8275 Model 416 High Performance Ethernet
Workgroup Switch

User's Guide

IBM

8275 Model 416 High Performance Ethernet
Workgroup Switch

IBM

User's Guide

> **Note**
>
> Before using this information and the product it supports, be sure to read "Appendix A. Safety Information" on page 67 and "Appendix B. Notices" on page 73.

First Edition (May 1999)

This edition applies to Release 1.0 of the IBM 8275 Model 416 High Performance Ethernet Workgroup Switch.

Order publications through your IBM representative or the IBM branch office serving your locality. Publications are not stocked at the address given below.

A form for readers' comments appears at the back of this publication. If the form has been removed, address your comments to:

Department CGF
Design & Information Development
IBM Corporation
PO Box 12195
RESEARCH TRIANGLE PARK NC 27709
USA

When you send information to IBM, you grant IBM a nonexclusive right to use or distribute the information in any way it believes appropriate without incurring any obligation to you.

Contents

Figures

Tables

ix

About This Guide

This manual briefly describes the features and capabilities of the 8275 Model 416 High Performance Ethernet Workgroup Switch. However, its primary purpose is to describe how to use the capabilities offered by the 8275-416 to configure, obtain status information, and monitor performance of the switch in your network.

Who Should Use This Guide

This manual is intended for the network administrator or person responsible for integrating, maintaining and monitoring the 8275-416 in your network. The person responsible for coordinating installation and service for the 8275-416 will also find this manual useful.

How This Manual is Organized

This manual contains the following chapters and appendixes:

- Chapter 1. Introduction describes the functions and capabilities of the 8275-416 .
- Chapter 2. Accessing the 8275-416 describes the various physical methods of accessing the 8275-416 .
- Chapter 3. Configuring your 8275-416 describes initial configuration of IP information.
- Chapter 4. Using the Terminal Interface describes the using functions of the terminal interface.
- Chapter 5. Using the Web Interface introduces the Web interface.
- Chapter 6. Troubleshooting and Obtaining Service gives suggestions for solving problems obtaining service.
- Appendix A. Safety Information contains translated safety instructions to observe when performing troubleshooting proccedures.
- Appendix B. Notices lists important notices about the use of this product.
- Appendix C. Cable Pinout Diagrams describes and illustrates pinout diagrams for ethernet and null modem cable connectors.
- Appendix D. Interface Conventions for the Console describes the definitions and functions of special keys and commands that are used by the terminal interface.

Accessing the Softcopy Library

Softcopy versions of 8275-416 product documentation is available from either the Documentation CD-ROM (shipped with the product) or the IBM Networking Products Web site. To access product documentation shipped on the CD-ROM, follow the instructions in the booklet that accompanies the CD-ROM. Visit the following Web site to access the 8275-416 documentation at:

`http://www.networking.ibm.com/did/8275bks.html`

Online Support

To obtain support information, including technical tips, current product information, and code updates and fixes for the 8275-416 , visit the IBM Networking Tech Support page at:

`http://www.networking.ibm.com/support`

You may also subscribe to receive e-mail notifications about code updates, tips, and FAQs for your 8275-416 .

Obtaining Service

If you need assistance in troubleshooting or you need service for your 8275–416, call IBM at:

- 1 800 772-2227 in the United States
- 1 800 426-7378 (1 800 IBM-SERV) in Canada.
- In other locations, contact your place of purchase.

Refer to your IBM Warranty for information concerning service for the product.

Chapter 1. Introduction

This chapter briefly describes the functions, capabilities, and benefits of the 8275 Model 416 High Performance Ethernet Workgroup Switch. This information helps you to plan for and use the 8275-416 in your network.

Product Overview

Fast Ethernet switching continues to evolve from high-end backbone applications to desktop switching applications. The 8275-416 provides a low cost and powerful Layer 2 switch solution. It is an attractive base switch offering with the following key functions:

- High performance, Layer 2, managed switch
- 16 base ports (10/100BASE-TX), expandable to 24 or 32 ports. The expansion can be any combination of the following optional feature modules:
  - 8-Port 10/100BASE-TX
  - 8-Port 100BASE-FX
- Robust management support; VT100 terminal interface, Web interface, SNMP
- Backplane performance 10 Giga-bits per second Ethernet switching
- Desktop and segment switching infrastructure
- Affordable migration to higher performance networks

Network administrators have a choice of three easy-to-use management methods: VT100 interface, Web-based, and Simple Network Management Protocol (SNMP). These management methods enable the network administrator to configure, manage, and control the 8275-416 locally or from anywhere on the network.

The Spanning Tree Protocol (STP) provides fault tolerance on the network.

8275-416 Functions

This section describes the functional support included in the 8275-416 :

- Layer 2 switching
- Management and user interface
- Security
- Reliability and serviceability
- Performance
- Flow Control
- Y2K

Layer 2 Switching

The 8275-416 is a frame-based Layer 2 Ethernet switch. In a Layer 2 switch, frame forwarding is based on MAC addresses. The 8275-416 supports the IEEE P802.1D (1990) standard.

1

802.3x Flow Control

The 8275-416 supports the 802.3x flow control, which, when enabled allows the transmission of data frames to be inhibited for a specified period of time. The default for 802.3x flow control is *Disabled*. 802.3x flow control is valid only when the port is in full duplex mode.

Broadcast Storm Recovery

The 8275-416 detects broadcast storms and automatically blocks broadcast traffic to minimize the impact of the broadcast storm on the rest of the network. You can enable or disable this function at a switch level. If broadcast storm recovery is enabled, each port will monitor incoming broadcast traffic. If the broadcast traffic exceeds 20 percent of the port speed, the broadcast traffic on this port is blocked until the broadcast traffic returns to 20 percent or below port speed. The default for broadcast storm recovery is *Disabled*.

Address Aging

An address recognized by the switch is removed from the port lookup tables after a period of time if no frames have been received from that address. The default value for the aging period is 300 seconds (5 minutes), but it can be changed by the user. The time values range from 10 seconds to 1000000 seconds.

If a port lookup table is full and a frame is received with a new address that needs to be added to the table, the frame is sent multicast.

Management and User Interfaces

The network administrator has a choice of these easy-to-use management methods:

- A VT100 terminal interface allows the network administrator to fully manage the 8275-416 using a standard terminal or terminal emulator connected over the network using Telnet or connected to the 8275-416 's serial port (EIA 232).

    "Chapter 2. Accessing the 8275-416" on page 11 describes how to access the 8275-416 using this interface and "Chapter 4. Using the Terminal Interface" on page 25 instructs you about using this interface.

- A Web-based interface enables you to manage the 8275-416 through standard Web browsers. There must be a physical path between the Web browser and the 8275-416 over the Ethernet network to use this method of connectivity.

    "Chapter 2. Accessing the 8275-416" on page 11 describes how to access the 8275-416 using this interface and "Chapter 5. Using the Web Interface" on page 61 instructs you about using this interface.

- The 8275-416 has a Simple Network Management Protocol (SNMP) agent that the network administrator can access with a standard Network Manager. The following MIBs (Management Information Base) are supported:
    - MIB II (RFC 1213)
    - 8275-416 Enterprise MIB
    - RMON MIB (RFC 1757)
    - Bridge MIB (RFC 1493)
    - IEEE 802.3 Ethernet (RFC 1643)
- 8275-416 interoperates with the following SNMP Managers:
    - Any standard MIB Browser (SNMP V1)

– IBM Nways Manager for NT (V2.0 or later)
– IBM Nways Manager for HP-UX (V2.0 or later)
– IBM Nways Manager for AIX (V2.0 or later)

Security

User access security can be implemented using the following functions of the 8275-416 :

- User Accounts: The 8275-416 supports up to six accounts (one user with Read/Write status and five with Read Only status) for terminal interface and Web access. Access to the 8275-416 configuration panels is password protected. Only one user name with Read/Write status is allowed to be configured, which prevents potential conflicts in configuration changes. The default Read/Write user name is: *admin*, and the default password is blanks (no password). If you lose the password, contact your IBM service representative.
- SNMP read/write protection based on community name.

Reliability and Serviceability

The 8275-416 :

- Provides a comprehensive Power-On Self Test (POST) that ensures that all of its components are functioning correctly.
- Controls a seven-segment LED that allows you to follow the boot sequence.
- Allows you to download software upgrades using any of the management methods.
- Allows you to implement parallel paths for network traffic through the use of Spanning Tree Protocol (STP) which provides a level of fault tolerance and ensures that:
  – Redundant paths are disabled when the main paths are operational
  – Redundant paths are enabled if the main paths fail
- Allows you to configure a port to "see" traffic going into and out of another port on the 8275-416 (Port Mirroring).
- Provides statistics for all ports.

Performance

High performance, Layer 2 switching for the 8275-416 consists of:

- Switching for up to 32 ports
- Supporting up to 12 000 end stations
- Processing 64-bytes packets at the following rates:
  – 14 880 packets per second to 10 Mbps ports.
  – 148 800 packets per second to 100 Mbps ports
- Detecting broadcast storms and preventing them from impacting the network (Broadcast Storm Control).

Year 2000 (Y2K)

The 8275-416 is Y2K ready.

When used in accordance with its associated documentation, it is capable of correctly processing and/or receiving date data within and between the 20th and 21st centuries - providing all other products (for example, hardware, software, and firmware) used with the 8275-416 properly exchange accurate date data.

For additional information about Year 2000 related topics, visit:

`http://www.ibm.com/year2000`

Hardware

Cabling Requirements

Ethernet cables are *not* provided and must be separately purchased. You can order them through your IBM representative.

Table 1 shows cable type and length requirements. Cable requirements depend on the speed of the network. Cables and connecting hardware must meet the standards specified in the ANSI/TIA/EIA 856-A or CSA T529 standards.

Table 1. Ethernet Cable Requirements

Ethernet Type	Cable Requirements	Max. Cable Length
10BASE-T	Category 3, 4, 5, 100-ohm STP/UTP cable	100 m (328 ft)
100BASE-TX	Category 5, 100-ohm STP or UTP cable and connecting hardware	100 m (328 ft)
100BASE-FX	62.5 micron multimode fiber-optic cabling	2 km (6561 ft) at full duplex; 412 m (1352 ft) at half duplex

10/100BASE-TX

10BASE-T connections are MDX ports and operate correctly with standard Category 3, 4, 5, 100-ohm UTP or STP cable and connecting hardware, as specified in the ANSI/TIA/EIA 856-A or CSA T529 standards when connected to MDI ports. When connecting to other MDX ports, such as ports of other 8275-416 switches, you must use crossover cables.

Do not use telephone extension cables in 10/100BASE-TX networks. The wire pairs in those cables are not twisted and the cables do not meet other requirements for use in a 10BASE-T network.

For connections to 10/100BASE-TX networks, you can use only Category 5 STP or UTP cables.

100BASE-FX

For connection to 100BASE-FX networks, you can use only 62.5/125 MMF cabling with MTRJ connectors.

Front Panel
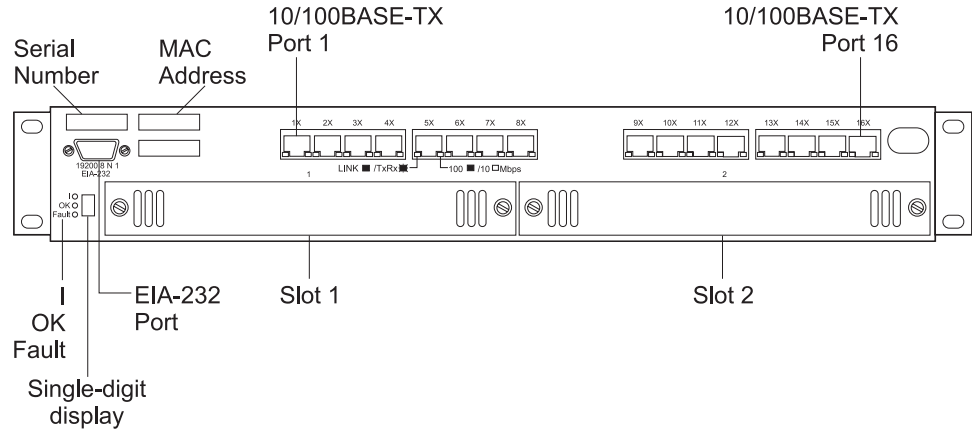
Figure 1. Front Panel of the 8275-416 .

8275-416 LEDs
>8275-416 LEDs are located at the lower left corner of the front panel (left of the single-digit display and are identified with a vertical bar (I), OK, and Fault. The LED for the vertical bar is Green, as is the OK LED; the Fault LED's color is amber. The states of the LEDs are on, off, or blinking, are explained later in this chapter.

Single-Digit Display
>The single digit display is located at the lower left corner of the front panel as shown in Figure 2 on page 6. During diagnostics, the character displayed indicates the diagnostic test being executed. Once the 8275-416 is operational, the character displayed is its Unit ID.

Serial Port (EIA 232)
>The serial port is a standard DB-9 male connector that provides an EIA–232 serial interface (sometimes referred to as the out-of-band management port). Use a null-modem serial cable when connecting to a workstation (see "Appendix C. Cable Pinout Diagrams" on page 79). Use a VT100 terminal emulator program to configure your terminal's attached COM port as follows:

>* 19 200 baud
>* 8 data bits
>* 1 stop bit
>* No parity
>* Hardware flow control OFF

>See "Chapter 2. Accessing the 8275-416" on page 11 for more information about connectivity.

Ethernet 10/100BASE-TX Ports
>The 8275-416 has 16 Ethernet 10/100BASE-TX ports. Each port has two LEDs located at the lower right and left of the connector. Status indications of the Port LEDs are explained later in this chapter.

Feature Module Slots 1 and 2
>These feature modules are available to expand port connections to your 8275-416 :

- 8-Port 10/100BASE-TX Ethernet Feature Module, IBM P/N 35L2355
- 8-Port 100BASE-FX Ethernet Feature Module, IBM P/N 35L2356

8275-416 Status LEDs

8275-416 Status LEDs are shown in Figure 2 and their indications are explained in the table that follows:
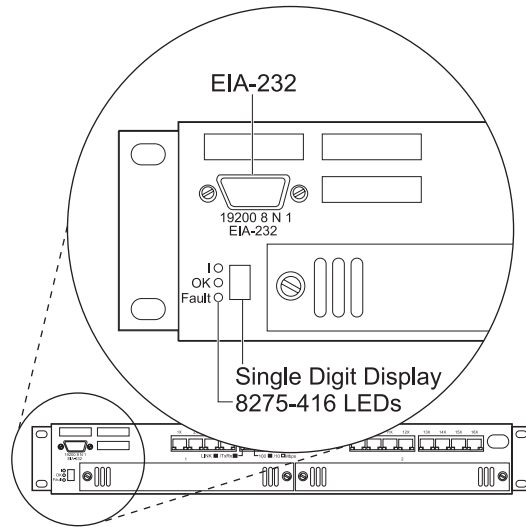
Figure 2. Status LEDs for the 8275-416 .

LED	Color	State	Explanation
I	Green	ON	There is power to the 8275-416 and the power supply is OK.
		OFF	There is no power is present, or there is a power supply failure.
OK	Green	ON	The 8275-416 is operational.
		OFF	The 8275-416 is not operational.
		Blinking	Operational code or configuration file transfer is in process.
Fault	Yellow	ON	Indicates a hardware fault.
		OFF	No hardware fault.
		Blinking	Diagnostics is in process.

Ethernet Port LEDs

Port LEDs on the 8275-416 and the 10/100BASE-TX Ethernet feature module are shown in Figure 3 and they are explained in the table that follows.

1x —— Port number

100Mbps ■ (On)
10Mbps □ (Off)

Link Up ■ (On)
Link Down □ (Off)
Tx/Rx ▨ (Blinking)
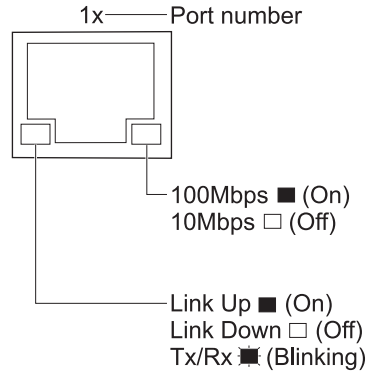
Figure 3. Port Status LEDs for the 8275-416 and the 10/100BASE-TX Ethernet Feature Module.

LED	Color	State	Explanation
Right Ethernet Port LED	Green	ON	Indicates a 100 Mbps port. This LED being On only has meaning if the link is up.
		OFF	Indicates a 10 Mbps port. This LED being Off only has meaning if the link is up.
Left Ethernet Port LED	Green	ON	Link is up.
		OFF	Link is down.
		Blinking	Transmitting (Tx) and Receiving (Rx) traffic.

Feature Module LEDs

Each feature module has an OK and a Fault LED located at the left side of the faceplate. The OK LED is Green and the Fault LED is amber. These LEDs are shown in Figure 4 and Figure 5 on page 9. They indicate the status of the feature module and are explained in the table that follows.

Status LEDs for the 10/100BASE-TX Ethernet Feature Module
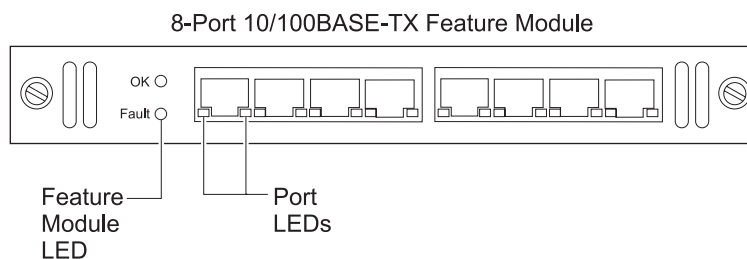
Figure 4. Status LEDs for the 10/100BASE-TX Ethernet Feature Module.

LED	Color	State	Explanation
OK	Green	ON	There is power to feature module.
		OFF	There is no power to feature module, no power to the 8275-416 , or the module has failed.
Fault	Yellow	ON	There is a module fault.
		OFF	There is no module fault.
Right Ethernet Port LED	Green	ON	Indicates a 100 Mbps port.
		OFF	Indicates a 10 Mbps port.
Left Ethernet Port LED	Green	ON	Link is up.
		OFF	Link is down.
		Blinking	Transmitting (Tx) and Receiving (Rx) traffic.

Status LEDs for the 100BASE-FX Ethernet Feature Module
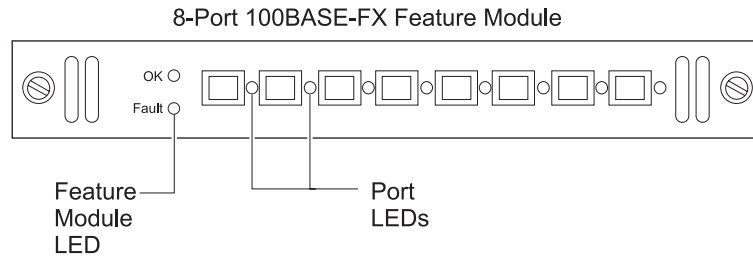
Figure 5. Status LEDs for the 100BASE-FX Ethernet Feature Module.

LED	Color	State	Explanation
OK	Green	ON	There is power to the feature module.
		OFF	There is no power to the feature module, no power to the 8275-416 or the module has failed.
Fault	Yellow	ON	There is a module fault.
		OFF	There is no hardware fault.
Port LED	Green	ON	Link is up.
		OFF	Link is down.
		Blinking	Transmitting (Tx) and receiving (Rx) traffic.

Physical Characteristics

Physical characteristics for the 8275-416 are summarized in the following table:

Characteristic	Specification	
Physical Dimensions	**Height**	63.0 mm (2.48 in.) 1.5 EIA rack units
	Width	440.0 mm (17.16 in.)
	Depth	355.6 mm (14 in.)
Weight (estimate)	6.0 kg (13 lb)	
Service Clearance	**Front**	Minimum of 15.3 mm (6 in.) for cooling, cables, and to view LEDs
	Sides	Minimum of 50 mm (2 in.) for cooling
	Rear	Minimum of 15.3 mm (6 in.) for cooling and power cord

Characteristic	Specification
Operating Environment	**Operating Temperature** 10° - 40° C (50° - 104° F) **Operating Humidity** 8% - 80% **Storage Temperature** 1° - 60° C (33.8° - 140° F) **Storage Humidity** 8% - 80% **Shipment Temperature** 40°C - 60°C (104°F - 140°F) **Shipment Humidity** 5% - 100%

Chapter 2. Accessing the 8275-416

You have several ways to physically make connection (connectivity) and access the 8275-416 . Once connected, you will want to initially configure the IP information (either through the terminal interface or through DHCP or BootP), then choose which user interface you want to use to manage it. Therefore, all interfaces support configuring the 8275-416 and obtaining information from it, thus providing greater flexibility in how you manage your 8275-416 . This chapter explains the ways you can connect to your 8275-416 .

Connectivity Methods

There are two connectivity methods used to physically access the 8275-416 :

- Out-of-band connectivity, in which access to the 8275-416 is through the EIA 232 port.
- In-band connectivity, which is the ability to access the 8275-416 from a remote station using the Ethernet network

Table 2 outlines the user interfaces that are available depending on your method of connectivity.

Table 2. Connectivity Methods and Available User Interfaces

Connectivity Method	Available User Interface
Out-of-band	Terminal interface via the EIA 232 port (terminal directly attached, or remotely attached to modem)
In-Band	- Terminal interface via Telnet - SNMP-based management interface - Web-based management interface

Out-of-Band Connectivity

Out-of-band connectivity lets you access your 8275-416 through the EIA 232 port. It can be either through a locally attached PC (personal computer) running VT100 terminal emulation software, or through a remotely attached PC running VT100 terminal emulation software.

Locally Attached Terminal

To establish out-of-band connectivity using a locally attached terminal, make the physical connections and set up using the following procedure:

1. Attach one end of a null-modem cable to the EIA 232 port of the 8275-416 as shown in Figure 6 on page 12, and the other end to the COM port of your PC (see "Appendix C. Cable Pinout Diagrams" on page 79).
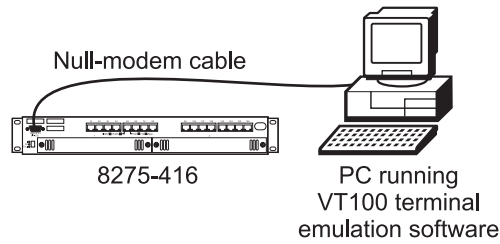
Figure 6. Out-of-Band Connectivity — Locally Attached Terminal

2.

Configure the VT100 terminal emulation application as follows:

- Baud rate: 19200
- Parity: None
- Data bits: 8
- Stop bits: 1
- Flow control: None

3. Log in to the terminal interface. The terminal interface requires you to log in with a user name and password. The user name must have Read/Write status. The default user name is: **admin**, and the password is blanks (no password).

4. See "Appendix D. Interface Conventions for the Console" on page 83 for a description of terminal interface key definitions. You may need to configure your terminal emulation application to enable use of these keys.

Remotely Attached Terminal

To establish out-of-band connectivity using a remotely attached terminal, make the physical connections using the following procedure:

1. Unpack the modem and install it according to the manufacturer's instructions.
2. Attach one of the serial cable (not provided) to the EIA 232 port of the 8275-416 and the other end to your modem as shown in Figure 7.
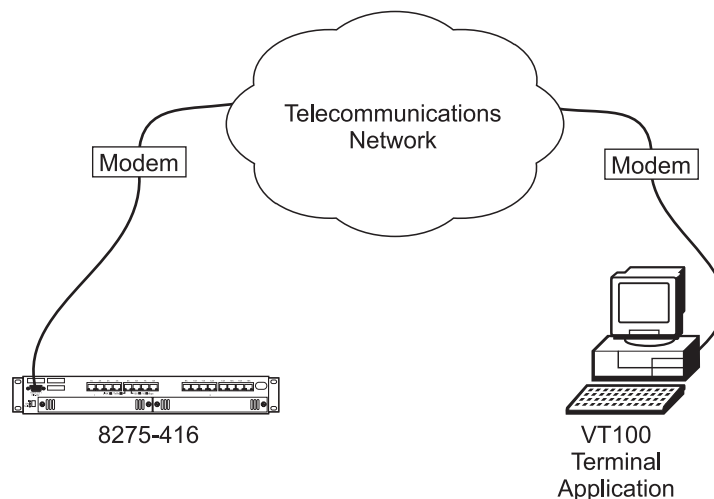
Figure 7. Out-of-Band Connectivity — Remotely Attached Terminal

3. Set up the modem that is attached to the 8275-416 by following these steps:

a. Connect the other end of the cable to the modem.

b. Configure the modem to use the same settings as those on your 8275-416 .

  • Baud rate: 19200

  • Parity: None

  • Data bits: 8

  • Stop bits: 1

  • Flow control: None

c. Set up the remote modem and terminal.

d. Configuration command syntax varies from modem to modem. Make sure that the modem has the following characteristics:

  • Asynchronous mode

  • Disable modem response

  • Disable flow control (for example, AT \Q)

  • Disable echo (for example, AT Q1)

  • Autoanswer mode on second ring (for example, AT SO=2)

e. Setup the remote modem and terminal.

f. After configuring the modem, save the configuration.

g. Establish a modem link as described in the modem user documentation.

h. Log in to the terminal interface. The terminal interface requires you to log in with a user name and password. The user name must have Read/Write status. The default user name is: **admin**, and the password is blanks (no password).

i. See "Appendix D. Interface Conventions for the Console" on page 83 for a description of terminal interface key definitions. You may need to configure your terminal emulation application to enable use of these keys.

4. In order to use in-band connectivity, the 8275-416 must be configured with IP information (IP address, subnet mask, and default gateway). You can configure IP information initially by using either of these methods:

  • DHCP or BootP

  • Terminal interface via the EIA 232 port.

5.

To configure the IP information, see "Chapter 3. Configuring your 8275-416" on page 17 for details.

In-Band Connectivity - Telnet, Web, SNMP

Note: In order to use in-band connectivity, you must configure the 8275-416 with its IP information (IP address, subnet mask, and default gateway). See "Chapter 3. Configuring your 8275-416" on page 17 for configuring BootP or DHCP and IP information for your 8275-416 .

In-band connectivity allows access to the 8275-416 using the data network (as shown in Figure 8 on page 14).
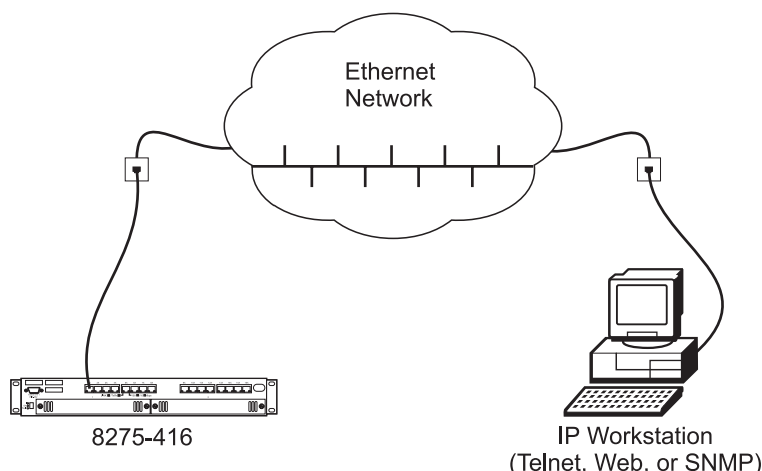
Figure 8. In-Band Connectivity

Terminal Interface - Telnet

Telnet console management can be performed through an Ethernet port (In-band connectivity). You must configure an Ethernet IP address before using Telnet console management (Refer to "Chapter 3. Configuring your 8275-416" on page 17 for initially configuring IP information for your 8275-416 .

You can use any Telnet application that emulates a VT100 terminal to establish a Telnet Console management session. Up to five concurrent Telnet sessions are supported. For security, the Telnet session can be automatically logged off after a certain time of inactivity. You configure the time of inactivity from 0 to 60 minutes; the default is 5 minutes.

The terminal interface is menu driven and can be used to manage the 8275-416 through the EIA 232 port or a Telnet session. For security, a log in userid and password is required. Multiple userids and associated passwords can be created. Two levels of access privileges are supported: read/write and read-only.

See "Appendix D. Interface Conventions for the Console" on page 83 for a description of the terminal keys. You may need to configure your terminal application to enable use of these keys.

See "Chapter 4. Using the Terminal Interface" on page 25 for a description of the terminal interface panels.

SNMP-Based Management Interface

The 8275-416 has an SNMP agent that supports SNMP Version 1 which allows it to be managed by any SNMP-based application (for example, Nways Campus Manager which supports the MIBs that the 8275-416 supports). MIBs supported by the 8275-416 are shown in Table 3.

Table 3. MIBs Supported by the 8275-416 .

MIBs Supported
MIB-II (RFC 1213)
Definitions of Managed Objects for Bridges (RFC 1493)

Table 3. MIBs Supported by the 8275-416 . (continued)

MIBs Supported
IEEE 802.3 Ethernet MIB (RFC 1643)
RMON MIB (RFC 1757)
IBM 8275-416 MIB

The SNMP-based application must specify the appropriate community name that the 8275-416 is configured to support. Real-time trap messages can be configured to be sent to designated trap receivers. All configuration information on the switch has read/write access via SNMP. All status information is also available via SNMP.

See "Chapter 4. Using the Terminal Interface" on page 25 for details about SNMP support for the 8275-416 .

Web-Based Management Interface

The 8275-416 has a Web server that supports HTTP 1.1 and HTML 3.2 or later. The Web browser must support HTTP 1.1 or HTML 3.2 or later.

The Web interface provides an interface to access and change 8275-416 parameters. Menus similar to those available through the terminal interface are also displayed by the Web browser. To access the 8275-416 from a Web browser, you must have configured the IP information for the 8275-416 . You will need a valid log in userid and password. The accepted userids and passwords are the same as those configured for the terminal interface.

See "Chapter 5. Using the Web Interface" on page 61 for starting and using the web interface.

Chapter 3. Configuring your 8275-416

After hardware installation, you must configure the IP address for your 8275-416 for it to be fully manageable in your network with the factory-default configuration. You might want to change some of the defaults at a later time.

First, you need to decide how you will access your 8275-416 . See "Chapter 2. Accessing the 8275-416" on page 11 for details about in-band and out-of-band connectivity. It is assumed that when you come to this chapter you will already have established connectivity.

Configuring IP information

IP information can be initially assigned either through:

- DHCP or BootP (the default), or
- Terminal interface through the EIA 232 serial port.

Your 8275-416 can be configured from remote locations using DHCP (Dynamic Host Configuration Protocol) or BootP. BootP (documented in RFC 951 and RFC 1542) is a bootstrap protocol used by a diskless workstation to learn its IP address, the location of its boot file, and the boot server name. The 8275-416 supports "reserved" or static DHCP, documented in RFC 1541.

If you are using DHCP or BootP, the DHCP or BootP server must be configured with the appropriate information for the 8275-416 . If you are not using BootP or DHCP, set the Network Configuration Protocol with a value of *None* to reduce network traffic.

When you use DHCP or BootP to get the 8275-416 's IP information, you configure the Network Configuration Protocol by selecting **Server Configuration Menu** from the Management Menu in the Terminal interface, and by defining the values as shown in Figure 9 on page 18:

```
┌─ TELNET.EXE ─────────────────────────────────────────── □ □
IBM 8275-416 High Performance Switch@
- Server Configuration Menu -                        00:04:AC:6B:0D:80

Unit ID ... <1>

Network Configuration Protocol Current .........  BootP / Static DHCP

Network Configuration Protocol Desired ......... <BootP / Static DHCP>




            ┌─────────────────────────────────────────────────────┐
            │Push space bar to toggle the network configuration protocol│
            └─────────────────────────────────────────────────────┘

                    APPLY     MAIN MENU     PREV MENU (F3)    HELP (F1)


For changes, [overtype] or <use space bar>. Press ESC to discard change. Use TAB
or Arrow keys to navigate. F2=toggle between menu text and Command Bar. F4=SAVE
```

Figure 9. Configuring BootP/Static DHCP.

Network Configuration Protocol Desired

> When you select BootP/Static DHCP (the default), the 8275-416 periodically sends requests to a BootP or DHCP server until a response is received.

None   When you select None, you must manually configure the 8275-416 with the appropriate IP information.

To manually configure the IP information using the terminal interface, select **Network Connectivity Configuration Menu** from the Management Menu. Then, specify the information as described in the following text on the panel as shown in Figure 10

```
┌─ TELNET.EXE ─────────────────────────────────────────── □ □
IBM 8275-416 High Performance Switch@
- Network Connectivity Configuration Menu -          00:04:AC:6B:0D:80

Unit ID ... <1>

IP Address ...................... [9.37.250.3      ]
Subnet Mask ..................... [255.255.255.0   ]
Default Gateway ................. [9.37.250.1      ]

Burned-in MAC Address ...........  00:04:AC:6B:0D:80
Locally Administered MAC Address..... [                ]
MAC Address Type ................ <Burned-in>





            ┌─────────────────────────────────────────────────────┐
            │Enter the system IP in decimal dot form. Example: 10.11.20.1│
            └─────────────────────────────────────────────────────┘

                    APPLY     MAIN MENU     PREV MENU (F3)    HELP (F1)

For changes, [overtype] or <use space bar>. Press ESC to discard change. Use TAB
or Arrow keys to navigate. F2=toggle between menu text and Command Bar. F4=SAVE
```

Figure 10. Configuring Network Connectivity (IP Information).

You must configure the following IP information to establish in-band connectivity (access through SNMP, Telnet, and Web interfaces) with the 8275-416 :

IP Address

Unique IP address of your 8275-416 . Each IP parameter is made up of four decimal numbers. The numbers range from 0 to 255. The default for all IP parameters are *zeros* (that is, 0.0.0.0).

Subnet Mask

Specifies the subnet mask for the LAN.

Default Gateway

If the 8275-416 is a node outside the IP range of the LAN.

Burned-in MAC Address

The burned-in MAC address is the default MAC address used.

Locally Administered MAC Address

A locally administered MAC address for the 8275-416 is an additional parameter that you can configure. The following rules apply when specifying a locally administered MAC address:

- Bit 6 of byte 0 (called the U/L bit) indicates whether the address is universally administered (B'0') or locally administered (B'1').
- Bit 7 of byte 0 (called the I/G bit) indicates whether the destination address is an individual address (B'0') or a group address (B'1').
- A locally administered address must have bit 6 On (B'1') and bit 7 Off (B'0').

MAC Address Type

The burned-in MAC address is the default MAC address type.

Concepts About Making Configuration Changes

This section provides key concepts about making configuration changes, getting the changes put into effect, and retaining the changes across a power cycle of the 8275-416 .

This chapter provides you specific information about making configuration changes using the Terminal interface, Web interface, and the SNMP interface.

Making Configuration Changes

Configuration changes are made by entering data for one or more items.

Error checking is done on the data entered to ensure that it is valued before it is processed, When the check is done and the result depends on the method used to initiate the change.

Configuration changes made by one user are also seen by other users when the same data is requested. Be aware that information displayed may be old data if the latest information is not requested prior to making any changes.

Processing Configuration Changes

Once you make a configuration change and it is accepted, the change is not put into effect until you issue an APPLY command. Apply makes the changes take

effect, but the changes are not automatically retained across a reset or power cycle. SAVE makes the changes take effect and also result in the changes being retained across a reset or power cycle.

Saving Configuration Changes Across a Reset or Power Cycle

In order for configuration changes to be retained across a reset or power cycle, you must issue a SAVE command.

Making Configuration Changes via the Terminal Interface

This section provides information about making configuration changes, getting the changes put into effect, and retaining the changes across a power cycle when using the Terminal Interface.

Making Configuration Changes

On the terminal interface menus, field entries that can be modified are surrounded by either square brackets ([ ]) or angle brackets (< >).

Square brackets identify an item that can be changed by typing in text. As soon as you begin typing, the current value of the field is erased and is replaced by the new text. In other words, no insert or overwrite modes can be performed in the field. You can use the following special keys while you are editing text fields:

- Arrow keys: Arrow keys are ignored when you are editing a text field. On a field where no modifications have been made, arrow keys are used to move the cursor to the appropriate field indicated by the direction of the arrow key pressed.
- Back Space: Removes a character in front of the cursor.
- Delete: Gives the same result as the Backspace.
- Enter: The text is accepted and the cursor moves to the next field. On a text field where no modifications have been made, Enter moves the cursor to the next field.
- ESC: Stops editing the field and restores the original data.
- Space Bar: May be an allowable key to enter text.
- Tab: Performs the same function as the Enter key.
- F4: Represents SAVE. Causes the configuration data to be saved and also applied if not already done.

Angle brackets identify an item that can be changed by selecting the desired option. The following special keys are used while selecting a configuration option:

- Arrow keys: The text is accepted and the cursor moves to the appropriate field indicated by the direction of the arrow key pressed. On a field where no modifications have been made, arrow key just moves the cursor to the appropriate field.
- Enter: The text is accepted and the cursor moves to the next field. On a field where no modifications have been made, Enter moves the cursor to the next field.
- ESC: Stops modifying the field and restores the original data.
- Space Bar: Displays the next possible value for this field. Used to cycle through the available options to select the desired value.
- Tab: Performs the same function as the Enter key.

- F4: Represents SAVE. Causes the configuration data to be saved and also applied if not already done.

When processing data entered in a text field, all leading and trailing whitespace characters are ignored (such as, space, Tab, ESC).

Once a configuration change is made and is accepted (the cursor is no longer on the field that was modified), the change is not put into effect until you issue an APPLY.

Applying (Processing) Configuration Changes

Note: To help you know when a configuration change needs to be applied, as soon as the first change is accepted, "APPLY" appears on the Command Bar.

When you select APPLY, the following occurs:
- All configuration changes associated with this panel are processed, that is, syntax checking is performed on the data, if applicable, and if that is successful, the configuration change is put into effect (processed).
- If invalid configuration data was entered (such as, data value is out of the supported range), none of the changes on the panel have been processed yet and an error message is displayed identifying the field containing the error. Invalid data errors are reported one field at a time. All configuration changes must be valid before any of the changes are processed.
- If the configuration change is processed successfully and UNSAVED DATA is not already displayed on the upper right corner of the panel, then UNSAVED DATA is displayed.
- APPLY no longer appears on the panel

If you make configuration changes and then exit a panel without applying the changes, your changes are lost. For example, the following results in losing any changes made on the panel:
- You make configuration changes on the current panel and your select any of the following commands:
  - MAIN MENU
  - PREV MENU
  - HELP MENU
  - NEXT PAGE
  - PREV PAGE
- You make configuration changes on the current panel and you select a different slot or port.

Note: Configuration changes are not automatically retained across a reset or a power cycle. To retain changes, you must issue a SAVE command as described in the following section.

Saving Configuration Changes Across a Reset or Power Cycle

For configuration changes to be retained across a reset or power cycle, you need to issue a SAVE command. Configuration changes made via the terminal interface can be permanently saved by either:
- Pressing the F4 (Save) key.

- Selecting **Save Applied Changes** on the System Utilities Menu.

As a reminder that there are configuration changes that need to be saved, "UNSAVED DATA" appears in the upper right corner of the panel. Once you issue a SAVE, the following happens:

1. SAVING DATA appears on the panel while the 8275-416 is in the process of permanently saving the current operational configuration data.
2. DATA SAVED appears on the panel when the 8275-416 completes saving the current operational configuration.
3. UNSAVED DATA no longer appears on the panel until the next configuration change is made.

If you issue a SAVE without previously having made an Apply for recently made configuration changes, the changes are automatically applied when the SAVE is issued.

If you initiate a reset of the switch without permanently saving previously made configuration changes, you are prompted with a message to continue without saving the configuration change.

Making Configuration Changes via the Web Interface

This section provides information on making configuration changes, getting the changes put into effect, and retaining the changes across a power cycle when using the Web Interface.

Making Configuration Changes

On the Web pages, field entries that can be modified are displayed in a box with a white background. Depending on the field being modified, you can modify the text by:

- Typing in the appropriate text over existing text (overwriting). If the data typed in is syntactically incorrect, the data entered is rejected and the original data is displayed.
- Selecting an option from one of the items displayed when the pull-down menu is selected. All items in a pull-down menu are syntactically correct.

Until the Apply or Save button is selected, you can restore any modified values to their original data by selecting the Undo button.

Processing Configuration Changes

Once the desired fields are modified, select the Apply button or Save button to process the changes. Apply makes the changes take effect but the changes are not automatically retained across a reset or power cycle. Save makes the changes take effect and also results in the changes being retained across a reset or power cycle.

Before the Web Browsers sends the request to the switch, the data for the fields changed are verified. If any field is invalid, an error message is displayed identifying the field that contains the error. Invalid data errors are reported one field at a time. All configuration changes must be valid before any of the changes are sent.

If you make configuration changes and then change the page without Applying or Saving the changes, the changes are not processed.

Saving Configuration Changes Across a Reset or Power Cycle

In order for configuration changes to be retained across a reset or power cycle, you must issue a SAVE command. Configuration changes can be permanently saved by either of these actions:

- Clicking the SAVE button.
- Going to the System Utilities Menu and selecting **Save All Applied Changes.**

Making Configuration Changes via SNMP

This section provides information on making configuration changes, getting the changes put into effect, and retaining the changes across a power cycle when using SNMP.

Making Configuration Changes

You make configuration changes via SNMP by issuing SNMP Set commands to MIB objects that the 8275-416 supports as read-write.

Processing Configuration Changes

When the SNMP Set is received, the 8275-416 checks the data to ensure that it is valid. If it is invalid, the SNMP error code BADVALUE is returned in the SNMP Set Response. Otherwise, the configuration change is processed and put into effect.

Saving Configuration Changes Across a Reset or Power Cycle

Configuration changes made via SNMP Set commands are not automatically retained across a reset or power cycle. To get these changes retained across a reset or power cycle, you must issue a SAVE. This can be done via the 8275-416 private MIB using swDevCtrlSaveConfiguration.

Chapter 4. Using the Terminal Interface

This chapter describes the 8275-416 terminal interface. To use the terminal interface it would be helpful to have skills and experience in using Ethernet networking products and to be familiar with networking concepts such as IP device management, bridging, switching, and collecting/evaluating trap and monitoring data

The terminal interface panels are automatically refreshed every few seconds to provide you with current information.

Note: The panels shown in this chapter are intended to be representative and should not be assumed to be entirely accurate because they are subject to change before shipment of the product.

Login Panel

The Login panel is the first panel displayed when initializing the terminal interface. Figure 11 shows the Login panel; you need an approved user name and password to log in.

```
┌─┐ TELNET.EXE                                                      ▫ □
IBM 8275-416 High Performance Switch©
Copyright 1999 IBM Corporation                        00:04:AC:6B:0D:80




                          User Name [admin            ]
                          Password  [_                ]


      Use Tab key or Arrow keys to move between User Name and Password.
      Press Enter when finished.







                                            Boot v14 , Operational v3.25
```
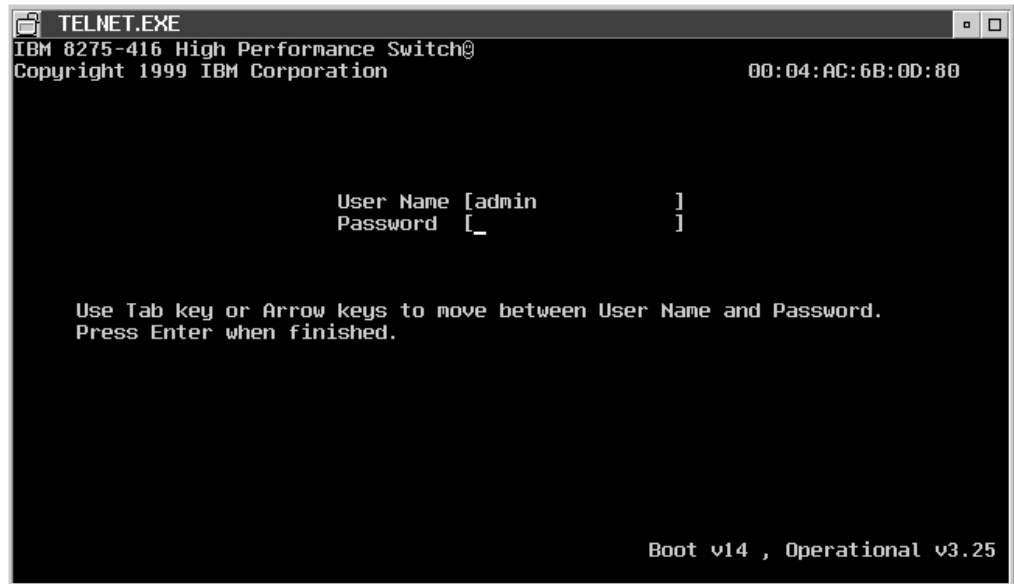
Figure 11. Log In Panel for Terminal Interface

User Name   Can be up to 8 alphanumeric characters in length. The value is not case sensitive. The default is **admin** for a read/write user, and **guest** is the default for a read only user.

Password   Can be up to 8 alphanumeric characters in length. The value is not case sensitive. The default is all blanks (blanks indicate no password).

The terminal interface provides a way to logout. Either use the LOGOUT command on the Main Menu or from the Main Menu, select **System Utilities Menu**, then select **Logout**. When you have finished using the terminal interface, ensure you have saved all configuration changes before logging out.

The Main Menu

Following a successful login, the Main Menu appears (see Figure 12). Information following in this section is arranged in the order of topics on the Main Menu.

```
┌─────────────────────────────────────────────────────────────────────┐
│ ⊟  TELNET.EXE                                                  □ □   │
│ IBM 8275-416 High Performance Switch@                                │
│ - Main Menu -                                        00:04:AC:6B:0D:80│
│                         System Information Menu                      │
│                         Management Menu                              │
│                         Device Configuration Menu                    │
│                         Statistics Menu                              │
│                         User Account Management Menu                 │
│                         System Utilities Menu                        │
│                                                                      │
│                                                                      │
│                                                                      │
│                                                                      │
│                      Logout the current user.                        │
│                                                                      │
│  LOGOUT                                              HELP (F1)        │
│                                                                      │
│  Use Tab or Arrow keys to navigate. Press Enter to make a selection. │
│  F2=toggle between menu text and Command Bar. F4=SAVE.               │
└─────────────────────────────────────────────────────────────────────┘
```

Figure 12. Main Menu for Terminal Interface

System Information Menu
Allows access to information that is maintained about the 8275-416 .

Management Menu
Contains selections associated with managing the 8275-416 .

Device Configuration
Contains selections associated with configuring the 8275-416 .

Statistics Menu
Contains selections for access to statistical data that is gathered for the 8275-416 .

User Account Management
Allows you to define users and passwords and their level of access.

System Utilities
Allows selection of the utilities available with the 8275-416 .

System Information

The 8275-416 manages information about the hardware and software version installed in the 8275-416 . System information contains read only and read/write fields. The read only fields are written when the 8275-416 is manufactured. Through configuration you can change only the read/write fields: *System Name*, *System Location* and *System Contact*. Changes to these fields must be saved to be effective. A reset is not necessary for the changes to be effective.

To access system information, select **System Information Menu** on the Main Menu. By selecting **Inventory Information Menu** and **System Description Menu**, you can view information about your 8275-416 .Figure 13 shows your system information options.

```
┌─┐ TELNET.EXE                                                    ▪ □
IBM 8275-416 High Performance Switch@
- System Information Menu -                            00:04:AC:6B:0D:80

                            Inventory Information Menu
                            System Description Menu




                        Inventory Information Menu Help.

                          MAIN MENU     PREV MENU (F3)   HELP (F1)

     Use Tab or Arrow keys to navigate. Press Enter to make a selection.
     F2=toggle between menu text and Command Bar.  F4=SAVE
```
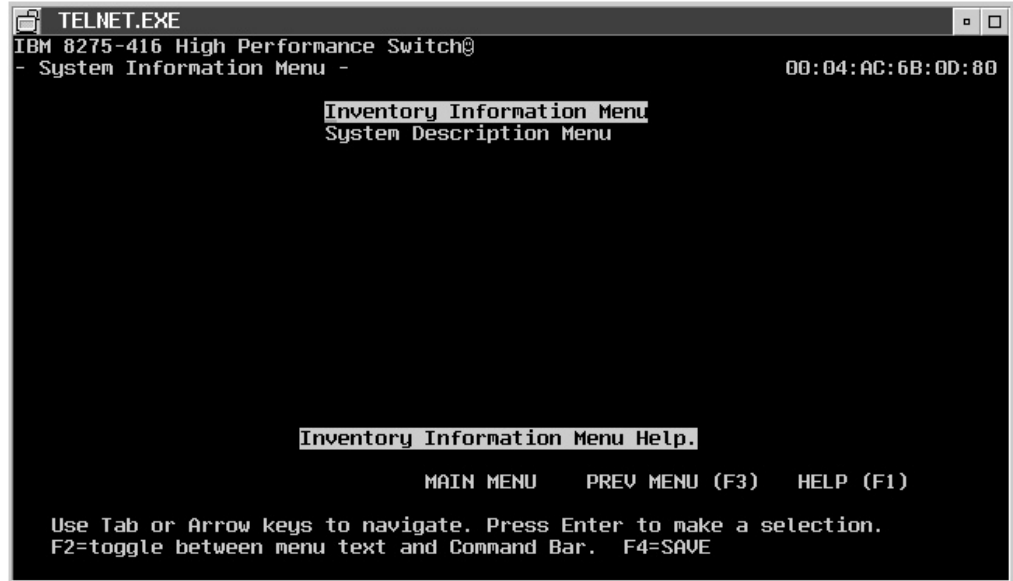
Figure 13. System Information Menu

Inventory Information

Figure 14 shows you inventory information available for your 8275-416 .

```
┌─┐ TELNET.EXE                                                    ▪ □
IBM 8275-416 High Performance Switch@
- Inventory Information Menu -                         00:04:AC:6B:0D:80

Unit ID ... <1>

Switch Description ........ IBM 8275-416 High Performance Switch@
Machine Type ...............
Machine Model ..............
Serial Number ..............
FRU Number .................
Part Number ................
Maintenance Level .......... 0
Manufacturer ...............
Base MAC Address............ 00:04:AC:6B:0D:80
Slot 0 Ports 1-8 Data ...... 10/100 Copper - Level 3
Slot 0 Ports 9-16 Data ..... 10/100 Copper - Level 3
Slot 1 Data ................ Not Operational
Slot 2 Data ................ Not Operational
Software Version ........... v3.25
                        Return to Main Menu.
                          MAIN MENU    PREV MENU (F3)  HELP (F1)

   Use TAB or Arrow keys to navigate. Press Enter to make a selection.
    F2=toggle between menu text and Command Bar. F4=SAVE.
```
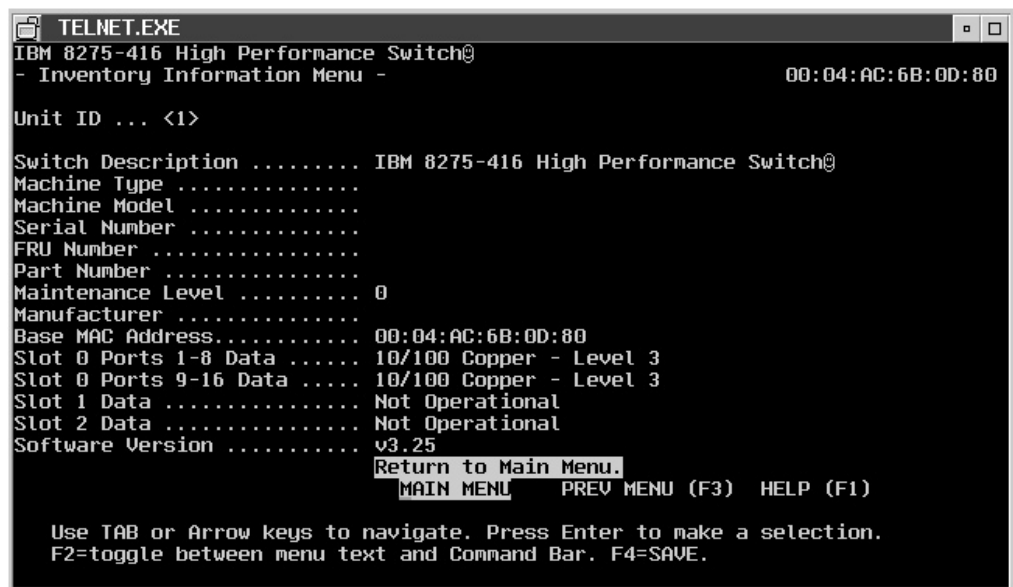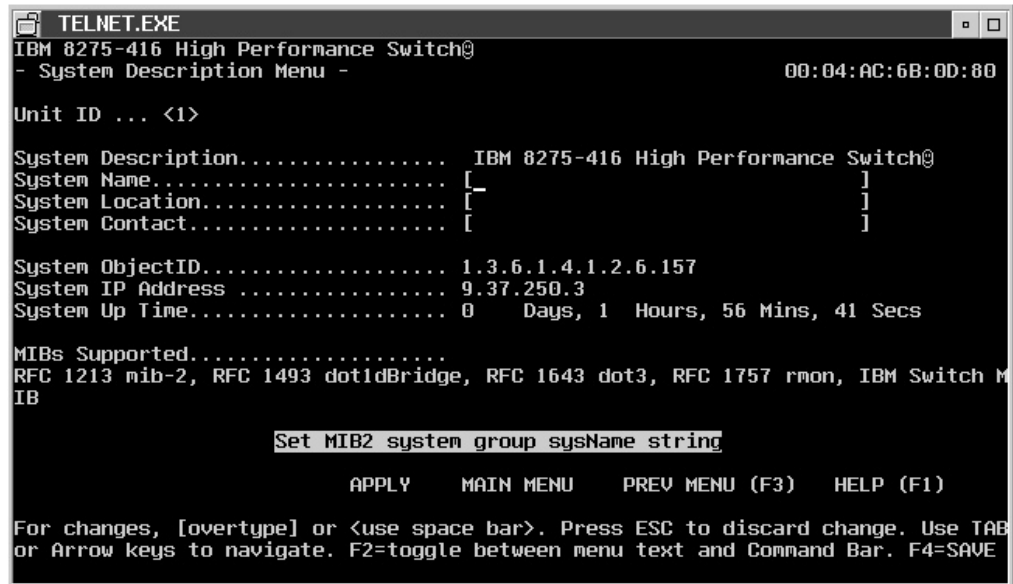
Figure 14. Inventory Information

System Description

Figure 15 shows you a system description for your 8275-416 .

```
TELNET.EXE                                                        □ □
IBM 8275-416 High Performance Switch@
- System Description Menu -                             00:04:AC:6B:0D:80

Unit ID ... <1>

System Description................  IBM 8275-416 High Performance Switch@
System Name......................  [_                                   ]
System Location..................  [                                    ]
System Contact...................  [                                    ]

System ObjectID..................  1.3.6.1.4.1.2.6.157
System IP Address ...............  9.37.250.3
System Up Time...................  0    Days, 1  Hours, 56 Mins, 41 Secs

MIBs Supported...................
RFC 1213 mib-2, RFC 1493 dot1dBridge, RFC 1643 dot3, RFC 1757 rmon, IBM Switch M
IB
                      Set MIB2 system group sysName string

                  APPLY     MAIN MENU    PREV MENU (F3)   HELP (F1)

For changes, [overtype] or <use space bar>. Press ESC to discard change. Use TAB
or Arrow keys to navigate. F2=toggle between menu text and Command Bar. F4=SAVE
```

Figure 15. System Description

Management

Select **Management Menu** on the Main Menu (SeeFigure 16.) to use the management functions of the 8275-416 .
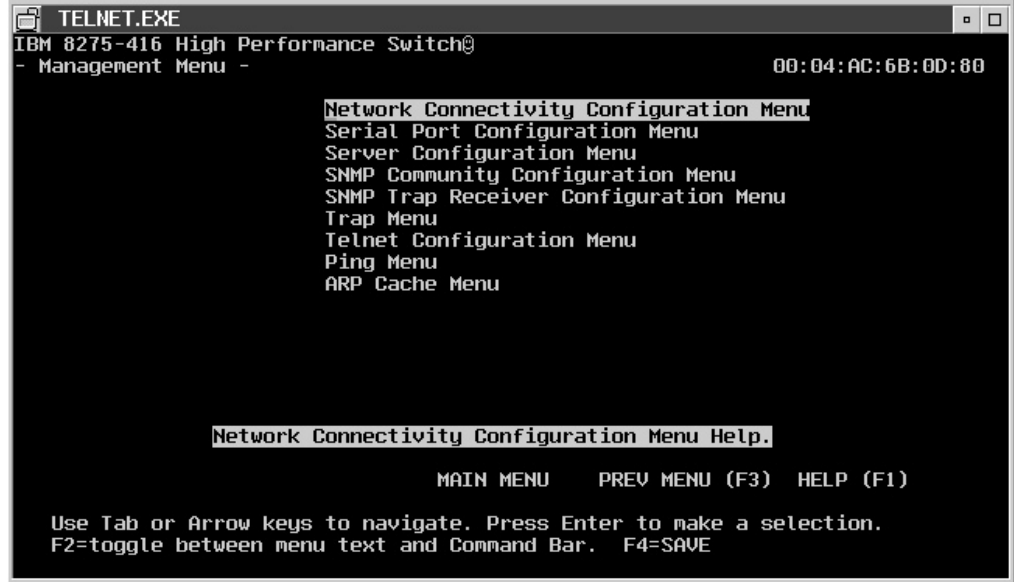


```
TELNET.EXE                                                          □  □
IBM 8275-416 High Performance Switch@
- Management Menu -                                      00:04:AC:6B:0D:80

                        Network Connectivity Configuration Menu
                        Serial Port Configuration Menu
                        Server Configuration Menu
                        SNMP Community Configuration Menu
                        SNMP Trap Receiver Configuration Menu
                        Trap Menu
                        Telnet Configuration Menu
                        Ping Menu
                        ARP Cache Menu




                   Network Connectivity Configuration Menu Help.

                           MAIN MENU    PREV MENU (F3)  HELP (F1)

     Use Tab or Arrow keys to navigate. Press Enter to make a selection.
     F2=toggle between menu text and Command Bar.  F4=SAVE
```

Figure 16. Management Menu

Configuring the 8275-416 for Network Connectivity

To configure the IP information using the terminal interface, select **Network Connectivity Configuration Menu** from the Management Menu. The Network Connectivity Configuration Menu appears as shown in Figure 17.
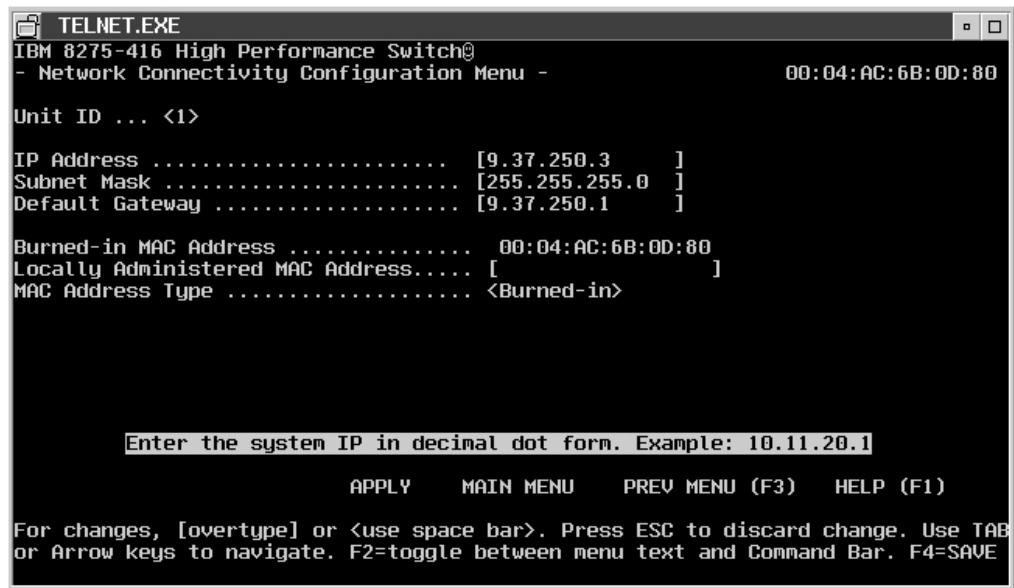


```
TELNET.EXE                                                          □  □
IBM 8275-416 High Performance Switch@
- Network Connectivity Configuration Menu -             00:04:AC:6B:0D:80

Unit ID ... <1>

IP Address ...................... [9.37.250.3     ]
Subnet Mask ..................... [255.255.255.0  ]
Default Gateway ................. [9.37.250.1     ]

Burned-in MAC Address ..............  00:04:AC:6B:0D:80
Locally Administered MAC Address..... [               ]
MAC Address Type ................... <Burned-in>




            Enter the system IP in decimal dot form. Example: 10.11.20.1

                     APPLY    MAIN MENU    PREV MENU (F3)   HELP (F1)

For changes, [overtype] or <use space bar>. Press ESC to discard change. Use TAB
or Arrow keys to navigate. F2=toggle between menu text and Command Bar. F4=SAVE
```

Figure 17. Network Connectivity Configuration

You must configure the following IP information to establish in-band connectivity to 8275-416 :

IP Address

Unique IP address for your 8275-416 . Each IP parameter is made up of four decimal numbers. The numbers range from 0 to 255. The default for all IP parameters are *zeros* (that is, 0.0.0.0).

Subnet Mask

Specifies the subnet mask for the LAN.

Default Gateway

If the 8275-416 is a node outside the IP range of the LAN.

Burned-in MAC Address

The burned-in MAC address is the default MAC address used.

Locally Administered MAC Address

A locally administered MAC address for the 8275-416 is an additional parameter that you can configure. The following rules apply when specifying a locally administered MAC address:

- Bit 6 of byte 0 (called the U/L bit) indicates whether the address is universally administered (B'0') or locally administered (B'1').
- Bit 7 of byte 0 (called the I/G bit) indicates whether the destination address is an individual address (B'0') or a group address (B'1').
- A locally administered address must have bit 6 On (B'1') and bit 7 Off (B'0').

MAC Address Type

The burned-in MAC address is the default MAC address type.

Configuring Serial Port

The 8275-416 allows you to access the 8275-416 through the serial EIA 232 port. This type of connectivity is called *Out-of-band connectivity*. Attachment can be direct local attach, or remote attached through a locally attached modem. See "Chapter 2. Accessing the 8275-416" on page 11 for descriptions of ways to access the 8275-416 .

On the Main Menu, select **Management Menu**. From the Management Menu, select **Serial Port Configuration Menu**. Figure 18 on page 31 shows the parameters to configure the serial EIA 232 port.
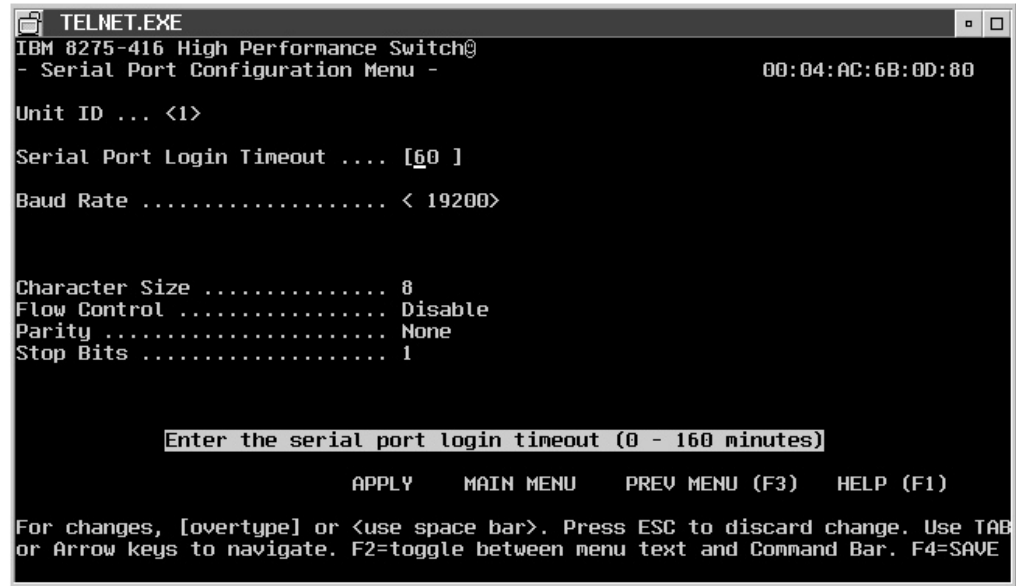
```
IBM 8275-416 High Performance Switch©
- Serial Port Configuration Menu -                          00:04:AC:6B:0D:80

Unit ID ... <1>

Serial Port Login Timeout .... [60 ]

Baud Rate ................... < 19200>


Character Size .............. 8
Flow Control ................ Disable
Parity ...................... None
Stop Bits ................... 1


            Enter the serial port login timeout (0 - 160 minutes)

                        APPLY     MAIN MENU     PREV MENU (F3)    HELP (F1)

For changes, [overtype] or <use space bar>. Press ESC to discard change. Use TAB
or Arrow keys to navigate. F2=toggle between menu text and Command Bar. F4=SAVE
```

Figure 18. Serial Port Configuration

You specify Login Timeout and Baud Rate:

Serial Port Login Timeout:
> Specifies the maximum connect time without console activity. The value is in a range from 0 to 160 minutes. A value of 0 indicates that a console can be connected indefinitely. The default value is 5 minutes.

Baud Rate :
> Specifies the communication rate of the terminal interface. Values can be 1200, 2400, 4800, 9600, 19200, 38400, 57600, or 115200. The default value is 19200.

Configuring for DHCP or BootP Server

If you do not want to manually configure the 8275-416 with IP information, the 8275-416 can obtain the IP information from a BootP or DHCP server. When BootP or DHCP is enabled, the 8275-416 periodically send out requests until a response is received from either a DHCP or BootP server. The IP information in the BootP or DHCP response overlays any existing IP information in 8275-416 . The new IP information is not retained across a reset until a SAVE is issued.

DHCP

To configure static DHCP, you must specify an IP address that will be assigned to the 8275-416. This IP address is mapped to the 8275-416's MAC address. The static DHCP does not obtain an IP address from a pool of addresses on a DHCP server unless one is explicitly set up for a given MAC address. For example, In Windows NT, a reservation must be set up for the 8275-416's MAC address. It should be assigned an IP address from the pool of current addresses. The router, IP address, and subnet mask should all be configured for the 8275-416's MAC address. No other DHCP options are supported other than gateway/router address, IP address, subnet mask.

BootP

For BootP, the BootP server must have the appropriate information configured for the 8275-416 . A newly installed 8275-416 broadcast a BootP request over IP when it is powered on or reset. The BootP server, using information from its BOOTPTAB file, provides the 8275-416 with configuration information. In addition to obtaining the IP address and the subnet mask, the 8275-416 can attach to a configuration server to obtain a configuration file. The configuration file is an ASCII file containing 8275-416 commands. The commands are executed as soon as the configuration file is transferred via TFTP to the 8275-416 . The 8275-416 updates its configuration file with the information contained in the BootP message. The following is an example of a BOOTPTAB file entry containing configuration information for the 8275-416 :

```
8275_416_Switch_1:ht=ethernet:ha=0004ac6b0980:\
        ip=10.1.7.7:gw=10.1.1.1:\
        sm=255.255.255.0

8275_416_Switch_2:ht=ethernet:ha=0004ac6b09C0:\
        ip=10.1.7.8:gw=10.1.1.1:\
        sm=255.255.255.0
```

Where:

ht	hardware type
ha	host hardware address
ip	host IP address
gw	gateway address list
sm	subnet mask

Configuration information obtained from the BootP server is not saved unless you issue the SAVE command. Next, configure the Network Configuration Protocol.

Configuring 8275-416 for DHCP or BootP Server

If you are using DHCP or BootP, the DHCP or BootP server must be configured with the appropriate information for the 8275-416 .

If you are not using BootP or DHCP, set the Network Configuration Protocol with a value of *None* to reduce network traffic.

When you use DHCP or BootP to get the 8275-416 's IP information, you configure the Network Configuration Protocol by selecting **Server Configuration Menu** from the Management Menu. The Server Configuration Menu is shown in Figure 19 on page 33.
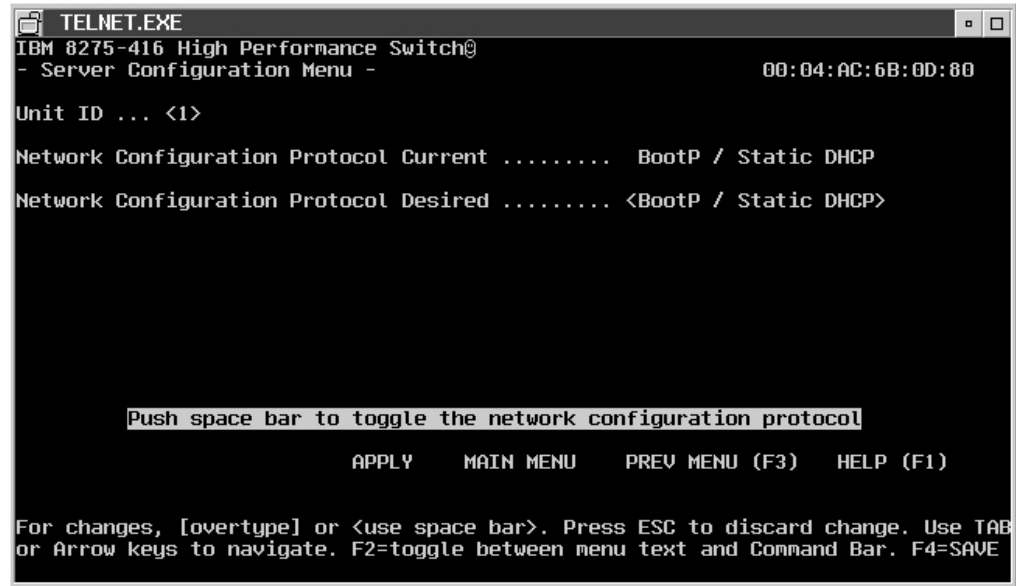
Figure 19. Server Configuration

Define one of the following values:

Unit ID

Up to 8 alphanumeric characters which identifies the 8275-416 .

Network Configuration Protocol Desired

When you select BootP/Static DHCP (the default), the 8275-416 periodically sends requests to a BootP or DHCP server until a response is received. If you are not using BOOTP or DHCP, set the Network Configuration Protocol with a value of *None* to reduce network traffic.

Configuring SNMP

The 8275-416 has an SNMP agent that complies with SNMP Version 1 (SNMPV1). For more about the SNMP specification, see the appropriate SNMP RFCs. The SNMP agent sends traps through TCP/IP to an external SNMP manager based on your SNMP configuration. SNMP configuration for the 8275-416 includes configuring the trap receiver and SNMP community parameters, which are described in the following text.

Configuring the SNMP Community

The SNMP agent must be configured with a community name for the 8275-416 . A community name is a name associated with the 8275-416 and with a set of SNMP managers allowed to manage it with a specified privileged level. You can add, change or delete communities. The 8275-416 does not have to be reset for changes to take effect. Up to six communities are simultaneously supported.

To configure your SNMP communities, select **SNMP Community Configuration Menu** from the Management Menu. Figure 20 on page 34 shows SNMP community information you need to specify.

```
┌─ TELNET.EXE                                                        □ □
IBM 8275-416 High Performance Switch@
- SNMP Community Configuration Menu -                       00:04:AC:6B:0D:80

Unit ID ... <1>

SNMP Community Name   Client IP Address   Client IP Mask   Access Mode   Status
------------------    -----------------   --------------   -----------   -------
[public            ]  [-- undefined --]   [-- undefined --]  <Read Only > <Enable >
[private           ]  [-- undefined --]   [-- undefined --]  <Read/Write> <Enable >
[<unused>          ]  [-- undefined --]   [-- undefined --]  <Read Only > <Delete >
[<unused>          ]  [-- undefined --]   [-- undefined --]  <Read Only > <Delete >
[<unused>          ]  [-- undefined --]   [-- undefined --]  <Read Only > <Delete >
[<unused>          ]  [-- undefined --]   [-- undefined --]  <Read Only > <Delete >



                      Enter the SNMP community name

                 APPLY    MAIN MENU    PREV MENU (F3)   HELP (F1)

For changes, [overtype] or <use space bar>. Press ESC to discard change. Use TAB
or Arrow keys to navigate. F2=toggle between menu text and Command Bar. F4=SAVE
```

Figure 20. SNMP Community Configuration

SNMP Community Name:

Name identifies each SNMP community and can be a string up to 32
characters. A *public* community means users have read only access. A
private community is for users who have read/write access. Two
communities have default values. The default names are Public and
Private. You can replace these default community names with unique
identifiers for each community. The default value for the remaining four
community names are blank.

Access Mode:

This value can be read only or read/write. A community with a read only
access allows for 8275-416 information to be displayed. A community with a
read/write access allows for configuration changes to be made and for
information to be displayed.

Client IP Address

This attribute is an IP address (or portion thereof) from which this device
will accept SNMP packets with the associated community. The requesting
entity's IP address is combined with the Client IP Mask before being
compared to the Client Ip Address. Note: If the Client IP Mask is set to
0.0.0.0, a Client IP Address of 0.0.0.0 matches all IP addresses.

Client IP Mask

This attribute is a mask to be combined with the requesting entity's IP
address before comparison with Client IP Address. If the result matches
with Client IP Address then the address is an authenticated IP address . For
example, if the Client IP Address is 9.47.128.0 and the corresponding Client
Ip Mask is 255.255.255.0, a range of incoming IP addresses would match,
ie the incoming IP addresses could be a value in the following range:
9.47.128.0 - 9.47.128.255.

Status:

This attribute has the following values: Enable, Disable and Delete on the
Terminal and Web interface and Active, Inactive, and Delete via SNMP. A
status value of Enable/Active means that the community is active, allowing
SNMP managers associated using this community to manage the

Roadrunner according to its access right. A status value of Disable/Inactive means that the community is not active; no SNMP requests using this community will be accepted. In this case the SNMP manager associated with this community cannot manage the 8275-416 until the Status is changed back to Enable/Active. A status value of Delete means that this name will be removed from the table. The default Status values for the default private and public communitiy names are both Enable/Active. The default value is Disable/Inactive for remaining four communities.

Configuring the Trap Receiver

Trap messages are sent across a network to an SNMP Network Manager. These messages alert the manager to events occurring within the 8275-416 or on the network. Up to six simultaneous Trap Receivers are supported.

To configure Trap Receivers, select **SNMP Trap Receiver Configuration Menu** on the Management Menu. Figure 21 shows the parameters you need to specify.

```
┌─ TELNET.EXE                                                    □ □
IBM 8275-416 High Performance Switch@
- SNMP Trap Receiver Configuration Menu -              00:04:AC:6B:0D:80

Unit ID ... <1>

SNMP Community Name      IP Address         Status
-------------------    ----------------   --------
[public             ]  [-- undefined --]  <Invalid  >
[public             ]  [-- undefined --]  <Invalid  >
[public             ]  [-- undefined --]  <Invalid  >
[public             ]  [-- undefined --]  <Invalid  >
[public             ]  [-- undefined --]  <Invalid  >
[public             ]  [-- undefined --]  <Invalid  >




                    Enter the SNMP community name

                APPLY     MAIN MENU    PREV MENU (F3)   HELP (F1)

For changes, [overtype] or <use space bar>. Press ESC to discard change. Use TAB
or Arrow keys to navigate. F2=toggle between menu text and Command Bar. F4=SAVE
```

Figure 21. SNMP Trap Receiver Configuration

Trap Receiver parameters are:

SNMP Community Name:
The SNMP community name of the remote network manager. The name can be up to 32 characters. The default value is "blank".

IP Address:
Each IP address parameters is four decimal numbers. The numbers range from 0 to 255. The default IP address is 0.0.0.0.

Status:
The status for trap receivers can be Enabled, Disabled, or Deleted. Trap receivers with enabled status are active and the SNMP agent sends traps to them. Trap receivers with disable status are inactive the SNMP agent does not send traps to them. Trap receivers with a deleted status are removed from the table.

Configuring Traps

Configuring Trap Conditions

You can optionally configure which traps that the 8275-416 should generate. You do this by selecting a status for the trap condition, that is, if it is either enabled or disabled. If a trap condition is enabled and the condition is detected, 8275-416 's SNMP agent sends the trap to all enabled trap receivers. Otherwise, no condition is detected and no trap is sent. The default Status value for all Trap Conditions is Enabled. The 8275-416 does not have to be reset to implement the changes. Warm start and cold start traps are always generated; there are no associated trap conditions.

To configure trap conditions, select **Trap Menu** from the Management Menu, the select you condition to configure from the Trap Menu. Your choices are viewing the trap log, enabling/disabling trap flags, and checking the trap log status.

Figure 22 shows the trap flags that you can set.

```
┌─┐ TELNET.EXE                                                    □ □
IBM 8275-416 High Performance Switch@
- Trap Flags Configuration Menu -                     00:04:AC:6B:0D:80

Unit ID ... <1>

Authentication Flag .................. <Enable >
Link Up/Down Flag .................... <Enable >
Multiple Users Flag .................. <Enable >
Spanning Tree Flag ................... <Enable >




        Push space bar to enable/disable Authentication Failure trap flag

                  APPLY        MAIN MENU     PREV MENU (F3)   HELP (F1)

For changes, [overtype] or <use space bar>. Press ESC to discard change. Use TAB
or Arrow keys to navigate. F2=toggle between menu text and Command Bar. F4=SAVE
```

Figure 22. Trap Flags Configuration

The following are the definitions of the Trap Conditions:

Authentication Failure:
Enable/Disable authentication traps.

Link Up/Down:
Enable/Disable Link Up/Link Down traps.

Multiple Users:
Enable/Disable Multiple User traps.

Spanning Tree:
Enable/Disable Spanning Tree traps.

Trap Log

The 8275-416 maintains a Trap Log; it contains a maximum of 64 entries which wrap. Select **Trap Menu** from the Management Menu, then select **Trap Log Menu** from the Trap Menu. Figure 23 shows the entries in the trap log.

```
┌─────────────────────────────────────────────────────────────────────────┐
│ ⌘  TELNET.EXE                                                    ▪ □       │
│ IBM 8275-416 High Performance Switch⊚                                     │
│ - Trap Log Menu -                                          00:04:AC:6B:0D:80 │
│                                                                           │
│ Unit ID ... <1>                                               Page 1 of 1 │
│                                                                           │
│ Log      System Up Time          Trap                                     │
│ ─────────────────────────────────────────────────────────────────────── │
│ 6        0 days 01:54:47         Multiple Users: Unit: 1                  │
│ 5        0 days 01:54:08         Multiple Users: Unit: 1                  │
│ 4        0 days 00:31:14         Link Down: Unit: 1 Slot: 0 Port: 4       │
│ 3        0 days 00:31:11         Link Up: Unit: 1 Slot: 0 Port: 4         │
│ 2        0 days 00:00:11         Link Up: Unit: 1 Slot: 0 Port: 1         │
│ 1        0 days 00:00:10         Cold Start: Unit: 1                      │
│                                                                           │
│                                                                           │
│                                  Go to the Next Page.                     │
│                                                                           │
│ NEXT PAGE     PREV PAGE             MAIN MENU     PREV MENU (F3)  HELP (F1) │
│                                                                           │
│  Use Tab or Arrow keys to navigate. Press Enter to make a selection.     │
│  F2=toggle between menu text and Command Bar. F4=SAVE                     │
└─────────────────────────────────────────────────────────────────────────┘
```

Figure 23. Trap Log

Each entry contains:

System Up Time:
> This entry shows how long the system has been continuously operational.

Trap: This entry is the name (a 16-byte character string) of the trap condition; which are:

- Warm Start
- Cold Start
- Authentication Failure
- Link Up
- Link Down
- Multiple Users
- New Spanning Tree Root
- Spanning Tree Topology Change

The following are valid operations of Trap Log:

Display:
> The newest to oldest traps are listed. Use this operation to view all Trap Log entries.

Clear: This operation empties Trap Log. Use this operation to clear the Trap Log.

Trap Log information is not retained across a switch reset.

Checking Trap Log Status

By selecting **Trap Menu** from the Management Menu, then selecting **Trap Log Status Menu** from the Trap Menu, you can check the status of how many traps that have been generated. You can choose to clear the trap log on this panel (see Figure 24.

```
┌─┐ TELNET.EXE                                                          ▫ □
IBM 8275-416 High Performance Switch@
- Trap Log Status Menu -                                      00:04:AC:6B:0D:80

Unit ID ... <1>

Number of Traps Since Last Reset ............ 6
Number of Traps Since Log Last Displayed .... 0


Clear Trap Log ............................. <No >




                 │Select <yes> and APPLY to clear the trap log│

                       APPLY      MAIN MENU     PREV MENU (F3)    HELP (F1)


For changes, [overtype] or <use space bar>. Press ESC to discard change. Use TAB
or Arrow keys to navigate. F2=toggle between menu text and Command Bar. F4=SAVE
```

Figure 24. Trap Log Status

Configuring Telnet

You can manage the 8275-416 remotely using a Telnet connection. "Chapter 2. Accessing the 8275-416" on page 11 describes setting up a Telnet connection. To configure for Telnet, select **Management Menu** from the Main Menu, then from the Management Menu, select **Telnet Configuration Menu** (see Figure 25 on page 39).

```
┌─┐ TELNET.EXE                                                    ▫ □
IBM 8275-416 High Performance Switch©
- Telnet Configuration Menu -                          00:04:AC:6B:0D:80

Unit ID ... <1>


Telnet Login Timeout ..................... [5  ]

Maximum Number of Telnet Sessions ........ <5>

Allow New Telnet Sessions ................ <Yes>




                   ┌─────────────────────────────────────┐
                   │ Enter the telnet login timeout (0 - 160 minutes)│
                   └─────────────────────────────────────┘

                    APPLY     MAIN MENU     PREV MENU (F3)    HELP (F1)

For changes, [overtype] or <use space bar>. Press ESC to discard change. Use TAB
or Arrow keys to navigate. F2=toggle between menu text and Command Bar. F4=SAVE
```

Figure 25. Telnet Configuration

The following parameters are for configuring a Telnet session with the 8275-416 :

Telnet Login Timeout
> A session is active as long as the session has not remained idle for the value set. Specify a decimal value from 0 to 160 minutes. A value of 0 indicates that a Telnet session remains active indefinitely. The default is 5 minutes.

Maximum Number of Telnet Sessions
> Specify a decimal value from 0 to 5. If the value is 0, no telnet session can be established. The default value is 5.

Allow New Telnet Sessions:
> Specify a value of Yes or No. A value of Yes means that new telnet sessions will be establish until there are no more sessions available. A value of No means that no new telnet session are to be established. If there are no sessions at the moment, and you indicate that the value is to be applied or saved, then no Telnet connections are allowed. Any already established session remains active until the session is ended or an abnormal network error ends it. The default value is Yes.

Ping

The 8275-416 provides a Ping utility that can be used to check connectivity between devices in a network. To use ping, the 8275-416 must be configured correctly for network (in-band) connectivity. The source and target devices must have the ping utility enabled and running on top of TCP/IP. The 8275-416 can be pinged from any IP workstation (as long as there is a physical path between the 8275-416 and the workstation). The terminal interface allows you to send one ping, three pings or a continuous ping to the target station.

To use Ping, select **Management Menu** from the Main Menu. Then select **Ping Menu** from the Management Menu (see Figure 26 on page 40).

```
┌─ TELNET.EXE ──────────────────────────────────────────────────── ▫ □
IBM 8275-416 High Performance Switch@
- Ping Menu -                                          00:04:AC:6B:0D:80

Unit ID ... <1>


IP Address . . . . . [-- undefined --]

Ping Count . . . . . <  Single  >






              ┌─────────────────────────────────────────────┐
              │Enter the IP Address of the system to be pinged│
              └─────────────────────────────────────────────┘
                        SEND      MAIN MENU    PREV MENU (F3)   HELP (F1)

For changes, [overtype] or <use space bar>. Press ESC to discard change. Use TAB
or Arrow keys to navigate. F2=toggle between menu text and Command Bar. F4=SAVE
```
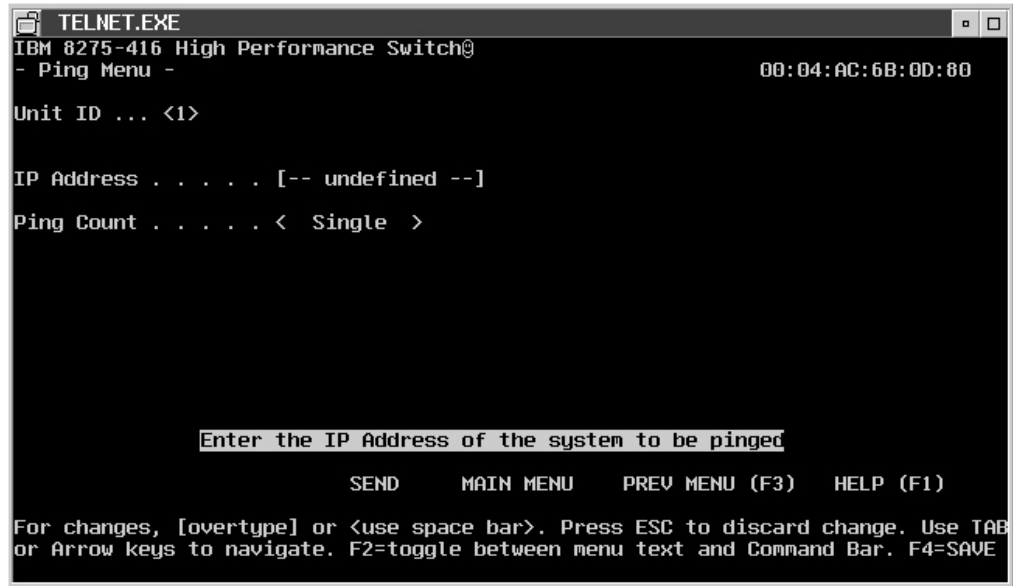
Figure 26. Ping

You must supply this information:

IP Address:
> The IP address of the target station. The value is 4 decimal bytes ranging from 0 to 255. The default is 0.0.0.0.

Ping Count:
> You can select one of these values; the default value is single:
>
> - Single — one ping is sent to target station.
> - Multiple — three pings are sent to the target station.
> - Continuous — a ping is sent every second.

Command:
> Send is the only command. To stop sending pings, press F3 (PREV MENU) or select the Main Menu when sending continuous pings.

ARP Cache

Select **Management Menu** from the Main Menu. Then, select **ARP Cache Menu** from the Management Menu to displays the ARP cache for the 8275-416 .

This is used to check connectivity between the 8275-416 and other devices. The ARP cache identifies the MAC address of the IP stations communicating with the 8275-416 . SeeFigure 27 on page 41 for ARP Cache information.

```
┌─ TELNET.EXE                                                    ▪ □
IBM 8275-416 High Performance Switch@
- ARP Cache Menu -                                      00:04:AC:6B:0D:80

Unit ID ... <1>                                         Page 1 of 1

   MAC Address              IP Address
------------------       ---------------
00:06:29:21:76:99        9.37.250.1
                         -- undefined --
                         -- undefined --
                         -- undefined --
                         -- undefined --
                         -- undefined --
                         -- undefined --
                         -- undefined --
                         -- undefined --
                         -- undefined --
                        │Go to the Next Page.│

NEXT PAGE     PREV PAGE       MAIN MENU      PREV MENU (F3)  HELP (F1)


  Use Tab or Arrow keys to navigate. Press Enter to make a selection.
  F2=toggle between menu text and Command Bar. F4=SAVE.
```

Figure 27. ARP Cache

Device Configuration

To configure the 8275-416 , select **Device Configuration Menu** on the Main Menu. Figure 28 shows your options.

```
┌─┐ TELNET.EXE                                                      ▫ □
IBM 8275-416 High Performance Switch@
- Device Configuration Menu -                            00:04:AC:6B:0D:80

                        Switch Configuration Menu
                        Port Configuration Menu
                        Port Monitoring Menu
                        Spanning Tree Switch Configuration/Status Menu
                        Spanning Tree Port Configuration/Status Menu
                        Broadcast Storm Recovery Menu
                        802.3x Flow Control Menu




                        Switch Configuration Menu Help

                        MAIN MENU    PREV MENU (F3)  HELP (F1)

    Use Tab or Arrow keys to navigate. Press Enter to make a selection.
    F2=toggle between menu text and Command Bar. F4=SAVE.
```

Figure 28. Device Configuration

Configuring the 8275-416

Address Aging Timeout

The 8275-416 allows you to set a time after which its address will timeout; the address aging timeout. This value can be set by selecting Device Configuration Menu from the Main Menu, then selecting Switch Configuration Menu (see Figure 29 on page 43).

```
┌─ TELNET.EXE                                                          □ □
IBM 8275-416 High Performance Switch©
- Switch Configuration Menu -                              00:04:AC:6B:0D:80

Unit ID ... <1>


Address Aging Timeout .......... [300    ]







                    Enter the address aging timeout (10 - 1000000 seconds)

                         APPLY     MAIN MENU     PREV MENU (F3)    HELP (F1)

For changes, [overtype] or <use space bar>. Press ESC to discard change. Use TAB
or Arrow keys to navigate. F2=toggle between menu text and Command Bar. F4=SAVE
```
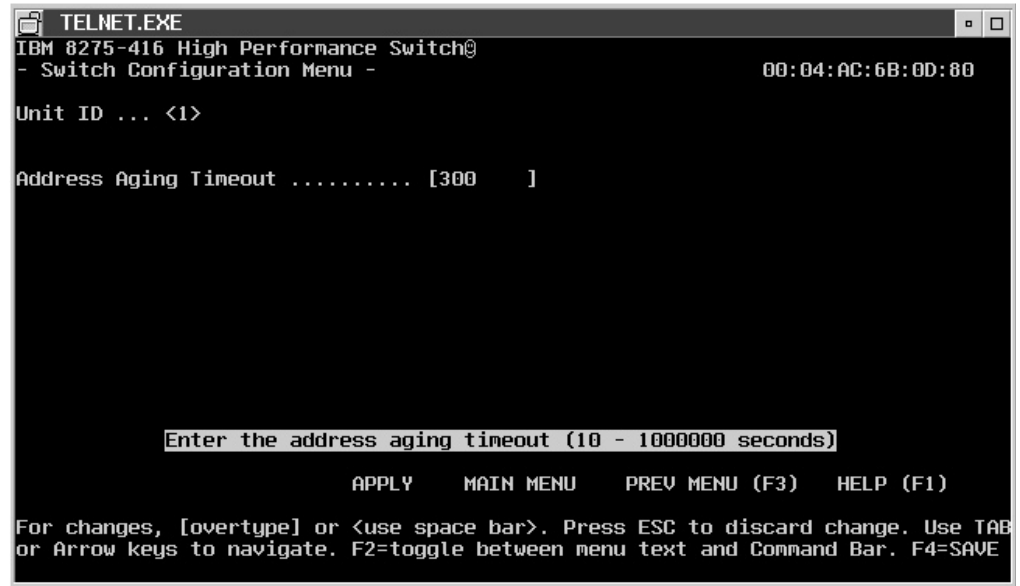
Figure 29. Switch Configuration

The value you specify is:

Address Aging Timeout
> The value can be in a range from 0 — 1,000,000 (seconds). The default is
> 300 (seconds).

Configuring Ports

The 8275-416 is shipped from the factory with default port settings that allow it to
automatically determine the port type and speed.

See "Chapter 3. Configuring your 8275-416" on page 17 for details about making
and saving configuration changes.

You can configure the ports by selecting **Device Configuration Menu** from the
Main Menu, then by selecting **Port Configuration Menu** from the Device
Configuration Menu. (see Figure 30 on page 44).

```
┌─ TELNET.EXE                                                          □ □
IBM 8275-416 High Performance Switch@
- Port Configuration Menu -                               00:04:AC:6B:0D:80

                                                           Page 1 Of 2
Unit ID... <1>     Slot < 0>    10/100 Copper Ports

          Admin          Physical      Physical    Link        Link
Port  STP Mode           Mode          Status      Status      Trap        IfIndex
----  --- -------        ----------    ----------  ----------  -------     -------
ALL   N/A <------->      <---------->  N/A         N/A         <------->   N/A
1     F   <Enable >      <   Auto   >  100 Full    Link Up     <Enable >   1
2     F   <Enable >      <   Auto   >  10 Half     Link Down   <Enable >   2
3     F   <Enable >      <   Auto   >  10 Half     Link Down   <Enable >   3
4     F   <Enable >      <   Auto   >  10 Half     Link Down   <Enable >   4
5     F   <Enable >      <   Auto   >  10 Half     Link Down   <Enable >   5
6     F   <Enable >      <   Auto   >  10 Half     Link Down   <Enable >   6
7     F   <Enable >      <   Auto   >  10 Half     Link Down   <Enable >   7
8     F   <Enable >      <   Auto   >  10 Half     Link Down   <Enable >   8
                         Push Space Bar to toggle the Slot Number

      NEXT PAGE          APPLY         MAIN MENU    PREV MENU (F3)  HELP (F1)

      Use Tab or Arrow keys to navigate. Press Enter to make a selection.
      F2=toggle between menu text and Command Bar. F4=SAVE
```

Figure 30. Port Configuration

You can select or change the following values:

Slot   The 16 base ports are associated with slot 0. A feature module in Slot 1 or Slot 2 have ports 1-8 associated with them.

Port   Indicates the port number. Ports are identified by a slot and port number. The slot and port number are separated by a period (.). The base set of ports are considered to be on slot 0. The feature slots are Slot 1 and Slot 2. For each slot, the ports are numbered 1 to 8. Since there are 16 base ports, each 8275-416 has ports 0.1 to 0.16. Ports on a feature module located in Slot 1 are numbered 1.1 to 1.8, and ports on a feature module in Slot 2 are numbered 2.1. to 2.8.

Admin Mode

This value indicates if the port is Enabled or Disabled. The default for all ports is Enabled. At start-up, each port is reset and the spanning tree state reported is Disabled until the Link is Up. The 8275-416 ensures that the station is at the correct speed and duplex setting, turns on the port LED that indicates Link is Up. Once the Link is up, the port transmits and receives frames and participates in the spanning tree protocol as defined by the spanning tree configuration.

Physical Mode

The value of Auto (autodetect) is valid only for 10/100BASE-TX ports.

Link Trap

This value can be Enabled or Disabled. It allows you to enable traps by port.

read only fields

The read only fields are:

- STP- indicates if the port participates in Spanning Tree Protocol (STP)
- Physical Status - indicates if port is full-duplex or half-duplex.
- Link Status - indicates if the port link is up or down.
- IfIndex - When using SNMP, the interface index (ifIndex) is sometimes used to identify the specific interface being addressed. On a 8275-416 ,

each Ethernet port is an interface and so is the IP Agent being used for managing it (which is also referred to as the Management Interface).

- The value returned for ifNumber in the MIB-II Interface table does not include the Management Interface (that is, the value of ifNumber only reflects the number of ports in the switch). If there are 32 ports, ifNumber will incorrectly be 32 instead of being 33.

- Port ifIndex Values - The ifIndex values for the 8275-416 ports start with 1 and increment by 1 for each port physically in the box. Each ifIndex value maps, one for one, with an Ethernet port.

- Example scenarios:
  – if there are 32 ports (16 base ports, 8 ports in slot 1, 8 ports in slot 2)
    - ifIndex 1 is slot 0, port1
    - ifIndex 9 is slot 0, port 9
    - ifIndex 17 is slot 1, port 1
    - ifIndex 25 is slot 2, port 1
  – if there are 24 ports (16 base ports, 8 ports in slot 2)
    - ifIndex 1 is slot 0, port1
    - ifIndex 9 is slot 0, port 9
    - ifIndex 17 is slot 2, port 1

The Management Interface always has an ifIndex of 1000.

Port MAC Address

Each port is automatically configured with a burned-in MAC address. This address is used as the source address of spanning tree frames and may be used in 802.3x PAUSE frames for the 8275-416 .

Configuring Port Monitoring

Any of the Ethernet ports can be selected as a probe to monitor forwarded traffic (not local traffic) with an external network analyzer. The selected probe port can monitor (mirror) traffic from one port.

From the Main Menu, select **Device Configuration Menu**. Then, select **Port Monitoring Menu** from the Device Configuration Menu. (See Figure 31 on page 46.)

```
┌─ TELNET.EXE                                                      □ ▢
IBM 8275-416 High Performance Switch◎
- Port Monitoring Menu -                              00:04:AC:6B:0D:80

Unit ID ... <1>

Port Monitoring .............. <Disable>
Monitoring Port .............. [0.1 ]
Port to be Monitored ......... [0.2 ]








            ┌─────────────────────────────────────────────────┐
            │ Press spacebar to enable/disable port monitoring.│
            └─────────────────────────────────────────────────┘

                   APPLY     MAIN MENU     PREV MENU (F3)   HELP (F1)

For changes, [overtype] or <use space bar>. Press ESC to discard change. Use TAB
or Arrow keys to navigate. F2=toggle between menu text and Command Bar. F4=SAVE
```

Figure 31. Port Monitoring

Specify values for the following parameters:

Port Monitoring:
> Used to *Enable* or *Disable* the port monitoring function. The default is Disable.

Monitoring Port:
> This is the **slot.port** that the *monitored* data is sent to. This is the **slot.port** that a Network Analyzer is attached to. The slot can be 0, 1 or 2. The default is 0. The port range is 1 to 16 for Slot 0; 1-8 for Slots 1 and 2.

Port to be Monitored:
> This is the port from which data is captured and sent to the monitoring port; the port under analysis. The port range is 1 to16 for Slot 0; 1-8 for Slots 1 and 2.

Configuring Spanning Tree Protocol (STP)

Spanning Tree Switch Configuration/Status

The 8275-416 participates in Spanning Tree Protocol (STP). STP allows you to configure redundant paths in the switch topology, and have the 8275-416 automatically blocks redundant paths to prevent loops (fault tolerant). If an active path is broke and a backup path is available, the 8275-416 finds the redundant path and enables it (fault tolerant). Without STP, a path failure means loss of connectivity for the affected part of the network, forcing manually established connectivity or redundant loops in the network.

The 8275-416 complies with the IEEE 802.1D standard. Refer to the IEEE 802.1D document for STP specifications. 8275-416 supports one STP for the entire switch.

You can configure the Spanning Tree Protocol for the 8275-416 . Select **Device Configuration Menu** from the Main Menu. Then select **Spanning Tree Switch**

Configuration/Status from the Device Configuration Menu. (See Figure 32 .)

```
┌─┐ TELNET.EXE                                                    ▫ □
IBM 8275-416 High Performance Switch©
- Spanning Tree Switch Configuration/Status Menu -        00:04:AC:6B:0D:80
Unit ID ... <1>
STP Specification . . . . . . . . . . IEEE 802.1D
STP Base MAC Address  . . . . . . . . 00:04:AC:6B:0D:80
STP Topology Change Count . . . . . . 0
STP Time Since Topology Changed . . . 0   day 0   hr 0   min 0   sec
STP Designated Root . . . . . . . . . 8000 00:04:AC:6B:0D:80
STP Root Port . . . . . . . . . . . . 0
STP Root Cost . . . . . . . . . . . . 0
STP Max. Age (seconds). . . . . . . . 20
STP Hello Time (seconds). . . . . . . 2
STP Forward Delay (seconds) . . . . . 15
STP Hold Time (seconds) . . . . . . . 1
Spanning Tree Algorithm . . . . . . . <Disable>
STP Bridge Priority . . . . . . . . . [32768  ]
STP Bridge Max. Age (seconds) . . . . [20   ]
STP Bridge Hello Time (seconds) . . . [2    ]
STP Bridge Forward Delay (seconds). . [15   ]
           Push Space Bar to toggle reset port forward transition count
                    APPLY        MAIN MENU    PREV MENU (F3)   HELP (F1)

For changes, [overtype] or <use space bar>. Press ESC to discard change. Use TAB
or Arrow keys to navigate. F2=toggle between menu text and Command Bar. F4=SAVE
```

Figure 32. Spanning Tree Switch Configuration/Status

The following section lists and describes the STP configuration functions and related parameters.

Spanning Tree Algorithm:
Indicates if the 8275-416 participates in Spanning Tree Protocol. A status of Enable means that 8275-416 participates in the STP. Disable means that 8275-416 does not participate in the STP. The default is Enable.

Bridge Priority:
Decimal value which indicates the priority of the 8275-416 . This value ranges from 0 to 65535. The default value is 32768. The lower the value, the higher the priority. The 8275-416 with the lowest priority value becomes the *root* (IEEE 802.1D). The default is 32768.

Maximum Age Time:
When the 8275-416 is *root*, Maximum Age Time is the time in seconds after which the configuration message used by the Spanning Tree Algorithm is discarded. The range is between 6 to 40 seconds. The default value is 20 seconds.

Hello Time:
When the 8275-416 is *root*, Hello Time is the time in seconds that the 8275-416 waits before sending the next configuration message. The value is range between 1 and 10 seconds. The default value is 2 seconds.

Forward Delay Time:
This value specifies the time spent in ″Listening and Learning″ mode before forwarding packets. The range is between 4 to 30 seconds. The default is 15 seconds.

Cost: This output is automatically calculated. The cost represents the shortest distance from any switch to the root switch interval for the unit announcing

its presence on the network. The range is between 0 to 65,535. The default value is 0. If Status is Enable, the 8275-416 participates in the Spanning Tree Protocol.

Spanning Tree Port Configuration/Status

You can configure the Spanning Tree Protocol by ports. Select **Device Configuration Menu** from the Main Menu. Then select **Spanning Tree Port Configuration/Status Menu** from the Device Configuration Menu. (See Figure 33.)

```
┌─┐ TELNET.EXE                                              ▫ □
IBM 8275-416 High Performance Switch◙
- Spanning Tree Port Configuration/Status Menu -        00:04:AC:6B:0D:80

Unit ID ... <1>          Slot ... < 0>        Port ID ... < 1>

STP Port ID . . . . . . . . . . . . . 8001
STP Port Designated Root  . . . . . . . 8000 00:04:AC:6B:0D:80
STP Port Designated Cost  . . . . . . . 0
STP Port Designated Bridge  . . . . . . 8000 00:04:AC:6B:0D:80
STP Port Designated Port  . . . . . . . 8001
STP Port Forward Transitions Count  . . . 0
STP Port State  . . . . . . . . . . . . Forwarding

STP Port Priority . . . . . . . . . . . [128]
STP Port Path Cost  . . . . . . . . . . [0    ]


            Push Space Bar to toggle the Slot Number

              APPLY     MAIN MENU     PREV MENU (F3)   HELP (F1)

For changes, [overtype] or <use space bar>. Press ESC to discard change. Use TAB
or Arrow keys to navigate. F2=toggle between menu text and Command Bar. F4=SAVE
```

Figure 33. Spanning Tree Port Configuration/Status

The parameter values are:

Port Priority:
Decimal value which indicates the priority of the 8275-416 . This value ranges from 0 to 255. The lower the value, the higher the priority. The 8275-416 with the lowest priority value becomes the *root* (IEEE 802.1D). The default is 128.

Port Path Cost:
This output is automatically calculated. The cost represents the shortest distance from any switch to the root switch interval for the unit announcing its presence on the network. The range is between 0 to 65535. The default value starts at 0, then it is 100 for 10Mbps ports; and it is 19 for 100Mbps ports.

Configuring Broadcast Storm Recovery

Select **Device Configuration** on the Main Menu. Then, from the Device Configuration Menu, select **Broadcast Storm Recovery Menu**. Broadcast storm recovery can be enabled or disabled; the default is Disable. (See Figure 34 on page 49.)

Figure 34. Broadcast Storm Recovery

Configuring 802.3x Flow Control

Select **Device Configuration** on the Main Menu. Then, from the Device Configuration Menu, select **802.3x Flow Control Menu**. 802.3x Flow Control can be enabled or disabled; the default is Disable. (See Figure 35.)
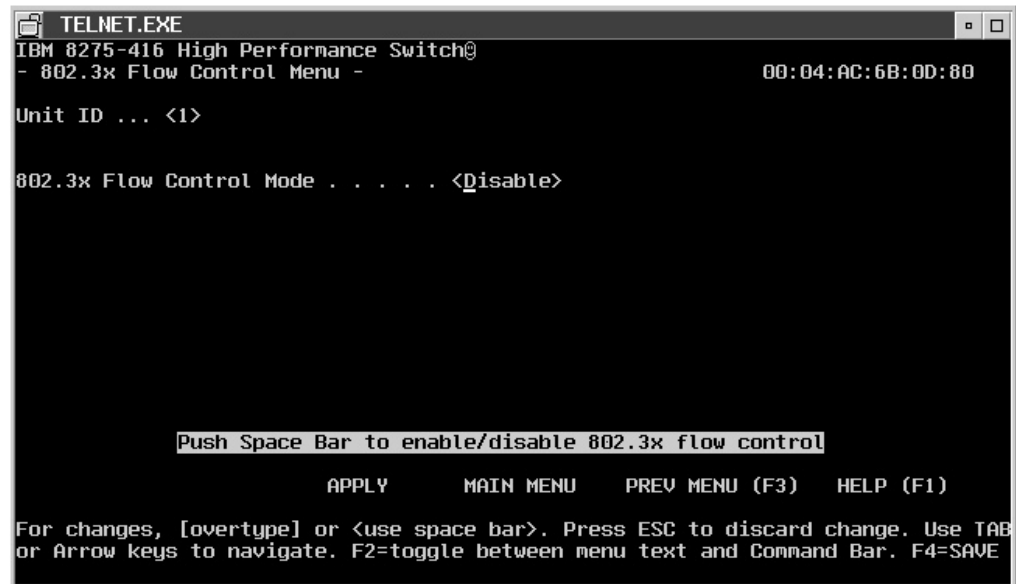
Figure 35. 802.3x Flow Control
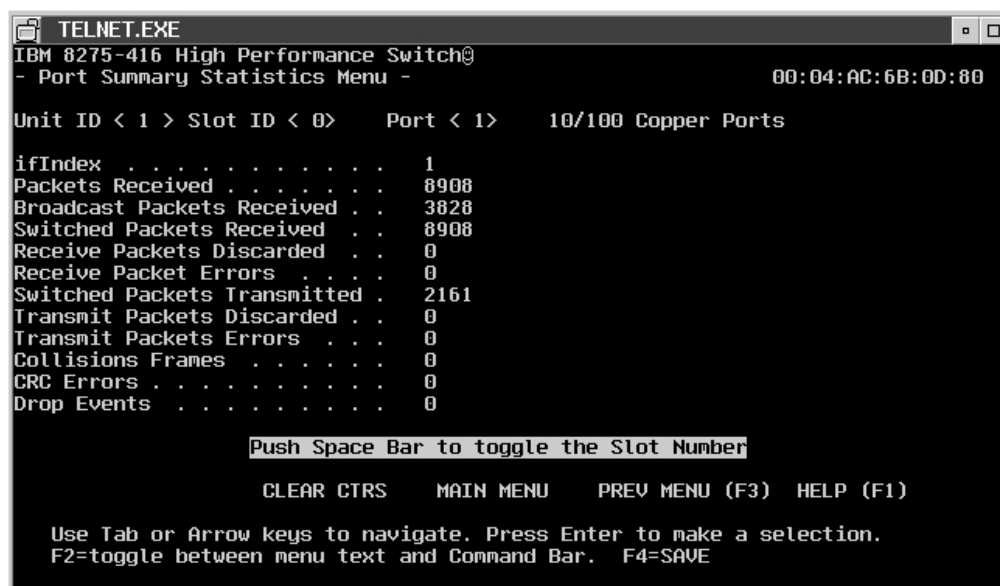
Statistics

To access statistics, select **Statistics Menu** on the Main Menu. Traffic statistics are kept by port. Details and summaries of packets broadcast, transmitted, and switched, as well as, error packets and discarded packets are the types of statistics kept for your 8275-416 .

After making your selection, the screens containing statistics will refresh every few seconds. The following panels represent examples of the types of statistics that you can select from the **Statistics Menu**.

Port Summary Statistics

See Figure 36 for a summary of port statistics.

```
┌─────────────────────────────────────────────────────────────────────┐
│ ▤  TELNET.EXE                                                  ▫ □   │
│ IBM 8275-416 High Performance Switch@                                │
│ - Port Summary Statistics Menu -                    00:04:AC:6B:0D:80│
│                                                                     │
│ Unit ID < 1 > Slot ID < 0>    Port < 1>    10/100 Copper Ports      │
│                                                                     │
│ ifIndex  . . . . . . . . . . .    1                                 │
│ Packets Received . . . . . . .    8908                              │
│ Broadcast Packets Received . .    3828                              │
│ Switched Packets Received  . .    8908                              │
│ Receive Packets Discarded  . .    0                                 │
│ Receive Packet Errors  . . . .    0                                 │
│ Switched Packets Transmitted .    2161                              │
│ Transmit Packets Discarded . .    0                                 │
│ Transmit Packets Errors  . . .    0                                 │
│ Collisions Frames  . . . . . .    0                                 │
│ CRC Errors . . . . . . . . . .    0                                 │
│ Drop Events . . . . . . . . .     0                                 │
│                                                                     │
│              Push Space Bar to toggle the Slot Number               │
│                                                                     │
│            CLEAR CTRS    MAIN MENU    PREV MENU (F3)  HELP (F1)      │
│                                                                     │
│     Use Tab or Arrow keys to navigate. Press Enter to make a selection.│
│     F2=toggle between menu text and Command Bar.  F4=SAVE           │
└─────────────────────────────────────────────────────────────────────┘
```

Figure 36. Port Summary Statistics

Port Detailed Statistics

See Figure 37 on page 51 for a summary of port statistics.

Figure 37. Port Detailed Statistics

Management Statistics

See Figure 38 for a summary of port statistics.

Figure 38. Management Statistics

User Account Management

On the Main Menu, select **User Account Management Menu**.Figure 39 shows the data entry screen for specifying your user names, passwords, and access mode.

```
┌─┐ TELNET.EXE                                                      □ □
IBM 8275-416 High Performance Switch@
- User Account Management Menu -                        00:04:AC:6B:0D:80

Unit ID ... <1>

                              Confirm
     User Name     Password   Password     Access Mode   Status
     ----------   ----------  ----------   -----------   --------
     [admin    ]  [        ]  [        ]   Read/Write    Enabled
     [guest    ]  [        ]  [        ]   Read Only     <Enable >
     [         ]  [        ]  [        ]   Read Only     <Disable>
     [         ]  [        ]  [        ]   Read Only     <Disable>
     [         ]  [        ]  [        ]   Read Only     <Disable>
     [         ]  [        ]  [        ]   Read Only     <Disable>


              ┌─────────────────────────────────────────┐
              │ Enter the users name (Max 8 characters)  │
              └─────────────────────────────────────────┘

                   APPLY    MAIN MENU    PREV MENU (F3)   HELP (F1)

For changes, [overtype] or <use space bar>. Press ESC to discard change. Use TAB
or Arrow keys to navigate. F2=toggle between menu text and Command Bar. F4=SAVE
```

Figure 39. User Account Management Menu

The 8275-416 allows you to add and delete users and set user passwords for the 8275-416 . You are to provide the following information:

User Name:
> User name can be up to eight alphanumeric characters. The User Name is not case sensitive. Up to six user names (accounts) can be defined; one with read/write access mode and five with read only access mode.

Password:
> The password can be up to eight alphanumeric characters and is not case sensitive. A blank password indicates no password. The default value is blank.

Confirm Password:
> The confirm password can be up to eight alphanumeric characters. The confirm password is not case sensitive. A blank confirm password indicates no password. The default value is blank.

Access Mode:
> This value is not configurable. User access mode can be:

> **read/write**
>> Only one user can be defined with read/write access mode per 8275-416 . This user can change the status of other users, add and delete users, change passwords and change configurations, and use system utilities.

> **read only**
>> Up to five users can be defined with read only access mode per 8275-416 . The message of read only appears on configuration screens when a read only user is logged in.

Status:

> Status can be Enable, Disable or Delete. Enable means that the user name is authorized to access the 8275-416 . Disable means that the user name is not allowed to access the 8275-416 . Delete means the user will be removed from the list upon an apply or save.

System Utilities

The system utilities can be used only by users with read/write access. You can use the system utilities by selecting **System Utilities Menu** on the Main Menu. Figure 40 shows the available utilities.

Saving Applied Changes

There are two ways to save applied changes which result in the changes being retained across a reset:

- Pressing the F4 key.
- Selecting **Save Applied Changes** on the System Utilities Menu.

You can permanently save configuration changes by pressing the F4 key or going to the System Utilities Menu and selecting **Save Applied Changes**, as shown in Figure 40.
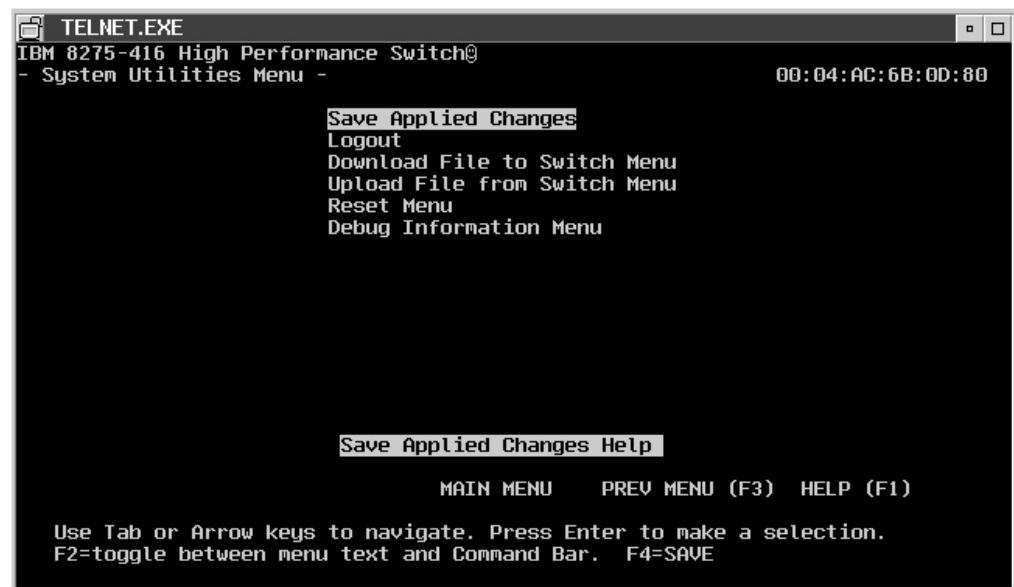
Figure 40. Save Applied Changes Menu

Logging Out

When you have finished using the terminal interface, ensure you have saved and applied all configuration changes before you Logout. The terminal interface provides an orderly way to logout. One way is to use the Logout command on the Main Menu. Another way to Logout is to select **System Utilities Menu** from the Main menu, then select **Logout** as shown in Figure 41 on page 54.
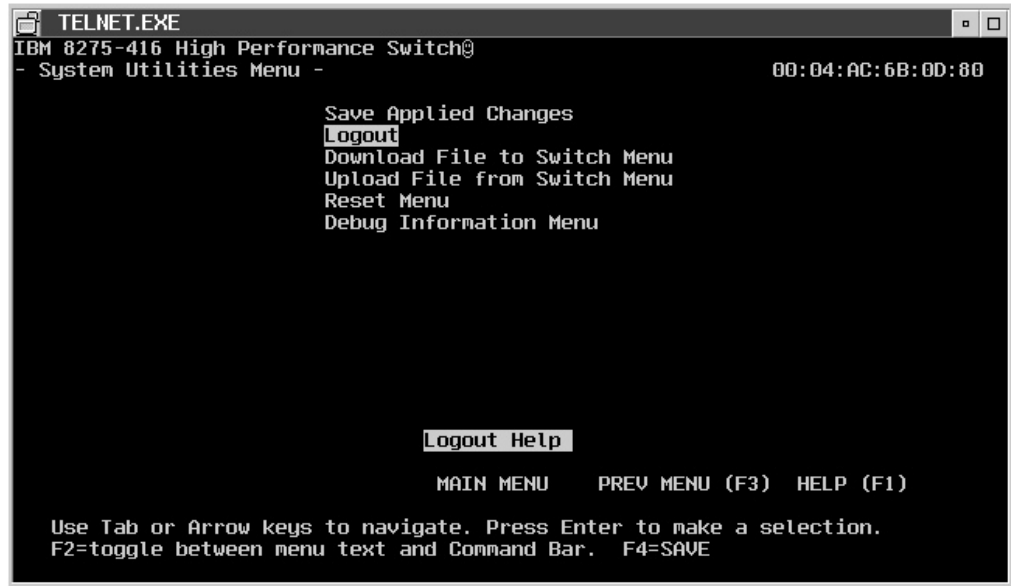
Figure 41. Logout Utility

Handling Files

To upload or download a file, select **System Utilities Menu** from the Main Menu. Then make the appropriate selection from the System Utilities Menu.

The 8275-416 can download or upload files. Downloading is the transfer of files from a remote server into the 8275-416 . Uploading is the transfer of files from the 8275-416 to a remote server.

Configuration settings can be retrieved from the 8275-416 as a binary file. A binary configuration file can be sent to the 8275-416 . This allows you to back up the configuration or to easily update the configuration of multiple 8275-416 s. Additionally, a configuration file may be provided to IBM support personnel for problem determination.

The last-saved configuration used by the 8275-416 is retained after a code update or a reset.

Downloading a File to the 8275-416

Downloading is the transfer of files from a remote server into the 8275-416 . (See Figure 42 on page 55.)

```
┌─ TELNET.EXE                                                      □ ▫ □
IBM 8275-416 High Performance Switch@
- Download File To Switch Menu -                          00:04:AC:6B:0D:80

Unit ID ... <1>

File Type ........................ <_Code         >

Download Mode ..................... < TFTP    >

TFTP Server IP Address ............ [9.37.237.18    ]
TFTP File Path .................... [.\                           ]
TFTP File Name .................... [e1r3v25.b2                   ]

Start File Transfer Now ........... <No >

Result:

          Push Space Bar to toggle the TFTP Download Transfer Type

                     APPLY    MAIN MENU    PREV MENU (F3)   HELP (F1)

For changes, [overtype] or <use space bar>. Press ESC to discard change. Use TAB
or Arrow keys to navigate. F2=toggle between menu text and Command Bar. F4=SAVE
```

Figure 42. Downloading File to the 8275-416 .

Uploading a File from the 8275-416

Uploading is the transfer of files from the 8275-416 to a remote server. (See Figure 43.)


```
┌─ TELNET.EXE                                                      □ ▫ □
IBM 8275-416 High Performance Switch@
- Upload File from Switch Menu -                          00:04:AC:6B:0D:80

Unit ID ... <1>

File Type ........................ <_ Trap Log    >

Upload Mode ...................... < TFTP   >

TFTP Server IP Address ............ [-- undefined --]
TFTP File Path .................... [                              ]
TFTP File Name .................... [                              ]

Start File Transfer Now ........... <No >

Result:

          Push Space Bar to toggle the TFTP Upload Transfer Type

                     APPLY    MAIN MENU    PREV MENU (F3)   HELP (F1)

For changes, [overtype] or <use space bar>. Press ESC to discard change. Use TAB
or Arrow keys to navigate. F2=toggle between menu text and Command Bar. F4=SAVE
```

Figure 43. Uploading File from the 8275-416 .

The following parameters apply to uploading and downloading of files.

File Type:
    The file types are:

    For Download

- Code (the default)
- Configuration

For Upload
- Configuration
- Error log
- System trace
- Trap log (the default)

Upload or Download Mode

The mode is either XMODEM or TFTP. XMODEM is only valid when file transfer is initiated via the serial EIA 232 port. The default value is XMODEM.

Start Transfer Now:

You indicate Yes or No.

File Name:

The file name can be up to 16 alphanumeric characters. The 8275-416 remembers the last file name used. The default value is blank.

Note: File Name, File Path, and TFTP Server IP Address are applicable only if the Transfer Mode is TFTP.

File Path:

The directory path where the file is located. The 8275-416 remembers the last file path used. The default value is blank.

TFTP Server IP Address:

The IP address of the server where the file is located. It is valid only when the Transfer Mode is TFTP. The address is 4 decimal bytes ranging from 0 to 255. The default value is zeroes.

Reset Utility

8275-416 allows you to reset the 8275-416 without powering off. Reset means that all network connections are terminated and the boot code executes. The 8275-416 uses the stored configuration to initialize the 8275-416 . You are prompted for confirmation if you want the reset to proceed. A successful reset is evidenced by the LEDs on the 8275-416 .

After selecting Reset Menu from the System Utilities Menu, you are given the choice of the resets you can request as shown Figure 44 on page 57.
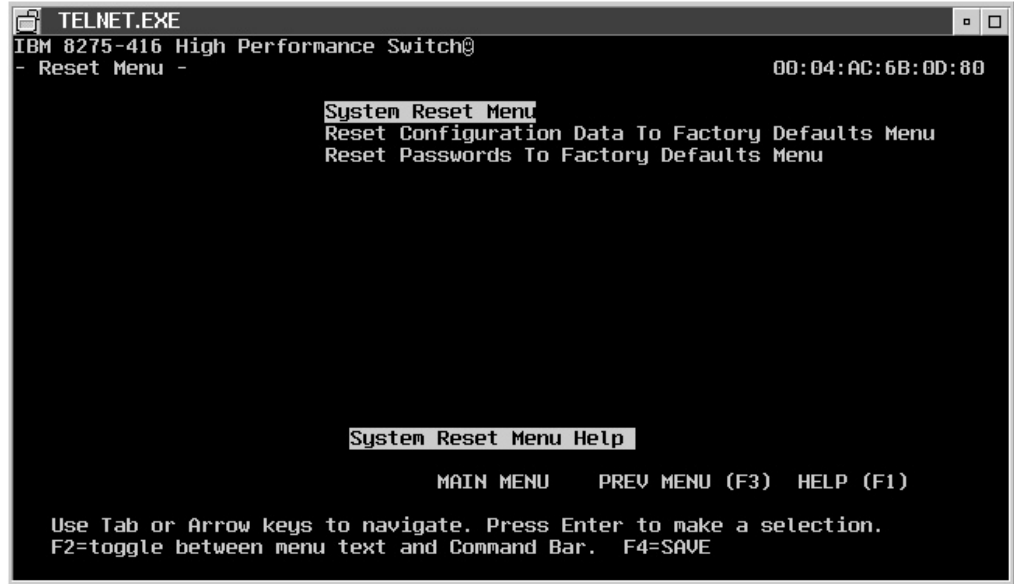
Figure 44. Reset Menu

Resetting System

Reset the system by indicating the particular unit as shown in Figure 45. You must identify the 8275-416 to reset. None is the default.
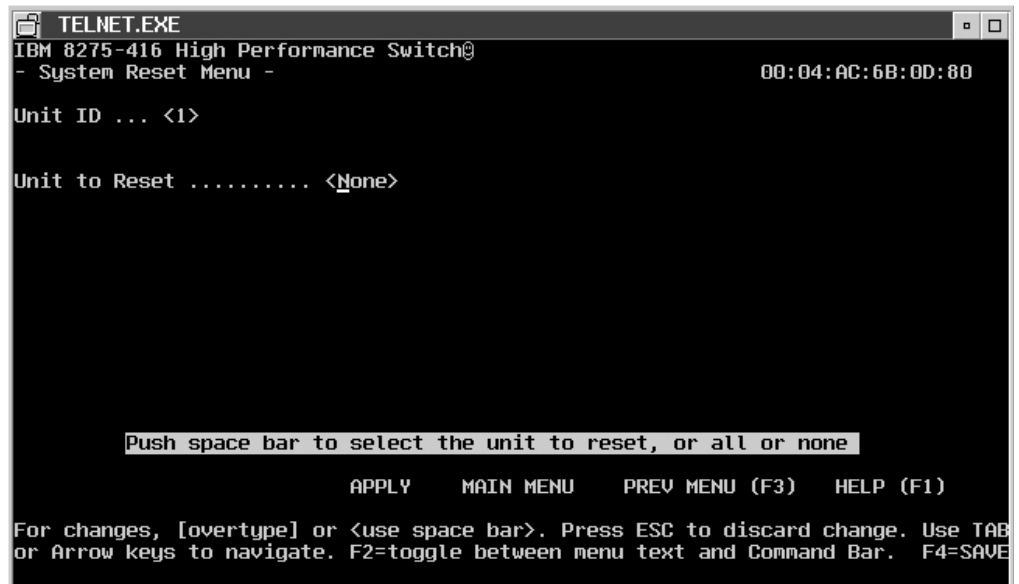
Figure 45. Reset Menu

Resetting Configuration Data to Factory Default Values

8275-416 allows you to reset the configuration to factory default values without powering off. The factory defaults are not restored until the 8275-416 is reset. The

8275-416 is automatically reset when this command is processed. You are prompted for confirmation if you want the reset to proceed.

Reset the configuration data to the factory defaults by indicating the particular unit as shown in Figure 46. You must identify the 8275-416 to reset. None is the default.

```
┌──────────────────────────────────────────────────────────────────────────┐
│ ▣  TELNET.EXE                                                       ▫ □   │
│ IBM 8275-416 High Performance Switch@                                     │
│ - Reset Config to Factory Defaults Menu -              00:04:AC:6B:0D:80  │
│                                                                          │
│ Unit ID ... <1>                                                          │
│                                                                          │
│                                                                          │
│                                                                          │
│ Unit to Reset .................... <None    >                           │
│                                                                          │
│                                                                          │
│                                                                          │
│                                                                          │
│                                                                          │
│                                                                          │
│            ┌─────────────────────────────────────────────────┐          │
│            │ Push space bar to select the unit to reset, or all or none │  │
│            └─────────────────────────────────────────────────┘          │
│                                                                          │
│                     APPLY     MAIN MENU     PREV MENU (F3)   HELP (F1)   │
│                                                                          │
│ For changes, [overtype] or <use space bar>. Press ESC to discard change. Use TAB │
│ or Arrow keys to navigate. F2=toggle between menu text and Command Bar.  F4=SAVE │
└──────────────────────────────────────────────────────────────────────────┘
```
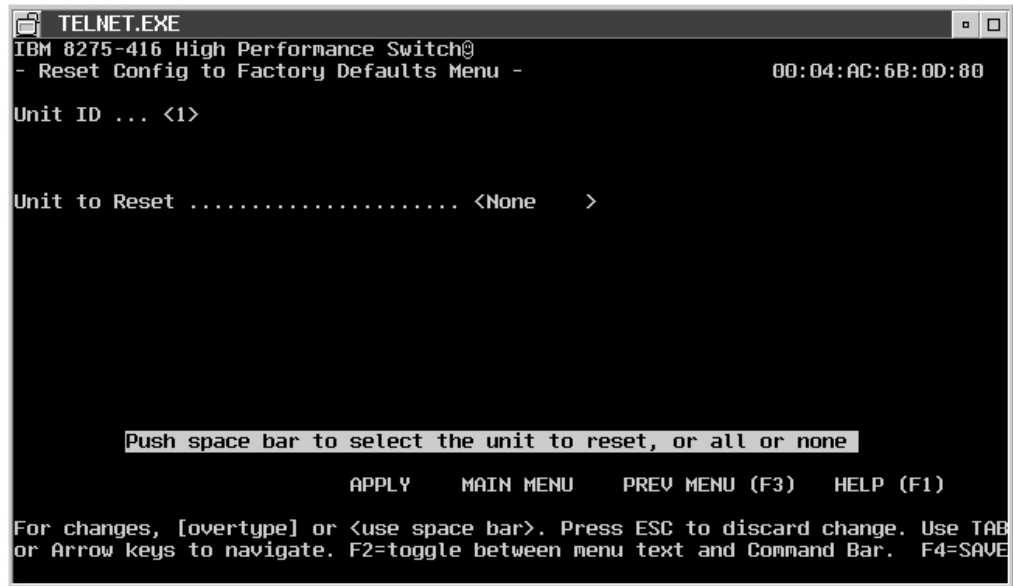
Figure 46. Reset Configuration Data to Factory Defaults

Resetting Passwords to Factory Default Values

8275-416 allows you to reset user passwords to factory default values without powering off. The factory defaults are not restored until the 8275-416 is reset. The 8275-416 is automatically reset when this command is processed. You are prompted for confirmation if you want the reset to proceed.

Reset the passwords by indicating the particular unit as shown in Figure 47 on page 59. You must identify the 8275-416 to reset. None is the default.

```
┌─ TELNET.EXE                                                    □ □
IBM 8275-416 High Performance Switch@
- Reset Passwords to Defaults Menu -                   00:04:AC:6B:0D:80

Unit ID ... <1>


Unit to Reset .......... <None>









           ┌─ Enter the address aging timeout (10 - 1000000 seconds)┐

                    APPLY     MAIN MENU     PREV MENU (F3)   HELP (F1)

For changes, [overtype] or <use space bar>. Press ESC to discard change. Use TAB
or Arrow keys to navigate. F2=toggle between menu text and Command Bar. F4=SAVE
```

Figure 47. Reset Passwords to Factory Defaults

Debug Utility

Select the **Debug Menu** from the System Utilities Menu panel.

Note: Using the Debug function may alter the state of the 8275-416 and cause unexpected results. The intended for use of this Debug function is for trained personel only.

You are prompted to indicate if want to continue (Y=yes or N=no). If you press ″Y″, the debug command line interface is used.

Debug utility is only valid via the EIA-232 interface; it does not work via Web or telnet.

Chapter 5. Using the Web Interface

You can manage your 8275-416 through your Web browser and Internet connection. This type of management is referred to as Web-based management. The following are the basic requirements for Web browsers to access the 8275-416 :

- Support for HTML version 4.0, or later
- Support for HTTP version 1.1, or later
- Support for JavaScript version 1.2, or later

This chapter explains how to access the 8275-416 Web-based management panels to configure and manage your 8275-416 .

It is important to note that there are equivalent functions offered in the Web interface as in the terminal interface (that is, there are usually the same menus to accomplish a task). For example, you log in, there is a Main Menu with the same functions available, and so on. The only difference is that the panels are web-like in design. So, if you have read "Chapter 3. Configuring your 8275-416" on page 17 and "Chapter 4. Using the Terminal Interface" on page 25, navigating the Web interface will not be difficult. This chapter is a brief introduction to the Web interface.

Web Page Layout

A Web interface panel for the 8275-416 Web page consists of three frames. Frame 1, across the top, appears a banner graphic of the 8275-416 . Frame 2, at the bottom-left displays a hierarchical-tree view. The tree consists of a combination of folders, sub-folders, and configuration and status HTML pages. You can think of the folders and sub-folders as branches and the configuration and status HTML pages as leafs. Only the selection of a leaf (not a folder or sub-folder) will cause Frame 2 to display a new HTML page. A folder or sub-folder has no corresponding Frame 3 HTML page. Frame 3, the bottom-right frame, displays the currently selected device configuration status or the user configurable information that you have selected from the Tree View of Frame 2, or both. You can resize each of these frames. There are no fixed-sized frames.

Starting the Web Interface

Note: You must configure the IP address of the 8275-416 before using the Web interface.

Follow these steps to bring up the 8275-416 Web interface:

1. Enter the **IP address** of the 8275-416 in the address field of your Web browser and press Enter.
2. Log in with your user name and password. Press **Enter**
3. The navigation tree is displayed in Frame 2, and the System Description Menu is displayed in Frame 3. Make your selection by clicking on the appropriate item in the navigation tree in Frame 2.
4.

Commands

The following commands are used throughout the Web interface panels or the 8275-416 :

Undo Restores any changes made on the panel to their original value since the last Apply or Save.

Save Implements and saves the changes you just made. Some settings may require you to reset the system in order for them to take effect.

Apply Implements the changes you just made. Some settings may require you to reset the system for them to take effect.

Refresh
The Refresh button that appears next to the Apply button in Web interface panels refreshes the data on the panel.

Restart
Refreshes the list and displays the data starting at the beginning of the list.

Next Displays the next set of information in the list.

Chapter 6. Troubleshooting and Obtaining Service

Diagnosing Problems

This chapter contains procedures that help you to troubleshoot problems with your 8275-416 and its connections to other devices.

Be sure you read "Appendix A. Safety Information" on page 67 before proceeding.

Obtaining Software

To obtain support information, including technical tips, current product information, and code updates and fixes the 8275-416 , visit the IBM Networking Tech Support page at:

`http://www.networking.ibm.com/support`

You may also subscribe to receive e-mail notifications about code updates, tips, and FAQs for your 8275-416 .

Troubleshooting in a Network

The 8275-416 terminal interface, Web interface, and SNMP management agent give you access to important statistics and other information about the network. To obtain these statistics, see "Chapter 4. Using the Terminal Interface" on page 25 and "Chapter 5. Using the Web Interface" on page 61 and select the appropriate screens.

Start of Troubleshooting Process

If one or more devices (such as workstations) connected to an 8275-416 are unable to communicate with other devices in the network, use the following steps to start the troubleshooting process:

1. Locate the 8275-416 to which the device is connected. Use the network sketch, the label on the cable connected to the device, or other network records to help you locate the 8275-416 .
2. Have available any documentation associated with the feature modules that are installed on the 8275-416 .
3. If you have an EIA 232 console session set up, (see "Chapter 2. Accessing the 8275-416" on page 11), you can use it to determine if diagnostics have been completed correctly.
4. Observe the LEDs on the 8275-416 front panel. The location of these LEDs is shown in Figure 2 on page 6 with explanations of the LED status conditions in the accompanying table. Ignore the feature module LEDs at this time. Review this information before proceeding with the troubleshooting process.
5. If the LED status are not OK, locate in Table 4 on page 64, the symptom that best describes the communication problem and the LED status you observed. Then go the section that contains the recommended actions for resolving the problem and follow that procedure.

Choosing a Troubleshooting Procedure

Use Table 4 to determine which troubleshooting procedure you should use. Unless otherwise stated, references to the OK and Fault LEDs are those on the 8275-416 .

Table 4. Troubleshooting— Isolating Problems

Symtom and LED State	Action
The Fault LED, the OK LED are off, and the fan is not running.	Go to "Procedure A"
The Fault LED is On. If the Fault LED is blinking, diagnostics are in process.	Go to "Procedure B"
None of the devices connected to the 8275-416 can communicate , the Fault LED is Off and the Power (I) LED is On.	Go to "Procedure C" on page 65
A single device connected to the 8275-416 is having trouble communicating.	Go to "Procedure D" on page 65
A feature module Fault LED is On.	Remove and replace the feature module.

Note: The term "segment" refers to a single cable or interconnected cables between a port and the device at the other end.

Procedure A

Use this procedure if all LEDs are Off:

1. Verify that the ac power outlet to which the 8275-416 power supply is connected is active. If an uninterruptible power supply (UPS) is being used to provide ac power, ensure that the UPS is working correctly.
2. Verify that the power cord is installed correctly.
3. If the preceding conditions are satisfied, the power supply is defective. See "Obtaining Service" on page 65.

Procedure B

Use this procedure if the Fault LED is On

1. Reset the 8275-416 by disconnecting the power cord from the outlet, waiting 10 seconds, and reconnecting the power cord to the outlet. If this corrects the problem, resume using the 8275-416 .
2. One or more bad feature modules can cause this symptom, and the remaining ports might continue to operate.
   a. If you have feature modules, remove them.
   b. Reset the 8275-416 .
   c. If the 8275-416 comes up, reinstall the feature modules one at a time, and reset the 8275-416 to determine the failing feature module.
3. If the problem is not corrected, the 8275-416 is defective. See "Obtaining Service" on page 65.

Procedure C

Use this procedure if all devices connected to the 8275-416 are having communication problems, the Fault LED is Off and the OK LED is On:

1. Reset the 8275-416 by disconnecting the power cord from the outlet, waiting 10 seconds, and reconnecting the power cord to the ac outlet.

   • If the problem goes away, resume using the 8275-416 .

   • If the status LEDs indicate a failure, go to "Procedure B" on page 64.

   • If the problem persists, check all the configuration parameters.

   • If the problem has still not been resolved, go to "Procedure D" and try to get individual ports working.

Procedure D

Use this procedure if one device connected to the 8275-416 is having a communication problem, the Fault LED is Off, the OK LED is On and other attached devices can communicate through the 8275-416 :

1. If the port LED is Off (left LED on 10/100BASE-TX port and single port LED on 100BASE-FX port), check the cable and the attached device. Check the configuration settings to ensure they are OK.

2. If the port Link LED is On:

   a. Check the port configuration and make sure the port admin mode is Enabled.

   b. If the above check is OK, try pinging the attached device from the 8275-416 . Make sure the 8275-416 is configured for in-band connectivity.

   c. If ping is successfully received, go to Step 5.

   d. If the ping is not received, go to Step 3.

3. Restart the communications program on the failed connected device.

   • If the communications program appears to start without errors, observe the port LED on the 8275-416 port. If it is On it might have gone away. Check the port configuration parameters for possible causes of the failure.

   • If the problem persists, go to Step 4.

4. For each device that is having a communication problem, connect its segment to another identically configured Ethernet port on the 8275-416 . Try each of the remaining ports to determine if the problem will go away.

   • If the problem goes away, the problem might be in the 8275-416 . See "Obtaining Service".

   • If the problem persists, continue with Step 5.

5. The problem does not appear to be in the 8275-416 and the cables and devices connected to the 8275-416 . The problem might be in the network applications or other software running on the devices that are having the communication problem. Refer to the networking software documentation for software problem determination procedures, or consult your network administrator for assistance.

Obtaining Service

There are no user-serviceable parts inside the 8275-416 chassis. The 8-Port 10/100BASE-TX and 8-Port 100BASE-FX feature modules are individually replaceable by the user.

If you need assistance in troubleshooting or you need service for your 8275–416, call IBM at:

- 1 800 772-2227 in the United States
- 1 800 426-7378 (1 800 IBM-SERV) in Canada.
- In other locations, contact your place of purchase.

Refer to your IBM Warranty for information concerning service for the product, or contact the place where you purchased the product.

Appendix A. Safety Information

⚠

Danger: Before you begin to install this product, read the safety information in *Caution: Safety Information—Read This First*, SD21-0030. This booklet describes safe procedures for cabling and plugging in electrical equipment.

⚠

Gevaar: Voordat u begint met de installatie van dit produkt, moet u eerst de veiligheidsinstructies lezen in de brochure *PAS OP! Veiligheidsinstructies—Lees dit eerst,* SD21-0030. Hierin wordt beschreven hoe u electrische apparatuur op een veilige manier moet bekabelen en aansluiten.

⚠

Danger: Avant de procéder à l'installation de ce produit, lisez d'abord les consignes de sécurité dans la brochure *ATTENTION: Consignes de sécurité—A lire au préalable,* SD21-0030. Cette brochure décrit les procédures pour câbler et connecter les appareils électriques en toute sécurité.

⚠

Perigo: Antes de começar a instalar este produto, leia as informações de segurança contidas em *Cuidado: Informações Sobre Segurança—Leia Isto Primeiro,* SD21-0030. Esse folheto descreve procedimentos de segurança para a instalação de cabos e conexões em equipamentos elétricos.

⚠

危險：安裝本產品之前，請先閱讀
"Caution: Safety Information–Read
This First" SD21-0030　手冊中所提
供的安全注意事項。 這本手冊將會說明
使用電器設備的纜線及電源的安全程序。

⚠

67

Opasnost: Prije nego sto pŏcnete sa instalacijom produkta, pročitajte naputak o pravilima o sigurnom rukovanju u Upozorenje: Pravila o sigurnom rukovanju - Prvo pročitaj ovo, SD21-0030. Ovaj privitak opisuje sigurnosne postupke za priključivanje kabela i priključivanje na električno napajanje.

Upozornění: než zahájíte instalaci tohoto produktu, přečtěte si nejprve bezpečnostní informace v pokynech „Bezpečnostní informace" č. 21-0030. Tato brožurka popisuje bezpečnostní opatření pro kabeláž a zapojení elektrického zařízení.

Fare! Før du installerer dette produkt, skal du læse sikkerhedsforskrifterne i *NB: Sikkerhedsforskrifter—Læs dette først* SD21-0030. Vejledningen beskriver den fremgangsmåde, du skal bruge ved tilslutning af kabler og udstyr.

Gevaar Voordat u begint met het installeren van dit produkt, dient u eerst de veiligheidsrichtlijnen te lezen die zijn vermeld in de publikatie *Caution: Safety Information - Read This First*, SD21-0030. In dit boekje vindt u veilige procedures voor het aansluiten van elektrische appratuur.

VAARA: Ennen kuin aloitat tämän tuotteen asennuksen, lue julkaisussa *Varoitus: Turvaohjeet—Lue tämä ensin*, SD21-0030, olevat turvaohjeet. Tässä kirjasessa on ohjeet siitä, miten sähkölaitteet kaapeloidaan ja kytketään turvallisesti.

Danger : Avant d'installer le présent produit, consultez le livret *Attention : Informations pour la sécurité — Lisez-moi d'abord*, SD21-0030, qui décrit les procédures à respecter pour effectuer les opérations de câblage et brancher les équipements électriques en toute sécurité.

Vorsicht: Bevor mit der Installation des Produktes begonnen wird, die Sicherheitshinweise in *Achtung: Sicherheitsinformationen—Bitte zuerst lesen,* IBM Form SD21-0030. Diese Veröffentlichung beschreibt die Sicherheitsvorkehrungen für das Verkabeln und Anschließen elektrischer Geräte.

Κίνδυνος: Πριν ξεκινήσετε την εγκατάσταση αυτού του προϊόντος, διαβάστε τις πληροφορίες ασφάλειας στο φυλλάδιο *Caution: Safety Information-Read this first,* SD21-0030. Στο φυλλάδιο αυτό περιγράφονται οι ασφαλείς διαδικασίες για την καλωδίωση των ηλεκτρικών συσκευών και τη σύνδεσή τους στην πρίζα.

Vigyázat: Mielôtt megkezdi a berendezés üzembe helyezését, olvassa el a *Caution: Safety Information— Read This First,* SD21-0030 könyvecskében leírt biztonsági információkat. Ez a könyv leírja, milyen biztonsági intézkedéseket kell megtenni az elektromos berendezés huzalozásakor illetve csatlakoztatásakor.

Pericolo: prima di iniziare l'installazione di questo prodotto, leggere le informazioni relative alla sicurezza riportate nell'opuscolo *Attenzione: Informazioni di sicurezza — Prime informazioni da leggere* in cui sono descritte le procedure per il cablaggio ed il collegamento di apparecchiature elettriche.

危険：　導入作業を開始する前に、安全に関する
小冊子SD21-0030　の「最初にお読みください」
(Read This First)の項をお読みください。
この小冊子は、電気機器の安全な配線と接続の
手順について説明しています。

위험: 이 제품을 설치하기 전에 반드시
"주의: 안전 정보-시작하기 전에"
(SD21-0030) 에 있는 안전 정보를
읽으십시오.

ОПАСНОСТ
Пред да почнете да го инсталирате овоj продукт, прочитаjте
ja информациjата за безбедност:
"Предупредување: Информациjа за безбедност: Прочитаjте го
прво ова", SD21-0030.
Оваа брошура опишува безбедносни процедури за каблирање
и вклучување на електрична опрема.

Fare: Før du begynner å installere dette produktet, må du lese
sikkerhetsinformasjonen i *Advarsel: Sikkerhetsinformasjon — Les dette først*,
SD21-0030 som beskriver sikkerhetsrutinene for kabling og tilkobling av elektrisk
utstyr.

Uwaga:
Przed rozpoczęciem instalacji produktu należy zapoznać się z instrukcją:
"Caution: Safety Information - Read This First", SD21-0030.
Zawiera ona warunki bezpieczeństwa przy podłączaniu do sieci elektrycznej
 i eksploatacji.

Perigo: Antes de iniciar a instalação deste produto, leia as informações de
segurança *Cuidado: Informações de Segurança — Leia Primeiro*, SD21-0030. Este
documento descreve como efectuar, de um modo seguro, as ligações eléctricas
dos equipamentos.

ОСТОРОЖНО: Прежде чем инсталлировать этот продукт, прочтите Инструкцию по технике безопасности в документе "Внимание: Инструкция по технике безопасности -- Прочесть в первую очередь", SD21-0030. В этой брошюре описаны безопасные способы каблирования и подключения электрического оборудования.

Nebezpečenstvo: Pred inštaláciou výrobku si prečítajte bezpečnosté predpisy v
Výstraha: Bezpeč osté predpisy - Prečítaj ako prvé, SD21 0030. V tejto brožúrke sú opísané bezpečnosté postupy pre pripojenie elektrických zariadení.

Pozor: Preden zaènete z instalacijo tega produkta preberite poglavje: 'Opozorilo: Informacije o varnem rokovanju-preberi pred uporabo," SD21-0030. To poglavje opisuje pravilne postopke za kabliranje,

Peligro: Antes de empezar a instalar este producto, lea la información de seguridad en *Atención: Información de Seguridad — Lea Esto Primero,* SD21-0030. Este documento describe los procedimientos de seguridad para cablear y enchufar equipos eléctricos.

Varning — livsfara: Innan du börjar installera den här produkten bör du läsa säkerhetsinformationen i dokumentet *Varning: Säkerhetsföreskrifter— Läs detta först,* SD21-0030. Där beskrivs hur du på ett säkert sätt ansluter elektrisk utrustning.

⚠️

危險：

開始安裝此產品之前，請先閱讀安全資訊。

注意：

請先閱讀 - 安全資訊 SD21-0030

此冊子說明插接電器設備之電纜線的安全程序。

Appendix B. Notices

References in this publication to IBM products, programs, or services do not imply that IBM intends to make these available in all countries in which IBM operates. Any reference to an IBM product, program, or service is not intended to state or imply that only IBM's product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any of IBM's intellectual property rights may be used instead of the IBM product, program, or service. Evaluation and verification of operation in conjunction with other products, except those expressly designated by IBM, are the user's responsibility.

IBM may have patents or pending patent applications covering subject matter in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

IBM Director of Licensing
IBM Corporation
North Castle Drive
Armonk, NY 10504-1785
USA

Notice to Users of Online Versions of This Book

For online versions of this book, you are authorized to:

- Copy, modify, and print the documentation contained on the media, for use within your enterprise, provided you reproduce the copyright notice, all warning statements, and other required statements on each copy or partial copy.

- Transfer the original unaltered copy of the documentation when you transfer the related IBM product (which may be either machines you own, or programs, if the program's license terms permit a transfer). You must, at the same time, destroy all other copies of the documentation.

You are responsible for payment of any taxes, including personal property taxes, resulting from this authorization.

THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Some jurisdictions do not allow the exclusion of implied warranties, so the above exclusion may not apply to you.

Your failure to comply with the terms above terminates this authorization. Upon termination, you must destroy your machine-readable documentation.

Electronic Emission Notices

Federal Communications Commission (FCC) Statement

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.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

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

Industry Canada Class A Emission Compliance Statement

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

Avis de conformité aux normes d'Industrie Canada

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

European Norm (EN) Statement

This product is in conformity with the protection requirements of EU Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-IBM option cards.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 22/European Standard EN 55022. The limits for Class A equipment were derived from commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

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.

Zulassungsbescheinigung laut dem Deutschen Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG) vom 30. August 1995 (bzw. der EMC EG Richlinie 89/336)

Dieses Gerät ist berechtigt in Übereinstimmung mit dem Deutschen EMVG das EG-Konformitätszeichen - CE - zu führen.

Verantwortlich für die Konformitätserklärung nach Paragraph 5 des EMVG ist die IBM Deutschland Informationssysteme GmbH, 70548 Stuttgart.

Informationen in Hinsicht EMVG Paragraph 3 Abs. (2) 2:

Das Gerät erfüllt die Schutzanforderungen nach EN 50082-1 und EN 55022 Klasse A.

EN 55022 Klasse A Geräte müssen mit folgendem Warnhinweis versehen werden:"Warnung: dies ist eine Einrichtung der Klasse A. Diese Einrichtung kann im Wohnbereich Funkstörungen verursachen; in diesem Fall kann vom Betreiber verlangt werden, angemessene Maßnahmen durchzuführen und dafür aufzukommen."

EN 50082-1 Hinweis:"Wird dieses Gerät in einer industriellen Umgebung betrieben (wie in EN 50082-2 festgelegt), dann kann es dabei eventuell gestört werden. In solch einem Fall ist der Abstand bzw. die Abschirmung zu der industriellen Störquelle zu vergrößern."

Anmerkung:Um die Einhaltung des EMVG sicherzustellen sind die Geräte, wie in den IBM Handbüchern angegeben, zu installieren und zu betreiben.

Japanese Voluntary Control Council for Interference (VCCI) Statement

This product is a Class A Information Technology Equipment and conforms to the standards set by the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

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

Korean Communications Statement

Please note that this device has been certified for business purpose with regard to electromagnetic interference. If you find this is not suitable for your use, you may exchange it for one of residential use.

Taiwanese Class A Warning Statement

警告使用者:
這是甲類的資訊產品，在
居住的環境中使用時，可
能會造成射頻干擾，在這
種情況下，使用者會被要
求採取某些適當的對策。

Class 1 Laser Statement

Class 1 Laser Product

Laser Klasse 1

Laser Klass 1

Luokan 1 Laserlaite

Appareil À Laser de Classe 1

To IEC 825-1:1993

Class 1 LED Statement

Class 1 LED Product

LED Klasse 1

LED Klass 1

Luokan 1 Ledlaite

Appareil À LED de Classe 1

To IEC 825-1:1993

Trademarks

IBM is a trademark of the International Business Corporation in the United States and/or other countries.

Other company, product, and service names may be trademarks or service marks of other companies.

Appendix C. Cable Pinout Diagrams

This appendix specifies Ethernet and null-modem cable pinouts.

Straight-Through 10BASE-T/100BASE-TX Cables
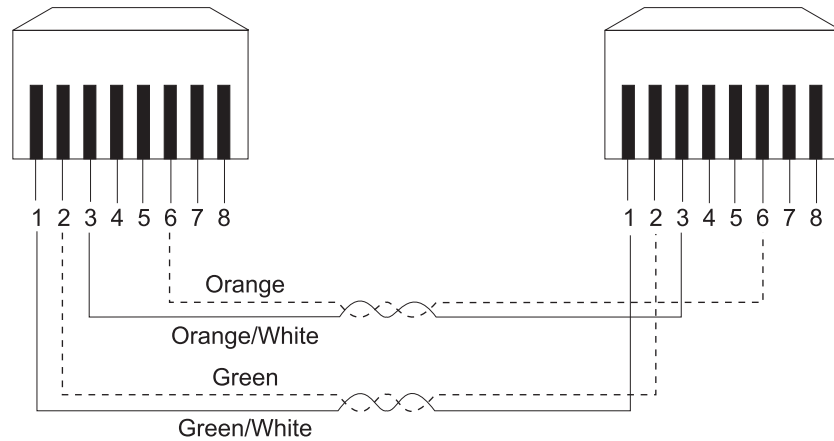
Figure 48. Straight-Through UTP Cable (RJ-45 to RJ-45), T568A
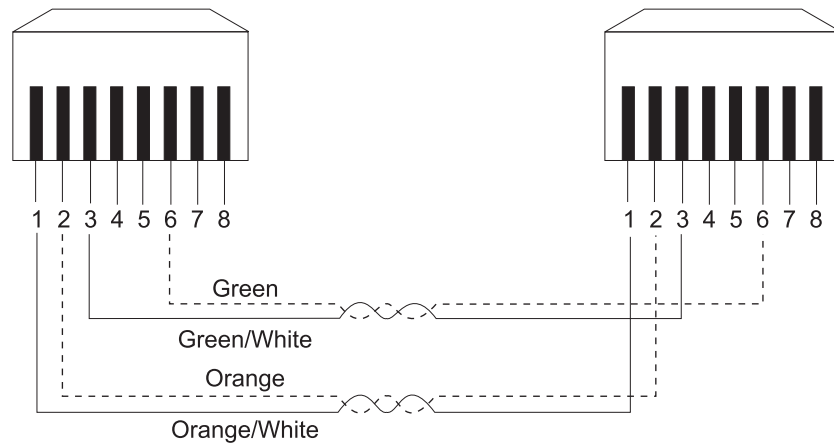
Figure 49. Straight-Through UTP Cable (RJ-45 to RJ-45), T568B

Straight-Through 10BASE-T/100BASE-TX Cables for STP

Figure 50. Straight-Through STP Cable (RJ-45 to IBM Data Connector)

Crossover 10BASE-T/100BASE-TX Cables
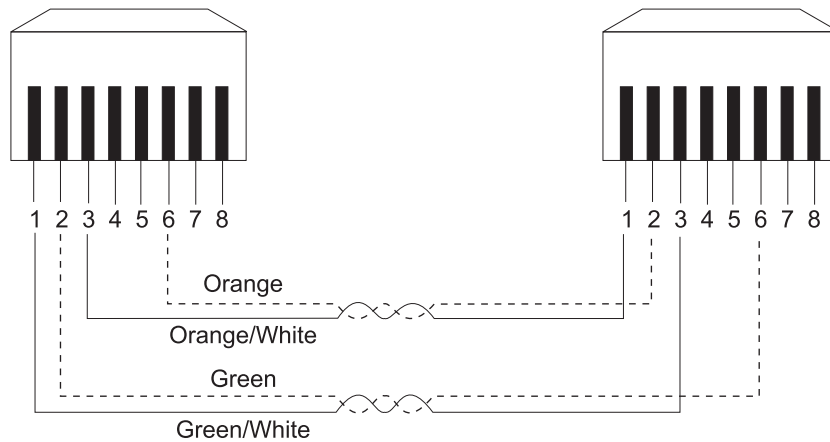
Figure 51. Crossover UTP Cable (RJ-45 to RJ-45), T568A
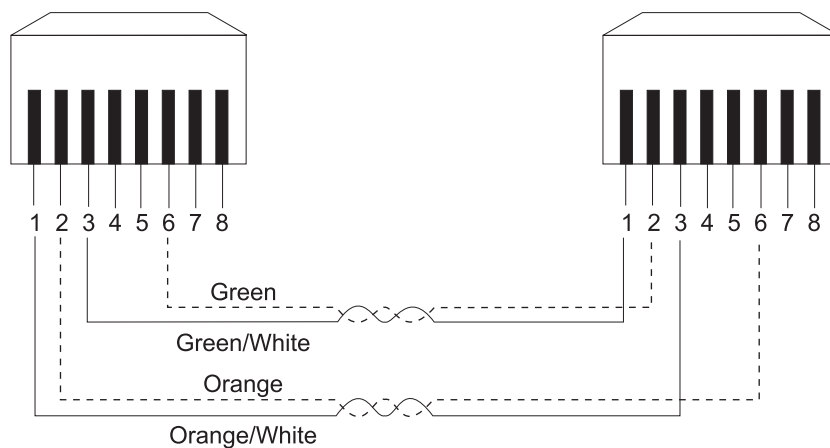
Figure 52. Crossover UTP Cable (RJ-45 to RJ-45), T568B

Crossover 10BASE-T/100BASE-TX Cables for STP

```
RJ-45                    IBM Cabling System
Pins              Data Connector Color Code

1                                    Orange
2                                    Black
3                                    Green
6                                    Red
```
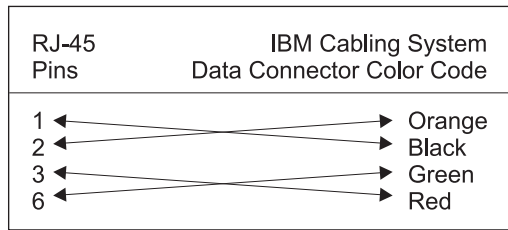
Figure 53. Crossover STP Cable (RJ-45 to IBM Data ConnectorCrossover)

EIA-232 Port

Pin	Signal Name
Shell	CHS GND
3	TXD
2	RXD
7	RTS
8	CTS
6	DSR
5	SGND
1	DCD
4	DTR
9	RI

Figure 54. Pinout of the EIA-232 Port

Null-Modem Cables

Signal Name	Modem End 25-Pin Male	Switch End 9-Pin Female
TXD	2 ◄———————————	3
RXD	3 ———————————►	2
RTS	4 ◄———————————	7
CTS	5 ———————————►	8
DSR	6 ———————————►	6
GND	7 ———————————	5
DCD	8 ———————————►	1
DTR	20 ◄———————————	4
RI	22 ———————————►	9

Figure 55. EIA-232 Modem Cable for Terminal with 25-Pin Connector

Signal Name	Terminal/PC End 9-Pin Male	Switch End 9-Pin Female
TXD	3	3
RXD	2	2
RTS	7	7
CTS	8	8
DSR	6	6
GND	5	5
DCD	1	1
DTR	4	4
RI	9	9

Figure 56. EIA-232 Modem Cable for Terminal with 9-Pin Connector

Appendix D. Interface Conventions for the Console

Table 5 summarizes the meaning of special keys and commands that can be used by the terminal interface. You may need to configure your VT100 terminal emulation application to recognize some of these keys.

Active keys are clearly identified at the lower portion of each screen in the terminal interface.

Table 5. Special Keys and Commands Used with the Terminal Interface

Special Keys/ Text/Commands	Description
Brackets	Identifies fields that can be modified.
	Angle (< >)
	Field entries surrounded by angle brackets identify an item that has a predifined set of options. Use the spacebar to toggle through the available values. Pressing the Esc key before moving off the field restores the current operational value to the field. The change is not activated until Apply is selected.
	Square ([ ])
	Field entries surrounded by square brackets identify an item that can be changed by typing in text. Characters within a text field cannot be modified using the cursor keys. No insert or overwrite modes can be performed in the field. The text in the field is erased and replaced by the new text. Pressing the Esc key before moving off the field restores the current operational value to the field. The change is not activated until Apply is selected.
Arrow Keys	Use to move between items within the menu body, within the Command Bar, between the menu body and Command Bar. Up and Down arrow keys move the cursor between lines. Right and Left arrow keys move the cursor between columns. Arrow keys are ignored when data is entered in a text field.
	Right Arrow key
	The right arrow key moves the cursor to the next field to the immediate right.
	Left Arrow key
	The left arrow key moves the cursor to the previous field to the immediate left.
	Down Arrow key
	The down arrow key moves the cursor vertically down to the first character in the next row in the same position as the original row or wraps to the next section of the menu.
	Up Arrow key:
	The up arrow key moves the cursor vertically up to the first character in the previous row in the same position as the original row or wraps to the next section of the menu.

Table 5. Special Keys and Commands Used with the Terminal Interface (continued)

Special Keys/ Text/Commands	Description
Tab	Used to move to the next field. • When navigating between fields, Tab is used to move forward to the next field and acts like the right arrow key. • When in a text field which has been modified, Tab performs the same function as the Enter key. When in a text field and no text has been changed, Tab moves you to the next field.
Shift-Tab	Not supported by VT100
Cntl-Tab	Not supported by VT100
Back Space	Used to remove the character in front of the cursor when entering text enclosed in square brackets.
Blinking Text	Warning or confirmation messages
Cursor	The software does not have control over the cursor shape. Cursor shape is controlled by the terminal emulation.
Delete	Acts like the Backspace key in a text field
End	Not supported
Enter	Used to make a selection. • On a login screen and press Enter, the User ID and password are processed for login. • On a non-leaf menu option and press Enter, the selected menu is displayed. (A non-leaf menu is a panel that contains a list of menu names that can be selected.) • On the Unit ID or Slot ID and press Spacebar, the item toggles through the available values for that item. After a value is determined, pressing Enter updates the screen with the appropriate data for that Unit ID and Slot ID. • On a field being modified and press Enter, the text is accepted and undergoes syntax checking and the cursor is moved to the next modifiable field. • On a text field where no modifications have been made, Enter moves the cursor to the next field.
Esc	When modifying field data enclosed in square backets ([ ]) or angle brackets (< >), press Esc to stop modifying the field and go back to the original data.
Home Key	Not supported
Insert	Not supported
Spacebar	When the cursor is on a modifiable field indicated by angle brackets, use the space bar to toggle through the options for that field. When the cursor is on a modifiable field indicated by square brackets, the space bar may be an allowable key to enter text.

Table 5. Special Keys and Commands Used with the Terminal Interface (continued)

Special Keys/ Text/Commands	Description
Function keys	**F1** Takes you to the Help Menu. **F2** Toggles between the menu body and the Command bar. The first item is selected when toggling. **F3** Takes you back to the previous menu. **F4** This is the Save key and is used to save changed configuration data. It is the same as going to the System Utilities Menu and selecting Save Configuration Changes. There is no undo after configuration changes have been saved. Pressing F4 after making configuration changes causes configuration changes to be automatically Applied (F4 is used to Apply and Save configuration changes).
MAC Addresses	• MAC addresses are displayed and entered as 12 hexadecimal digits in canonical format. • Any alphabetic character (A-F) is displayed as uppercase. When you enter the MAC address, upper and lower case characters are accepted. • Any illegal characters for a MAC address are not accepted.
Uppercase Words in the Menu	Identifies commands.
READ ONLY	When in the upper right corner of the screen, indicates that the current user has Read Only access.
UNSAVED DATA	When in the upper right corner of screen, indicates that there are unsaved changes; and that any changes made since the last SAVE was issued will not be retained across a power cycle.
SAVING DATA	After a SAVE is issued, indicates the Save is in process.
DATA SAVED	Save operation has completed successfully.
NEXT PAGE	Command used to display next screen.
PREV PAGE	Command used to display previous screen.
LOGOUT	Command used to end this login session.
CLEAR CTRS	Command used to set to 0 the counters associated with this screen.
SEND	Command used to begin sending pings.
APPLY	Command used to cause configuration changes to take effect. Apply appears on the screen once a change has been made.
REFRESH	Command used to refresh the screen with the current status or configured values.
MAIN MENU	Command used to display the Main Menu.
PREV MENU	Command used to display the previous menu screen.
HELP	Command used to display the Help Menu.

Index

Numerics

Readers' Comments — We'd Like to Hear from You

8275 Model 416 High Performance Ethernet Workgroup Switch
User's Guide

Publication No. GC30-4026-00

Overall, how satisfied are you with the information in this book?

	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
Overall satisfaction	☐	☐	☐	☐	☐

How satisfied are you that the information in this book is:

	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
Accurate	☐	☐	☐	☐	☐
Complete	☐	☐	☐	☐	☐
Easy to find	☐	☐	☐	☐	☐
Easy to understand	☐	☐	☐	☐	☐
Well organized	☐	☐	☐	☐	☐
Applicable to your tasks	☐	☐	☐	☐	☐

Please tell us how we can improve this book:

Thank you for your responses. May we contact you?   ☐ Yes   ☐ No

When you send comments to IBM, you grant IBM a nonexclusive right to use or distribute your comments in any way it believes appropriate without incurring any obligation to you.

_____   _____
Name   Address

_____   _____
Company or Organization

_____   _____
Phone No.

IBM®

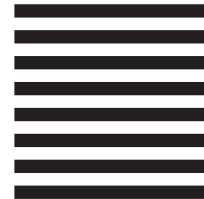Fold and Tape   **Please do not staple**   Fold and Tape

NO POSTAGE
NECESSARY
IF MAILED IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL   PERMIT NO. 40   ARMONK, NEW YORK

POSTAGE WILL BE PAID BY ADDRESSEE

Department CGFA–Design and Information Development
IBM Corporation
P.O. Box 12195
Research Triangle Park, NC, U.S.A.   27709-9990

Fold and Tape   **Please do not staple**   Fold and Tape

IBM ®