give you flexible target device management control from anywhere in the world.

Reduce cable bulk

With server densities continually increasing, cable bulk remains a major concern for network administrators. The DSR switches significantly reduce KVM cable volume in the rack by utilizing the innovative IQ module and single, industry-standard Unshielded Twisted Pair (UTP) cabling. This allows a higher server density while providing greater airflow and cooling capacity.

The IQ module is powered directly from the target device and provides Keep Alive functionality when the switch is not powered.

The serial IQ module is a DCE device that provides the primary interface between a serial device and a DSR switch. It provides VT100 terminal emulation, break suppression and port history in a compact, convenient module.

Control of virtual media-capable appliances (select models)

The virtual media enabled DSR switches allow you to view, move or copy data located on virtual media to and from any server. Manage remote systems more efficiently by allowing operating system installation, operating system recovery, hard drive recovery or duplication, BIOS updating and server backup.

Virtual media can be connected directly to the switch using USB ports located on the switch. In addition, virtual media may be connected to any remote workstation that is running DSView® 3 management software and is connected to the DSR switch using an Ethernet connection.

NOTE: Virtual media is available on the following models: DSR1030/2030/4030/8030/1031/2035/8035.

NOTE: To open a virtual media session with a server, the server must first be connected to a virtual media enabled switch using a virtual media capable IQ module (USB2 or USB2L).

Access the DSR switch via a standard TCP/IP network

The Avocent DSR switches provide agentless remote control and access. No special software or drivers are required on the attached, or client, computers.

NOTE: The client connects to the server housing the DSView 3 management software using an Internet browser. For modem access, you must install DSR Remote Operations software included on the DSView 3 software CD-ROM (see the DSView 3 Installer/User Guide for more information).

Users access the DSR switch and all attached systems via Ethernet or using a V.34, V.90 or V.92 modem from a client computer. Clients can be located anywhere a valid network connection exists.

DSView® 3 management software plug-in

The DSView 3 software may be used with the DSR switch to allow IT administrators to remotely access, monitor and control target devices on multiple platforms through a single, web-based user interface. For more information, see the DSView 3 Software Plug-In for DSR Switches Technical Bulletin.
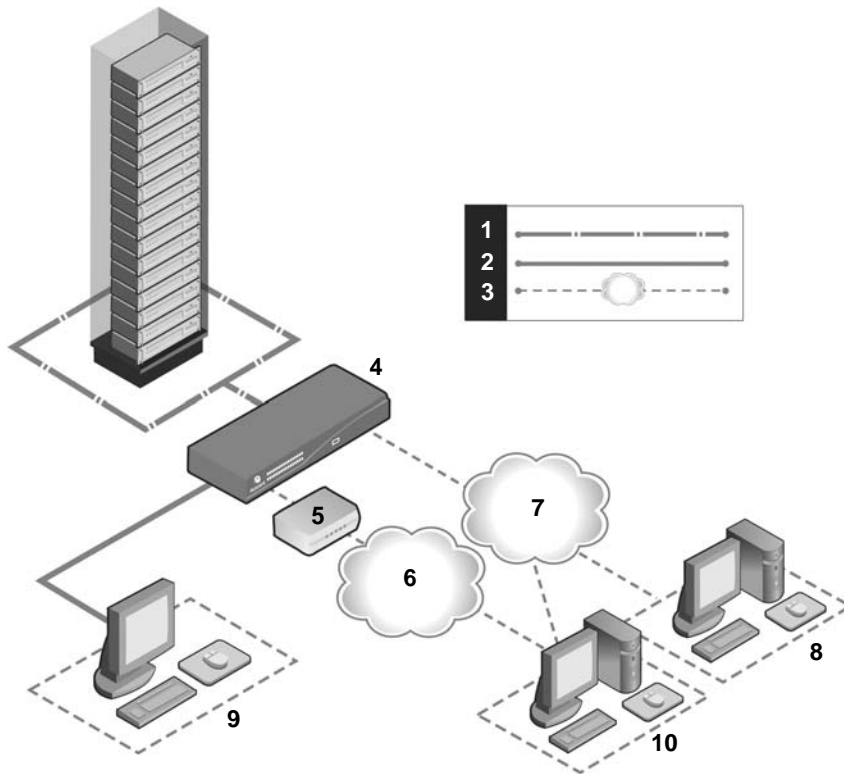
Figure 1.1: Example DSR2035/8035 Switch Configuration

Table 1.1: Descriptions for Figure 1.1

Number	Description	Number	Description
1	CAT 5 Connection	**6**	Telephone Network
2	KVM Connection to the Switch	**7**	Ethernet
3	Remote IP Connection	**8**	DSView 3 Software Server
4	DSR Switch	**9**	Analog User (OSCAR Graphical User Interface)
5	Modem	**10**	Digital User (Computer with Internet browser)

CHAPTER

2

Installation

DSR Switch Connectivity

A DSR switching system transmits keyboard, video and mouse (KVM) information between operators and target devices attached to the switch over a network using either an Ethernet or modem connection.

The DSR switch uses TCP/IP for communication over Ethernet. Although 10BaseT Ethernet may be used, Avocent recommends a dedicated, switched 100BaseT or 1000BaseT network for switches that support it.

The DSR switch uses the Point-to-Point Protocol (PPP) for communication over a V.34, V.90 or V.92 modem. You can perform KVM switching tasks by using the on-board web interface, the DSR Remote Operations software or the DSView 3 software.

For more information on the DSView 3 software, visit www.avocent.com or see the DSView 3 Installer/User Guide.

Installation Overview

The general procedure for setting up and installing a DSR switch is as follows:

- Unpack the switch and verify that all components are present and in good condition.
- Make all hardware connections between the power source, switch, target devices, optional power control device(s), the Ethernet and the optional modem connection.
- Turn on the power and verify that all connections are working.
- Configure the DSR switch's IP address using the console menu interface or DSView 3 software. See the DSView 3 Installer/User Guide for more information.
- Use the on-board web interface or DSView 3 software to configure the DSR switch. See the DSView 3 Installer/User Guide for more information.
- Make the appropriate mouse setting adjustments.

Figure 2.1 illustrates a basic configuration for the DSR switch, using the DSR8035 model for the example. Descriptions follow in Table 2.1.
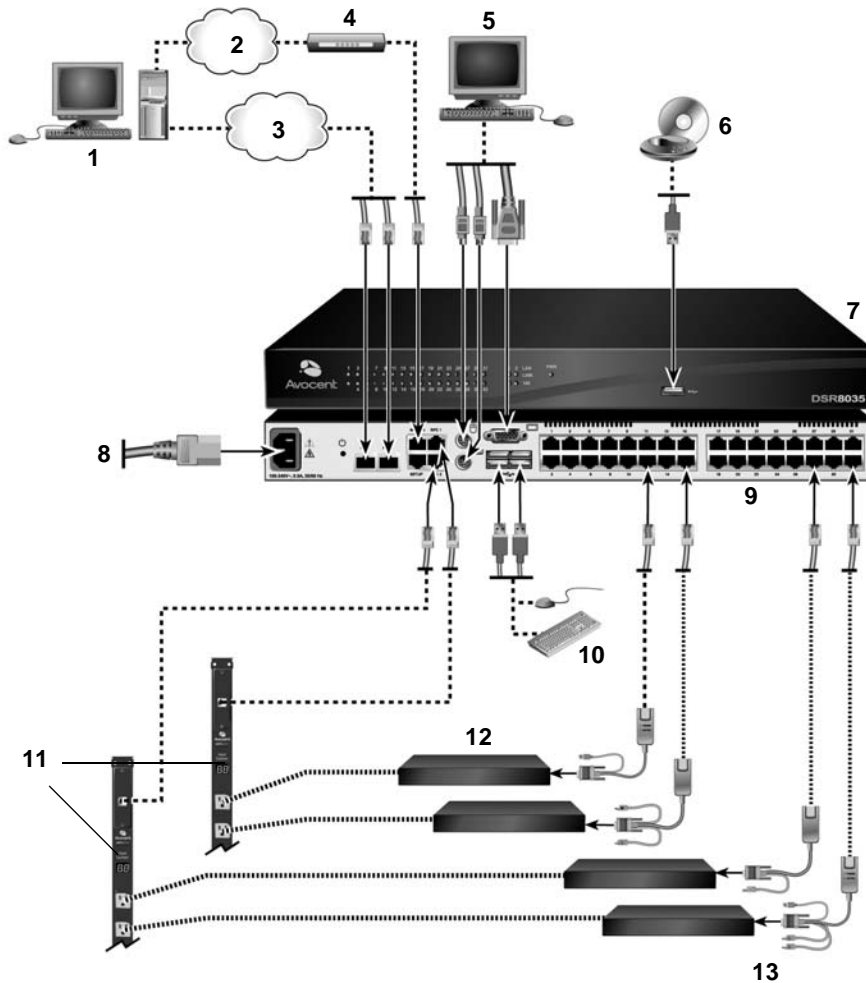
Figure 2.1: Basic DSR Switch Configuration (DSR8035 Switch Shown)

Table 2.1: Descriptions for Figure 2.1

Number	Description	Number	Description
1	Digital User	**8**	Power Cord
2	Telephone Network	**9**	Ports 1-32
3	Network	**10**	Local USB Connections
4	Modem	**11**	Power Control Device*
5	Analog User	**12**	Servers 1-32
6	External Virtual Media	**13**	IQ Modules PS/2, USB**, Sun and serial adaptors are available.
7	DSR8035 Switch		

*If you are using a PM Intelligent Power Distribution Unit (IPDU), use the provided adapter.
**To open a virtual media session with a server, the server must first be connected to the switch using a virtual media-capable IQ module (USB2 or USB2L).

Getting started

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

NOTE: While it is possible to use two DSR switches in a cascaded configuration, it can cause function conflicts and limit the advanced features of the switch. As a result, Avocent does not recommend this configuration.

Supplied with the DSR switch

- Local country power cord
- Rack mounting brackets (depending on switch model)
- Rack Mounting Bracket Quick Installation Guide (depending on switch model)
- DSR Switch Quick Installation Guide
- Either of the following:
  - Two ribbon cables with RJ-45 connectors at each end

    One RJ-45 to DB-9 (male) adaptor for the modem connection

    One RJ-45 to DB-9 (female) adaptor for the SETUP, CONSOLE or 10101 port

  -or-

  - One null modem cable

Additional items needed

- One IQ module per target server or serial IQ module per serial device
- One UTP patch cable per IQ module (4-pair UTP, up to 50 meters)
- UTP patch cable(s) for network connectivity (4-pair UTP, up to 50 meters)
- One USB2 or USB2L IQ module per target server for virtual media sessions
- (Optional) DSView 3 software
- (Optional) V.34, V.90 or V.92-compatible modem and cables
- (Optional) power control device(s)

Setting up your network

The DSR switching system uses IP addresses to uniquely identify the switch and the target devices. The DSR switch family supports both Dynamic Host Configuration Protocol (DHCP) and static IP addressing. Avocent recommends that IP addresses be reserved for each switch and that they remain static while the switches are connected to the network.

For additional information on setting up the DSR switch using the DSView 3 software, and for information on how the DSR switch uses TCP/IP, see the DSView 3 Installer/User Guide.

Rack Mounting a DSR Switch

A rack mounting kit is supplied with each DSR switch. You may either place the DSR switch on the rack shelf or mount the switch directly into an Electronic Industries Alliance (EIA) standard rack.

Most DSR switches may be rack mounted in a 1U configuration. The DSR switch family does not support a 0U configuration.

Rack mounting safety considerations

- Rack Loading - Overloading or uneven loading of racks may result in shelf or rack failure, causing damage to equipment and possible personal injury. Stabilize racks in a permanent location before loading begins. Mount components beginning at the bottom of the rack, then work to the top. Do not exceed your rack load rating.
- Power Considerations - Connect only to the power source specified on the unit. When multiple electrical components are installed in a rack, ensure that the total component power ratings do not exceed circuit capabilities. Overloaded power sources and extension cords present fire and shock hazards.
- Elevated Ambient Temperature: If installed in a closed rack assembly, the operating temperature of the rack environment may be greater than room ambient. Use care not to exceed the rated maximum ambient temperature of the switch.
- Reduced Air Flow: Install the equipment in the rack so that the amount of airflow required for safe operation of the equipment is not compromised.

- Reliable Earthing: Maintain reliable earthing of rack mounted equipment. Pay particular attention to supply connections other than direct connections to the branch circuit (for example, use of power strips).

To install the rack mounting bracket:

1. Remove the two rack mounting screws from each side of the DSR switch.
2. Place the rack mounting brackets next to the switch as illustrated in Figure 2.2.
3. Insert the screws supplied with the rack mounting kit through the holes of the brackets and into the DSR switch. Tighten the screws securely.

Install the DSR switch into the rack using the approved method of the rack manufacturer.
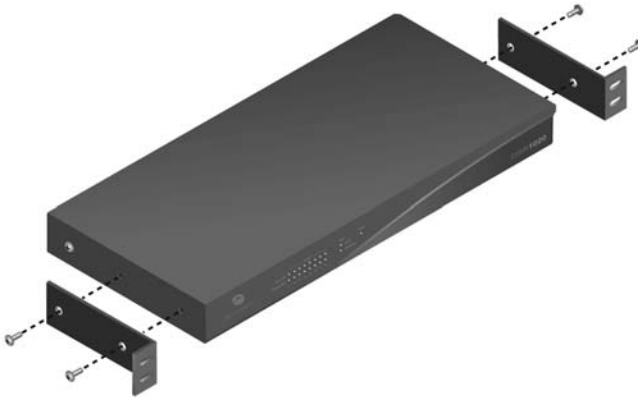
Figure 2.2: DSR Switch Mounting Diagram

Connecting the DSR Switch Hardware

To connect and power up your DSR switch:

1. Power down the target device(s) that will be part of your DSR switching system. Locate the power cord that came with the DSR switch and plug the appropriate end into the power socket on the rear of the DSR switch. Plug the other end into an appropriate AC wall outlet.

NOTE: To avoid potential video and/or keyboard problems when using Avocent products: If the building has 3-phase AC power, ensure that the computer and monitor are on the same phase. For best results, they should be on the same circuit.

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 switch by unplugging the power cord from either the electrical outlet or the appliance.
- The AC inlet is the main power disconnect.

2. Disconnect the power from the switch by unplugging the power cord from either the electrical outlet or the appliance.

3. Plug your VGA monitor and either PS/2 or, if your DSR switch model supports USB, USB keyboard and mouse cables into the appropriately labeled ports. You must install both a keyboard and mouse on the local ports or the keyboard will not initialize properly.

4. Plug a compatible IQ module into the appropriate ports on the back of the target server.

5. Choose an available numbered port on the rear of your DSR switch. Plug one end of a UTP patch cable (4-pair, up to 50 meters) into the selected port and plug the other end into the RJ-45 connector of the IQ module. Repeat this procedure for all servers that are to be connected to the DSR switch.

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

6. Plug a UTP patch cable from your Ethernet network into the LAN port on the back of your DSR switch. Network users will access the DSR switch through this port. Repeat this step if your switch supports multiple LAN ports.

7. (Optional) The DSR switch can also be accessed using an ITU V.92, V.90 or V.34-compatible modem. To connect it, plug one end of either ribbon cable or the null modem cable (whichever is included with your model of DSR switch) into the MODEM port on the back of your DSR switch. Plug the other end into the modem. An RJ-45 to DB9 (female) adaptor is provided should it be necessary.

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

8. (Optional) Depending on the model, up to two power control devices can be attached to a DSR switch. To connect a power control device, plug one end of the cable supplied with a DSR switch compatible power control device into an available SPC port on the DSR switch. Plug the other end into the power control device. Plug the power cords from the target servers into the power control device power outlets. Plug the power control device into a grounded AC wall outlet. Repeat this step for any additional available SPC ports.

To connect local virtual media:

Connect the virtual media to an available USB port on the DSR switch.

NOTE: For all virtual media sessions, you must use a USB2 or USB2L IQ module.

To connect a serial IQ module to a serial device:

1. Attach the serial IQ module 9-pin serial connector to the serial port of the device to be connected to your DSR switch.

2. Attach one end of the UTP patch cable to the RJ-45 connector on the IQ-SRL module. Connect the other end of the UTP patch cable to the desired port on the back of your DSR switch.

> **NOTE:** The serial IQ module is a DCE device and only supports VT100 terminal emulation.

3. Connect the power supply to the power connector on your serial IQ module. The cable expander can be used to power up to four serial IQ modules from a single power supply.

4. Connect the serial IQ module power supply to a grounded AC wall outlet. Power up your serial device. See the *Using Serial IQ Modules* on page 96 for more information.

Configuring the DSR Switch

Once all mechanical connections have been made, you will need to configure the switch for use in the overall switching system. This can be accomplished in three ways.

To configure the DSR switch using the console interface:

See Chapter 6 for detailed instructions.

To configure the DSR switch using the DSView 3 software:

See the DSView 3 Installer/User Guide for detailed instructions.

To configure the DSR switch using the OSCAR® graphical user interface:

See *Configuring network settings* on page 30 for detailed instructions on using the OSCAR interface to configure initial network setup.

Setting up the built-in web server

You can access the DSR switch via an embedded web server that handles most day-to-day switching tasks. Before using the web server to access the switch, first specify an IP address through the SETUP, CONSOLE or 10101 port on the back panel of the switch. See Chapter 4 for detailed instructions on using the on-board web interface for switching.

Setting up the DSView 3 software

See the DSView 3 Installer/User Guide, or refer to the DSView 3 Software Online Help.

Connecting to the on-board web interface through a firewall

For DSR switch installations that use the on-board web interface for access, four ports must be opened in a firewall if outside access is desired.

Table 2.2: TCP Ports and Functions for the DSR Switch On-Board Web Interface

TCP Port Number	Function
80	Used for the initial downloading of the Avocent Video Viewer (for downloading the Java applet)
443	Used by the web browser interface for managing the DSR switch and launching KVM sessions

Table 2.2: TCP Ports and Functions for the DSR Switch On-Board Web Interface (Continued)

TCP Port Number	Function
2068	Transmission of KVM session data (mouse & keyboard) or transmission of video on x030 and x035 model DSR switches
8192	Transmission of KVM session data (video) except for x030 and x035 model DSR switches

In a typical configuration, as shown in Figure 2.3, the user's computer is located outside of the firewall, and the DSR switch resides inside the firewall.
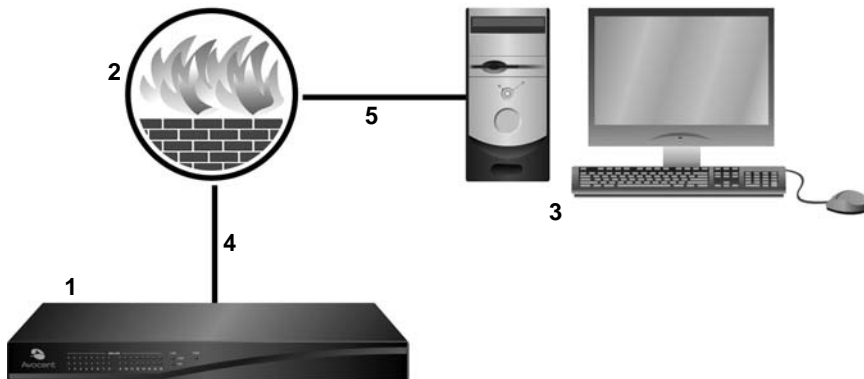
Figure 2.3: Typical DSR Switch Firewall Configuration

Table 2.3: Descriptions for Figure 2.3

Number	Description
1	DSR Switch
2	Firewall
3	User's Computer
4	Firewall Forwards HTTP Requests and KVM Traffic to the DSR Switch
5	User Browses to Firewall's External IP Address

To configure the firewall:

To access the DSR switch from outside a firewall, configure your firewall to forward ports 80, 443, 2068 and 8192 from its external interface to the KVM switch through the firewall's internal interface. Consult the manual for your firewall for specific port forwarding instructions.

NOTE: Port 8192 does not have to be forwarded for DSR1031, DSRx030 and DSRx035 switches.

To connect to the DSR switch on-board web interface:

Open a web browser and enter the external IP address of the firewall. The DSR Explorer will open and prompt you to login.

Verifying the Connections

DSR switch

The front panel of the DSR switch features LEDS indicating the Ethernet connection for both LAN1 and LAN2 (if applicable), as well as LEDS that indicate the target device status for each port.

Ethernet connection LEDS

- The green LED, labeled *Link*, illuminates when a valid connection to the network is established at the maximum supported rate and blinks when there is activity on the port.
- The amber LED illuminates when you are communicating at a slower rate when using an Ethernet connection.
- If neither LED is illuminated, connection speed is at a rate of 10 Mbps.

Target device status LEDS

- A green LED illuminates when the attached target device has power.
- An amber LED illuminates when that port is selected.
- The LEDs blink during a firmware upgrade.

IQ and serial IQ modules

Typically, IQ modules feature two green LEDs: a *POWER* LED and a *STATUS* LED.

- The *POWER* LED indicates that the attached module is powered.
- The *STATUS* LED indicates that a valid selection has been made to a DSR switch.

The serial IQ 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** after accessing the Terminal Applications menu.

Adjusting Mouse Settings on Target Devices

Before a computer connected to the DSR switch can be used for remote user control, you must set the target mouse speed and turn off acceleration. For machines running Microsoft® Windows® (Windows NT®, 2000, XP, Server 2003), use the default PS/2 mouse driver.

To ensure that the local mouse movement and remote cursor display remain in sync, mouse acceleration must be set to "none" for all user accounts accessing a remote system through a KVM switch. Mouse acceleration must also be set to "none" on every remote system. Special cursors

should not be used and cursor visibility options, such as pointer trails, **Ctrl** key cursor location animations, cursor shadowing and cursor hiding, should also be turned off.

For more information about setting mouse movement and cursor features for use with Avocent hardware products and DSView 3 management software, please visit www.avocent.com and consult the Mouse and Pointer Settings guide.

NOTE: If you are not able to disable mouse acceleration from within a Windows operating system, or if you do not wish to adjust the settings of all your servers, newer versions of the DSView 3 software include the *Tools - Single Cursor Mode* command available in the Video Viewer window. This command places the Video Viewer window into an "invisible mouse" mode which allows you to manually toggle control between the mouse pointer on the target system being viewed and the mouse pointer on the client running DSView 3 software.

CHAPTER

3

Local Port Operation

Most DSR switch models include a local port on the back. This port enables you to connect a keyboard, monitor and mouse to the switch for direct access. The DSR switches include the OSCAR graphical user interface for configuring your system and selecting target devices.

Basic Operations

Viewing and selecting ports and servers

Use the Main dialog box to view, configure and control target devices in the DSR switching system. You may view the target devices by name, port or by the unique Electronic ID (EID) embedded in each IQ 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 target device is connected.

Selecting a target device

Use the Main dialog box to select a target device. When you select a target device, the DSR switch reconfigures the keyboard and mouse to the settings for the selected target device.

To select a target device:

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

-or-

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

-or-

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

NOTE: If OSCAR Authentication has been enabled, an "Authenticating" screen will appear after you select a target device because the DSR switch is confirming your access to that target device. If you are denied access to the target device, a message will appear saying that you can not view that particular target device.

To select the previous target device:

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

To disconnect from a target device:

Press **Print Screen** and then **Alt+0** (zero). This leaves the user in a free state, with no target device selected. The status flag on your desktop displays *Free*.

Soft switching

Soft switching is the ability to switch target devices using a hotkey sequence. You can soft switch to a target device 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 soft switch to a target device:

Press **Print Screen**. If the display order of the Main dialog is by port (the *Port* button is depressed), type the port number and press **Enter**.

-or-

If the display order of the Main dialog is by name (the *Name* button is depressed), type the first few letters of the name of the target device to establish it as unique and press **Enter**.

To switch back to the previous target device, press **Print Screen** then **Backspace**.

Viewing the status of your DSR switching system

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

Table 3.1: OSCAR Interface Status Symbols

Symbol	Description
⬤	(green circle) Server connected, powered up and the IQ module is online.
✕	Connected target device is powered down or is not operating properly, and the IQ module is offline.
⬡	Connected switch is online.
✕	Connected switch is offline or not operating properly.
◯	(yellow circle) The designated IQ module is being upgraded. When this symbol displays, do not cycle power to the DSR switch or connected target devices and do not disconnect IQ modules. Doing so may render the module permanently inoperable and require the IQ module to be returned to the factory for repair.

Table 3.1: OSCAR Interface Status Symbols (Continued)

Symbol	Description
A	(green letter) IQ module is being accessed by the indicated user channel.
A	(black letter) IQ module is blocked by the indicated user channel. For instance, in Figure 3.1, user B is viewing Forester, but is blocking access to Acton, Barrett and Edie, which are connected to the same IQ module.
I	(blue letter) A remote virtual media connection is established to the server connected to the indicated user channel.

Navigating the OSCAR interface

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

Table 3.2: OSCAR Interface Navigation Basics

Keystroke	Function
Print Screen	Opens the OSCAR interface. Press **Print Screen** twice to send the Print Screen keystroke to the currently selected IQ module.
F1	Opens the Help screen for the current dialog box.
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 the *Commands Dialog Box Functions* on page 35 for more information. In a message box, pressing **Escape** 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 current dialog box and returns to previous one.
Alt+O	Selects the *OK* 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, single-clicking an entry and pressing **Enter** 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+0 (zero)	Immediately disengages user from a target device; no target device is selected. Status flag displays *Free*. (This only applies to the **0** (zero) on the keyboard and not the numeric keypad.)

Table 3.2: OSCAR Interface Navigation Basics (Continued)

Keystroke	Function
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 Name and Port lists and 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.
Caps Lock	Disabled. Use the **Shift** key to change case.
Backspace	Erases characters in a text box.

Main Dialog Box Functions

To access the OSCAR interface Main dialog box:

Press **Print Screen** to launch the OSCAR interface. The Main dialog box will appear as shown in Figure 3.1.

NOTE: If OSCAR Authentication has been enabled, you will be prompted to enter a username and password before you can launch the OSCAR interface.

NOTE: If the DSR switch has been added to a DSView 3 server, then the DSView 3 server will be accessed to authenticate the user. If the DSR switch has not been added to a DSView 3 server, or if the DSView 3 server cannot be reached, then the DSR switch local user database will be accessed to authenticate the user. The default local username is Admin, and there is no password. Usernames in the local user database are case sensitive.

NOTE: If the Clear, Setup and Commands buttons do not appear on the OSCAR Main dialog box, OSCAR interface configuration may have been disabled via the DSView 3 management software. For more information, please see the DSView 3 Software Installer/User Guide.

Figure 3.1: OSCAR Interface Main Dialog Box

Table 3.3: Main Dialog Box Functions

Button	Function
VMedia	Set virtual media options and make virtual media connections. This option is only available when a KVM session is in progress on a virtual media enabled DSR switch.
Log Out	Disconnect the KVM and user sessions.
Clear	Clear all offline IQ modules.
Disconnect	Disconnect the KVM session.
Setup	Access the Setup dialog box and configure the OSCAR interface.
Commands	Access the Commands dialog box.

Setting virtual media options

If your DSR switch has the virtual media option, you can determine the behavior of the switch during a virtual media session using the options provided in the Virtual Media dialog box. Table 3.4 outlines the options that can be set for virtual media sessions.

Table 3.4: Virtual Media Options

Function	Purpose
Appliance Options	
Locked	Synchronizes the KVM and virtual media sessions so that when a user disconnects a KVM connection, the virtual media connection to that server is also disconnected. A local user attempting to switch to a different server is also disconnected.

Table 3.4: Virtual Media Options (Continued)

Function	Purpose
Select Local Mapping Options	
Reserve	Ensures that a virtual media connection can only be accessed with your username and that no other user can create a KVM connection to that server. When the associated KVM session is disconnected, the virtual media session may be disconnected according to the Locked setting in the Virtual Media dialog box.
CD ROM	Allows virtual media sessions to the first detected CD-ROM drive. Enable this checkbox to establish a virtual media CD-ROM connection to a server. Disable to end a virtual media CD-ROM connection to a server.
Mass Storage	Allows virtual media sessions to the first detected mass storage drive. Enable this checkbox to establish a virtual media mass storage connection to a server. Disable to end a virtual media mass storage connection to a server.
Write Access	Allows a target server to write data to the virtual media during a virtual media session. Read access is always allowed during a virtual media session.

To set virtual media options:

1. If the OSCAR interface is not open, press **Print Screen** to open the Main dialog box.
2. Click *VMedia* to open the Virtual Media dialog box shown in Figure 3.2.

Figure 3.2: OSCAR Interface Virtual Media Dialog Box

3. Click to enable or disable each of the options. For information about individual settings, see Table 3.4.
4. Click *OK* to accept the options you have selected and return to the Main dialog box.

Managing a KVM session

Click *Log Out* to disconnect the KVM and user sessions.

-or-

Click *Clear* to clear all offline IQ modules.

-or-

Click *Disconnect* to disconnect a KVM session. If there is an associated Locked virtual media session, it will be disconnected.

Setup Dialog Box Functions

You can configure your DSR switching system from the Setup dialog box within the OSCAR interface. Select the *Names* button when initially setting up your DSR switching system to identify target devices by unique names. Select the other setup features to manage routine tasks for your target devices from the OSCAR interface menu. Table 3.5 outlines the function accessed using each of the buttons in the Setup dialog box as shown in Figure 3.3.

Table 3.5: Setup Features to Configure the OSCAR Interface

Feature	Purpose
Menu	Change the Main dialog box list sorting option by toggling between numerically by port or EID number and alphabetically 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 target devices.
Scan	Set up a custom Scan pattern for multiple target devices.
Screen Saver	Set passwords to protect or restrict access or enable the screen saver.
Keyboard	Set the keyboard country code to send to Sun servers.
Network	Set the IP address, select an Ethernet mode or enable/disable Ping Response.
DSView IP	Specify the IP address of a DSView 3 software server for the DSR switch to contact.
Devices	Identify the appropriate number of ports on an attached cascade switch.
Names	Identify target devices by unique names.

To access the OSCAR interface Setup dialog box:

1. Press **Print Screen** to launch the OSCAR interface. The Main dialog box appears.
2. Click *Setup* to open the Setup dialog box shown in Figure 3.3.

Figure 3.3: OSCAR Interface Setup Dialog Box

Changing the display behavior

Use the Menu dialog box to change the display order of target devices, change how the OSCAR interface is invoked or set a Screen Delay Time for the OSCAR interface. This setting alters how target devices will display in several dialog boxes, including Main, Devices and Broadcast.

To access the OSCAR interface Menu dialog box:

1. If the OSCAR interface is not open, press **Print Screen** to open the Main dialog box.

2. Click *Setup - Menu* in the Main dialog box to open the Menu dialog box shown in Figure 3.4.
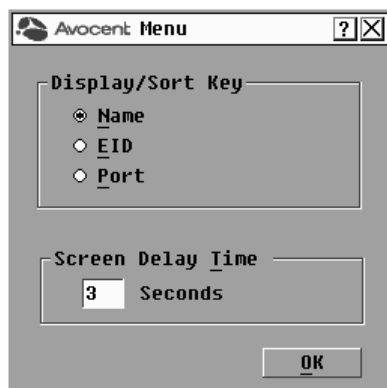
Figure 3.4: OSCAR Interface Menu Dialog Box

To choose the display order of target devices:

1. Select *Name* to display target devices alphabetically by name.
    -or-
    Select *EID* to display target devices numerically by EID number.

-or-

Select *Port* to display target devices 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 change how the OSCAR interface is invoked:

1. Select the checkbox next to one of the listed methods.

2. Click *OK*.

To set a Screen Delay Time for the OSCAR interface:
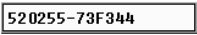
1. Type in the number of seconds (0-9) to delay the OSCAR Interface display after you press **Print Screen**. Entering **0** will instantly launch the OSCAR interface with no delay.

2. Click *OK*.

Setting a Screen Delay Time enables you to complete a soft switch without the OSCAR interface displaying. To perform a soft switch, see the *Soft switching* on page 16.

Controlling the status flag

The status flag displays on your desktop and shows the name or EID number of the selected target device or the status of the selected port. Use the Flag dialog box to configure the flag to display by target device name or EID number, or to change the flag color, opacity, display time and location on the desktop. Table 3.6 describes each status flag.

Table 3.6: OSCAR Interface Status Flags

Flag	Description
`Darrell`	Flag type by name
`520255-73F344`	Flag type by EID number
`Free`	Flag indicating that the user has been disconnected from all systems
`Darrell        ·))`	Flag indicating that Broadcast mode is enabled

To access the OSCAR interface Flag dialog box:

1. If the OSCAR interface is not open, press **Print Screen** to open the Main dialog box.

2. Click *Setup - Flag* to open the Flag dialog box shown in Figure 3.5.

Figure 3.5: OSCAR Interface 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 activate the flag display. After a switch, the flag will remain on the screen until the user switches to another device. Selecting *Timed* will cause the flag to display for five seconds when a switch is made and then disappear.

3. Select a flag color under Display Color. The following flag colors are available:

    • *Flag 1* - Gray 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 shown in Figure 3.6.

Figure 3.6: 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.

Selecting target devices for broadcasting

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

NOTE: You can broadcast to as many as eight target devices at a time (one target device per port).

To access the OSCAR interface Broadcast dialog box:

1. If the OSCAR interface is not open, press **Print Screen** to open the Main dialog box.

2. Click *Setup - Broadcast* to open the Broadcast dialog box shown in Figure 3.7.

Figure 3.7: OSCAR Interface Broadcast Dialog Box

NOTE: Broadcasting Keystrokes - The keyboard state must be identical for all target devices receiving a broadcast to interpret keystrokes identically. Specifically, the **Caps Lock** and **Num Lock** modes must be the same on all keyboards. While the switch attempts to send keystrokes to the selected target devices simultaneously, some target devices 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 select the target devices for broadcasting:

1. From the Broadcast dialog box, select the mouse and/or keyboard checkboxes for the target devices that are to receive the Broadcast commands.
    -or-

Press the **Up** or **Down Arrow** keys to move the cursor to the target device. Then press **Alt+K** to select the keyboard checkbox and/or **Alt+M** to select the mouse checkbox. Repeat for additional target devices.

2. 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.

For information on starting and stopping broadcasting, see *Enabling or disabling Broadcasting* on page 36.

Selecting target devices for Scan mode

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

NOTE: Scanning is available only to local users.

To add target devices to the Scan list:

1. If the OSCAR interface is not open, press **Print Screen** to open the Main dialog box.

2. Click *Setup - Scan* to open the Scan dialog box shown in Figure 3.8.
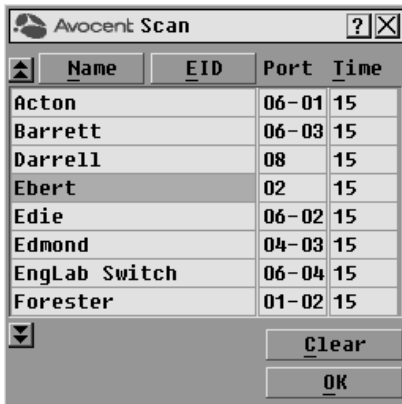
Figure 3.8: OSCAR Interface Scan Dialog Box

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

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

4. Type the first few characters of a target device name or port number to scan. The first matching target device will appear in the line.

   -or-

   Press the following keyboard commands in the Name, Port or Time column to move through the list of target devices available to scan.

   a. Press **Alt+Down Arrow** to move the cursor down through the list of target devices.

   b. Press **Alt+Up Arrow** to move the cursor up through the list of target devices.

   c. Press **Alt+Home** to move the cursor to the first target device in the list.

   d. Press **Alt+End** to move the cursor to the last target device 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 target device 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 target devices to be included in the scan pattern.

7. Click *OK* to save your settings.

To remove a target device from the Scan list:

1. In the Scan dialog box, click the target device to be removed.

2. Press **Delete**.

   -or-

   Press **Shift+Delete** to remove the selected target device and all entries below it.

3. Click *OK* to save your settings.

For more on starting and stopping scanning, see *Enabling or disabling Scan mode* on page 36.

Setting local port Screen Saver options

You can use the Screen Saver dialog box to manage the screen saver inactivity time and test the Screen Saver mode on the local port. If OSCAR Authentication has been enabled, after the specified Inactivity Time elapses, the local port locks and remains locked until you press any key or move the mouse. You will then need to log in and reselect a target device to continue.

To access the OSCAR interface Screen Saver dialog box:

1. If the OSCAR interface is not open, press **Print Screen** to open the Main dialog box.

2. Click *Setup - Screen Saver* to open the Screen Saver dialog box shown in Figure 3.9.

Figure 3.9: OSCAR Interface Screen Saver Dialog Box

To set the Screen Saver options:

1. Type the number of minutes for Inactivity Time (from 1-90) to delay activation of password protection and the screen saver feature.

2. 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®.

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

4. Click *OK* to save your settings.

To exit Screen Saver mode and log in to the local port:

1. Press any key or move the mouse.

2. If OSCAR Authentication has been enabled, you will see a login screen. Enter your username and password and then click *OK*. If you do not know your username and password, contact the DSView 3 software server administrator.

3. The Main OSCAR interface dialog box will appear where you may select any available target device.

To immediately activate the screen saver:

Press **Print Screen**, then **Pause**.

This command sequence works only when the user is connected to a target device.

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 keyboard mappings for non-US keyboards. By default, the DSR switch sends the US keyboard country code to Sun and USB modules attached to target devices, and the code is applied to the target devices when they are powered up or rebooted. Codes are then stored in the IQ 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 dialog box enables you to send a different keyboard country code than the default US setting. The specified country code is sent to all target devices attached to the DSR switches when they are powered up or rebooted, and the new code is stored in the IQ module.

NOTE: If an IQ module is moved to a different target device, the keyboard country code will need to be reset.

See *Sun Advanced Key Emulation* on page 117 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** to open the Main dialog box.

2. Click *Setup - Keyboard* to open the Keyboard dialog box shown in Figure 3.10.

Figure 3.10: OSCAR Interface Keyboard Dialog Box

3. Select a country code and click *OK* to save your settings.

4. Reboot the Sun servers. After rebooting, each Sun server will request the country code setting stored in the IQ module.

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

Configuring network settings

Use the Network dialog box to set the IP address, select an Ethernet mode or enable or disable the Ping Response feature.

NOTE: Only Appliance Administrators can make changes to Network dialog box settings. Other users can still access this dialog box, as well as the IP Setup dialog box, to view information, but they will not be able to make any changes.

To set the Ethernet Mode:

1. If the OSCAR interface is not open, press **Print Screen** to open the Main dialog box.
2. Click *Setup - Network* to open the Network dialog box shown in Figure 3.11.
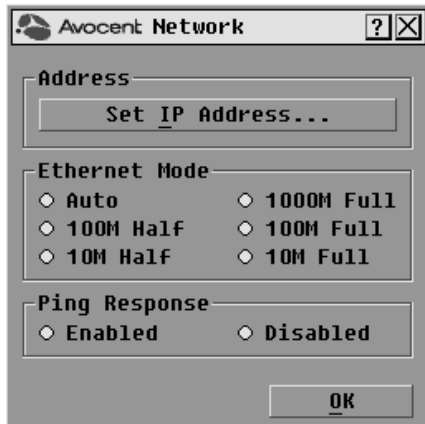
Figure 3.11: OSCAR Interface Network Dialog Box

3. Select one of the available options in the Ethernet Mode section.
4. Click *OK*.

NOTE: You must reboot if you change the Ethernet mode. After you change the setting and click OK, the following message appears: "Changing the Ethernet mode requires a reboot of the appliance. Do you want to reboot now, or cancel the changes? Warning: Rebooting will disconnect ALL users!" You can then reboot by clicking *Reboot*, or cancel the changes by clicking *Cancel*.

To enable or disable the Ping Response:

1. If the OSCAR interface is not open, press **Print Screen** to open the Main dialog box.
2. Click *Setup - Network* to open the Network dialog box.
3. Select either *Enabled* or *Disabled* in the Ping Response section.

4.   Click *OK*.

For more information on pinging an IP address, see *To send a ping request:* on page 41.

Configuring the IP address

The IP Setup dialog box allows users to choose either IPv4 mode or IPv6 mode. The default is IPv4. You can also specify an IP address for the appliance to use.

To configure the IP address:

1.   If the OSCAR interface is not open, press **Print Screen** to open the Main dialog box.
2.   Click *Setup - Network* to open the Network dialog box, then click *Set IP Address...* to open the IP Setup dialog box shown in Figure 3.12.

Figure 3.12: OSCAR Interface IP Setup Dialog Box

3.   Select either *IPv4* or *IPv6*.
4.   Either select or deselect the DHCP checkbox.

NOTE: If you select the DHCP checkbox, any information that you enter in the IP Address, Prefix/Netmask and Gateway fields will be ignored.

5.   If you deselected DHCP in step 4, type the desired information in the IP Address, Prefix/ Netmask and Gateway fields.
6.   Click *OK*.

Configuring the DSView 3 server IP address

The DSView IP dialog box allows users to contact and register an unmanaged DSR switch with a DSView 3 server by specifying the IP address of a DSView 3 server.

To configure the DSView 3 server IP address:

1.   If the OSCAR interface is not open, press **Print Screen** to open the Main dialog box.
2.   Click *Setup - DSView IP* to open the DSView IP dialog box shown in Figure 3.13.

NOTE: If the DSR switch is already associated with a DSView 3 server, the following message will appear instead of the DSView IP dialog box: *Feature unavailable: This appliance is already being managed by a DSView system*.

---

3. Enter the DSView 3 software server IP address that you want to contact in the DSView Server IP Address field.

4. Enter how often (in minutes) you want the DSR switch to attempt to contact the DSView 3 software server in the Retry Interval field.

5. Click *OK*.

Figure 3.13: OSCAR Interface DSView IP Dialog Box

Assigning device types

To access the OSCAR interface Devices dialog box:

1. If the OSCAR interface is not open, press **Print Screen** to open the Main dialog box.

2. Click *Setup - Devices* to open the Devices dialog box shown in Figure 3.14.

NOTE: The Modify button is available only if a configurable switch is selected.
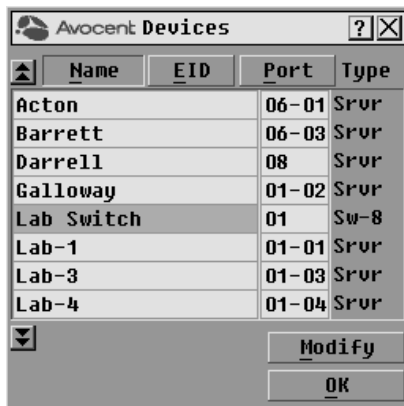
Figure 3.14: OSCAR Interface Devices Dialog Box

When the DSR switch discovers a cascaded switch, the numbering format changes from a DSR port only to [DSR port]-[switch port] to accommodate each target device under that switch.

For example, if a switch is connected to DSR port 6, each target device connected to it would be numbered sequentially. The target device using DSR port 6, switch port 1, would be 06-01, the target device using DSR port 6, switch port 2, would be 06-02, and so on.

To assign a device type:

1. In the Devices dialog box, select the desired port number.
2. Click *Modify* to open the Device Modify dialog box shown in Figure 3.15.
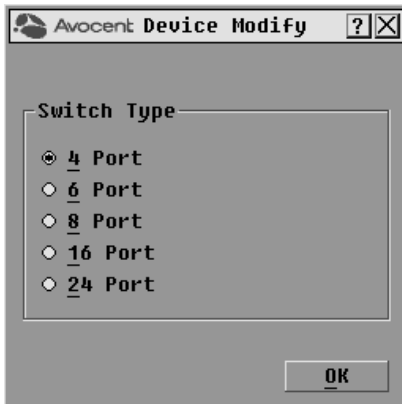
Figure 3.15: OSCAR Interface Device Modify Dialog Box

3. Choose the number of ports supported by your switch and click *OK*.
4. Repeat steps 1-3 for each port requiring a device type to be assigned.
5. Click *OK* in the Devices dialog box to save settings.

NOTE: Changes made in the Device Modify dialog box are not saved until you click *OK* in the dialog box.

Assigning target device names

Use the Names dialog box to identify target 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 IQ module, so even if you move the target device to another port, the name and configuration will be recognized by the switch.

NOTE: When it is initially connected, a target device will not appear in the Names list until it is powered up. Once an initial connection has been made, it will appear in the Names list even when powered down.

To access the OSCAR interface Names dialog box:

1. If the OSCAR interface is not open, press **Print Screen**. The Main dialog box appears.

2.   Click *Setup - Names* to open the Names dialog box shown in Figure 3.16.

Figure 3.16: OSCAR Interface Names Dialog Box

NOTE: If new IQ modules are discovered by the DSR 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 target devices:

1.   In the Names dialog box, select a target device name or port number and click *Modify* to open the Name Modify dialog box shown in Figure 3.17.

Figure 3.17: OSCAR Interface Name Modify Dialog Box

2.   Type a name in the New Name box. Names of target devices may contain all printable characters.

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 target 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 an IQ module has not been assigned a name, the EID is used as the default name.

To list target devices alphabetically by name:

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

Commands Dialog Box Functions

From the OSCAR interface Commands dialog box, you can manage your DSR switching system and user connections, enable the Scan and Broadcast modes and update your firmware.

Table 3.7: Commands to Manage Routine Tasks for Your Target Devices

Features	Purpose
Broadcast Enable	Begin broadcasting to your target devices. Configure a target device list for broadcasting under the Setup dialog box.
Scan Enable	Begin scanning your target devices. Set up a target device list for scanning in the Setup dialog box.
User Status	View and disconnect users.
Display Versions	View version information for the DSR switch as well as view and upgrade firmware for individual IQ modules.
Reset PS/2	Re-establish operation of PS/2 keyboard and mouse.
Network Ping	Ping a specific IP address.

To access the OSCAR interface Commands dialog box:

1. If the OSCAR interface is not open, press **Print Screen** to open the Main dialog box.
2. Click *Commands* to open the Commands dialog box shown in Figure 3.18.
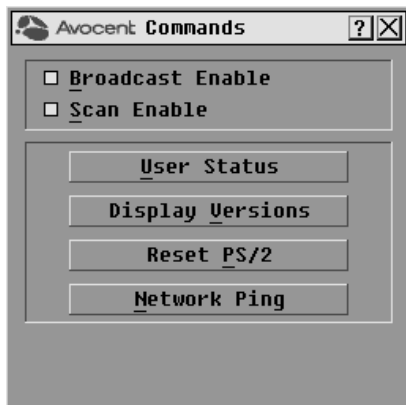
Figure 3.18: OSCAR Interface Commands Dialog Box

Enabling or disabling Broadcasting

To turn Broadcasting on:

1. If the OSCAR interface is not open, press **Print Screen** to open the Main dialog box.
2. Click *Commands* to open the Commands dialog box.
3. Select the *Broadcast Enable* checkbox to activate Broadcasting.
4. From the user station, type the information and perform the mouse movements you wish to broadcast.

To turn Broadcasting off:

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

Enabling or disabling Scan mode

To start the Scan mode:

1. If the OSCAR interface is not open, press **Print Screen** to open the Main dialog box.
2. Click *Commands* to open the 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 Enable button is selected.

To cancel Scan mode:

Select a target device 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 target device.

-or-

From the *Commands* dialog box, deselect the *Scan Enable* checkbox.

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 target device 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 Name field will display *Free*.

To view current user connections:

1. If the OSCAR interface is not open, press **Print Screen** to open the Main dialog box.
2. Click *Commands - User Status* to open the User Status dialog box shown in Figure 3.19.

Figure 3.19: OSCAR Interface User Status Dialog Box

To disconnect a user:

1. If the OSCAR interface is not open, press **Print Screen** to open the Main dialog box.
2. Click *Commands - User Status* to open the User Status dialog box shown in Figure 3.19.
3. Click the letter corresponding to the user to disconnect. The Disconnect dialog box will appear as shown in Figure 3.20.

Figure 3.20: OSCAR Interface 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 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.

Displaying version information

The OSCAR interface enables you to display the version number of the switch firmware and any auxiliary devices connected to the switch. 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** to open the Main dialog box.

2. Click *Commands - Display Versions* to open the Version dialog box shown in Figure 3.21.

Figure 3.21: OSCAR Interface Version Dialog Box

3. To view individual DSRIQ module version information, click *DSRIQ* to open the DSRIQ
    Selection dialog box shown in Figure 3.22.

Figure 3.22: DSRIQ Selection Dialog Box

4. Select a DSRIQ module to view and click the *Version* button. The DSRIQ Version dialog box
    shown in Figure 3.23 appears.

    For more information on loading firmware, refer to *Flash Upgrades* on page 85.

Figure 3.23: DSRIQ Version Dialog Box

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

Depending on your DSRIQ module type, you may have the option of switching between USB 2.0 Speed and USB 1.1 Full Speed.

To enable or disable USB 2.0:

1.   If the OSCAR interface is not open, press **Print Screen** to open the Main dialog box.

2.   Click *Commands - Display Versions* to open the Version dialog box shown in Figure 3.21.

3.   Click *DSRIQ* to open the DSRIQ Selection dialog box shown in Figure 3.22.

4.   Select a DSRIQ module to view and click the *Version* button. The DSRIQ Version dialog box shown in Figure 3.23 appears.

5.   Click *Disable* to turn off USB 2.0 - and turn on USB 1.1 Full Speed.
       -or-
       Click *Enable* to turn off USB 1.1 Full Speed and turn on USB 2.0 Hi Speed.

Resetting your PS/2 keyboard and mouse

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

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 target device that causes the mouse and keyboard settings to be sent to the DSR switch. With communication re-established between the target device and the DSR switch, functionality is restored to the user.

To reset the PS/2 mouse and keyboard values:

1.   If the OSCAR interface is not open, press **Print Screen** to open the Main dialog box.

2. Click *Commands - Reset PS/2*. A message box displays requesting that you confirm the reset.

3. In the message box, click *OK*.

   a. A message appears indicating that the mouse and keyboard have been reset.

   b. Click *OK* 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.

Sending a ping request

To send a ping request:

1. If the OSCAR interface is not open, press **Print Screen** to open the Main dialog box.

2. Click *Commands* to open the Commands dialog box.

3. Click *Network Ping* to open the Ping dialog box shown in Figure 3.24.

Figure 3.24: OSCAR Interface Ping Dialog Box

4. Enter the IP address that you want to ping in the IP Address to ping field, then click *Send Ping*.

   The result will be displayed in the Result box below the Send Ping button. The result will be one of the following:

   • Ping successful!

   • No response received.

   • Invalid IP address.

Web Interface Operations

Overview of the DSR Switch On-Board Web Interface

In addition to the OSCAR on-screen interface, DSR switches equipped with the on-board web interface feature provide a built in interface to handle all basic KVM switching needs. For enhanced functionality and control of multiple devices, users can upgrade to the DSView 3 software package. The DSR switch on-board web interface provides secure "point-and-click" web browser-based access to control any device attached to your DSR switch.

Table 4.1 shows which operating systems and browsers the DSR switch on-board web interface supports.

Table 4.1: On-Board Web Interface Supported Operating Systems and Browsers

Operating System	Browser		
	Microsoft® Internet Explorer version 6.0 SP1 and later	Mozilla® version 1.7.3 and later	Firefox® version 1.0 and later
Windows 2000 Workstation or Server with Service Pack 2	Yes	Yes	Yes
Windows Server® 2003 Standard, Enterprise or Web Edition	Yes	Yes	Yes
Windows XP Home Edition or Professional	Yes	Yes	Yes
Windows Vista®	Yes	Yes	Yes
Red Hat® Enterprise Linux 3, 4 and 5	No	Yes	Yes
Sun® Solaris™ 9 and 10	No	Yes	Yes
Novell® SUSE® Linux® Enterprise 9 and 10	No	Yes	Yes
Fedora Core 6, 7 and 8	No	Yes	Yes
Mac OS® X Tiger (10.4+)	No	No	Yes

NOTE: Mac OS X requires Firefox 1.5 or later.

Avocent recommends that the browser be kept up-to-date with the latest version.

A Video Viewer window allows you to control the keyboard, monitor and mouse functions of individual target devices connected to the DSR switch in real time. You may also use predefined global macros to perform actions within the Video Viewer window. For instructions on how to use the Video Viewer, see Chapter 5. Once the switch has been installed and configured as described in Chapter 2 and you have set the IP address, you are ready to begin regular operation.

Viewing and Selecting Ports and Servers

Before you can begin a KVM session, you must first login to the DSR switch on-board web interface.

To log in to the DSR switch on-board web interface:

1. Launch a web browser.
2. In the address field of the browser, enter the IP address or host name assigned to the DSR switch you wish to access. Use https://xxx.xx.xx.xx or https://hostname as the format.
3. When the browser makes contact with the switch, enter your username and password, then click *Login*. The DSR Explorer Window will appear.

NOTE: The default username is Admin with no password.

The DSR Explorer Window

When a user has been logged in and authenticated, the Avocent DSR Explorer window appears. From the DSR Explorer window, users may view, access and manage their DSR switch. The window may also be used to specify system settings and change profile settings.

Figure 4.1 shows the DSR Explorer window areas for the DSR switch, and descriptions follow in Table 4.2.
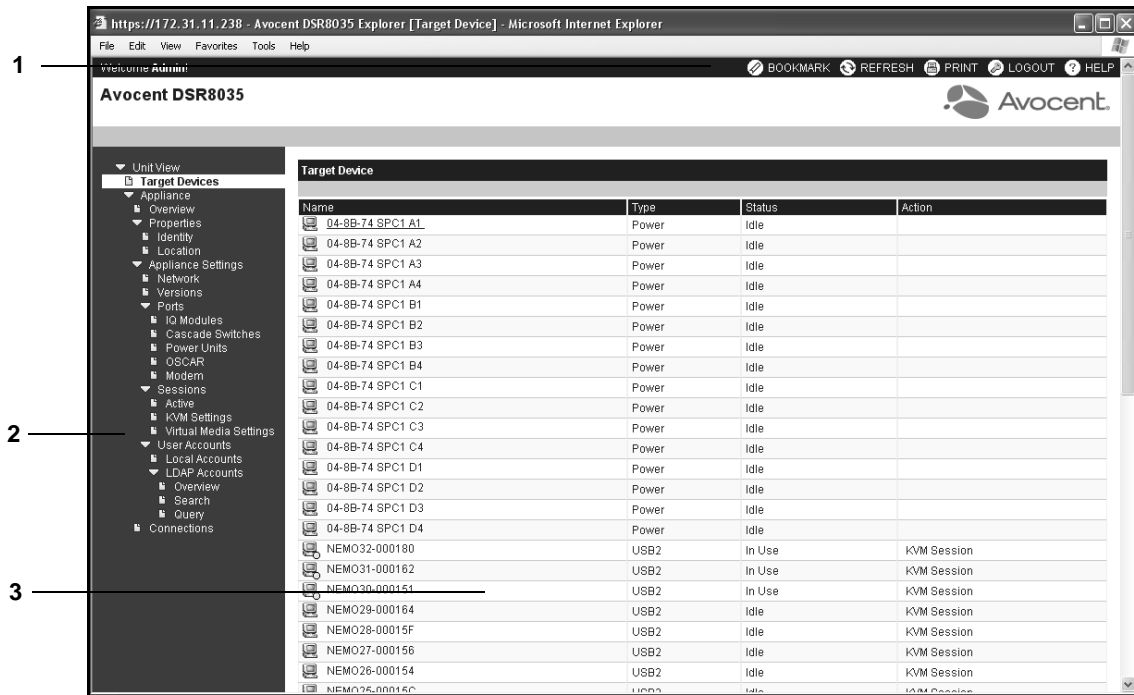
Figure 4.1: Avocent DSR Explorer Window

Table 4.2: Descriptions for Figure 4.1

Number	Description
1	Top option bar: Use the top option bar to bookmark a DSR switch on-board web interface window, refresh the display of a DSR switch on-board web interface window, print a web page, log out of a software session or access the Avocent Technical Support help page. The name of the logged in user appears on the left side of the top option bar.
2	Side navigation bar: Use the side navigation bar to display the system information you wish to display or edit, which displays in the content area. The side navigation bar also contains icons in the top left corner which, when clicked, expand or collapse all nodes.
3	Content area: Use the content area to display or make changes to the DSR switch on-board web interface system.

Using the side navigation bar

You can use the side navigation bar to display windows in which you can specify settings or perform operations. Clicking on a link that does not contain an arrow will display its corresponding window.

Using the top option bar

Bookmarking a window

The DSR Explorer window contains a bookmark icon and text in the top option bar. Bookmarking a window will add a link to the window in the Favorites drop-down menu. You may select the link at any time to quickly access the bookmarked window.

If you bookmark a window and information related to the window changes, this new information will appear in the window when you next display the bookmarked window.

If you click *BOOKMARK* or the bookmark icon after the DSR switch on-board web interface session has timed out, the User Login window will open and you must log in again.

To bookmark a window:

1. In the top option bar, click *BOOKMARK* or the bookmark icon. The Add Favorite dialog box will appear.
2. If you wish, type a name for the window. You may also click the *Create in* button to create or specify a folder in which to place the window.
3. Click *OK* to close the Add Favorite dialog box.

Printing a window

All DSR switch on-board web interface (OBWI) windows contain a print icon in the top option bar.

To print a DSR switch on-board web interface window:

1. In the top option bar, click *PRINT* or the print icon. The Print dialog box will appear.
2. Specify the options you wish to use for printing the DSR switch on-board web interface window.
3. Click *Print* to print the DSR switch on-board web interface window and close the Print dialog box.

Refreshing a window

A DSR Explorer window may be refreshed at any time by clicking *REFRESH* or the refresh icon in the top option bar.

Logging out

A user may log out at any time by clicking the logout icon in the top option bar.

Launching a KVM Session

NOTE: When in IPv4 mode, Java 1.5 or later is required. When in IPv6 mode, Java 1.6 or later is required. Currently, MAC operating systems only support Java 1.5, so users with MAC operating systems cannot yet operate in IPv6 mode.

To launch a KVM session from the DSR Explorer:

1. From the DSR Explorer, select *Target Devices* in the side navigation bar. A list of available devices will appear.

2. Click the *KVM session* link to the right of the target device that you wish to access. The Video Viewer will launch. For more information on the Video Viewer, see Chapter 5.

If the target device is currently in use, users attempting access will be given an opportunity to force a connection to the device if their preemption level is equal to or higher than the current user's.

Users may also launch KVM sessions from the Unit Overview window.

To delete offline IQ modules:

1. If you wish to only list servers that are available and powered, click *Appliance - Appliance Settings - Ports - IQ modules* to activate the Appliance IQ modules window.

2. Click the *Delete Offline* button.

To disconnect an active KVM session (administrator only):

1. Click *Appliance - Appliance Settings - Sessions - Active* to display a list of active KVM sessions.

2. Select the checkbox to the left of the session you wish to disconnect and click the *Disconnect* button.

Managing the DSR Switch On-Board Web Interface

While not as powerful as the DSView 3 software, the DSR switch on-board web interface provides several configuration options to tailor the DSR switch to your specific application.

Upgrading IQ modules

The IQ module Flash upgrade feature allows you to update IQ modules with the latest firmware available. This update can be performed using the DSR switch on-board web interface, DSView 3 software or the OSCAR interface.

After the Flash memory is reprogrammed with the upgrade, the DSR switch performs a soft reset, which terminates all IQ module sessions. A target device experiencing an IQ module firmware update may not display, or may display as disconnected. The target device will appear normally when the Flash update is completed.

NOTE: Check www.avocent.com for firmware upgrade files.

NOTE: IQ modules are automatically updated when the DSR switch is updated. To update your DSR switch firmware, see *Flash Upgrades* on page 69 or the DSView 3 Software Online Help.

If issues occur during the normal upgrade process, IQ modules may also be force upgraded when needed.

To force upgrade the IQ module firmware using the DSR switch on-board web interface:

1. From the side navigation bar, select *Appliance - Appliance Settings - Ports - IQ modules*.

2. Select the IQ modules that you wish to upgrade and click the *Upgrade* button.

CAUTION: Disconnecting a DSR switch or IQ module or power cycling the user's computer during a firmware update may render it inoperable and require it to be returned to the factory for repair.

Managing USB speed

Depending on your IQ module type, you may have the option of choosing either USB 1.1 Full Speed or USB 2.0 Hi Speed.

To set the IQ module USB Speed:

1. From the side navigation bar, select *Appliance - Appliance Settings - Ports - IQ modules*.

2. Select the IQ modules that you wish to modify.

3. Click either *Set USB 1.1 Speed* or *Set USB 2.0 Speed*.

Rebooting the appliance

Periodically, such as after an upgrade, you may need to reboot the DSR switch.

To reboot the DSR switch remotely:

1. From the side navigation bar, select *Appliance - Overview.*

2. When the appliance overview window appears, click *Tools - Reboot Appliance*.

Managing local accounts

The DSR switch on-board web interface provides local and login security through administrator-defined user accounts. By selecting *Local Accounts* on the side menu bar, administrators may add and delete users, define user preemption and access levels and change passwords.

Access levels

When a user account is added to the on-board web interface, the user may be assigned to any of the following access levels:

*   Appliance administrators
*   User administrators
*   Users

Table 4.3: Allowed Operations by Access Level

Operation	Appliance Administrator	User Administrator	Users
	Access Level		
Configure on-board web interface system-level settings	Yes	No	No
Configure access rights	Yes	Yes	No
Add, change and delete user accounts	Yes, for all access levels	Yes, for users and user administrators only	No
Change your own password	Yes	Yes	Yes
Access target device	Yes, all target devices	Yes, all target devices	Yes, if allowed

To add a new user account (administrator only):

1. On the side menu bar, select *Local Accounts*. The current user list will be displayed.
2. Click the *Add* button.
3. Enter the name and password of the new user in the blanks provided.
4. Select the preemption and access levels for the new user.
5. Click the *Save* button to complete the process.

To delete a user account (administrator only):

1. On the side menu bar, select *Local Accounts*. The current user list will be displayed.
2. Click the box to the left of each account that you wish to delete, then click the *Delete* button.

To edit a user account (administrator or active user only):

1. On the side menu bar, select *Local Accounts*. The current user list will be displayed.
2. Click the name of the user you wish to edit. A user profile will appear.
3. Edit the user account as needed, then click *Save*.

Preemption levels

The preemption level of users determines whether they may disconnect another user's serial or video (KVM) session with a target device.

DSR switch on-board web interface administrators may specify the preemption level for user accounts when an account is created. The preemption level may be changed later.

Preemption levels range from 1-4, with 4 being the highest level. For example, a user with a preemption level of 4 may preempt other level 4 users, as well as those with a level 1, 2 or 3 setting.

To change the default preemption level (administrator only):

1. Click *Appliance - Appliance Settings - Ports - OSCAR*.

2. Use the drop-down menu to select the new level and click the *Save* button.

Configuring virtual media

Virtual media session settings

You can determine the behavior of the appliance during a virtual media session using the options provided in the on-board web interface Appliance Virtual Media Session Settings screen. Virtual media session settings include session lock, access mode and encryption level. Table 4.4 describes the virtual media session settings.

Table 4.4: Virtual Media Session Settings

Setting	Description
Session Lock: Virtual Media locked to KVM session	The locking option specifies whether a virtual media session is locked to the KVM session on the target device. When locking is enabled (default) and the KVM session is closed, the virtual media session will also be closed. When locking is disabled and the KVM session is closed, the virtual media session will remain active.
Drive Mappings: Virtual Media Access Mode	You may set the access mode for mapped drives to read-only or read-write. When the access mode is read-only, the user will not be able to write data to the mapped drive on the client workstation. When the access mode is read-write, the user will be able to read and write data from/to the mapped drive. If the mapped drive is read-only by design (for example, certain CD/ DVD drives or ISO images), the configured read-write access mode will be ignored. Setting the read-only mode can be helpful when a read-write drive such as a mass storage device or a USB removable media is mapped, and you wish to prevent the user from writing data to it.
Encryption Level	You may configure zero to four encryption levels for virtual media sessions. Any combination is valid. The choices are: DES, 3DES, 128-bit SSL and AES. The default is no encryption (no encryption levels selected).

To configure virtual media in the on-board web interface:

1. Click *Appliance - Appliance Settings - Sessions - Virtual Media Settings*.
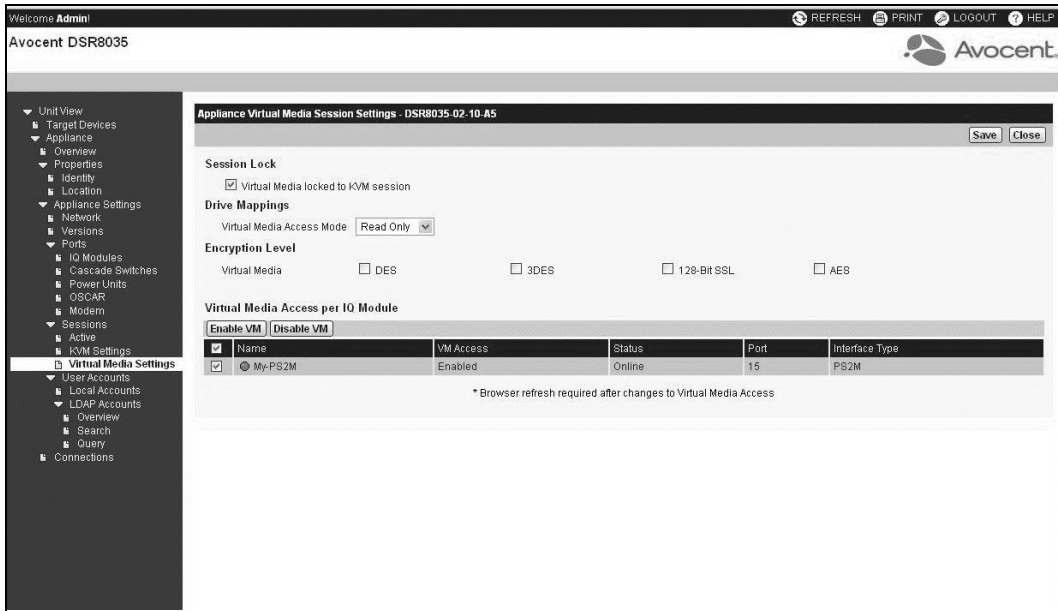
Figure 4.2: On-board Web Interface Appliance Virtual Media Session Settings screen

2.   Either enable or disable the *Virtual Media locked to KVM session* checkbox.

3.   Select a Virtual Media Access Mode (either *Read-Only* or *Read-Write*).

4.   Select any of the Encryption Levels that you wish to be supported.

5.   If the KVM switch supports virtual media, the Virtual Media Access per IQ Module section lists all USB2 or PS2M IQ modules. The list includes details about each IQ module, including a virtual media status of Enabled or Disabled.

      Select the checkbox next to each IQ module for which you want to enable virtual media and click *Enable VM*. The preset virtual media status is *Enabled*.

      -or-

      Select the checkbox next to each IQ module for which you want to disable virtual media and click *Disable VM*.

NOTE: If the KVM switch does not support virtual media, the Virtual Media Access per IQ module section and associated buttons and links are not displayed.

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6.   Click *Save*.

See *Using Virtual Media* on page 75 for more information on virtual media.

Managing Device Properties

Viewing and changing appliance configuration information

The DSR switch can report most device properties directly through the DSR switch web browser.

NOTE: Users can view all appliance information, but only administrators can change settings.

Table 4.5: Viewing Appliance Information

To do this:	Select this:
Display the unit's name or type	*Appliance - Overview*
Display a list of available target devices, their type and status	*Target Devices*
Enter, change or display the unit's IP version, network address, gateway address, subnet mask, prefix length (if IPv6 mode), MAC address, LAN speed, DHCP enable status, ICMP ping reply status, SNMP enable status or primary, secondary or tertiary DNS servers	*Appliance - Appliance Settings - Network*
Display the unit's current firmware revision for application, boot and Video FPGA	*Appliance- Appliance Settings - Versions*
Display a list of the attached IQ module and its status	*Appliance - Appliance Settings - Ports - IQ modules*
Display a list of active KVM sessions and their duration	*Appliance - Appliance Settings - Sessions - Active*
Display a list of active sessions	*Appliance - Appliance Settings - Sessions - Active*
Display a list of devices attached to the DSR switch	*Appliance - Connections*
VIew the unit's part number, serial number and EID number	*Appliance - Properties - Identity*
Enter or display the unit's Site, Department and Location	*Appliance - Properties - Location*
Enable the Inactivity Timeout	*Appliance - Appliance Settings - Sessions - KVM settings* Then click the *Enable Inactivity Timeout* box
Change the unit encryption level	*Appliance - Appliance Settings - Sessions - KVM settings* Then select the level of encryption desired for keyboard/ mouse signals and then video signals
Change the modem time-out settings	*Appliance - Appliance Settings - Ports - Modern*

Power Controlling Target Devices

NOTE: You must have administrator privileges to change power control device settings.

If a target device is connected to a power control device outlet, you may power up, power down or cycle (power target device down and then up) the target device using the DSR switch on-board web interface.

To power up a target device:

1. Select *Appliance - Appliance Settings - Ports - Power Units* from the DSR Explorer window.
2. Click the name of the unit you wish to power up, and select *Sockets*.
3. Select the checkbox to the left of the device that you wish to power.
4. Click the *On* button.

To power down a target device:

1. Select *Appliance - Appliance Settings - Ports - Power Units - Sockets* from the DSR Explorer window. The sockets window will appear.
2. Select the checkbox to the left of the device that you wish to power down.
3. Click the *Off* button.

To power cycle a target device:

1. Select *Appliance - Appliance Settings - Ports - Power Units - Sockets* from the DSR Explorer window. The sockets window will appear.
2. Select the checkbox to the left of the device that you wish to cycle.
3. Click the *Cycle* button.

To change the minimum on time, off time or wake up state:

1. Select *Appliance - Appliance Settings - Ports - Power Units - Sockets* from the DSR Explorer window. The sockets window will appear.
2. Click the socket name that you wish to modify.
3. Use the drop-down windows to alter the desired settings.
4. Click the *Save* button to exit.

To view device details regarding the connected SPC device:

Select *Appliance - Appliance Settings - Ports - Power Units - Settings* from the DSR Explorer window.

Configuring LDAP

LDAP is a vendor-independent protocol standard used for accessing, querying and updating a directory using TCP/IP. Based on the X.500 Directory Services model, LDAP is a global directory structure that supports strong security features including authentication, privacy and integrity.

If individual user accounts are stored on an LDAP-enabled directory service, such as Active Directory, you can use the directory service to authenticate users. The default values given for the LDAP search and query parameters are defined for use with Active Directory.

The settings made in the on-board web interface let you configure your authentication configuration parameters. The software sends the username, password and other information to the appliance, which then determines whether the user has permission to view or change configuration parameters for the appliance in the on-board web interface.

NOTE: Unless otherwise specified, the LDAP default values should be used unless Active Directory has been reconfigured. Modifying the default values may cause LDAP authentication server communication errors.

LDAP Overview parameters

On the LDAP Overview page in the on-board web interface, you can configure the LDAP authentication priority and the parameters that define LDAP server connection information.

LDAP authentication priority

In the LDAP Priority section of the on-board web interface, you can disable LDAP, or you can set the authentication priority by choosing whether local authentication or LDAP authentication should happen first.

To configure LDAP authentication priority parameters:

1.   Select *Appliance - Appliance Settings - User Accounts - LDAP Accounts - Overview.*

2.   Select either *LDAP Disabled*, *LDAP before Local* or *LDAP after Local* for the LDAP Priority.

3.   Click *Save*.

LDAP servers

The Address fields specify the host names or IP addresses of the primary and secondary LDAP servers. The secondary LDAP server is optional.

The Port fields specify the User Datagram Protocol (UDP) port numbers that communicate with the LDAP servers. The default value is 389 for non-secure LDAP and 636 for secure LDAP (LDAPS). The default Port ID is automatically entered by the software when an access type is specified.

The Access Type radio buttons specify how a query is sent to each LDAP target device. When using LDAP, all usernames, passwords and other information sent between an appliance and LDAP server are sent as non-secure clear text. Use LDAPS for secure encrypted communication between an appliance and LDAP server.

Figure 4.3: LDAP Overview Page in the On-Board Web Interface

To configure LDAP server parameters:

1. Select *Appliance - Appliance Settings - User Accounts - LDAP Accounts - Overview.*

2. Identify the primary and secondary server address, port and access type in the appropriate fields or radio buttons.

3. Click *Save*.

LDAP Search parameters

On the LDAP Search page, you can configure the parameters used when searching for LDAP directory service users.

Use the Search DN field to define an administrator-level user that the appliance uses to log into the directory service. Once the appliance is authenticated, the directory service grants it access to the directory to perform the user authentication queries specified on the LDAP Query page. The default values are cn=Administrator, cn=Users, dc=yourDomainName and dc=com and may be modified. For example, to define an administrator Distinguished Name (DN) for test.view.com, type **cn=Administrator, cn=Users, dc=test, dc=view,** and **dc=com**. Each Search DN value must be separated by a comma.

The Search Password field is used to authenticate the administrator or user specified in the Search DN field.

Use the Search Base field to define a starting point from which LDAP searches begin. The modifiable default values are dc=yourDomainName and dc=com. For example, to define a search base for test.com, type **dc=test, dc=com**. Each Search Base value must be separated by a comma.

The UID Mask field specifies the search criteria for User ID searches of LDAP target devices. The format should be in the form <name>=<%1>. The default value is sAMAccountName=%1, which is correct for use with Active Directory. This field is required for LDAP searches.

Figure 4.4: LDAP Search Page in the On-Board Web Interface

To configure LDAP search parameters:

1. Select *Appliance - Appliance Settings - User Accounts - LDAP Accounts - Search*.
2. Enter the appropriate information in the Search DN, Search Password, Search Base and UID Mask fields.
3. Click *Save*.

NOTE: These options cannot be changed if the LDAP Priority is set to *LDAP Disabled* on the Overview screen.

LDAP Query parameters

On the LDAP Query page, you can configure the parameters used when performing user authentication queries.

The appliance performs two different types of queries. Query Mode (Appliance) is used to authenticate administrators and users attempting to access the appliance itself. Query Mode (Target Device) is used to authenticate users that are attempting to access attached target devices. Additionally, each type of query has three modes that utilize certain types of information to determine whether or not an LDAP user has access to an appliance or connected target devices. See *Appliance and Target Device Query Modes* on page 58 for detailed information on each mode.

You can configure the following settings on the LDAP Query Page:

- The Query Mode (Appliance) parameters determine whether or not a user has access to the appliance.

- The Query Mode (Target Device) parameters determine whether or not a user has user access to target devices connected to an appliance. The user does not have access to the appliance, unless granted by Query Mode (Appliance).

- The Group Container, Group Container Mask and Target Mask fields are only used for group query modes and are required when performing an appliance or device query.

- The Group Container field specifies the organizational unit (ou) created in Active Directory by the administrator as the location for group objects. Group objects are Active Directory objects that can contain users, computers, contacts and other groups. Group Container is used when Query Mode is set to Group Attribute. Each group object, in turn, is assigned members to associate with a particular access level for member objects (people, appliances and target devices). The access level associated with a group is configured by setting the value of an attribute in the group object. For example, if the Notes property in the group objects is used to implement the access control attribute, the Access Control Attribute field on the LDAP Query Page should be set to info. Setting the Notes property to KVM User Admin causes the members of that group to have user administration access to the appliances and target devices that are also members of that same group.

- The Notes property is used to implement the access control attribute. The value of the Notes property, available in group and user objects shown in Active Directory Users and Computers (ADUC), is stored internally in the directory, in the value of the info attribute. ADUC is a Microsoft Management Console snap-in for configuring Active Directory. It is started by selecting *Start - Programs - Administrative Tools - Active Directory Users and Computers*. This tool is used to create, configure and delete objects such as users, computers and groups. See Figure 4.6 on page 59 and Figure 4.7 on page 60 for more information.

- The Group Container Mask field defines the object type of the Group Container, which is normally an organizational unit. The default value is "ou=%1".

- The Target Mask field defines a search filter for the target device. The default value is "cn=%1".

•   The Access Control Attribute field specifies the name of the attribute that is used when the query modes are set to User Attribute or Group Attribute. The default value is info.
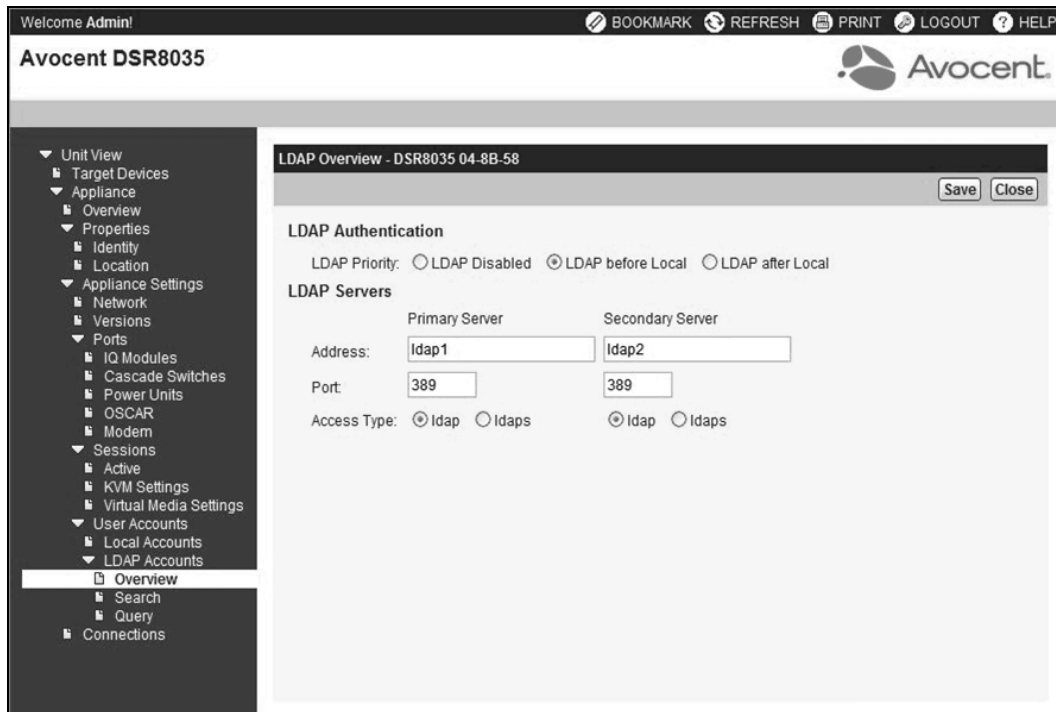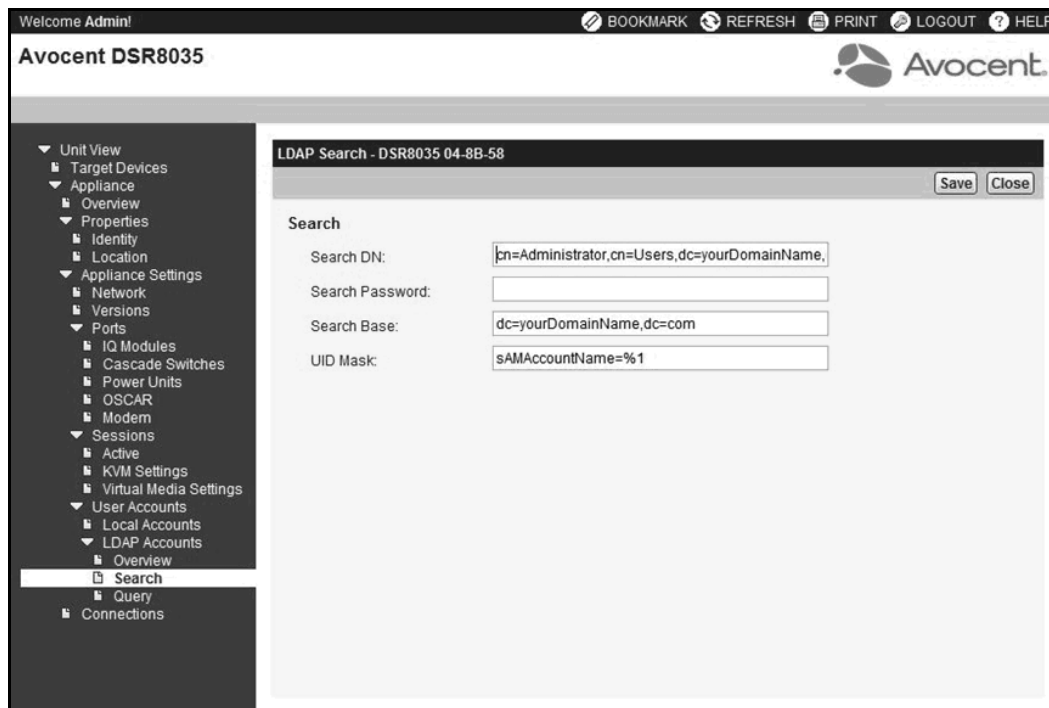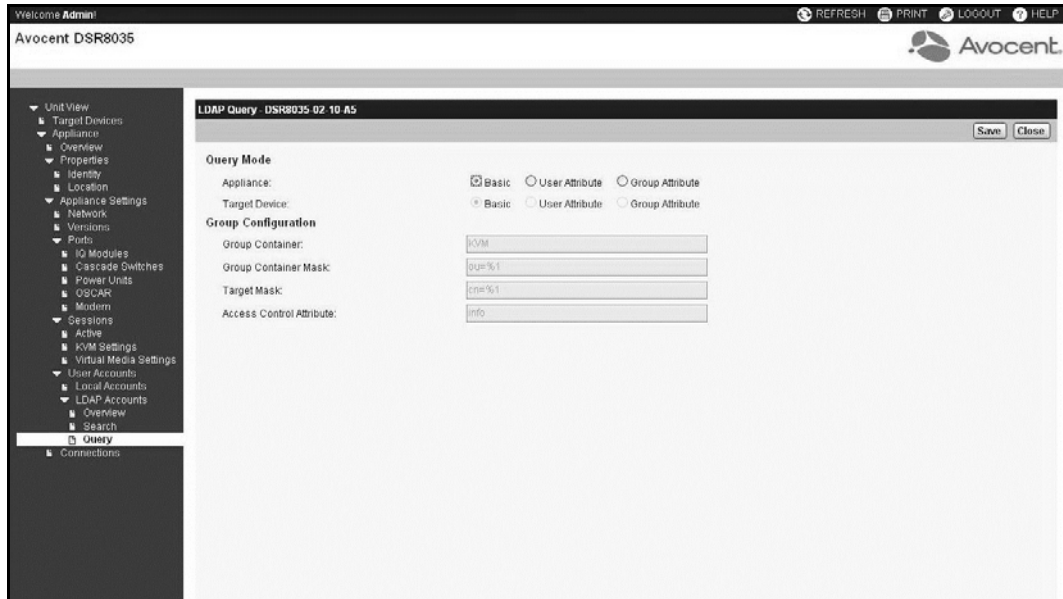

Figure 4.5: LDAP Query Page in the On-board Web Interface

To configure LDAP query parameters:

1.   Select *Appliance - Appliance Settings - User Accounts - LDAP Accounts - Query.*

2.   Select either *Basic*, *User Attribute* or *Group Attribute* for the Appliance Query Mode and the Target Device Query Mode.

3.   Enter the appropriate information in the Group Container, Group Container Mask, Target Mask and Access Control Attribute fields.

4.   Click *Save*.

NOTE: These options cannot be changed if the LDAP Priority is set to *LDAP Disabled* on the Overview screen.

Appliance and Target Device Query Modes

One of three different modes can each be used for Query Mode (Appliance) and Query Mode (Target Device):

•   Basic – A username and password query for the user is made to the directory service. If they are verified, the user is given appliance administrator access to the appliance and any attached target devices for Query Mode (Appliance), or to any selected target device for Query Mode (Target Device).

- User Attribute – A username, password and Access Control Attribute query for the appliance user is made to the directory service. The Access Control Attribute is read from the user object (the user account) in Active Directory.

  If the KVM Appliance Admin value is found, the user is given appliance administrator access to the appliance and any attached target devices for Query Mode (Appliance), or to any selected target device for Query Mode (Target Device).

  If the KVM User Admin value is found, the user is given user administrator access to the appliance and attached target devices for Query Mode (Appliance), or to any selected target device for Query Mode (Target Device).

  If the KVM User value is found, the user is given User access to the appliance for Query Mode (Appliance), or to any selected target device for Query Mode (Target Device).

NOTE: If none of the three values are found, the user is given no access to the appliance and target devices for Query Mode (Appliance) or to any selected target device for Query Mode (Target Device), unless the user has User Admin or Appliance Admin privileges to the appliance.

The following are examples showing how the KVM Appliance Admin and KVM User Admin attribute modes are defined in Active Directory for a user named John Smith, stored in the ADUC. You can access the ADUC by selecting *Start - Programs - Administrative Tools - Active Directory Users and Computers*.
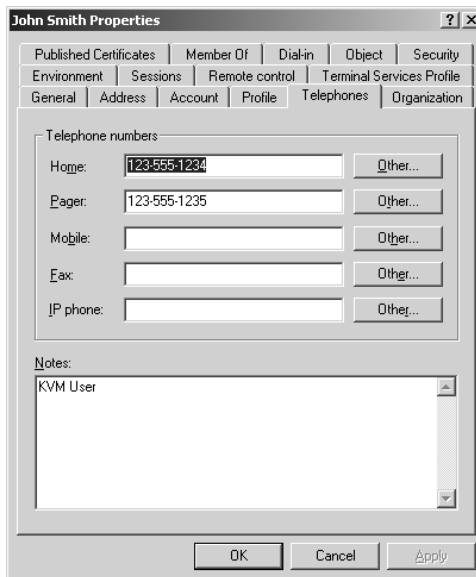
Figure 4.6: Active Directory - KVM User
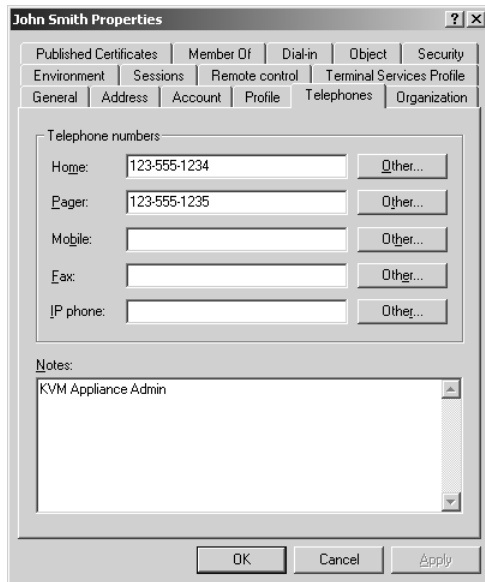
Figure 4.7: Active Directory - KVM Appliance Admin

- Group Attribute – A username, password and group query is made to the directory service for an appliance and attached target devices when using Query Mode (Appliance), or for a selected target device when using Query Mode (Target Device). If a group is found containing the user and the appliance name, the user is given access to the appliance or attached target devices, depending on the group contents, when using Query Mode (Appliance). If a group is found containing the user and target device IDs, the user is given access to the selected target device connected to the appliance when using Query Mode (Target Device).

  Groups can be nested to a maximum of 16 levels in depth. Use nesting to create groups within other groups. For example, you may have a top-level group named Computers that contains a member named R&D, which is a group. The R&D group may contain a member named Domestic, which is a group, and so on.

  The following is an example of groups defined in Active Directory.
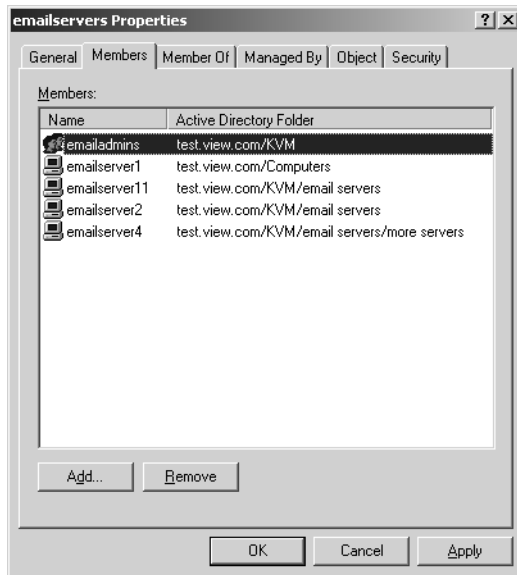
Figure 4.8: Active Directory - Define Groups

Setting up Active Directory for performing queries

Before you can use any of the querying modes for units, you must first make changes to Active Directory so that the selected querying mode can assign the applicable authorization level for the user.

To set up group queries:

1. Log into Windows with administrator privileges.

2. Open Active Directory software.

3. Create an organizational unit to be used as a group container.

4. Create a computer object in Active Directory with a name identical to the switching system name for querying appliances (specified in the Appliance Overview screen of the OBWI), or identical to the attached target devices for querying target devices. The name must match exactly, including case.

5. The appliance names and target device names used for group queries are stored in the appliance. The appliance name specified in the Appliance Overview screen of the OBWI and target device names must identically match the object names in Active Directory. Each appliance name and target device name may be comprised of any combination of upper-case and lower-case letters (a-z, A-Z), digits (0-9) and hyphens (-). You cannot use spaces and periods (.) or create a name that consists entirely of digits. These are Active Directory constraints.

NOTE: The factory default name in earlier versions contains a space that must be removed by editing the switching system name in the Appliance Overview screen of the OBWI.

6. Create one or more groups under the group container organizational unit.

7. Add the usernames and target device and appliance objects to the groups you created in step 5.

8. Specify the value of any attribute being used to implement the access control attribute. For example, if you are using info as the attribute in the Access Control Attribute field and using the Notes property in the group object to implement the access control attribute, the value of the Notes attribute in Active Directory may be set to one of the three available access levels (KVM User, KVM User Admin or KVM Appliance Admin) for the group object. The members of the group may then access the appliances and target devices at the specified access level.

NOTE: If none of the three values are found, the user is granted user level access to any appliance or target device listed in a group with the username.

CHAPTER

5

The Video Viewer

The Video Viewer Window

The Video Viewer is used to conduct a KVM session with the target devices attached to a DSR switch using the on-board web interface. When you connect to a device using the Video Viewer, the target device desktop appears in a separate window containing both the local and the target device cursor. The Video Viewer window supports either a 3- or 5-button mouse.

The DSR switch on-board web interface software uses a Java-based program to display the Video Viewer window. The DSR switch on-board web interface automatically downloads and installs the Video Viewer the first time it is opened.

NOTE: When in IPv4 mode, Java 1.5 or later is required. When in IPv6 mode, Java 1.6 or later is required. Currently, MAC operating systems only support Java 1.5, so users with MAC operating systems cannot yet operate in IPv6 mode.

NOTE: The DSR switch on-board web interface does not install the Java Resource Engine (JRE). The JRE is available as a free download from http://www.sun.com for PC users and from http://www.apple.com for Mac users.

NOTE: The DSR switch on-board web interface uses system memory to store and display images within Video Viewer windows. Each opened Video Viewer window requires additional system memory:
• An 8-bit color setting on the client PC requires 1.4 MB of memory per Video Viewer window.
• A 16-bit color setting requires 2.4 MB and a 32-bit color setting requires 6.8 MB.

Opening more than four simultaneous Video Viewer windows may affect system performance and is not recommended. If you attempt to open more Video Viewer windows than your system memory allows, you will receive an out-of-memory error and the requested Video Viewer window will not open.

If the device you are attempting to access is currently being viewed by another user, you will be prompted to preempt the other users if your preemption level is equal to or greater than theirs. An appliance administrator can also disconnect an active user via the Active Session page. For more information, see *To disconnect an active KVM session (administrator only):* on page 47.

Launching a KVM Session

> **NOTE:** When using a non-proxied connection, video performance over a slower network connection may be less than optimal. Since certain color settings (such as Grayscale) use less network bandwidth than others (such as Best Color), changing the color settings can increase video performance. For optimal video performance over a slower network connection, Avocent recommends a color setting such as Grayscale/Best Compression or Low Color/High Compression. See *1024 x 768 768 x 576 960 x 720 704 x 528 896 x 672 640 x 480 832 x 624* on page 68 for more information.

> **NOTE:** If a user connects to a target device with a higher screen resolution than the local computer, the Video Viewer window will display a portion of the target device screen, with scroll bars for viewing the remainder of the screen. The user may view the entire screen by adjusting the resolution on the target device, the local computer or both.

To launch a KVM session from the DSR Explorer window:

1. Click on a device listed on the Target Devices screen to open the unit overview window.
2. Click the *KVM Session* link to open the Video Viewer in a new window.

Session time-out

A remote session can time-out when no activity occurs in a Session window for a specified time. The session time-out value can be configured in the Appliance KVM Session Settings window. The specified time-out value will be used the next time the switch on-board web interface is accessed.

To enable, disable or configure the session time-out:

1. In the side menu, select *Unit Views - Appliance - Appliance Settings - Sessions - KVM Settings*.
2. Select the desired setting for the *Enable Activity Timeout* box.
3. If necessary, select the time limit for the inactivity time-out.

Video Viewer Window Features

Figure 5.1 shows the Video Viewer window areas. Descriptions follow in Table 5.1.
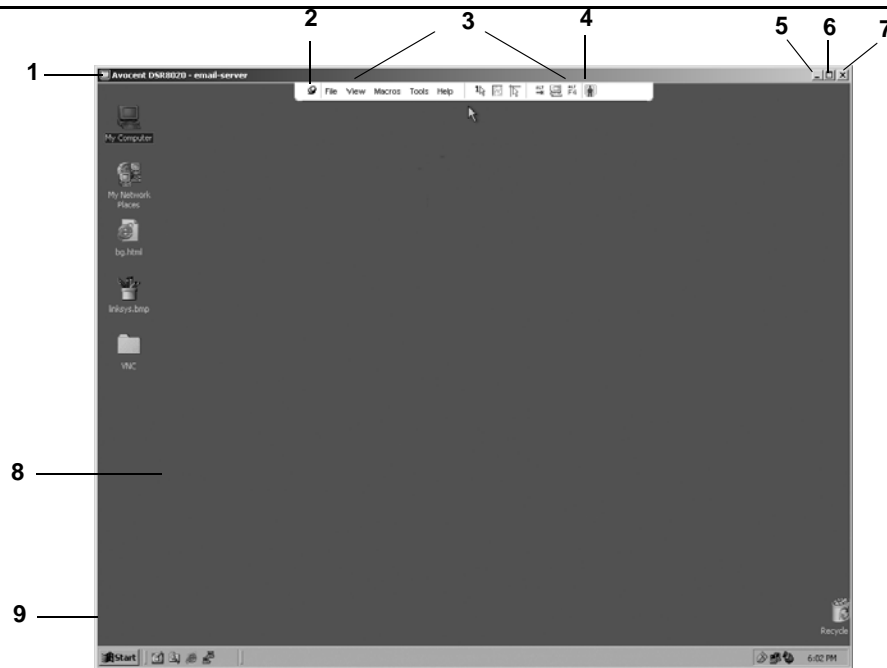
Figure 5.1: Video Viewer Window (Normal Window Mode)

Table 5.1: Descriptions for Figure 5.1

Number	Description
1	Title Bar: Displays the name of the server being viewed. When in Full Screen mode, the title bar disappears and the server name appears between the menu and toolbar.
2	Thumbtack: Locks the display of the menu and toolbar so that it is visible at all times.
3	Menu and toolbar: Enables you to access many of the features in the Video Viewer window. The menu and toolbar is in a show/hide state if the thumbtack has not been used. Place your cursor over the toolbar to display the menu and toolbar. Up to ten commands and/or macro group buttons can be displayed on the toolbar. By default, the Single Cursor Mode, Refresh, Automatic Video Adjust and Align Local Cursor buttons appear on the toolbar. For more information, see the *Changing the toolbar* on page 66 and the *Using Macros* on page 80.
4	Macro buttons: Commonly used keyboard sequences that can be sent to the target device.
5	Minimize button: Minimizes the display of the Video Viewer window into the task bar at the bottom of the local computer.
6	Maximize button: Changes the window to Full Screen mode, which expands the accessed device desktop to fill the entire screen. Expanding the window causes the following to occur: • The title bar disappears. • The server name appears between the menu and toolbar. • The Maximize button changes to a Normal Window Mode button and appears on the toolbar. Clicking the button toggles the Video Viewer window to Normal Window mode. • The Close button appears on the toolbar.

Table 5.1: Descriptions for Figure 5.1 (Continued)

Number	Description
7	Close button: Closes the Video Viewer window.
	NOTE: The Close button may not be present for all operating systems.
8	Accessed device desktop: Interacts with your device through this window.
9	Frame: Resizes the Video Viewer window by clicking and holding on the frame.

Changing the toolbar

You can choose the amount of elapsed time before the toolbar hides in the Video Viewer window when it is in show/hide state (that is, not locked in place by the thumbtack).

To specify a toolbar hide time:

1. Select *Tools - Session Options* from the Video Viewer window menu.
   -or-
   Click the *Session Options* button.

   The Session Options dialog box appears.

2. Click the *Toolbar* tab.
3. Use the arrow keys to specify the number of elapsed seconds prior to hiding the toolbar.
4. Click *OK* to save your changes and close the dialog box.

Setting the window size

NOTE: The View - Scaling command is not available if the Video Viewer window is in Full Screen mode or to non-primary users of a shared session.

When the DSR switch on-board web interface is used for the first time, any open Video Viewer windows display at a resolution of 1024 x 768 until the user changes the value. Each Video Viewer window can be set to a different resolution.

The DSR switch on-board web interface automatically adjusts the display if the window size changes during a session as long as autoscaling is enabled. If the target device resolution changes any time during a session, the display adjusts automatically.

To change the Video Viewer window resolution:

1. Select the *View - Scaling* command.
2. Click on the desired resolution.

Adjusting the view

Using menus or task buttons in the Video Viewer window, you can do the following:

- Align the mouse cursors.
- Refresh the screen.
- Enable or disable Full Screen mode. When Full Screen mode is enabled, the image adjusts to fit the desktop up to a size of 1024 x 768. If the desktop has a higher resolution, the following occurs:
    - The full-screen image is centered in the desktop, and the areas surrounding the Video Viewer window are black.
    - The menu and toolbar are locked so that they are visible at all times.
- Enable automatic, full or manual scaling of the session image:
    - With full scaling, the desktop window remains fixed and the device image scales to fit the window.
    - With automatic scaling, the desktop window is sized to match the resolution of the server being viewed.
    - With manual scaling, a drop-down menu of supported image scaling resolutions is displayed.
- Change the color depth of the session image.

To align the mouse cursors:

Click the *Align Local Cursor* button in the Video Viewer window toolbar. The local cursor should align with the cursor on the remote device.

NOTE: If cursors drift out of alignment, turn off mouse acceleration in the attached device.

To refresh the screen:

Click the *Refresh Image* button in the Video Viewer window.

-or-

Select *View - Refresh* from the Video Viewer window menu.

The digitized video image is completely regenerated.

To enable or disable Full Screen mode:

1. To enable Full Screen mode, click the *Maximize* button.
   -or-
   Select *View - Full Screen* from the Video Viewer window menu.

   The desktop window disappears and only the accessed device desktop is visible. The screen resizes up to a maximum of 1024 x 768. If the desktop has a higher resolution, then a black background surrounds the full screen image. The floating toolbar appears.

   -or-

2.   To disable Full Screen mode, click the *Full Screen Mode* button on the floating toolbar to return to the desktop window.

To enable full or manual scaling:

To enable full scaling, select *View - Scaling* from the Video Viewer window menu. The device image scales automatically to the resolution of the server being viewed.

-or-

To enable manual scaling, select *View - Scaling* from the Video Viewer window menu. Choose the dimension to scale the window. Available manual scaling sizes are as follows:

1024 x 768	768 x 576
960 x 720	704 x 528
896 x 672	640 x 480
832 x 624	

Adjusting color depth

The Dambrackas Video Compression® (DVC) algorithm enables users to adjust the number of viewable colors in a remote session window. You can choose to display more colors for the best fidelity or fewer colors to reduce the volume of data transferred on the network.

Video Viewer windows can be viewed using the Best Color Available (slower updates), Best Compression (fastest updates), a combination of Best Color and Best Compression or in Grayscale.

You can specify the color depths of individual ports and channels by selecting the *View - Color* command in a remote session window. These settings are saved individually per channel.

Additional video adjustment

Generally, the Video Viewer window automatic adjustment features optimize the video for the best possible view. However, users can fine-tune the video with the help of Avocent Technical Support by selecting the *Tools - Manual Video Adjust* command in the Video Viewer window menu or clicking the *Manual Video Adjust* button. This displays the Manual Video Adjust dialog box. Video adjustment is a per target setting.

Users can also verify the level of packets per second required to support a static screen by observing the packet rate located in the lower left-hand corner of the dialog box.

To manually adjust the video quality of the window:

NOTE: The following video adjustments should be made only on the advice and with the help of Avocent Technical Support.

1.   Select *Tools - Manual Video Adjust* from the Video Viewer window menu.
     -or-
     Click the *Manual Video Adjust* button.

     The Manual Video Adjust dialog box appears. Figure 5.2 shows the dialog box, and descriptions follow in Table 5.2.
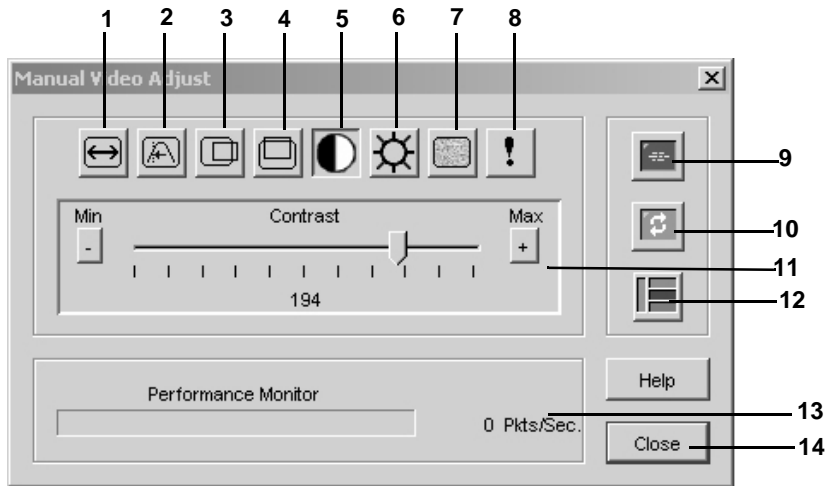
Figure 5.2: Manual Video Adjust Dialog Box

Table 5.2: Descriptions for Figure 5.2

Number	Description	Number	Description
1	Image Capture Width	**8**	Pixel Noise Threshold
2	Pixel Sampling/Fine Adjust	**9**	Automatic Video Adjustment
3	Image Capture Horizontal Position	**10**	Refresh Image
4	Image Capture Vertical Position	**11**	Adjustment bar
5	Contrast	**12**	Video Test Pattern
6	Brightness	**13**	Performance Monitor
7	Block Noise Threshold	**14**	Close button

2. Click the icon corresponding to the feature you wish to adjust.

3. Move the Contrast slider bar and then fine-tune the setting by clicking the *Min* (-) or *Max* (+) buttons to adjust the parameter for each icon pressed. The adjustments display immediately in the Video Viewer window.

4. When finished, click *Close* to exit the Manual Video Adjust dialog box.

Target video settings

The Image Capture Width, Pixel Sampling/Fine Adjust, Image Capture Horizontal Position and Image Capture Vertical Position adjustments affect how the target video is captured and digitized and are seldom changed.

The image capture parameters are automatically changed by the Automatic Adjustment function. A special image is required on the target in order to make accurate adjustments independently.

Contrast and brightness

If the image in the Video Viewer window is too dark or too light, select *Tools - Automatic Video Adjust* or click the *Automatic Video Adjust* button. This command is also available in the Video Adjustments dialog box. In most cases, this corrects video issues.

When clicking *Auto Adjust* several times does not set the contrast and brightness as desired, adjusting the contrast and brightness manually can help. Increase the brightness. Do not go more than 10 increments before moving the contrast. Generally, the contrast should be moved very little.

Detection thresholds

In some cases, noise in the video transmission keeps the packets/sec count up, which is indicated by little dots changing in the area of the cursor when it is moved. Varying the threshold values may result in "quieter" screens and can improve cursor tracking.

You can modify Noise Threshold and Priority Threshold values if you are using standard video compression. You can also modify Block Noise Threshold and Pixel Noise Threshold values. You can restore default threshold values by clicking *Auto Adjust Video*.

Block Noise Threshold and Pixel Noise Threshold

The Block Noise Threshold and Pixel Noise Threshold values set the minimum color levels in terms of changed video blocks and pixels per thousand that are allowed.

- The Block Noise Threshold sets the minimum color change that occurs in a single video block. Increasing the value reduces the network bandwidth. Decreasing the value makes the size of these artifacts smaller.
- The Pixel Noise Threshold sets the minimum color change in a single pixel. Decreasing the value reduces the number of low-contrast artifacts, but increases network bandwidth.

See *Adjusting the view* on page 66 for information about changing the color depth.

Automatic video adjustment

In most cases, you do not need to alter the Video Settings from the default. The system automatically adjusts and uses the optimal video parameters. The DSR switch on-board web interface performs best when the video parameters are set such that no (0) video packets are transmitted for a static screen.

You can easily adjust your video parameters to ideal settings by clicking on the *Auto Adjust Video* button in the Manual Video Adjust dialog box.

NOTE: You can also select *Tools - Automatic Video Adjust* from the Video Viewer window menu or click the *Automatic Video Adjust* toolbar icon to automatically adjust the video.

Refresh Image

Clicking the *Refresh Image* button in the Manual Video Adjust dialog box completely regenerates the digitized video image.

NOTE: You can also select *View - Refresh* from the Video Viewer window menu to refresh the image.

Video Test Pattern

Clicking the *Video Test Pattern* button in the Manual Video Adjust dialog box toggles a display of a video test pattern. Click the *Video Test Pattern* button again to toggle back to a normal video image.

Adjusting mouse options

The Video Viewer window mouse options affect cursor type, Cursor mode, scaling, alignment and resetting. Mouse settings are device-specific; that is, they may be set differently for each device.

NOTE: If the device does not support the ability to disconnect and reconnect the mouse (almost all newer PCs do), then the mouse will become disabled and the device will have to be rebooted.

Cursor type

The Video Viewer window offers five appearance choices for the local mouse cursor. You can also choose no cursor or the default cursor.

In Single Cursor mode, the display of the local (second) cursor in the Video Viewer window turns off and only the target device mouse pointer is visible. The only mouse movements that appear are those of the target device remote cursor. Use Single Cursor mode when there is no need for a local cursor. Figure 5.3 shows both the Remote Cursor and the Local Cursor displayed in the Video Viewer window.
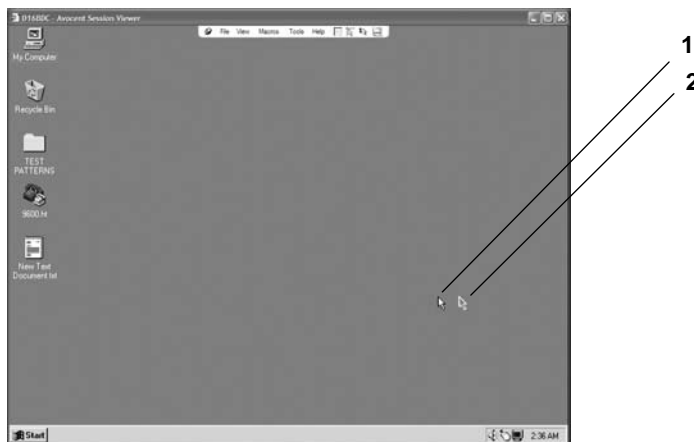
Figure 5.3: Video Viewer Window with Local and Remote Cursors Displayed

Table 5.3: Descriptions for Figure 5.3

Number	Description
1	Remote Cursor
2	Local Cursor

The Cursor mode status of the Video Viewer window displays in the title bar, including the keystroke that will exit Single Cursor mode. You can define the keystroke that will exit Single Cursor mode in the Session Options dialog box.

NOTE: When using a device that captures keystrokes before they reach the client, you should avoid using those keys to restore the mouse pointer.

To enter Single Cursor mode:

Select *Tools - Single Cursor Mode* from the Video Viewer window menu.

-or-

Click the *Single Cursor Mode* button.

The local cursor does not appear and all movements are relative to the target device.

To select a key for exiting Single Cursor mode:

1. Select *Tools - Session Options* from the Video Viewer window menu.
   -or-
   Click the *Session Options* button.

   The Session Options dialog box appears.

2. Click the *Mouse* tab.
3. Select a terminating keystroke from the drop-down menu in the Single Cursor mode area.
4. Click *OK* to save settings.

When you enable Single Cursor mode, you can press the specified key to return to Regular Desktop mode.

To exit Single Cursor mode:

Press the key on the keyboard that is identified in the title bar.

To change the mouse cursor setting:

1. Select *Tools - Session Options* from the Video Viewer window menu.
   -or-
   Click the *Session Options* button.

The Session Options dialog box appears.

2. Click the *Mouse* tab.

3. Select a mouse cursor type in the Local Cursor panel.

4. Click *OK* to save settings.

Mouse scaling

Some earlier versions of Linux did not support adjustable mouse accelerations. For installations that must support these earlier versions, you can choose among three preconfigured mouse scaling options or set your own custom scaling. The preconfigured settings are Default (1:1), High (2:1) or Low (1:2):

• In a 1:1 scaling ratio, every mouse movement on the desktop window sends an equivalent mouse movement to the server.

• In a 2:1 scaling ratio, the same mouse movement sends a 2X mouse movement.

• In a 1:2 scaling ratio, the value is 1/2X.

To set mouse scaling:

1. Select *Tools - Session Options* from the Video Viewer window menu.
   -or-
   Click the *Session Options* button.

   The Session Options dialog box appears.

2. Click the *Mouse* tab.

3. To use one of the preconfigured settings, check the appropriate radio button.
   -or-
   To set custom scaling:

   a. Click the *Custom* radio button to enable the X and Y fields.

   b. Type a scaling value in the X and Y fields. For every mouse input, the mouse movements are multiplied by the respective X and Y scaling factors. Valid input range is 0.25-3.00.

Vendor-specific video settings

Video settings vary significantly among manufacturers. Avocent maintains an online database of optimized video settings for various video cards, particularly Sun-specific ones. This information can be obtained from Avocent's online knowledge base or by calling Avocent technical support.

Mouse alignment and synchronization

Because the DSR switch on-board web interface cannot get constant feedback from the mouse, there are times when the mouse on the DSR switch may lose sync with the mouse on the host system. If your mouse or keyboard no longer responds properly, you can align the mouse to re-establish proper tracking.

Alignment causes the local cursor to align with the remote server's cursor. Resetting causes a simulation of a mouse and keyboard reconnect as if you had disconnected and reconnected them.

To realign the mouse:

Click the *Align Local Cursor* button in the Video Viewer window toolbar.

Avocent Mouse Sync

Enabling Avocent Mouse Sync in the KVM session profile provides improved mouse tracking on the target device. If Avocent Mouse Sync is enabled, it is not necessary to disable mouse acceleration on the target device.

NOTE: You may only use Avocent Mouse Sync when you are using a USB2 IQ module and the target device is running on a Windows or Macintosh operating system.

To set Avocent Mouse Sync from the Video Viewer:

1. Select *Tools - Session Options* from the Video Viewer menu or click the *Session Options* button. The Session Options dialog box appears.
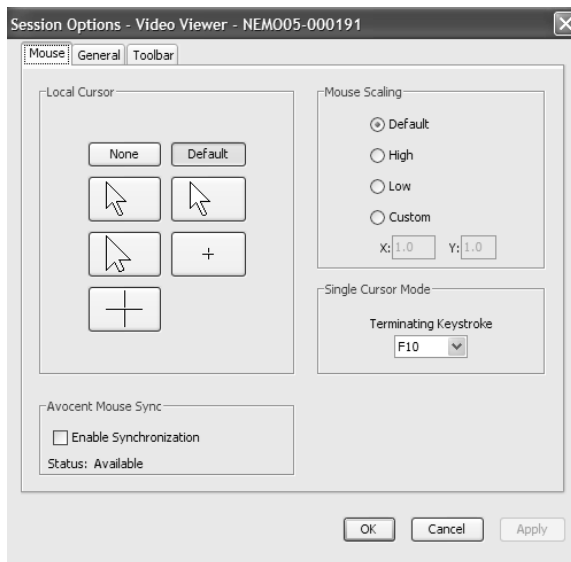

Figure 5.4: Video Viewer Session Options Dialog Box

2. Click the *Mouse* tab.

3. In the Avocent Mouse Sync section, the current status is shown. Select the *Enable Synchronization* checkbox to enable Avocent Mouse Sync.

   -or-

   Deselect the *Enable Synchronization* checkbox to disable Avocent Mouse Sync.

> **NOTE:** On supported system configurations, the Avocent Mouse Sync status is Available. If you are using a USB2 IQ module but the target device cannot support the Avocent Mouse Sync protocol, the status is Unavailable. If you are not using a USB2 IQ module, the status is Not Supported.

4.   Click *OK*.

Using Virtual Media

The virtual media feature allows the user on the client workstation to map a physical drive on that machine as a virtual drive on a target device. The client may also add and map an ISO or floppy image file as a virtual drive on the target device. You may have one CD drive and one mass storage device mapped concurrently.

*   A CD/DVD drive, disk image file (such as an ISO or floppy image file) is mapped as a virtual CD drive.
*   A floppy drive, USB memory device or other media type is mapped as a virtual mass storage device.

For information on configuring virtual media settings using the on-board web interface, see *Configuring virtual media* on page 50.

Requirements

The target device must be connected to the KVM switch and with an IQ module that both support virtual media.

The target device must be intrinsically able to use the types of USB2-compatible media that you virtually map. In other words, if the target device does not support a portable USB memory device, you cannot map that on the client machine as a virtual media drive on the target device.

The user (or user group to which the user belongs) must have permission to establish virtual media sessions and/or reserved virtual media sessions to the target device. See *Access levels* on page 48.

Only one virtual media session may be active to a target device at one time.

Sharing and preemption considerations

The KVM and virtual media sessions are separate; therefore, there are many options for sharing, reserving or preempting sessions. The DSView 3 software has the flexibility to accommodate the system needs.

For example, the KVM and virtual media sessions may be locked together. In this mode, when a KVM session is disconnected, so is the associated virtual media session. If the sessions are not locked together, the KVM session can be closed but the virtual media session will remain active. This could be desirable if a user is performing a time-intensive task using the virtual media session (such as an operating system load), and wants to establish a KVM session with a different target device to perform other functions while the operating system load progresses.

Once a target device has an active virtual media session without an associated active KVM session, two situations can occur - the original user (User A) can reconnect or a different user (User B) can connect to that channel. You may set an option in the Virtual Media dialog box (Reserved) that allows only the User A to access that channel with a KVM session.

If User B is allowed to access that session (the Reserved option is not enabled), User B could control the media that is being used in the virtual media session. By using the Reserved option in a tiered environment, only User A could access the lower switch and the KVM channel between the upper switch and lower switch would be reserved for User A.

Virtual Media dialog box

The Virtual Media dialog box is a program that manages the mapping and unmapping of virtual media. The dialog box displays all the physical drives on the client's workstation that can be mapped as virtual drives. You may also add ISO and floppy image files and then map them using the Virtual Media dialog box.

After a device is mapped, the Virtual Media dialog box Details View displays information about the amount of data transferred and the time elapsed since the device was mapped.

You may specify that the virtual media session is reserved. When a session is reserved, and the associated KVM session is closed, another user cannot launch a KVM session to that target device. If a session is not reserved, another KVM session may be launched.

You may also reset the USB2 IQ module from the Virtual Media dialog box. This action will reset every form of USB media on the target device, and should therefore be used with caution, and only when the target device is not responding.

Opening a virtual media session

To launch a virtual media session:

Select *Tools - Virtual Media* from the Video Viewer menu. The Virtual Media dialog box will appear. To make this a reserved session, click *Details,* then select the *Reserved* checkbox.
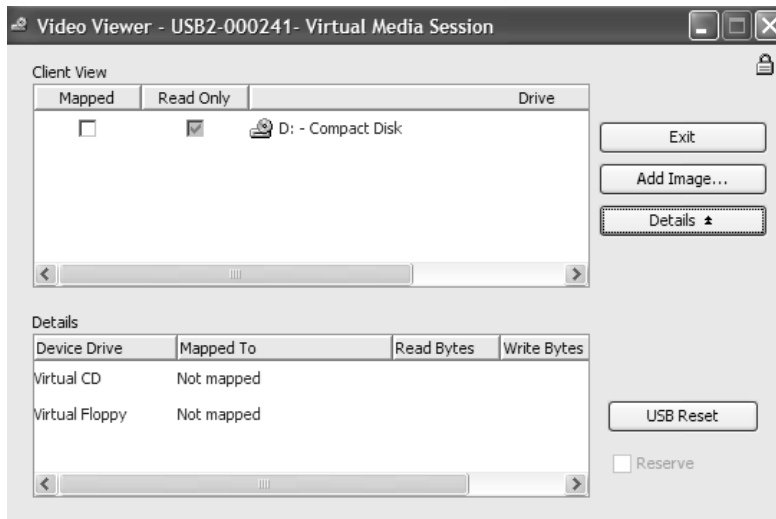
Figure 5.5: Video Viewer Virtual Media Dialog Box

To map a virtual media drive:

1. Open a virtual media session from the Video Viewer menu by selecting *Tools - Virtual Media*.

2. To map a physical drive as a virtual media drive:

    a. In the Virtual Media dialog box, click the *Mapped* checkbox next to the drive(s) you wish to map.

    b. If you wish to limit the mapped drive to read-only access, click the *Read Only* checkbox next to the drive. If the virtual media session settings were previously configured so that all mapped drives must be read only, this checkbox will already be enabled and cannot be changed.

        You might wish to enable the *Read Only* checkbox if the session settings enabled read and write access, but you wished to limit a particular drive's access to read only.

3. To add and map an ISO or floppy image as a virtual media drive:

    a. In the Virtual Media dialog box, click *Add Image*.

    b. The common file dialog box will appear, with the directory containing disk image files (that is, those ending in .iso or .img) displayed. Select the desired ISO or floppy image file and click *Open*.

        -or-

        If the client workstation's operating system supports drag-and-drop, select the desired ISO or floppy image file from the common file dialog box and drag it onto the Virtual Media dialog box.

c. The file's header is checked to ensure it is correct. If it is, the common file dialog box will close and the chosen image file will appear in the Virtual Media dialog box, where it can be mapped by clicking the *Mapped* checkbox.

d. Repeat steps a through c for any additional ISO or floppy images you wish to add. You may add any number of image files (up to the limits imposed by memory), but you may only have one virtual CD or virtual mass storage mapped concurrently.

If you attempt to map too many drives (one CD and one mass storage device) or too many drives of a particular type (more than one CD or mass storage device), a message will be displayed. If you still wish to map a new drive, you must first unmap an existing mapped drive, then map the new drive.

After a physical drive or image is mapped, it may be used on the target device.

To unmap a virtual media drive:

1. In the Virtual Media dialog box, uncheck the *Mapped* checkbox next to the drive you wish to unmap.

2. You will be prompted to confirm. Confirm or cancel the unmapping.

3. Repeat for any additional virtual media drives you wish to unmap.

To display virtual media drive details:

In the Virtual Media dialog box, click *Details*. The dialog box expands to display the Details table. Each row indicates:

• Target Drive - Name used for the mapped drive, such as Virtual CD 1 or Virtual CD 2.

• Mapped to - Identical to Drive information that appears in the Client View Drive column.

• Read Bytes and Write Bytes - Amount of data transferred since the mapping.

• Duration - Elapsed time since the drive was mapped.

To close the Details view, click *Details* again.

To reset all USB devices on the target device:

NOTE: The USB reset feature resets every USB device on the target device, including the mouse and keyboard. It should only be used when the target device is not responding.

1. In the Virtual Media dialog box, click *Details*.

2. The Details View will appear. Click *USB Reset*.

3. A warning message will appear, indicating the possible effects of the reset. Confirm or cancel the reset.

4. To close the Details view, click *Details* again.

Closing a virtual media session

To close the Virtual Media dialog box:

1. Click *Exit*.
2. If you have any mapped drives, a message is displayed, indicating that the drives will be unmapped. Confirm or cancel the operation.

If a user attempts to disconnect a virtual media session or an active KVM session that has an associated locked virtual media session, a confirmation message is displayed, indicating that any virtual media mappings will be lost.

Using Keyboard Pass-through

Keystrokes that a user enters when using a Video Viewer window may be interpreted in two ways, depending on the Screen mode of the Video Viewer window.

- If a Video Viewer window is in Full Screen mode, all keystrokes and keyboard combinations except **Ctrl-Alt-Del** are sent to the remote server being viewed.
- If a Video Viewer window is in Regular Desktop mode, Keyboard Pass-through mode can be used to control whether the remote server or local computer recognizes certain keystrokes or keystroke combinations.

Keyboard pass-through must be specified using the Session Options dialog box. When enabled, keyboard pass-through sends all keystrokes and keystroke combinations except **Ctrl-Alt-Del** to the remote server being viewed when the Video Viewer window is active. When the local desktop is active, keystrokes and keystroke combinations entered by the user affect the local computer.

NOTE: The **Ctrl-Alt-Delete** keyboard combination can be sent only to a remote server by using a macro.

NOTE: The Japanese keyboard **ALT-Han/Zen** keystroke combination is always sent to a remote server regardless of the Screen mode or keyboard pass-through setting.

To specify keyboard pass-through:

1. Select *Tools - Session Options* from the Video Viewer window menu.
   -or-
   Click the *Session Options* button.

   The Session Options dialog box appears.

2. Click the *General* tab.
3. Select *Pass-through all keystrokes in regular window mode*.
4. Click *OK* to save setting.

Using Macros

The DSR switch on-board web interface comes pre-configured with macros for the Windows and the Sun platforms.

To send a macro:

Select *Macros - <desired macro>* from the Video Viewer window menu.

-or-

Select the desired macro from the buttons available on the Video Viewer menu.

Saving the View

You can save the display of a Video Viewer either to a file or to the clipboard for pasting into a word processor or other program.

To capture the Video Viewer window to a file:

1. Select *File - Capture to File* from the Video Viewer window menu.
    -or-
    Click the *Capture to File* button.

    The Save As dialog box appears.

2. Enter a filename and choose a location to save the file.
3. Click *Save* to save the display to a file.

To capture the Video Viewer window to your clipboard:

Select *File - Capture to Clipboard* from the Video Viewer window menu.

-or-

Click the *Capture to Clipboard* button.

The image data is saved to the clipboard.

Closing a Video Viewer Window Session

To close a Video Viewer window session:

Select *File - Exit* from the Video Viewer window.

Terminal Operations

6

The Console Menu

Each DSR switch may be configured at the appliance level through the Console menu interface accessed through the SETUP, CONSOLE or 10101 port. All terminal commands are accessed through a terminal or PC running terminal emulation software.

NOTE: The preferred method is to make all configuration settings in the DSView 3 software. See the DSView 3 Installer/User Guide for more information.

To connect a terminal to the DSR switch:

1. Using a null modem cable, connect a terminal or a PC that is running terminal emulation software (such as HyperTerminal®) to the SETUP, CONSOLE or 10101 port on the back panel of the DSR switch. For DSR switch models that support an RJ-45 port, an RJ-45 to DB9 (female) adaptor is provided.

   The terminal settings are 9600 bits per second (bps), 8 bits, 1 stop bit, no parity and no flow control.

2. Power up each target device and then power up the DSR switch. When the DSR switch completes initialization, the Console menu will display the following message: "Press any key to continue."

Network Configuration

To configure network settings using the Console menu:

1. When you power up your DSR switch, the switch initializes for approximately one minute. After it completes initialization, press any key on the terminal or on the PC running the terminal emulation software to access the Console menu interface shown in Figure 6.1.

NOTE: The terminal may be connected at any time, even when the switch is already powered.
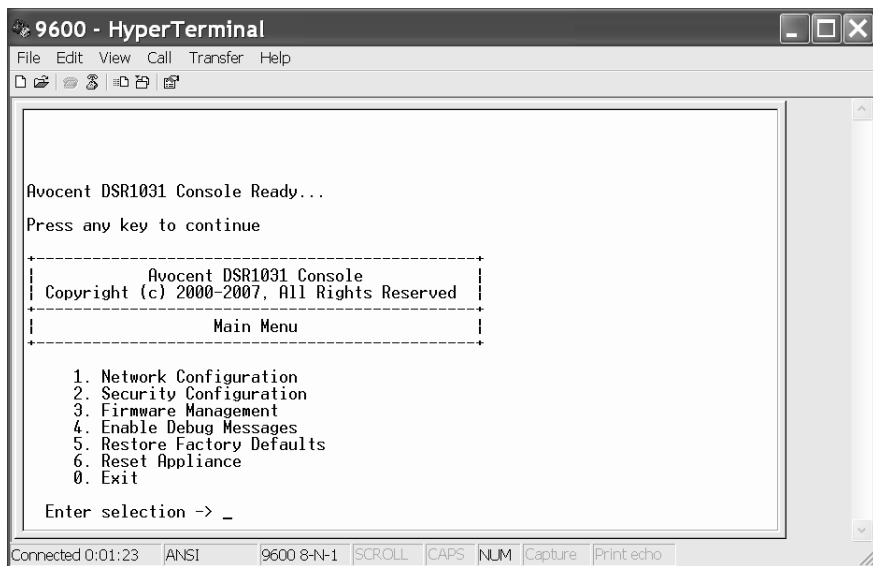
Figure 6.1: Console Main Menu

2.   Once the Console Main menu displays, type the number corresponding to *Network Configuration* and press **Enter** to access the menu shown in Figure 6.2.
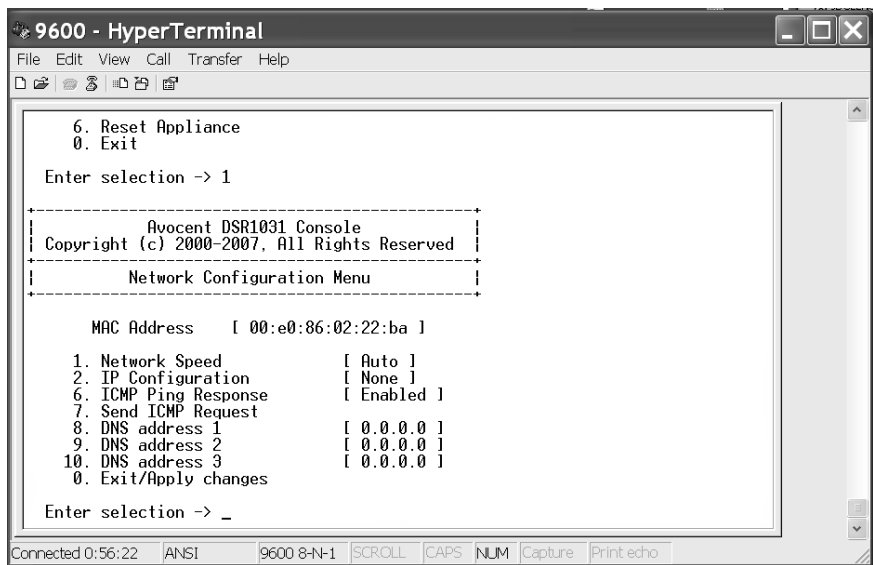

Figure 6.2: Network Configuration Menu

3. Type **1** and press **Enter** to set your network speed. For best performance, set the DSR switch at the same speed as the Ethernet switch to which it is attached. After you press **Enter**, you will be returned to the Network Configuration menu.

4. Type **2** and press **Enter** to specify whether you are using IPv4 or IPv6, and whether you are using a static or Dynamic Host Configuration Protocol (DHCP) address.

   A static IP configuration may be used to provide a user-defined IP address, netmask or prefix length, and default gateway for the DSR switch.

   DHCP is a protocol that automates the configuration of TCP/IP-enabled computers. When DHCP is selected, the IP address, netmask or prefix length, and default gateway settings are automatically assigned to the DSR switch and may not be modified by a DSR switch user.

   If you are using the DHCP option, please configure your DHCP server to provide an IP address to the DSR switch and then skip to step 6.

5. Select the remaining options from the Network Configuration menu to finish the configuration of your DSR switch with an IP address, netmask or prefix length, default gateway and ping response.

6. Type **0** (zero) and press **Enter** to return to the Console Main menu.

Other Console Main Menu Options

Besides the Network Configuration option, the Console Main menu of the DSR switch features the following menu items: Security Configuration, Firmware Management, Enable Debug Messages, Restore Factory Defaults, Reset Appliance and Exit. Each menu item is discussed in this section.

Security Configuration

The Security Configuration menu contains the following options:

- Console Password: Enable or disable using security for the console (access requires an Admin account).
- Unbind from DSView 3 Server: Reset the certificate used by the DSView 3 software system.

Console Password

If this is enabled, access to the switch's Console Main menu will require an appliance administrator to log in.

Unbind from DSView 3 Server

This option enables you to clear the certificate sent by the DSView 3 software to the DSR switch.

When a DSR switch is added to a server running DSView 3 software, a certificate is downloaded from that server to the DSR switch automatically. If its system replicates certificates, it will pass the certificate to the servers in that certificate replication system. All servers in that system will then be allowed to access the DSR switch. All servers that are not part of that system will be locked out.

There are two ways to remove the certificate from the DSR switch.

• The certificate will be automatically removed if you remove the DSR switch from the DSView 3 software database. This enables you to move the DSR switch from one certificate replication system to another.

• The Unbind option will also allow you to remove the certificate from the DSR switch, enabling you to move the DSR switch from one certificate replication system to another. After the Unbind option is used, any server running DSView 3 software will be able to communicate with the DSR switch. All authentication server addresses will be cleared.

See the DSView 3 Installer/User Guide for more information on software security.

Firmware Management

This menu contains the Flash Download selection. For more information, see *Flash Upgrades* section on page 85.

Enable Debug Messages

This menu option turns on console status messages. Because this can significantly reduce performance, you should only enable debug messages when instructed to do so by Avocent Technical Support. When you are finished viewing the messages, press any key to exit this mode.

Restore Factory Defaults

This menu option will restore all switch options to the default settings.

Reset Appliance

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

Exit

This menu selection will return you to the ready prompt. If the Console menu interface password is enabled, you must exit the Console Main menu so that the next user will be prompted with the Username and Password login screen.

Appendix A: Flash Upgrades

The DSR switch Flash upgrade feature allows you to update your appliance with the latest firmware available. This update can be performed using the DSView 3 software, using a Trivial File Transfer Protocol (TFTP) server or using the on-board web interface.

After the Flash memory is reprogrammed with the upgrade, the DSR switch performs a soft reset, which terminates all IQ module sessions. A target device experiencing an IQ module firmware update may not display, or may display as disconnected. The target device will appear normally when the Flash update is completed.

NOTE: During an upgrade, the IQ module status indicator in the OSCAR interface Main dialog box is yellow.

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

Using the DSView 3 software

To upgrade the DSR switch firmware using the DSView 3 software:

The preferred method for updating the firmware is to use the DSView 3 software. See the DSView 3 Installer/User Guide for detailed instructions.

Using the Console menu interface

To upgrade the DSR switch firmware using the Console menu interface:

NOTE: You may only update the DSR switch firmware using the Console menu interface when using IPv4 mode.

NOTE: If you do not have a TFTP server, you can find several shareware and freeware programs on the Internet that you can download and install.

1. Visit http://www.avocent.com/support and download the latest Flash firmware from Avocent.
2. Save the Flash upgrade file to the appropriate directory on the TFTP server.
3. Use the supplied ribbon cable and either an RJ-45 to DB9 (female) adaptor or a null modem cable to connect a terminal or PC running terminal emulation software (such as HyperTerminal) to the SETUP, CONSOLE or 10101 port on the back panel of the DSR switch. The terminal should be set to 9600 bps, 8 bits, 1 stop bit, no parity and no flow control.
4. If the DSR switch is not on, turn it on now. After approximately one minute, press any key to access the Console Main menu.
5. Select the *Firmware Management* option from the Console Main menu.

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

6. Type **1** and press **Enter** to access Flash Download.

7. Type the IP address of your TFTP server and press **Enter**.

8. Enter the name of the file that you downloaded from the Avocent web site.

9. Confirm the TFTP download by typing a **y** or **yes** and pressing **Enter**.

10. The DSR switch will begin the Flash upgrade process. On-screen indicators will display the upgrade progress. When the upload is complete, the DSR switch will reset and upgrade the internal subsystems.

11. Once the upgrade is complete, the login screen will appear.

Using the on-board web interface

This method utilizes an HTTP binary upload and does not require the use of a TFTP server. To upgrade the firmware, you will download the upgrade file to the client computer from which you will initiate the firmware upgrade.

To upgrade the DSR switch firmware:

1. From the side navigation bar, select *Appliance - Overview.* The Appliance Overview window appears.

2. Click *Tools - Upgrade Appliance*. The Upgrade Firmware File window appears.

3. Click *Browse* to specify the location of the firmware upgrade file.

4. Click *Upgrade*.

Recovering from a failed Flash upgrade

> **NOTE:** If the green power LED on the front and back panel of the switch blinks continuously, the switch is in recovery mode.

To recover from a failed Flash upgrade:

1. Visit http://www.avocent.com/support and download the latest Flash firmware from Avocent.

2. Save the Flash upgrade file to the appropriate directory on the TFTP server.

3. Set up the TFTP server with the server IP address 10.0.0.3.

4. Rename the downloaded file the appropriate name from the following list and place it into the TFTP root directory of the TFTP server:

   • DSR1021.fl (for the DSR1021 or DSR1022 switch)

   • DSR1024.fl (for the DSR1024 switch)

   • DSR1031.fl (for the DSR1031 switch)

   • DSRxx20.fl (for the DSR1020, DSR2020 or DSR4020 switch)

   • DSR8020.fl (for the DSR8020 switch)

   • DSRxx30.fl (for the DSR1030, DSR2030, DSR4030 or DSR8030 switch)

- DSR8035.fl (for the DSR2035 or DSR8035 switch)
5. If the DSR switch is not on, turn it on now.
6. The recovery process should start automatically.

Appendix B: Using the DSR Remote Operations Software

NOTE: The DSR Remote Operations software uses the IPv4 protocol for communication, so the IPv4 protocol must be enabled on the client server. The IPv6 protocol may also be active on the client server but has no impact upon DSR Remote Operations.

The DSR Remote Operations software provides a subset of DSView 3 software and OBWI functionality that allows access to a supported DSR switch when an Ethernet connection is not available. For example, if you are in a branch office and your Ethernet network is down, you may still access your remote server network by attaching a v.34, v.90 or v.92-compatible modem to the modem port on a supported DSR switch for KVM access, administration and flexible server management control from anywhere in the world.

The following operations are supported:

*   Establishing a KVM session to a target device connected to the switch
*   Controlling the power sockets of a power device attached to the DSR switch SPC port
*   Rebooting the switch
*   Retrieving and displaying the switch version

All other DSView 3 software and OBWI options (including using virtual media) are not available when using the DSR Remote Operations software.

The following Video Viewer window commands are not available when using the DSR Remote Operations software:

*   Displaying connected user information
*   Creating, editing, copying and deleting macros

NOTE: Only the default Windows and Sun macro groups are available when using the Remote Operations software.

*   Refreshing the background

The DSR Remote Operations software uses an SSL-based connection to the DSR switch to authenticate the user.

Figure B.1 illustrates how to use the DSR Remote Operations software with a DSR switch.
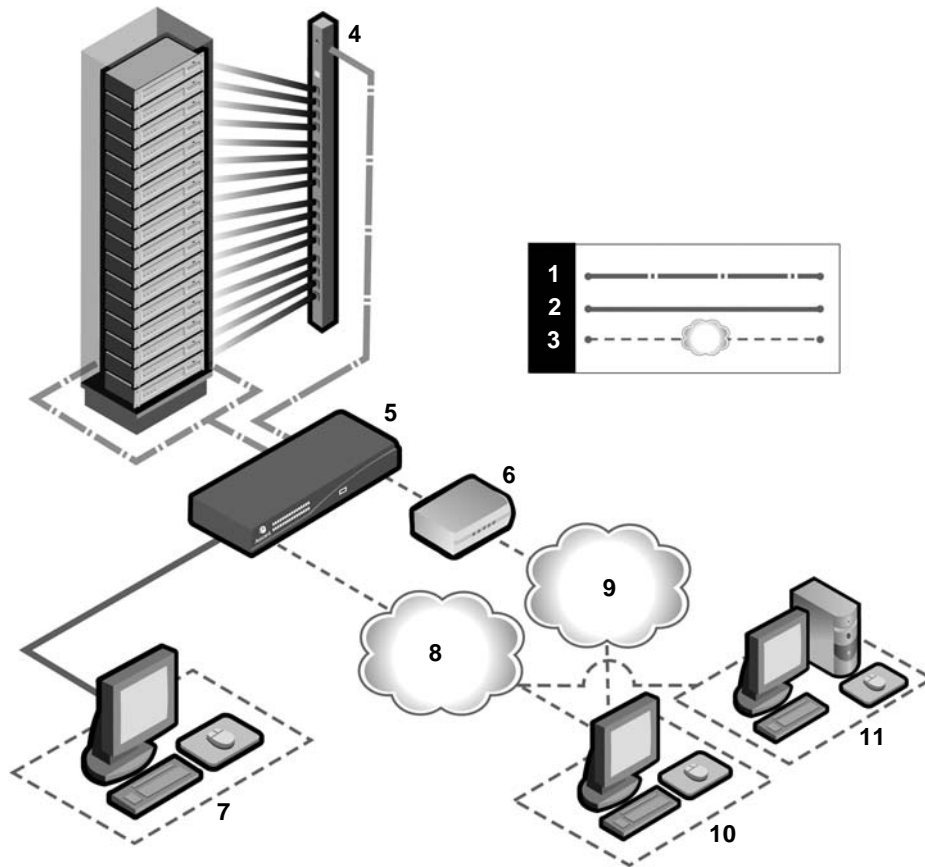
Figure B.1: Using the DSR Remote Operations Software with a DSR Switch

Table B.1: Descriptions for Figure B.1

Number	Description	Number	Description
1	CAT 5 Connection	7	Analog User (OSCAR Interface)
2	KVM Connection to Switch	8	Ethernet
3	Remote IP Connection	9	Telephone Network
4	Power device	10	DSR Remote Operations Client
5	DSR Switch	11	DSView 3 Software Server (Authentication)
6	Modem		

Before using the DSR Remote Operations software

The following actions should be performed before using the DSR Remote Operations software:

- Ensure that the switch is fully configured.

- Ensure that users have been added to the internal database of the DSR switch. If the DSView 3 software server is not available, the appliance database is used for appliance authentication. If neither is available, authentication cannot be performed for the switch and an error will be displayed by the DSR Remote Operations software.

- An external modem must be attached to the PPP modem interface (modem port) of the DSR switch. A modem/PPP dial-up connection must be established before the DSR Remote Operations software may be started. The modem port should have auto-answer turned off (typically a modem's default setting). The dial-up connection options should be set to 115200 baud, 8 bits, 1 stop bit, no parity and enabled hardware flow control. The DSR Remote Operations application must be started within the authentication time-out specified in the Terminal Applications menu of the DSR switch or the PPP (modem) link will be disconnected.

- Ensure that the PC containing the client interface has dial-up software and that the software is configured properly. See the operating system documentation for more information.

- Install the DSR Remote Operations software.

Installing the DSR Remote Operations software

In this procedure, the DSR Remote Operations software, as well as its online help and the JRE (Java Runtime Environment), will be installed.

Minimum requirements for the DSR Remote Operations software

The following are the minimum requirements for installing the DSR Remote Operations software:

- 1 GHz Pentium or equivalent processor
- 512 MB RAM
- XGA video with graphics accelerator
- Desktop size setting of at least 800 x 600
- Color palette of at least 256 colors
- One of the following operating systems:
    - Windows 2000 Workstation or Server with Service Pack 2 or later
    - Windows XP Home Edition or Professional

To install the DSR Remote Operations software:

1. Log on to the host system as administrator.
2. Download and open the DSR Remote Operations software. An installation options menu appears.

NOTE: Visit www.avocent.com to download the DSR Remote Operations software.

3. Click *Install DSR Remote Operation* and follow the on-screen instructions.

Using the DSR Remote Operations software

To start the DSR Remote Operations software:

1. Establish a dial-up connection to the switch from the PC containing the DSR Remote Operations software.

    Windows displays a dialog box that prompts the 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 close the dialog box.

2. Once the connection has been established, select *Start - Programs - Avocent DSView 3 - DSR Remote Operations* to start the DSR Remote Operations software on the PC. The Login dialog box will appear. Log in using a valid username and password to establish a DSR Remote Operations software session with the DSR switch over the modem link.

3. The switch will disconnect the modem connection if a user does not log in within the time period specified by the authentication time-out value. The default authentication time-out value (120 seconds) may be changed using the Terminal Applications menu.

    The DSR switch will attempt to contact the DSView 3 software server to authenticate the user. If the DSView 3 software server is unavailable, the switch will use its internal database to authenticate the user.

4. Type the username and password to which you wish to connect and then click *OK*. If authentication is successful, the DSR Remote Operations window will open.

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

To exit the DSR Remote Operations software:

Select *File - Exit* from the menu.

Window features

When you have launched the software and successfully logged in, the DSR Remote Operations window will display the list of DSView 3 software servers connected to the DSR switch. Figure B.2 shows the DSR Remote Operations window areas. Descriptions follow in Table B.3.
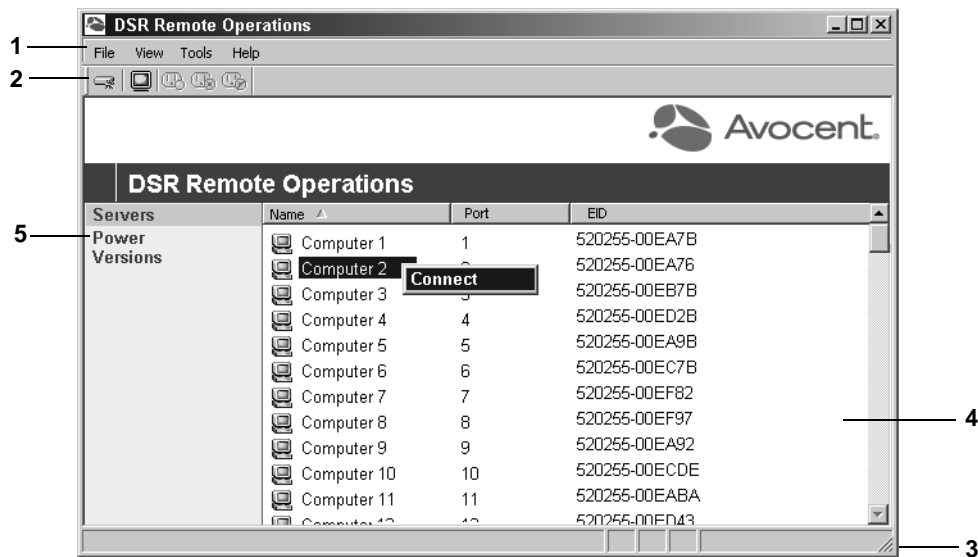
Figure B.2: DSR Remote Operations Window

Table B.2: Descriptions for Figure B.2

Number	Description
1	Menu Bar: Allows you to access many of the features in the DSR Remote Operations window.
2	Toolbar: Provides shortcut buttons for quickly accessing commands in the Tools menu.
3	Status Bar: Displays the tips for selected menu items and the progress of operations.
4	Content Area: Use this area to display information from the DSR switch and control and start DSView 3 software sessions to the DSR switch.
5	Side Navigation Bar: Displays the DSR switching system information you wish to access, which displays in the Content Area.

The items displayed in the content area of the DSR Remote Operations window will vary, depending on the link selected in the side navigation bar. You may refresh any view by selecting *View - Refresh* from the menu.

Servers view

Selecting *Servers* in the side navigation bar of the DSR Remote Operations window displays a list of servers attached to the switch. The following items for each server will appear in the content area:

- Name - The name of the server
- Port - The switch port to which the server is attached

- EID - The Electronic ID (EID) number of the IQ module attached to the server

Table B.3 describes the icons in the Server view.

Table B.3: DSR Remote Operations Content Area Icons (Servers View)

Icon	Description
	A target device that is powered up and has no established KVM Video Viewer sessions
	A target device that has an active KVM Video Viewer session
	A target device that is not powered up
	A target device that is powered up but cannot establish a KVM connection because the path to the target device is blocked (for example, a cascade switch has only one user port and that port is already connected to another target device)

Power view

Selecting *Power* in the side navigation bar will display a list of power device sockets attached to the switch and their status. Table B.4 describes the icons in the Power view.

Table B.4: DSR Remote Operations Content Area Icons (Power View)

Icon	Description
	The power device socket is powered up
	The power device socket is powered down
	The power device socket is cycling
	The socket is unlocked (supported only on certain power device types)
	The socket is locked (supported only on certain power device types)

Version view

Selecting *Version* in the side navigation bar will display version information for the following items:

- Application

- Boot
- Digital/Application
- Digital/Hardware
- Hardware

Rebooting a switch

NOTE: Users with a User level account may not reboot a switch.

To reboot the switch:

1. From the menu, select *Tools - Reboot Appliance*. A confirmation dialog box will appear.
2. Confirm or cancel the reboot.

Managing servers

NOTE: Users with a User level account may connect to a server only when given access to a switch.

To connect to a server:

Select *View - Servers* from the menu or click *Servers* in the side navigation bar. Select a server and select *Tools - Connect* from the menu.

-or-

Select a server and click the *Connect* toolbar button.

-or-

Right-click on a server and select *Connect* from the shortcut menu.

A Video Viewer window will open.

Power control of devices attached to power device sockets

NOTE: Users with User level account privileges cannot change the power state of power device sockets.

To control the power of a device attached to a power device socket:

1. Select *View - Power* from the menu or click *Power* in the side navigation bar. A list of power device sockets attached to the switch will appear in the content area.
2. To power up a device attached to a power device socket, choose one of the following actions:
   - Select a socket that has not been powered up and select *Tools - Power On* from the menu bar.
   - Select a socket that has not been powered up and click the *Power On* toolbar button.
   - Right-click on a socket that has not been powered up and select *Power On* from the shortcut menu.

   The socket will power up and the icon for the socket in the content area will change.

3. To power down a device attached to a power device socket, choose one of the following actions:

   • Select a socket that has not been powered down and select *Tools - Power Off* from the menu bar.

   • Select a socket that has not been powered down and click the *Power Off* toolbar button.

   • Right-click on a socket that has not been powered down and select *Power Off* from the shortcut menu.

   The socket will power down and the icon for the socket in the content area will change.

4. To cycle the power of a device attached to a power device socket, choose one of the following actions:

   • Select a socket that is powered up and select *Tools - Cycle Power* from the menu bar.

   • Select a socket that is powered up and click the *Cycle Power* toolbar button.

   • Right-click on a socket that is powered up and select *Cycle Power* from the shortcut menu.

   The socket will power down, then power up and the icon for the socket in the content area will change accordingly.

5. To lock or unlock the current state of a power device socket, choose one of the following actions:

   • Select a socket and select either *Tools - Lock* or *Tools - Unlock* from the menu bar.

   • Select a socket and click either the *Lock* or *Unlock* toolbar button.

   • Right-click on a socket and select either *Lock* or *Unlock* from the shortcut menu.

Appendix C: Using Serial IQ Modules

The serial IQ module is a serial-to-VGA converter that allows VT100-capable devices to be viewed from the DSR switch local port, the on-board web interface, or by using the DSView 3 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 switch as though it came from a VGA target. Likewise, keystrokes entered on a keyboard are sent to the attached device as though they were typed on a VT100 terminal.

Serial IQ module modes

The following modes can be accessed from the serial IQ module:

• On-Line: This mode enables you to send and receive 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.

• History: This mode enables you to review serial data.

Configuring the serial IQ module

NOTE: The serial IQ module is a DCE device and only supports VT100 terminal emulation.

Pressing **Ctrl-F8** will activate the Configuration screen of the IQ module's Terminal Applications menu, which enables you to configure your serial IQ module.

NOTE: When any Terminal Applications menu is active, pressing **Enter** saves changes and returns you to the previous screen. Pressing **Escape** returns you to the previous screen without saving changes.

Within the Terminal Applications menu's Configuration screen, you can modify the following options:

• Baud Rate: This option allows you to specify the serial port communications speed. Available options are 300, 1200, 2400, 9600, 19,200, 34,800, 57,600 or 115,200 bps. The default value is 9600.

• Parity: This option allows you to specify the serial port's 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 bps rate of 115,200, the only available flow control is RTS/CTS (hardware).

• DSR/CD Mode: This option allows you to control how the DSR switch 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-Linefeed), 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 options for the Terminal Application menu's Configuration screen 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 makes the Terminal Application menu's Configuration screen 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 serial IQ 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 **Escape** to exit the Configuration Screen without saving the changes.

Creating a serial IQ module macro

Pressing the **Page Down** key when the Terminal Applications menu's Configuration screen is displayed will provide access to the Macro Configuration screen. The serial IQ 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 serial IQ module you wish to configure and press **Ctrl-F8** to activate the Terminal Applications menu's Configuration screen.

2. When the Terminal Applications 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 serial IQ 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 Terminal Applications menu.

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.

   - **Ctrl-F9**: While in Configuration mode, returns to the previous screen with History mode enabled.

   - **Ctrl-F10**: While in Configuration mode, returns 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 **Escape** 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.

Serial IQ module pinouts

Table C.1 lists the pinouts for the serial IQ module.

Table C.1: Serial IQ Module Pinouts

DB9-F Pin	Host Signal Name Description	Signal Flow	SRL Signal 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

This appendix discusses 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. DSR switching systems utilize UTP cabling.

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

UTP copper cabling

The following are basic definitions for the three types of UTP cabling that the DSR switch 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. Table D.1 describes the standards for each pin.

Table D.1: UTP 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
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 UTP runs to a maximum of 30 feet each.

- Maintain the twists of the pairs all the way to the point of termination, or no more that 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 the ties.

- Cross-connect cables where necessary, using rated punch blocks, patch panels and components. Do not splice or bridge the cable at any point.

- Keep the UTP cable as far away as possible from potential sources of EMI, such as electrical cables, transformers and light fixtures. Do not tie the cables to electrical conduits or lay the 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 15 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 the cables that penetrate a firewall. Use plenum rated cable where it is required.

Appendix E: Cable Pinout Information

NOTE: Only the DSR1024, DSR2035 and DSR8035 switches have the 8-pin modular jack for the modem and console/setup ports. All other models have the 9-pin D-shell connectors for these ports.
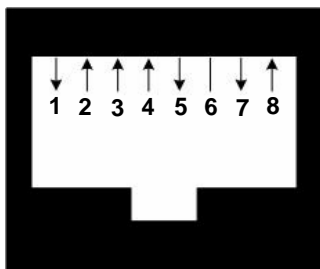

Figure E.1: Modem Jack

Table E.1: Descriptions for Figure E.1

Pin Number	Description	Pin Number	Description
1	Request to Send (RTS)	5	Transmit Data (TXD)
2	Data Set Ready (DSR)	6	Signal Ground (SG)
3	Data Carrier Detect (DCD)	7	Data Terminal Ready (DTR)
4	Receive Data (RXD)	8	Clear to Send (CTS)
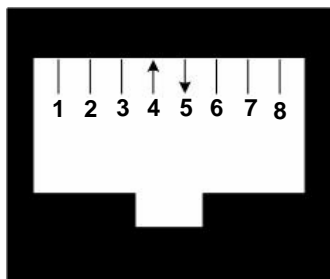
Figure E.2: Console/Setup Jack

Table E.2: Descriptions for Figure E.2

Pin Number	Description	Pin Number	Description
1	No Connection (N/C)	5	Transmit Data (TXD)
2	No Connection (N/C)	6	Signal Ground (SG)
3	No Connection (N/C)	7	No Connection (N/C)
4	Receive Data (RXD)	8	No Connection (N/C)
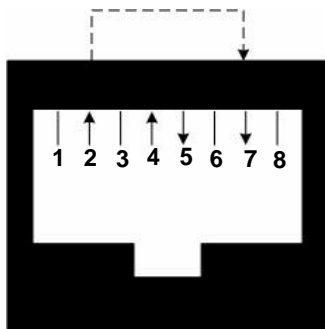
Figure E.3: SPC Jack

Table E.3: Descriptions for Figure E.3

Pin Number	Description	Pin Number	Description
1	No Connection (N/C)	5	Transmit Data (TXD)
2	Data Set Ready (DSR)	6	Signal Ground (SG)
3	No Connection (N/C)	7	Data Terminal Ready (DTR)
4	Receive Data (RXD)	8	No Connection (N/C)
*Signal not required by DSR switch			

Appendix F: Technical Specifications

Table F.1: DSR1020/2020/4020/8020 Switch Product Specifications

Server Ports	
Number	16
Type	PS/2, Sun, USB and Serial
Connectors	8-pin modular
Sync Types	Separate horizontal and vertical
Plug and Play	DDC2B
Video Resolution	640 x 480 @ 60 Hz 800 x 600 @ 75 Hz 960 x 700 @ 75 Hz 1024 x 768 @ 75 Hz 1280 x 1024 @ 75 Hz
Supported Cabling	4-pair UTP CAT 5 or CAT 6, 50 meters maximum length
Dimensions	
Form Factor	1-U rack mountable
Height x Width x Depth	1.72 x 17.00 x 10.98 in (4.37 x 43.18 x 27.98 cm)
Weight (without cables)	7.3 lbs (3.31 kg)
SETUP Port	
Number	1
Type	RS-232 serial
Connector	DB9 male
Network Connection	
Number	1
Type	10/100/1000 Ethernet
Connector	8-pin modular
Local Port	
Number	1

Table F.1: DSR1020/2020/4020/8020 Switch Product Specifications (Continued)

Type	PS/2, USB and VGA
USB Device Port	
Number	4
Type	USB 1.1
MODEM Port	
Number	1
Type	RS-232 serial
Connectors	DB9 female
Serial Power Control (SPC) Port	
Number	1
Type	RS-232 serial
Connector	8-pin modular
Power Supply	
Type	Internal
Power	DSR1020: 11.0 W DSR2020: 13.0 W DSR4020: 17.3 W DSR8020: 20.3 W
Heat Dissipation	DSR1020: 37.5 BTU/hr DSR2020: 44.4 BTU/hr DSR4020: 59.0 BTU/hr DSR8020: 69.3 BTU/hr
AC-input Range	100 - 240 VAC
AC Frequency	50 - 60 Hz autosensing
AC-input Current Rating	0.5 A
AC-input Power (maximum)	40 W
AC-input Cable	18 AWG three-wire cable, with a three-lead IEC-320; receptacle on the power supply end and a country-dependent plug on the power resource end

Table F.1: DSR1020/2020/4020/8020 Switch Product Specifications (Continued)

Ambient Atmospheric Condition Ratings	
Temperature	32 to 104 degrees Fahrenheit (0 to 40 degrees Celsius) operating; -4 to 158 degrees Fahrenheit (-20 to 70 degrees Celsius) nonoperating
Humidity	10 - 95% noncondensing
Safety and EMC Standards Approvals and Markings	UL, FCC, cUL, ICES-003, CE, GS, VCCI, MIC, C-Tick, GOST Safety certifications and EMC certifications for this product are obtained under one or more of the following designations: CMN (Certification Model Number), MPN (Manufacturer's Part Number) or Sales Level Model designation. The designation that is referenced in the EMC and/or safety reports and certificates are printed on the label applied to this product.

Table F.2: DSR1021/1022 Switch Product Specifications

Server Ports	
Number	8 (DSR1021 switch) 4 (DSR1022 switch)
Type	PS/2, Sun, USB and Serial
Connectors	8-pin modular
Sync Types	Separate horizontal and vertical
Plug and Play	DDC2B
Video Resolution	640 x 480 @ 60 Hz 800 x 600 @ 75 Hz 960 x 700 @ 75 Hz 1024 x 768 @ 75 Hz 1280 x 1024 @ 75 Hz
Supported Cabling	4-pair UTP CAT 5 or CAT 6, 50 meters maximum length
Dimensions	
Form Factor	1-U rack mountable
Height x Width x Depth	1.72 x 17.00 x 8.08 in (4.37 x 43.18 x 20.5 cm)
Weight (without cables)	5.3 lbs (2.40 kg)
SETUP Port	
Number	1

Table F.2: DSR1021/1022 Switch Product Specifications (Continued)

Type	RS-232 serial
Connector	DB9 male
Network Connection	
Number	1
Type	10/100 Ethernet
Connector	8-pin modular
Local Port	
Number	1
Type	PS/2 and VGA
MODEM Port	
Number	1
Type	RS-232 serial
Connectors	DB9 female
Serial Power Control (SPC) Port	
Number	1
Type	RS-232 serial
Connector	8-pin modular
Power Supply	
Type	Internal
Power	DSR1021: 9.7 W DSR1022: 8.8 W
Heat Dissipation	DSR1021: 33.1 BTU/hr DSR1022: 30.0 BTU/hr
AC-input Range	100 - 240 VAC
AC Frequency	50 - 60 Hz autosensing
AC-input Current Rating	0.5 A
AC-input Power (maximum)	25 W
AC-input Cable	18 AWG three-wire cable, with a three-lead IEC-320; receptacle on the power supply end and a country-dependent plug on the power resource end

Table F.2: DSR1021/1022 Switch Product Specifications (Continued)

Ambient Atmospheric Condition Ratings	
Heat Dissipation	92 BTU/hr
Airflow	8 cfm
Temperature	32 to 104 degrees Fahrenheit (0 to 40 degrees Celsius) operating; -4 to 158 degrees Fahrenheit (-20 to 70 degrees Celsius) nonoperating
Humidity	10 - 95% noncondensing
Safety and EMC Approvals and Markings	UL, FCC, cUL, ICES-003, CE, GS, VCCI, MIC, C-Tick, GOST Safety certifications and EMC certifications for this product are obtained under one or more of the following designations: CMN (Certification Model Number), MPN (Manufacturer's Part Number) or Sales Level Model designation. The designation that is referenced in the EMC and/or safety reports and certificates are printed on the label applied to this product.

Table F.3: DSR1024 Switch Product Specifications

Server Ports	
Number	1
Type	PS/2, Sun, USB and Serial
Connectors	8-pin modular
Sync Types	Separate horizontal and vertical
Plug and Play	DDC2B
Video Resolution	640 x 480 @ 60 Hz 800 x 600 @ 75 Hz 960 x 700 @ 75 Hz 1024 x 768 @ 75 Hz 1280 x 1024 @ 75 Hz
Supported Cabling	4-pair UTP CAT 5 or CAT 6, 50 meters maximum length
Dimensions	
Form Factor	Desktop
Height x Width x Depth	1.10 x 8.08 x 6.30 in (2.80 x 20.51 x 16.00 cm)
Weight (without cables)	1.1 lbs (0.50 kg)

Table F.3: DSR1024 Switch Product Specifications (Continued)

SETUP Port	
Number	1
Type	RS-232 serial
Connector	8-pin modular
Network Connection	
Number	1
Type	10/100 Ethernet
Connector	8-pin modular
Local Port	
Number	1
Type	PS/2 and VGA
MODEM Port	
Number	1
Type	RS-232 serial
Connectors	8-pin modular
Serial Power Control (SPC) Port	
Number	1
Type	RS-232 serial
Connector	8-pin modular
Power Supply	
Type	External
Power	5.2 W
Heat Dissipation	17.7 BTU/hr
AC-input Range	100 - 240 VAC
AC Frequency	50 - 60 Hz autosensing
AC-input Current Rating	0.6 A
AC-input Power (maximum)	20 W maximum

Table F.3: DSR1024 Switch Product Specifications (Continued)

AC-input Cable	18 AWG three-wire cable, with a three-lead IEC-320; receptacle on the power supply end and a country-dependent plug on the power resource end
Ambient Atmospheric Condition Ratings	
Temperature	32 to 104 degrees Fahrenheit (0 to 40 degrees Celsius) operating; 14 to 158 degrees Fahrenheit (-10 to 70 degrees Celsius) nonoperating
Humidity	10 - 95% noncondensing
Safety and EMC Approvals and Markings	UL, FCC, cUL, ICES-003, CE, GS, VCCI, MIC, C-Tick, GOST Safety certifications and EMC certifications for this product are obtained under one or more of the following designations: CMN (Certification Model Number), MPN (Manufacturer's Part Number) or Sales Level Model designation. The designation that is referenced in the EMC and/or safety reports and certificates are printed on the label applied to this product.

Table F.4: DSR1030/2030/4030/8030 Switch Product Specifications

Server Ports	
Number	16
Type	PS/2, Sun, USB and Serial
Connectors	8-pin modular
Sync Types	Separate horizontal and vertical
Plug and Play	DDC2B
Video Resolution	640 x 480 @ 60 Hz 800 x 600 @ 75 Hz 960 x 700 @ 75 Hz 1024 x 768 @ 75 Hz 1280 x 1024 @ 75 Hz
Supported Cabling	4-pair UTP CAT 5 or CAT 6, 50 meters maximum length
Dimensions	
Form Factor	1-U rack mountable
Height x Width x Depth	1.72 x 17.00 x 10.98 in (4.37 x 43.18 x 27.98 cm)
Weight (without cables)	7.3 lbs (3.31 kg)

Table F.4: DSR1030/2030/4030/8030 Switch Product Specifications (Continued)

SETUP Port	
Number	1
Type	RS-232 serial
Connector	DB9 male
Network Connection	
Number	1
Type	10/100/1000 Ethernet
Connector	8-pin modular
Local Port	
Number	1
Type	PS/2, USB and VGA
USB Device Port	
Number	5
Type	USB 2.0
MODEM Port	
Number	1
Type	RS-232 serial
Connectors	DB9 female
Serial Power Control (SPC) Port	
Number	1
Type	RS-232 serial
Connector	8-pin modular
Power Supply	
Type	Internal
Power	DSR1030: 11.7 W DSR2030: 13.1 W DSR4030: 15.5 W DSR8030: 21.9 W

Table F.4: DSR1030/2030/4030/8030 Switch Product Specifications (Continued)

Heat Dissipation	DSR1030: 39.9 BTU/hr DSR2030: 44.7 BTU/hr DSR4030: 52.9 BTU/hr DSR8030: 74.7 BTU/hr
AC-input Range	100 - 240 VAC
AC Frequency	50 - 60 Hz autosensing
AC-input Current Rating	0.5 A
AC-input Power (maximum)	40 W maximum
AC-input Cable	18 AWG three-wire cable, with a three-lead IEC-320; receptacle on the power supply end and a country-dependent plug on the power resource end
Ambient Atmospheric Condition Ratings	
Temperature	32 to 104 degrees Fahrenheit (0 to 40 degrees Celsius) operating; -4 to 158 degrees Fahrenheit (-20 to 70 degrees Celsius) nonoperating
Humidity	10 - 95% noncondensing
Safety and EMC Approvals and Markings	UL, FCC, cUL, ICES-003, CE, GS, VCCI, MIC, C-Tick, GOST Safety certifications and EMC certifications for this product are obtained under one or more of the following designations: CMN (Certification Model Number), MPN (Manufacturer's Part Number) or Sales Level Model designation. The designation that is referenced in the EMC and/or safety reports and certificates are printed on the label applied to this product.

Table F.5: DSR1031 Switch Product Specifications

Server Ports	
Number	8
Type	PS/2, Sun, USB and Serial
Connectors	8-pin modular
Sync Types	Separate horizontal and vertical
Plug and Play	DDC2B
Video Resolution	640 x 480 @ 60 Hz 800 x 600 @ 75 Hz 960 x 700 @ 75 Hz 1024 x 768 @ 75 Hz 1280 x 1024 @ 75 Hz

Table F.5: DSR1031 Switch Product Specifications (Continued)

Supported Cabling	4-pair UTP CAT 5 or CAT 6, 50 meters maximum length
Dimensions	
Form Factor	1-U rack mountable
Height x Width x Depth	1.72 x 17.00 x 8.08 in (4.45 x 43.18 x 20.5 cm)
Weight (without cables)	5.3 lbs (2.4 kg)
SETUP Port	
Number	1
Type	RS-232 serial
Connector	DB9 male
Network Connection	
Number	1
Type	10/100/1000 Ethernet
Connectors	8-pin modular
Local Port	
Number	1
Type	PS/2, USB and VGA
USB Device Port	
Number	5
Type	USB 2.0
MODEM Port	
Number	1
Type	RS-232 serial
Connectors	DB9 female
Serial Power Control (SPC) Port	
Number	2
Type	RS-232 serial
Connector	8-pin modular

Table F.5: DSR1031 Switch Product Specifications (Continued)

Power Supply	
Type	Internal
Power	9.8 W
Heat Dissipation	33.4 BTU/hr
AC-input Range	100 - 240 VAC
AC Frequency	50 - 60 Hz autosensing
AC-input Current Rating	0.5 A
AC-input Power (maximum)	25 W maximum
AC-input Cable	18 AWG three-wire cable, with a three-lead IEC-320; receptacle on the power supply end and a country-dependent plug on the power resource end
Ambient Atmospheric Condition Ratings	
Temperature	32 to 104 degrees Fahrenheit (0 to 40 degrees Celsius) operating; -4 to 158 degrees Fahrenheit (-20 to 70 degrees Celsius) nonoperating
Humidity	10% - 95% noncondensing
Safety and EMC Approvals and Markings	UL, FCC, cUL, ICES-003, CE, GS, VCCI, MIC, C-Tick, GOST Safety certifications and EMC certifications for this product are obtained under one or more of the following designations: CMN (Certification Model Number), MPN (Manufacturer's Part Number) or Sales Level Model designation. The designation that is referenced in the EMC and/or safety reports and certificates are printed on the label applied to this product.

Table F.6: DSR2035/8035 Switch Product Specifications

Server Ports	
Number	32
Type	PS/2, Sun, USB and Serial
Connectors	8-pin modular
Sync Types	Separate horizontal and vertical
Plug and Play	DDC2B

Table F.6: DSR2035/8035 Switch Product Specifications (Continued)

Video Resolution	640 x 480 @ 60 Hz 800 x 600 @ 75 Hz 960 x 700 @ 75 Hz 1024 x 768 @ 75 Hz 1280 x 1024 @ 75 Hz
Supported Cabling	4-pair UTP CAT 5 or CAT 6, 50 meters maximum length
Dimensions	
Form Factor	1-U rack mountable
Height x Width x Depth	1.72 x 17.00 x 14.025 in (4.37 x 43.18 x 35.62 cm)
Weight (without cables)	10 lbs (4.5 kg)
SETUP Port	
Number	1
Type	RS-232 serial
Connector	8-pin modular
Network Connection	
Number	2
Type	10/100/1000 Ethernet
Connector	8-pin modular
Local Port	
Number	1
Type	PS/2, USB and VGA
USB Device Port	
Number	5
Type	USB 2.0
MODEM Port	
Number	1
Type	RS-232 serial
Connectors	8-pin modular

Table F.6: DSR2035/8035 Switch Product Specifications (Continued)

Serial Power Control (SPC) Port	
Number	2
Type	RS-232 serial
Connector	8-pin modular
Power Supply	
Type	Internal
Power	DSR2035: 13.2 W DSR8035: 21.9 W
Heat Dissipation	DSR2035: 45.0 BTU/hr DSR8035: 74.7 BTU/hr
AC-input Range	100 - 240 VAC
AC Frequency	50 - 60 Hz autosensing
AC-input Current Rating	1.25 A
AC-input Power (maximum)	40 W maximum
AC-input Cable	18 AWG three-wire cable, with a three-lead IEC-320; receptacle on the power supply end and a country-dependent plug on the power resource end
Ambient Atmospheric Condition Ratings	
Temperature	32 to 104 degrees Fahrenheit (0 to 50 degrees Celsius) operating; -4 to 158 degrees Fahrenheit (-20 to 70 degrees Celsius) nonoperating
Humidity	10 - 95% noncondensing
Safety and EMC Approvals and Markings	UL, FCC, cUL, ICES-003, CE, GS, VCCI, MIC, C-Tick, GOST Safety certifications and EMC certifications for this product are obtained under one or more of the following designations: CMN (Certification Model Number), MPN (Manufacturer's Part Number) or Sales Level Model designation. The designation that is referenced in the EMC and/or safety reports and certificates are printed on the label applied to this product.

Appendix G: 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 Table G.1 as you would use the advanced keys on a Sun keyboard.

Table G.1: 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 serial USB IQ module (if your Sun system comes with a USB port) as well as the Sun VSN and WSN IQ 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 (USB IQ modules only)

Japanese Sun USB and Korean Sun USB keyboards assign usage IDs for certain keys that differ from standard USB usage IDs. If USB IQ 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 target devices using Sun VSN and WSN IQ modules and target devices using USB IQ modules. These keys function normally if your Sun servers are attached to the DSR switch using a VSN or WSN IQ module.

Table G.2 lists the keyboard mapping that will take place when a USB IQ module is used in this setting.

Table G.2: PS/2-to-USB Keyboard Mappings

PS/2 Keyboard	USB Usage ID	Sun USB 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 H: 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.

To resolve an issue:

1. Check the pertinent section of this 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 online service request.
3. Call the Avocent Technical Support location nearest you.

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