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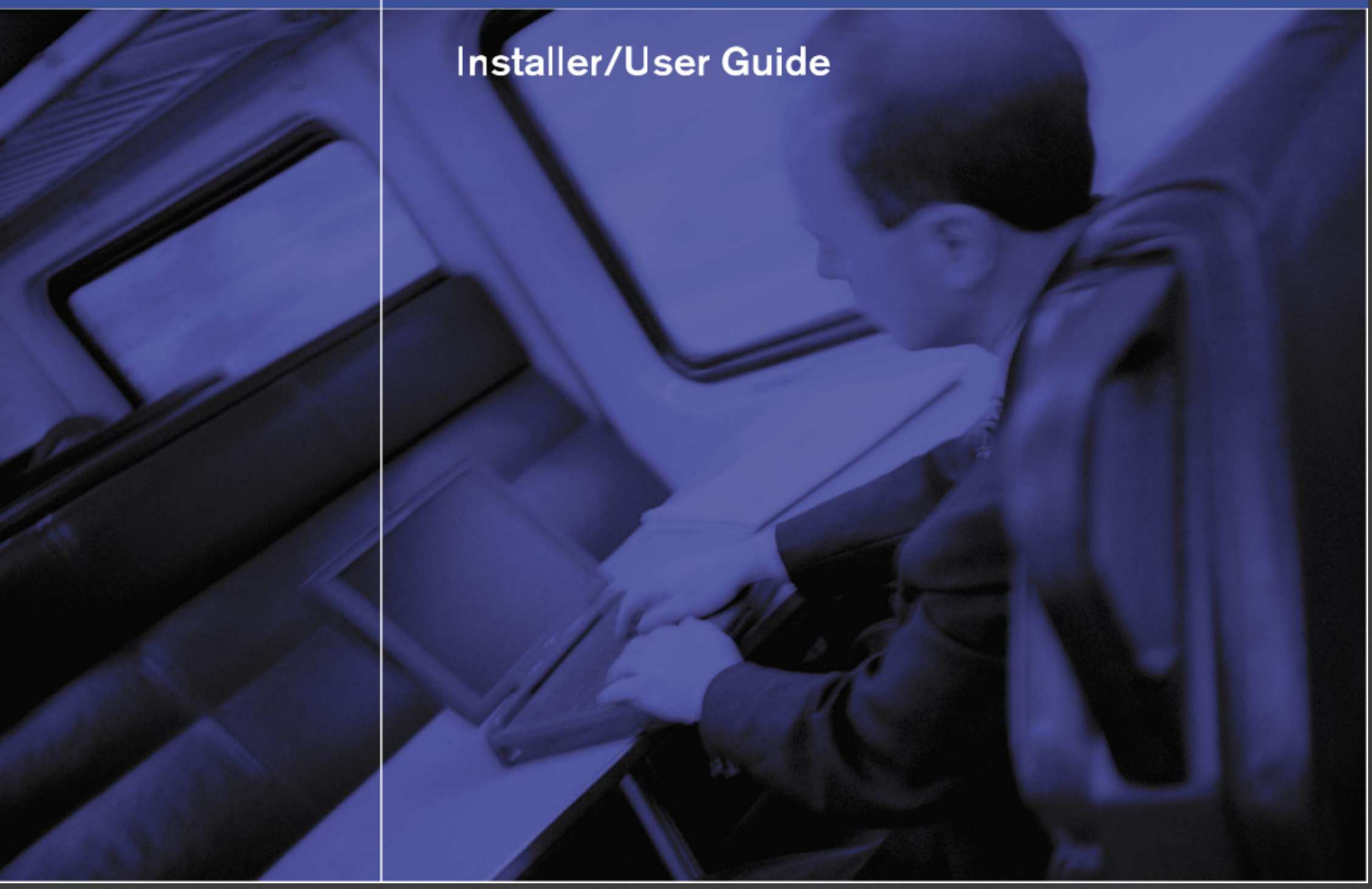
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Avocent™

DS1800

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 principle on/off switch is in the on position.



POWER OFF

This symbol indicates the principle 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.



DS1800

Installer/User Guide

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USA Notification

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

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

Canadian Notification

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada.

Japanese Notification

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Agency Approvals

UL 1950, CSA C22. 2 No. 950, EN60950, IEC 950
FCC part 15A, EN55022, EN55024, EN61000-3-2, EN61000-3-3

Republic of Korea EMI Standard Certificate Number: E-F900-01-2012 (A)

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1 Product Overview

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Chapter 1: Product Overview

Features and Benefits

The DS1800 digital solution provides secure, non-blocked KVM connections to virtually any number of servers using a standard LAN connection. Operators can connect to servers no matter where they are located with performance that meets the requirements of both local and remote operators. Because the DS1800 leverages industry standard LAN equipment, complex wired configurations are no longer necessary. All of the analog KVM signals are converted in real time to digital form and transported using standard Ethernet protocols. This design allows for your future growth needs without complex reconfiguration.

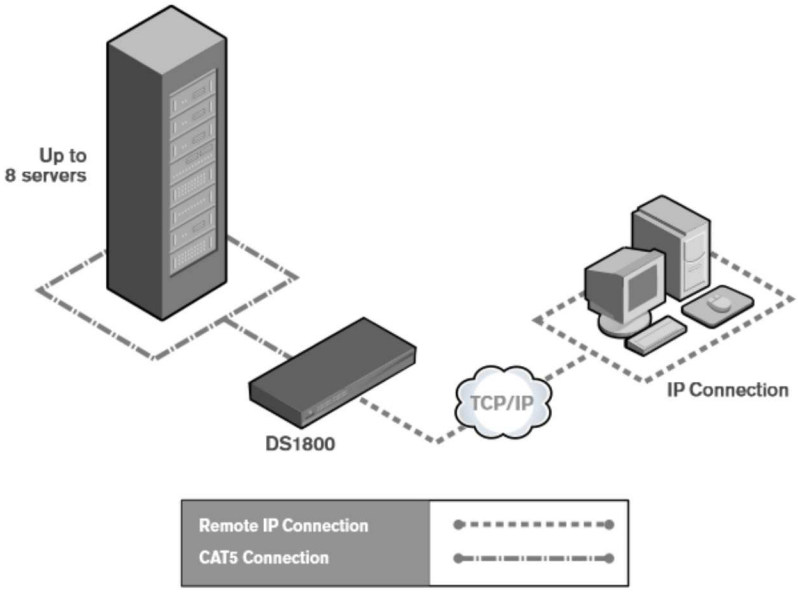


Figure 1.1: Example DS1800 Configuration

Connect servers to the DS1800 or to an attached switch

Computers can be connected directly to the DS1800 or to attached AutoView 200/400 and OutLook KVM switches for a single additional tier of attached servers. The total number of concurrent users in the system is limited only by the number of available network ports.

Access the DS1800 via network connection

No special software or drivers are required on the attached, or host, computers. Users access the DS1800 and all attached systems via Ethernet from a PC running the DSView software program. This software resides on the user PC. User

PCs can be located anywhere a valid network connection exists. The DS1800 can be configured on a separate network "out of band" of your data network, allowing access to your servers even if your applications network is down.

Safety Precautions

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

- If the building has 3-phase AC power, ensure that the computer and monitor are on the same phase. For best results, they should be on the same circuit.
- Use only Avocent-supplied cable to connect computers and KVM switches. Avocent warranties do not apply to damage resulting from user-supplied cable.

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

- Do not use a 2-wire extension cord in any Avocent product configuration.
- Test AC outlets at the computer and monitor for proper polarity and grounding.
- Use only with grounded outlets at both the computer and monitor. When using a backup power supply (UPS), power the computer, the monitor and the DS1800 unit off the supply.



NOTE: The AC inlet is the main disconnect.

DC installation safety considerations

As a safety precaution, install this product in an area with limited or controlled access. A readily accessible disconnect device that is suitably approved and rated shall be incorporated in the field wiring. Connect field wiring from the 48 VDC power source to the screw terminals marked plus (+) and minus (-) on the rear panel of the unit. Connect field wiring from earth ground to the screw terminal marked with the ground symbol. Terminals will accommodate wiring from 26 to 12 AWG (up to 2.5 mm^2 maximum cross section). Strip each wire, insert it in the square opening in the terminal block and tighten the screw above it to a maximum of 70 ounce-inches (0.5 Nm) using either a flat or Phillips-head screwdriver.

Rack mount safety considerations

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



2 Installation

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Chapter 2: Installation

The DS1800 system requires that the DSView, DSAdmin and DSAuthentication Service software be installed prior to use. DSView is the application which allows a user to view and control a server attached to the DS1800 system. DSAdmin is used to configure and maintain the system. DSAuthentication is a Windows NT or 2000 service used to prevent unauthorized access to the DS1800 system. For more information on these programs, see your DSView Installer/User Guide.

The DS1800 system uses Ethernet networking infrastructure and TCP/IP protocol to transmit keyboard, video and mouse information between operators and connected computers. Although 10BaseT Ethernet may be used, Avocent recommends a dedicated, switched 100BaseT network.

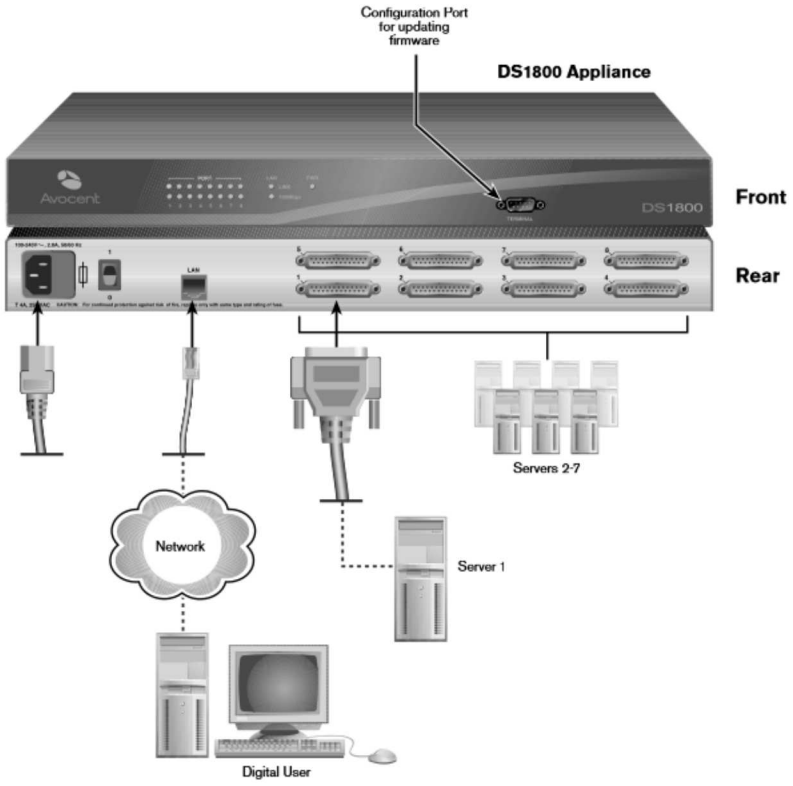


Figure 2.1: Basic DS1800 Configuration

Getting Started

Before installing the DS1800 system, refer to the following lists to ensure that you have all items that shipped with the DS1800 as well as all other items necessary for proper installation.

Supplied with the DS1800

- The DS1800 unit
- A local country power cord (not included in DC version)
- Rack mounting brackets
- Null modem cable
- DS1800 and DSView user documentation and software CD
- DS1800 Quick Installation Guide

Needed for installation

- Computer interface cables are necessary for each computer you plan to attach to the DS1800 system. These cables will be single-sheath and are available with PS/2, USB and Sun interfaces. These cables vary in length and are purchased separately from Avocent.
- DSAuthentication, DSAdmin and DSView software are required. All are available on the included CD and through download from Avocent.

Verification of Connections

The front panel of the DS1800 features two LEDs which indicate the status of the Ethernet connection. The top LED is the *Link* indicator. It will illuminate when a valid connection to the network is established and blink when there is activity on the port. The lower amber LED, labeled *100Mbps*, will indicate that you are communicating at the 100BaseT speed.

Additionally, there are two LEDs above each port number on the front of your unit: one green and one amber. The green LED will illuminate when the attached system or switch is powered. The amber LED will illuminate when that computer or a computer attached to that switch is being accessed by the DSView client.

Setting Up Your Network

The DS1800 system uses IP addresses to uniquely identify the DSAuthentication Service, the DS1800 units and the computers running DSView. The DS1800 supports both BootP and static IP addressing. Avocent recommends that IP

addresses be reserved for each unit and that they remain static while the DS1800 units are connected to the network. For additional information on how the DS1800 uses the TCP protocol, see *Appendix D*.

To install the DS1800:

1. Remove the DS1800 unit from the packing material.
2. Connect a terminal or PC running terminal emulation software (such as HyperTerminal) to the terminal port on the front panel of the DS1800 using the supplied null-modem cable. The terminal should be set to 9600 baud, 8 bits, 1 stop bit, no parity and no flow control.
3. Plug the supplied power cord into the back of the DS1800 unit and then into an appropriate power source.
4. When the power is switched on, the Power indicator on the front of the unit will blink for approximately 30 seconds while performing a self-test. Approximately 10 seconds after it stops blinking, press the **Enter** key to access the main menu.

To configure the DS1800:

1. You will see the Terminal Applications menu with seven options. Select option 1, *Network Configuration*. This will activate the Network Configuration menu.
2. Select option 1 to set your network speed. When possible, you should set your connection manually without relying on the auto negotiate feature. Once you enter your selection, you will be returned to the Network Configuration menu.
3. Select option 2 and specify if you are using a static or BootP IP address. Use a static IP address for ease of configuration. If you are using a BootP address, please configure your BootP server to provide an IP address to the DS1800 and proceed to step 5.
4. Select options 3-5, in turn, to finish configuring your DS1800 for IP address, Netmask and Default Gateway. Once this is completed, enter **0** in the Network Configuration menu to return to the main menu.
5. Before a PC running Windows NT or 2000 can be connected to the DS1800, an adjustment to mouse acceleration must be made. See *Adjusting mouse acceleration* in this chapter.

6. Begin connecting servers directly to the DS1800 and/or connected KVM switches. You can have any mix of computers and switches connected to one DS1800 unit.

NOTE: The DS1800 supports specific AutoView and OutLook switches. Contact Avocent technical support or your reseller for details.

7. Attach the DB25 connector on the remaining end of the computer interface cable to the DS1800 rear panel in an available computer port. Repeat this step for each computer interface cable in the system.

NOTE: The DS1800 and all attached computers should be powered down before servicing the unit. Always disconnect the power cord from the wall outlet.

8. Connect your network cable from the LAN port on the rear of the DS1800 to your network.
9. Power the DS1800 via the power switch on the rear of the unit, then power all attached systems.

NOTE: Your software registration key will be necessary for all installations. Internet Explorer 5.0 or higher must be installed on all systems running DS1800 software.

Once you have completed installation of your DS1800 hardware, you will need to install the software that will allow you to access attached computers. You can find software installation instructions in your DSView Installer/User Guide.

Adjusting mouse acceleration

NOTE: It is highly recommended that all Windows systems attached to the DS1800 use the default Windows PS/2 mouse driver.

To adjust acceleration in Windows NT (using default drivers):

1. From the desktop, select *Start - Settings - Control Panel - Mouse.*
2. Click on the *Motion* tab.
3. Set the pointer speed to *Slow*. This will also need to be done for any NT user account that will be accessing the NT system through the DS1800.

To adjust acceleration in Windows 2000:

1. From the desktop, select *Start - Settings - Control Panel - Mouse*.
2. Click on the *Motion* tab.
3. Set the Acceleration setting to *None*, and the speed setting to the default of *50%*.

To adjust acceleration in Sun:

1. From the common desktop environment, go to *Desktop Controls - Mouse Style Manager*.
2. Set the mouse acceleration to *1.0*.

To connect a user interface cable to a server:

1. Locate the user interface cables that you purchased with your DS1800 unit. Ensure that the cable is compatible with the computer you are connecting.
2. Connect this cable to the keyboard, monitor and mouse ports on the first computer you will be attaching to this DS1800 unit. Repeat this step for all computers you wish to attach.

To connect a user interface cable to a KVM switch:

1. Plug the keyboard, video and mouse connectors on your computer interface cable into the user keyboard, monitor and mouse ports on the rear panel of your switch.
2. Repeat this step for each KVM switch in your system.



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Chapter 3: Operations

Throughout this chapter and the rest of the manual, the following naming conventions will be used:

- Host PC: A computer that is attached to the DS1800 and controlled through the DSView software
- Node: A host PC
- Port: One of the eight PC/KVM switch interfaces on the DS1800
- Remote PC: The computer running DSView
- Session: The process of accessing and controlling a single host PC connected to a DS1800 unit from a PC running DSView

Power Up and LEDs

The DS1800 should be powered up before any attached servers or switches. Indicator lights on the front of the unit will illuminate to indicate the status and activity of each port and a green LED labeled *Power* will show that the unit is receiving power.

There are two LEDs above each port number on the front of your unit: one green and one amber. The green LED will illuminate when the attached system or switch is powered. The amber LED will illuminate when that computer or a computer attached to that switch is being accessed by a DSView client.

There are also LEDs on the DS1800 front panel to indicate the status of your LAN connection. If you are successfully linked to the network, the green LED labeled *Link* will be lit and an amber LED labeled *10/100* will indicate that you are communicating at the proper speed. This LED will blink if there is activity on the associated DS1800 unit.

Finally, you will find a 9-pin serial connector labeled *Terminal* on the right end of the front panel of the DS1800. This is used to configure the DS1800 and will be discussed further in Chapter 4.

Once the DS1800 is configured and powered, users may connect to attached systems through the DSView software. For more information on DSView, see the DSView Installer/User Guide.

Terminal Operations

Each individual DS1800 may be configured at the unit level through the terminal port on the front of the unit. All Terminal commands are accessed through a terminal or PC running terminal emulation software.

To access the Terminal menu:

1. Connect a terminal or PC running terminal emulation software (such as HyperTerminal) to the terminal port on the front panel of the DS1800 using the supplied null-modem cable. The terminal should be set to 9600 baud, 8 bits, 1 stop bit, no parity and no flow control. The terminal may be connected at any time, even when the unit is powered.
2. Press any key to access the main menu.

Terminal Applications Menu Commands

The main menu of the DS1800 features the following selections: Network Configuration, Security Configuration, SNMP Configuration, Firmware Management, Enable Debug Messages, Set/Change Password, Restore Factory Defaults, Reset Appliance and Exit. Each is discussed below.

Network Configuration

The DS1800 is configured for network access through this option. When it is selected, you will have access to the addressing that allows the DS1800 to be positioned in your network.

Security Configuration

This menu option allows you to configure DS1800 authentication security. When it is selected, you will be given two menu options: Reset Authentication Tokens and Authentication Server Connection Status.

The DS1800 operates in one of two modes: All or Secure. This setting is controlled from the Security menu on the DS1800 console port. In the default All mode, the DS1800 allows any authentication server to initiate a session between the DS1800 and DSView. In Secure mode, only one specific authentication server is allowed to initiate this session; other authentication servers are locked out.

NOTE: In Secure mode, the ability to select a backup authentication server through DSView is eliminated.

When a DS1800 is added to the database with DSAdmin, the appropriate authentication token is added to the DS1800 automatically. If DSAuthentication cannot contact the DS1800 to add the token, an error message is displayed and the DS1800 is not added to the database.

When the last reference to a DS1800 is removed from the database, the authentication token is removed from the DS1800, which allows the DS1800 to be

moved from one authentication server to another. The authentication token can also be removed from the Security menu on the DS1800 console port via the Reset Authentication Tokens option.

When the DS1800 is in All mode, DSAdmin displays a warning message when the DS1800 is added to the database, stating that the token could not be installed. If you intend to operate in All mode, you may safely ignore this warning. Otherwise, you may wish to change the security settings on the console port of the DS1800.

SNMP Configuration

The SNMP Configuration menu option allows you to enable SNMP and specify parameters for SNMP operation. The DS1800 supports an SNMP MIB agent that provides read/write access to the MIB-II variables except for the EGP group. DS1800 does not implement External Gateway Protocol.

DS1800 implements the following MIB-II traps: coldStart (all reboots will be cold start traps), linkUp and authenticationFailure.

The DS1800 MIB agent provides one read community name, one write community name and one trap community name. Community names must be correctly provided in all standard SNMP messages. SNMP Get and GetNext requests must contain the read community name. SNMP Set requests must contain the write community name and SNMP traps must contain the trap community name.

Firmware Management

This menu option allows you to access the FLASH Download command which allows you to upgrade your DS1800 firmware with upgrades available from Avocent. For more information on FLASH upgrading your DS1800, see *Appendix A: FLASH Upgrades*.

Enable Debug Messages

This menu option allows you to configure the DS1800 to display messages regarding the status of the DS1800 unit. Once you select the level of detail you wish to receive, the DS1800 will begin to display information on your terminal screen. When you are finished viewing, press any key to exit this mode.

Set/Change Password

The DS1800 can be set to a secure mode where the Terminal menu cannot be accessed without first entering a password.

To activate security:

1. Select the *Set/Change Password* menu option. You will be prompted to decide if you wish to continue. Enter a **Y**.
2. Type a password for this DS1800 unit and press **Enter**. This password may be up to 14 characters long.
3. You will be prompted to re-type the password. Once you complete this step, security will be active and you will not be able to access DS1800 terminal operations without the password.

To change the password:

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

CAUTION: This password places your DS1800 terminal in a secure mode. This password should be guarded like any network password and care should be taken to avoid forgetting or misplacing it. There are no means for recovering a lost password.

Restore Factory Defaults

This menu option will restore the network configuration, security configuration and SNMP configuration to the default settings.

Reset Appliance

Selecting *Reset Appliance* will force a soft reset of the DS1800.

Exit

This menu selection will return you to the ready prompt.



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Appendices

Appendix A: FLASH Upgrades

The DS1800 FLASH upgrade feature allows you to update your unit with the latest firmware available. To perform this update, you will first need a Trivial FTP (TFTP) server. If you do not have a TFTP server, there are several shareware programs that you can download.

Next, you will need to download the latest FLASH firmware from Avocent at http://www.avocent.com/support. Save the FLASH upgrade file to the appropriate directory on the TFTP server.

To FLASH upgrade the DS1800:

1. Connect a terminal or PC running terminal emulation software (such as HyperTerminal) to the terminal port on the front panel of the DS1800 using the supplied null-modem cable. The terminal should be set to 9600 baud, 8 bits, 1 stop bit, no parity and no flow control.
2. If the DS1800 is not on, turn it on now. After approximately 10 seconds, press any key to access the main menu.
3. Select *Firmware Management*.

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

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4. Select *FLASH Download*.
5. Enter the IP address of your TFTP server and press **Enter**.
6. Enter the name of the file that you downloaded from the Avocent site.
7. Confirm the TFTP download by typing a **Y** or **yes** and pressing **Enter**.
8. The DS1800 will verify that the file you downloaded is valid. Next, you will be prompted to confirm the upgrade. Type a **Y** or **yes** and press **Enter** to confirm.
9. The DS1800 will begin the FLASH upgrade process. On-screen indicators will display the upgrade progress. When the upload is complete, the DS1800 will reset and upgrade the internal subsystems.

WARNING: Do not cycle power to the DS1800 during this process. A loss of power will render the DS1800 inoperable and require the unit be returned to the factory for repair.

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10. Once the upgrade is complete, a verification message will appear on screen.

Appendix B: Technical Specifications

DS1800 Product Specifications	
Server Ports	
Number	8
Types	PS/2 Keyboard, PS/2 Mouse, SXGA Video USB Keyboard, USB Mouse, SXGA Video Sun Keyboard, Sun Mouse, SXGA Video Sun Keyboard, Sun Mouse, 13W3 Video Sun USB Keyboard, USB Mouse, 13W3 Video
Connectors	25-pin D with locking thumb screws
Sync Types	Separate horizontal and vertical composite
Plug and Play	DDC2B
Video Resolution	Maximum 1280 x 1024 @ 75 Hz
Dimensions	
Dimensions (HxWxD)	4.45 x 43.18 x 27.94 cm (1.75 x 17.00 x 11.00 in)
Weight	3.6 kg (8 lbs) without cables
Heat Dissipation	92 Btu/hr
Airflow	8 cfm
Power Consumption	27 watts
AC-input power	40 W maximum
Maximum AC-input (AC Version)	100 to 240 VAC wide input
Maximum DC-input (DC Version)	36 to 75 VDC wide input
AC-input current rating	2 A
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
Frequency	50/60 Hz Autosensing
Operating Temp	32 to 104 degrees Fahrenheit (0 to 40 degrees Celsius) operating; -4 to 149 degrees Fahrenheit (-20 to 65 degrees Celsius) nonoperating
Humidity	10 to 90% noncondensing
Agency Approvals	UL 1950, CSA C22.2, EN60950, FCC part 15A, EN55022, EN55024, EN61000-3-2, EN61000-3-3, Republic of Korea EMI Standard Certificate Number: E-F900-01-2012 (A)

Console Port	
Number	1
Type	Serial RS232
Connectors	DB9 Male Network Connection
Number	1
Type	Ethernet: IEEE 8023, 10 Base-T, Fast Ethernet: IEEE 802.3U, 100BaseT
Connector	RJ45
User Consoles	
Type	PC running Windows NT, 2000, 95/98, Operating Systems with the DSView application Minimum Configuration- 300MHz Pentium III with 64Mb RAM, 100BaseT NIC, XGA Video Recommended Configuration- 450MHz Pentium III with 128Mb Ram, 100BaseT NIC, SXGA Video

Appendix C: Technical Support

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

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

Appendix D: TCP Ports

When the DSView client is started, the Node Manager will become active. Node Manager will try to establish a SSPI Messenger Class session using TCP/IP over port 2068 to the DSAuthentication Server (Avocent Service). First, Node Manager will use the current NT/2000 cached credentials to establish the session. If the cached credentials have the proper permissions, the browse list is returned from the DSAuthentication Server over TCP/IP port 2068.

NOTE: The DSView client caches the browse list. Using the refresh option will update the list from the DSAuthentication Server.

If the session is refused using the cached credentials, a pop-up dialog box will prompt for the proper username and password.

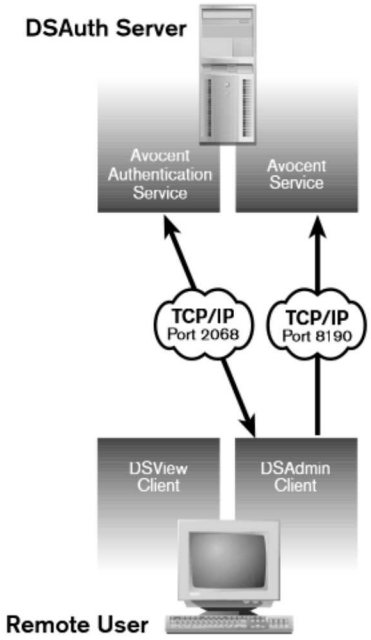


Figure D.1:

After the browse list is returned to Node Manager, the user can double-click on a specific port to initiate a KVM session with that port on the DS1800. The DSView client contacts the DSAuthentication Server, which checks the permissions on the port again. If the user has permissions to the port selected, the DSAuthentication Server will establish a connection to the DS1800 using

TCP/IP port 8191. The DSAuthentication Server then tells the DS1800 to listen to port 8192 for a DSView connection.

For debugging purposes, the details of this connection can be seen by using the console port to place the DS1800 into debug mode.

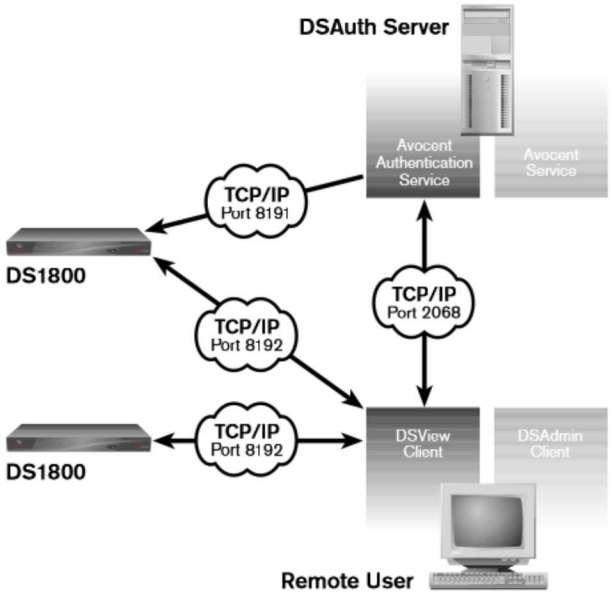


Figure D.2:

The DSView client establishes a TCP/IP session with the DS1800 over the TCP/IP port 8192. The DS1800 verifies with the DSAuthentication Server that the calling DSView client has permission to have a KVM session with the selected port. Then the connection between the DS1800 and the DSAuthentication Server is closed. All communication between the DS1800 and the DSView client takes place over TCP/IP port 8192 until the DSView client closes the session.

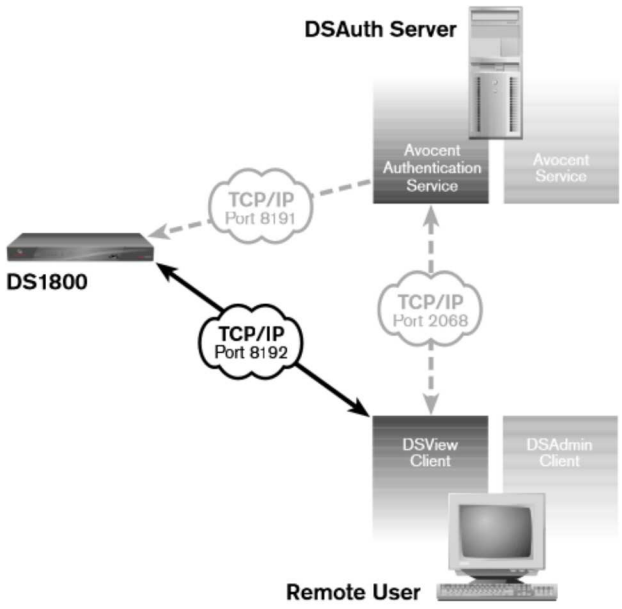


Figure D.3:

If the DSView user wishes to establish a session with another DS1800 port, the same process is used.

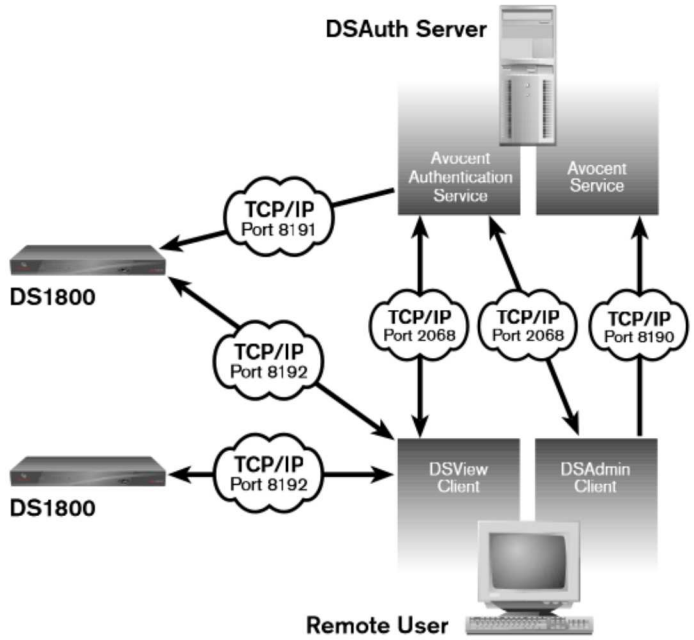


Figure D.4

DSAdmin functions similarly to the DSView client. It establishes a connection using TCP/IP port 2068, and uses the same process for authentication and return of the browse list. Changes made to the browse list through DSAdmin are transmitted back to the DSAuthentication Server using TCP/IP port 8190. After the changes are made, DSAdmin refreshes its browse list view over the TCP/IP port 2068 connection.

When the backup Authentication Service is active, it communicates with the primary Avocent Authentication Service via TCP port 8193. Changes to the topology are copied to and from the primary over this port.

LIMITED WARRANTY

Avocent Corporation warrants to the original retail purchaser that this product is and will be free from defects in materials and workmanship for a period of 24 months from the date of purchase.

Additionally, all Avocent products carry an unconditional thirty-day satisfaction guarantee. If, for any reason, you are dissatisfied with the performance of this product, you may return it to the point of purchase for a refund of the purchase price (excluding shipping charges). This guarantee does not apply to special order products, and may not be available through all resellers. During the warranty period, purchaser must promptly call Avocent for a RETURN MATERIALS AUTHORIZATION (RMA) number. Make sure that the RMA number appears on the packing slip, proof of purchase, AND ON THE OUTSIDE OF EACH SHIPPING CARTON. Unauthorized returns or collect shipments will be refused.

Ship prepaid to: Avocent Corporation
4991 Corporate Drive
Huntsville, AL 35805 U.S.A.
Telephone: (256) 430-4000

The above limited warranty is voided by occurrence of any of the following events, upon which the product is provided as is, with all faults, and with all disclaimers of warranty identified below:

1. If non-Avocent approved cabling is attached to the product. Poorly constructed and miswired cabling can diminish video quality and damage equipment. Avocent manufactured cabling is built to high quality standards utilizing overall braided shield to comply with FCC emission standards, and each cable is individually tested under load.
2. If defect or malfunction was caused by abuse, mishandling, unauthorized repair, or use other than intended.
3. If unauthorized modifications were made to product.
4. If unreported damages occurred in any shipment of the product.
5. If damages were due to or caused by equipment or software not provided by Avocent.
6. If the product is used with non-grounded or incorrectly polarized AC power.
7. If the product is used in contradiction to any instruction provided by any User Guide or Instruction Sheet provided to you or with the product.
8. If the product is damaged due to power surges, water exposure or act of God including lightning.

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For Technical Support:

Email: support@avocent.com
www.avocent.com

Avocent Corporation
4991 Corporate Drive
Huntsville, Alabama 35805-6201 USA
Tel: +1 256 430 4000
Fax: +1 256 430 4031

Avocent International Ltd.
Avocent House, Shannon Free Zone
Shannon, County Clare, Ireland
Tel: +353 61 715 292
Fax: +353 61 471 871

Avocent Asia Pacific
Singapore Branch Office
100 Tras Street, #15-01
Amara Corporate Tower
Singapore 079027
Tel: +656 227 3773
Fax: +656 223 9155

Avocent Germany
Gottlieb-Daimler-Straße 2-4
D-33803 Steinhagen
Germany
Tel: +49 5204 9134 0
Fax: +49 5204 9134 99

Avocent Canada
50 Mural Street, Unit 5
Richmond Hill, Ontario
L4B 1E4 Canada
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