Ethernet Desktop Switch 8275-113

Installation and Planning Guide

IBM

Ethernet Desktop Switch 8275-113

Installation and Planning Guide

> **Note**
>
> Before using this information and the product it supports, be sure to read the safety information under "Safety Information" on page x and the general and emissions notices in Appendix B, "Notices" on page B-1.

First Edition (June 1998)

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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。

⚠

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 информацијата за безбедност:
"Предупредување: Информација за безбедност: Прочитајте 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 безо-
пасности в документе "Внимание: Инструкция по
технике безопасности -- Прочесть в первую очередь",
SD21-0030. В этой брошюре описаны безопас-
ные способы каблирования и подключения элект-
рического 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。

About This Manual

This manual explains how to install and service the IBM Ethernet Desktop Switch 8275-113.

Who Should Read This Manual

This manual is intended for use by installation technicians, network administrators, and service personal.

How This Manual Is Organized

- Chapter 1, "Introduction" provides a functional product description and cabling requirements.

- Chapter 2, "Installation" describes installation and cabling procedures.

- Chapter 3, "Control Panel Management" describes how to use the Ethernet Desktop Switch control panel.

- Chapter 4, "Using the Management Interface" describes how to use the EIA 232 management port through a local connection.

- Chapter 5, "Using Web Management" describes how to use an Internet web browser to connect to and manage your Ethernet Desktop Switch.

- Chapter 6, "Troubleshooting and Service" provides troubleshooting procedures, how to get help from IBM, and procedures for downloading new code.

- Appendix A, "Introduction to Virtual LANs (VLANs) and Spanning Tree Protocol (STP)" provides background and conceptual information about virtual LANs (VLANs) and spanning tree protocol (STP).

- Appendix B, "Notices" describes product notices and provides warranty information.

Prerequisite Publication

Caution: Safety Information—Read This First, SD21-0030.

Chapter 1. Introduction

This chapter describes the features of the IBM Ethernet Desktop Switch 8275-113 and provides a functional overview that can help you integrate the Ethernet Desktop Switch into your new or existing network.

The Ethernet Desktop Switch is an intelligent managed switch, designed for use in medium-sized workgroups or remote locations that are part of a large network.
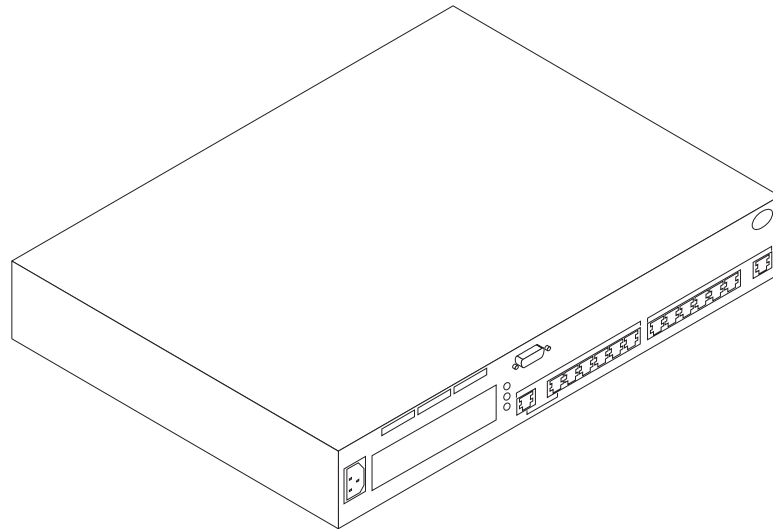
Figure   1-1. IBM Ethernet Desktop Switch 8275-113

Product Features

The Ethernet Desktop Switch contains the following features:

- Control Panel—A display console on the front panel of the Ethernet Desktop Switch that allows you to monitor and manage the Ethernet Desktop Switch and its ports. You can use the control panel to set device-level configuration values.

- Management Interface—An interface that allows you to issue management commands and retrieve data. You can access this interface by either:

  - VT100 terminal emulation, using a local connection through the switch's EIA 232 management port (referred to as *out-of-band*).

  - Telnet (referred to as *in-band*).

- SNMP Network Management — The ability to act as an SNMP agent allowing the switch to be managed by a wide range of SNMP management programs such as Nways Workgroup Manager for Windows NT V1.1.2 and Nways Manager for AIX V1.2.2 - Campus Manager LAN.

- Web-Based Management — The ability to use an Internet browser to manage the Ethernet Desktop Switch remotely using the World Wide Web.

- MAC Address Filtering — The ability to restrict access between certain users or segments. Network traffic can be controlled by selectively filtering addresses at the ports.

- Switch Security — The ability to use a password to prevent unauthorized personnel from changing switch configuration settings.

- Virtual LANs (VLANs) — The ability to effectively divide the Ethernet Desktop Switch into as many as four separate domains. Packets are forwarded only between ports within the same domain.

- Software updates — The ability to download software upgrades to the Ethernet Desktop Switch by using TFTP.

Functional Characteristics

Figure 1-2 shows the indicators, ports, and keys on the front panel of the Ethernet Desktop Switch.
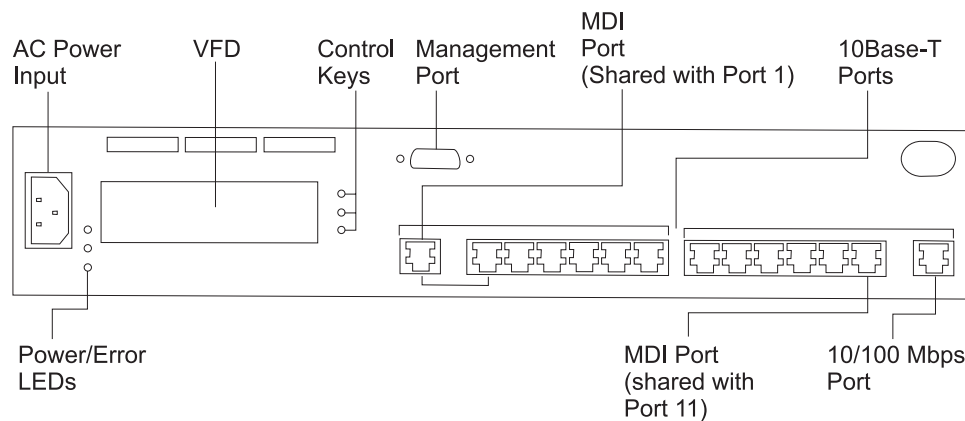
Figure 1-2. Front Panel

Figure 1-3 shows the rear panel of the Ethernet Desktop Switch.
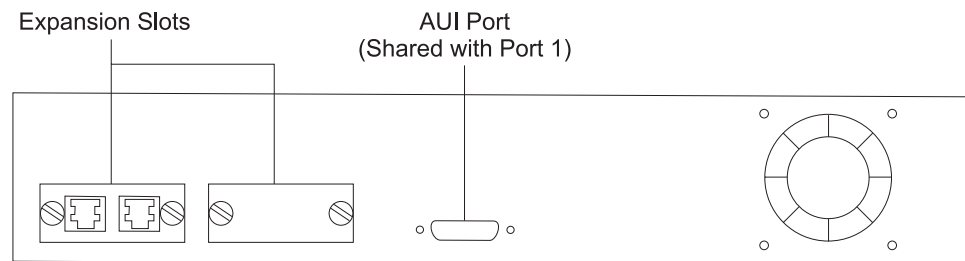
Figure 1-3. Rear Panel

Control Panel

The control panel is an effective management tool for monitoring and configuring the Ethernet Desktop Switch. The control panel provides overall utilization statistics that allow you to monitor all the ports at a glance as well as providing detailed error and configuration information by port. For more information about the control panel, see "Control Panel" on page 3-1.

Communication Ports

The following types of ports, shown in Figure 1-2 and Figure 1-3, are available on the Ethernet Desktop Switch.

- Ethernet Ports – Eleven 10BASE-T ports. These ports are located on the front panel (ports 1–11) and use UTP/STP category 3, 4, or 5 cables with RJ-45 connectors.

- Fast Ethernet Port – One 10/100BASE-TX auto-sensing port. This port is located on the front panel (port 12). If the port operates at 10 Mbps, you can use UTP/STP category 3, 4, or 5 cables with RJ-45 connectors. If the port operates at 100 Mbps, you need to use a UTP/STP category 5 cable with RJ-45 connectors.

- MDI Ports – Two shared ports. One MDI port is shared with Port 1 and the AUI port, and the other MDI port is shared with port 11. These ports are located on the front panel and use UTP/STP category 3, 4, or 5 cables with RJ-45 connectors.

- AUI – One AUI port. This port is located on the rear panel. Connections to other networks, such as 10BASE5, can be made by using an appropriate transceiver attached to the AUI port. This port is shared with port 1 and takes priority over port 1.

- Expansion Ports – Two expansion slots on the rear panel. These slots allow you to add 10/100BASE-TX or 100BASE-FX ports.

  The 10/100BASE-TX option module is configured for both MDI and MDI-X. The Ethernet Desktop Switch is shipped with a 10/100BASE-TX module preinstalled in port 13. If the port operates at 10 Mbps, you can use UTP/STP category 3, 4, or 5 cables with RJ-45 connectors. If the port operates at 100 Mbps, you need to use a UTP/STP category 5 cable with RJ-45 connectors.

  The 100BASE-FX module has SC type connectors and uses multimode optical fiber.

Management Port

The management port is an EIA 232 port that is used to configure the Ethernet Desktop Switch.

Cables and Connectors

Cable and connector requirements differ depending on the port to which each cable connects.

Maximum Cable Lengths

Table 1-1 lists the maximum recommended cable lengths.

Table 1-1. Recommended Maximum Cable Lengths

Ethernet Type	Maximum Segment Length
10BASE-T 100BASE-TX	100 m (328 ft)
100BASE-FX	Half-duplex — 412 m (1352 ft) Full-duplex — 2000 m (6561 ft)

Cabling Requirements for 10BASE-T Ports

10BASE-T ports will operate correctly on any of the following cables:

- Category 3, 4, or 5 100-ohm UTP or ScTP cable and connecting hardware, as specified in the ANSI/TIA/EIA 568-A or CSA T529 standards.

- 150-ohm STP-A cable and components as specified in these standards.

- IBM Cabling System types 1, 6, and 9, 150-ohm STP or STP-A cable. If you are using 150-ohm cabling systems, impedance matching devices must be using in conjunction with the cable.

- Category 3, 4, or 5 100- and 120-ohm, balanced, shielded or unshielded cables and components, as specified in the ISO/IEC 11801 standard.

- 150-ohm, balanced, shielded cables and components, as specified in the ISO/IEC 11801 standard.

- Any link that meets the specifications of a Class D link. If you are using 150-ohm cabling systems, impedance-matching devices must be using in conjunction with the cable.

All devices connected to the cables must be grounded.

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

Cabling Requirements for 10/100BASE-TX Fast Expansion Module

This module incorporates two shared RJ-45 connectors, one MDI-X, and one MDI. The MDI-X port performs an internal crossover function that allows easy connection to other devices using standard straight-through cables. The MDI port does not have the internal crossover function, permitting connection to devices having an internal crossover function using standard straight-through cables. For connection to 10BASE-T networks, you should use category 3, 4, or 5 cables meeting the specifications outlined in "Cabling Requirements for 10BASE-T Ports." For connection to 100BASE-TX networks, you can use only category 5 cables.

Cabling Requirements for 100BASE-FX Fast Expansion Module

This expansion module uses two SC-type connectors. Use multimode optical fiber that meets the specifications in TIA/EIA 568A or ISO/IEC 11801. The maximum length of optical fiber cable between devices should not exceed 2000 m (6562 ft) if the link is used in full-duplex mode. If the link is used in half-duplex mode, the length should not exceed 412 m (1352 ft).

Cabling Requirements for the Management Port

The management port is a standard DB-9 male connector that provides an EIA/TIA 232 serial interface. You can connect using a null-modem cable. Once connected you can manage the Ethernet Desktop Switch. This is called *out-of-band management*.

Note: You can make a null-modem cable by connecting a null-modem adapter to a standard serial cable.

Physical Characteristics and Requirements

Dimensions

Width	439 mm (17.3 in.)
Depth	216 mm (8.5 in.)
Height	64 mm (2.5 in.)

Operating Clearances

Front – Adequate space to view LEDs
Sides – 50.8 mm (2 in.)
Rear – 50.8 mm (2 in.)

Weight

3.95 kg (8.7 lb)

Power Requirements

The internal universal power supply can accept ac voltage in the following range:
100–250 V ac, 50-60 Hz

Power Dissipation

47 Watts

Operating Environment

Table 1-2. Operating Environment

Operating Temperature	10°C to 40° C (50° to 104° F)
Storage Temperature	1° C to 60° C (33.8° to 140° F)
Operating Humidity	8% to 80% non-condensing

Chapter 2. Installation

Before installing the Ethernet Desktop Switch, be sure to read "Safety Information" on page x and the notices and warranty information in Appendix B, "Notices" on page B-1.

This chapter provides step-by-step instructions for installing the Ethernet Desktop Switch. It also explains how to install the optional expansion modules.

Installation Summary

Table 2-1. Ethernet Desktop Installation Procedures

Step	Procedure	Reference
1.	Read the safety information booklet shipped with the Ethernet Desktop Switch.	SD21-0030
2.	Unpack the Ethernet Desktop Switch	"Unpacking instructions" on page 2-1
3.	Rack-mount the Ethernet Desktop Switch	"Rack-Mounting the Ethernet Desktop Switch" on page 2-1
4.	Install an Expansion Module	"Installing an Optional Modules" on page 2-2
5.	Perform power-on checkout	"Power-On Checkout" on page 2-3
6.	Connect the Cables	"Cabling" on page 2-4
7.	Configure the Ethernet Desktop Switch	"Connecting a Null Modem Cable to the Management Port" on page 2-4

Unpacking instructions

Step 1. Verify that the items listed here are in the package along with this manual. The package should contain:

- An Ethernet Desktop Switch
- Two rack-mounting brackets and eight screws
- A power cord
- *8275 Quick Reference* card (preinstalled in card tray beneath the Ethernet Desktop Switch)
- Safety Manual

Step 2. Visually inspect the unit to ensure that it was not damaged during shipping. If any items are missing or damaged, contact your place of purchase.

Rack-Mounting the Ethernet Desktop Switch

The Ethernet Desktop Switch can be installed on a flat level surface or it can be installed in a standard 19-inch rack. To install the Ethernet Desktop Switch in a rack, refer to Figure 2-1 on page 2-2 and perform the following steps.

Step 1. Install the two mounting brackets to the sides of the Ethernet Desktop Switch using the brackets and screws provided.

Step 2. Insert the switch into a 19-inch rack.

> **Note:** The rack-mounting screws are *not* provided. Ensure the ventilation holes are not obstructed.
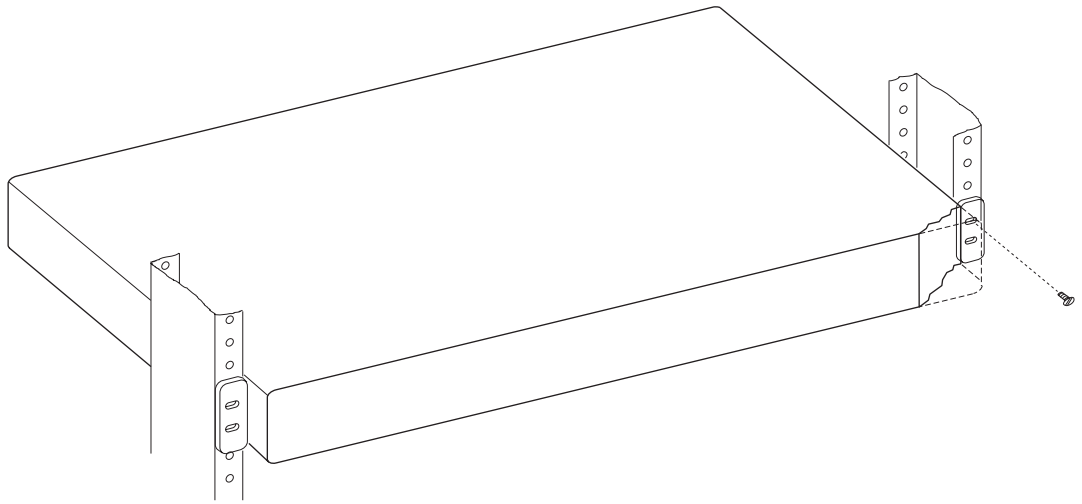
Figure 2-1. Rack-Mounting the Ethernet Desktop Switch

Installing an Optional Modules

Two optional modules are available for the 8275 Ethernet Desktop Switch—10/100BASE-TX (PN 08L2846) and 100BASE-FX (PN 08L2940).

10/100 BASE-TX module   100 BASE-FX module
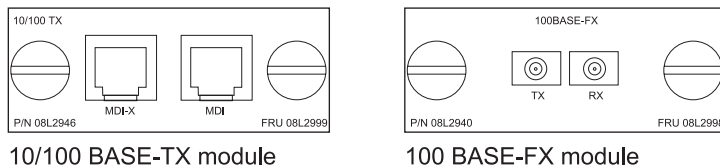
Figure 2-2. The 10/100BASE-TX and 100BASE-FX Optional Modules

To install these modules, perform the following steps:

Note: Expansion modules are **not** hot-swappable. You must remove power from the 8275 before installing or replacing an optional module.

Step 1. Remove power from the 8275 by disconnecting the power cable from the ac outlet.

Step 2. Remove the installed expansion module, or blank cover, by turning the two knobs on the back counterclockwise as shown in Figure 2-3 on page 2-3.
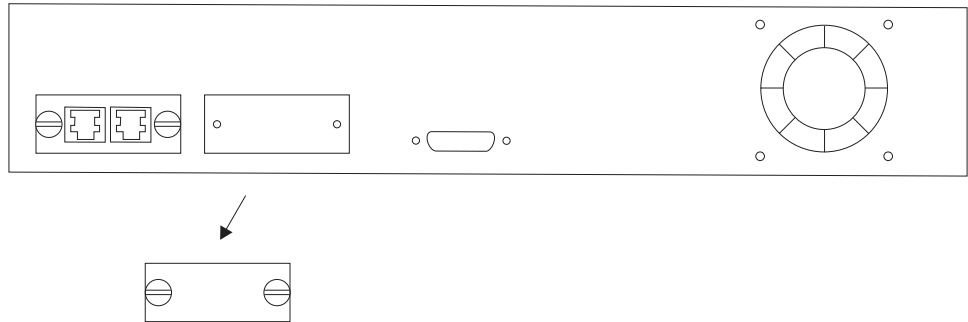
Figure 2-3. Removing the Blank Expansion Module Panel

Step 3. Insert the new expansion module (either type), ensuring that the edges slide through the guides as shown in Figure 2-4.
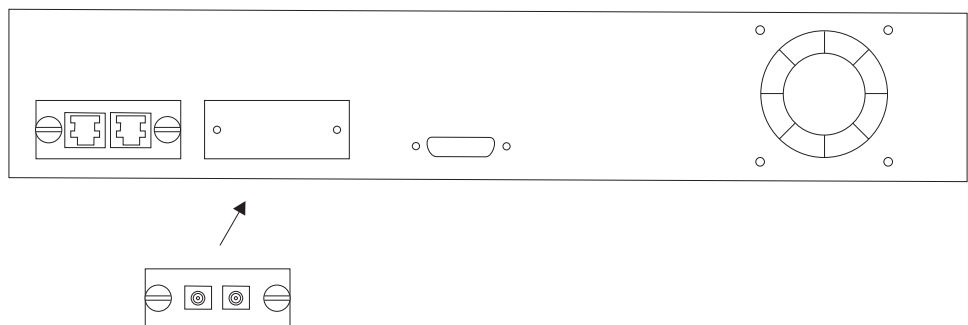
Figure 2-4. Installing an Expansion Module

Step 4. Turn the two knobs on the new expansion module clockwise until they are securely attached to the 8275.

Step 5. Connect the appropriate communication cable to the new expansion port.

Step 6. Reconnect the ac power cable to the wall outlet.

For information about attaching cables to the newly installed expansion module, see "Cabling" on page 2-4.

Power-On Checkout

Connect the ac power cable from the front panel to the power source. This powers on the Ethernet Desktop Switch.

When the Ethernet Desktop Switch is powered-on, it runs a power-on self-test (POST). Tests such as NMU MODE, TEST EEPROM, and TEST NIC are run. A display area on the control panel called the *message zone* indicates the particular test being run. If all the tests pass, a final result SELF TEST OK is displayed in the message zone. If a test detects an error during the POST, an error message is displayed. For information on error messages, see Chapter 6, "Troubleshooting and Service" on page 6-1.

After the POST completes, the control panel defaults to UTILIZATION status.

Cabling

Cable Tips

- Avoid stretching or bending cables.

- Avoid routing cables near potential sources of electromagnetic interference, such as motorized devices or fluorescent lights.

- Route cables away from aisles and walkways to avoid creating trip hazards. Use floor cable covers to secure cables if such routes cannot be avoided.

Attaching Cables to Ports

1. Refer to your network documentation to determine each cable's port or expansion slot assignment.

2. Using appropriate connectors, connect the cables to the ports or expansion slots.

3. Label each end of the cables so that it is easy to identify the device at the other end of the cable. At the end of the cable nearest the switch, place a label containing a unique identifier for the cable, the location and MAC address of the device at the other end of the cable, and the number of the port to which the device is attached.

4. If required, at the attached device's end of each cable, connect a cable from the device to any faceplate or other intermediate connection point, as appropriate.

5. At the end of the cable nearest the attached device, place a label containing a unique identifier for the cable, the location, and MAC address of the Ethernet Desktop Switch at the other end of the cable, and the number of the Ethernet Desktop Switch port to which the device is attached.

Connecting a Null Modem Cable to the Management Port

To access the Ethernet Desktop Switch, perform the following steps.

1. Connect one end of a null-modem cable (direct connection) to the Ethernet Desktop Switch management port labeled EIA 232.

2. Connect the other end to the communications port on your PC.

For information on setting up a session through the management port, see "Setting Up a Management Session" on page 4-1.

Chapter 3. Control Panel Management

The control panel is an effective management tool for monitoring and configuring the Ethernet Desktop Switch. It displays the following types of information:

- Port Utilization
- Port Statistics
- Port Configuration
- Switch Configuration

Control Panel

The control panel, shown in Figure 3-1, has the following features:

- Vacuum fluorescent display (VFD) – Displays port and switch information in an easy-to-read format.

- Control keys (Menu, Scroll, and Enter) – Allow you to select the port or switch information you want to display.

- Status and Activity Indicators – Display general switch status and activity.

Figure 3-1 shows the Ethernet Desktop Switch control panel.
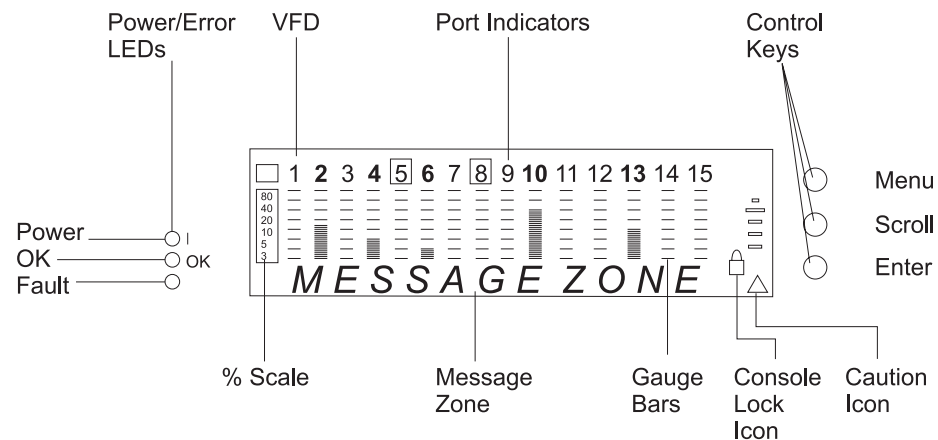
Figure 3-1. The Control Panel

VFD Display

The vacuum fluorescent display (VFD) displays the following port and system information:

%   The relative percentage of utilization or collision. Each port has its own % scale.

Port Numbers (1-14).
   Identify the number of the port, and with their brightness, indicate status information (see Table 3-1 on page 3-2). Port 15 represents the CPU.

Port Indicator Frame (□)
   Identifies which ports are disabled (see Table 3-1 on page 3-2).

Table 3-1. Port Information

Port Number	Frame	Indicates
Normal	Off	Port is available but link is down.
Bright	Off	Port is available and link is up.
Flashing	Off	Link is up and transmitting or receiving data.
Bright	On	The port is disabled by the administrator, or the Operation Status=No, or a network loop is detected.
Bright	Blinking	The port is auto-partitioned due to a broadcast storm alarm.
Off	Off	The expansion port is not installed (ports 13 and 14 only).

Message Zone
Displays test messages, menu items, and status information.

Gauge Bars
Display port-related information such as utilization, collisions, or configuration.

SNMP
Indicates that the switch is SNMP-manageable.

WWW
Indicates that the web management feature is enabled.

Lock Icon
Indicates that the control panel configuration is locked.

Caution Icon
Indicates a switch malfunction or a broadcast storm was detected.

Control Keys

The control keys are used to navigate through and make selections from the various menus.

Table 3-2 lists the function of each key.

Table 3-2. Control Keys

Key	Action
Menu	Return to the previous level
Scroll	Choose another topic within the same level
Enter	Go to the next level or view status

Power and Error Indicators

The Ethernet Desktop Switch has three LEDs that display switch power and error status. Refer to Figure 3-1 on page 3-1 for the location of the LEDs.

Table 3-3 on page 3-3 lists the LEDs and their meanings.

Table 3-3. Status LEDs and Their Meanings

LED	Position	State	Meaning
I (Power) (green)	Top	On	The Ethernet Desktop Switch power supply current is good.
		Off	The Ethernet Desktop Switch power supply current is bad or the power cord is not connected.
OK (green)	Middle	On	The Ethernet Desktop Switch is working correctly.
		Off	The Ethernet Desktop Switch is not working correctly.
Unlabeled (Fault) (amber)	Bottom	On	A power-on failure has occurred.
		Off	The Ethernet Desktop Switch is working correctly.
		Blinking	Diagnostics are in progress.

Menu Structure

Figure 3-2 on page 3-4 shows the control panel's menu structure.

Utilization ◄► Collision ◄► Statistics ◄► Port Status ◄► Port Config ◄► Unit Config ◄►

Statistics → Port x → RX Frames, RX Octets, Multicast RX, Broadcast RX, RX Align ERR, RX CRC ERR, RX Jabbers, RX Fragments, Oversize RX, Undersize RX, TX Frames, TX Octets, Multicast TX, Broadcast TX, Pkt Loss, RX Overrun

Port Status → Port x → (scrolling status) → All Ports → 10MB Ports, 100MB Ports, Half Duplex, Full Duplex, Enabled, Disabled, Cut Through, Store Fwd, Buff Alloc, Buff Remain

Port Config → Ports 1-11 → Auto Nego, Full Duplex, Half Duplex, Cut Through, Store Fwd, Enable, Disable, BS Enable, BS Disable, Buff Mode H, Buff Mode M, Buff Mode L

Ports 12-14, All → 10BASE-T, 100BASE-X, Auto Nego, Full Duplex, Half Duplex, Cut Through, Store Fwd, Enable, Disable, BS Enable, BS Disable, Buff Mode H, Buff Mode M, Buff Mode L

Unit Config → Long Frame → Enable, Disable

Console Lock → Enable

Network Conf → IP Address, Subnet Mask, Def Gateway, Slip Addr

Set Password → **** PSW

Sys Restart → Continue, Cancel

System Info → (scrolls)

EIA232 Config → Baud Rate

Figure   3-2. Main Structure

Control Panel Inactivity

If the control keys are not used for a period of 15 minutes, the port and switch configuration automatically locks. The message zone switches to displaying STATISTICS unless COLLISIONS were being displayed. In that case, COLLISIONS remain displayed. After the configuration is locked, the control panel password must be entered to change any configuration settings.

After an hour of inactivity, the VFD turns off. Pressing any control key reactivates the VFD.

Monitoring Network Utilization

The UTILIZATION menu displays the bandwidth used on each linked port. When the network traffic is greater than 40%, the gauge bars turn amber indicating heavy traffic. This additional traffic uses more system resources, reduces performance, and increases collisions. For information about reallocating system resources for specific ports to balance the load, see "Optimizing Network Performance" on page 3-9. The Ethernet Desktop Switch defaults to showing the UTILIZATION menu.

The utilization level corresponds to the speed and the duplex mode at which the port has been set. For example, for a port set at 10 Mbps, half-duplex, 100% utilization indicates 10 Mbps. If the same port was full-duplex, 100% utilization indicates 20 Mbps.

Table 3-4 lists 100% utilization for Ethernet Desktop Switch ports.

Table 3-4. Bandwidth

Bandwidth	100% Utilization
10 Mbps, half duplex	10 Mbps
10 Mbps, full duplex	20 Mbps
100 Mbps, half duplex	100 Mbps
100 Mbps, full duplex	200 Mbps

Monitoring Collision Level

The COLLISION menu displays the % of collisions on each linked port. The gauge bars indicate the percentage of collision, which is calculated as:

```
Collision Ratio (%) = (Number of packets collided / Number of packets
transmitted) * 100
```

Note: When COLLISION is displayed, the control panel does not revert to UTILIZATION even if the control panel has been inactive for more than 15 minutes.

Monitoring Detailed Port Statistics

The STATISTICS menu shows various statistic counters for each port. To display a port's statistics, select **STATISTICS**, scroll and select the port number. You can then scroll through the various statistics. Each counter displays the accumulated value since the last time the Ethernet Desktop Switch was powered on or restarted.

You can display the following statistics:

RX FRAMES
> The total number of frames received on the switch port. It includes unicast, broadcast, and multicast packets.

RX OCTETS
> The total number of octets of data received on the switch port.

MULTICAST-RX
> The total number of good packets received that were directed to a multicast address. Broadcast packets are not included.

BROADCAST-RX

The total number of broadcast packets received that were directed to a broadcast address. Multicast packets are not included.

RX-ALIGN ERR

The total number of packets received that had a length between 64 and 1518 octets (excluding framing bits, but including FCS octets), that have a bad FCS with a non-intregral number of octets.

RX-CRC ERR

The total number of packets received that had a length between 64 and 1518 octets (excluding framing bits, but including FCS octets), that have a bad FCS with an intregral number of octets.

RX-JABBERS

The total number of packets that were received that were longer than 1518 octets and had an FCS error or alignment error.

RX-FRAGMENTS

The total number of packets that were received that were less than 64 octets and had an FCS error or alignment error.

OVERSIZE RX

The total number of packets that were received that were longer than 1518 octets (including FCS octets but excluding framing bits) and were otherwise well formed. If Long Frame Handling is enabled, only packets longer than 1536 octets are counted.

UNDERSIZE-RX

The total number of packets that were received that were less than 64 octets (including FCS octets but excluding framing bits) and were otherwise well formed.

TX FRAMES

The total number of packets (including bad packets) that were transmitted successfully.

TX OCTETS

The total number of octets (including bad packets) that were transmitted successfully.

MULTICAST-TX

The total number of good packets transmitted that were directed to a multicast address. Broadcast packets are not included.

BROADCAST-TX

The total number of broadcast packets transmitted that were directed to a broadcast address. Multicast packets are not included.

PKT LOSS

The number of transmit frames discarded due to lack of resources or data errors.

RX OVERRUN

The total number of packets lost due to lack of switch resources during packet reception. Packets that overrun after entering the RX FIFO also can be counted as RX Discard if the port was not enabled in cut-through mode.

Monitoring Port Status

The PORT STATUS menu shows the current operating mode of an individual port or all ports. The Ethernet Desktop Switch allows a great deal of flexibility in the monitoring of various ports. For example, ports 1 to 11 can operate in half or full duplex and ports 12 to 14 can operate at 10 Mbps or 100 Mbps and in half- or full-duplex.

To check the status of all ports, select **PORT STATUS** And then scroll and select **ALL PORTS**. You can then scroll through the various port statuses. The gauge bars show which ports are running at the status displayed in the message zone. For example, if the message zone reads FULL DUPLEX, then a gauge bar would identify each full-duplex port.

To check the status of an individual port, select **PORT STATUS** And then scroll and select the port number. The various statuses for the selected port automatically cycle through the message zone.

Note: The port does not need to be linked to view statuses.

The following is a list of port statuses:

- 10MB PORTS
- 100MB PORTS
- HALF DUPLEX
- FULL DUPLEX
- ENABLED
- DISABLED
- CUT-THROUGH
- STORE-FWD
- BUFF ALLOC
- BUFF REMAIN

Configuring Ports

The PORT CONFIG menu allows you to configure individual ports or configure all ports at the same time. The ports must be configured to match the devices at the other end of the link. Settings such as speed and duplex mode must be identical. Asterisks (*) identify the current settings. All ports default to AUTO NEGO. When the AUTO NEGO mode is set, the highest speed and duplex mode supported by both ends are negotiated by the port and the device at the other end. If AUTO NEGO is not selected, the speed setting is not selectable on ports 1 to 11 (they must run at 10 Mbps), but you must set the appropriate duplex mode (full or half).

To configure all ports, select **PORT CONFIG**, select **ALL PORTS**, scroll through the settings to the one you want to configure, and press **Enter** until an asterisk (*) is displayed.

The following is a list of port configuration options (for all ports):

- All Ports (configure all ports)
- 10BASE-T (configure only 10BASE-T ports)
- 100BASE-X (configure only 100BASE-TX or FX ports)
- AUTO-NEGO
- FULL DUPLEX

- HALF DUPLEX
- CUT THROUGH
- STORE FWD
- ENABLE
- DISABLE
- BS ENABLE
- BS DISABLE
- BUFF MODE H
- BUFF MODE M
- BUFF MODE L

To configure an individual port, select **PORT CONFIG**, scroll through and select the port number you want to configure, scroll through the settings to the one you want to configure, and press **Enter** until an asterisk (*) is displayed.

The following is a list of port configuration options (for individual ports):

- PORT SEL
- AUTO-NEGO
- FULL DUPLEX
- HALF DUPLEX
- CUT THROUGH
- STORE FWD
- ENABLE
- DISABLE
- BS ENABLE
- BS DISABLE
- BUFF MODE H
- BUFF MODE M
- BUFF MODE L

Protecting Against Broadcast Storms

Broadcast storms congest the network with broadcast packets. An Ethernet Desktop Switch can detect a broadcast storm in less than one second.

When Broadcast Storm Protection is enabled (BS ENABLE), the switch starts monitoring the incoming packets at all the ports to see if any port is creating a broadcast storm. As soon as the broadcast storm is detected, the port creating the storm is disabled temporarily. The frame around the port indicator blinks in the control panel, the message zone displays BRDCST STORM, and the caution icon blinks. The port is continuously sampled against the broadcast storm threshold level. When the broadcast storm level falls below the broadcast storm threshold level, the port is reenabled.

The default value for broadcast storm protection is set to enable (BS ENABLE). The default value for broadcast storm threshold (Bcast Alarm Level) is MIDDLE.

For more information on broadcast storm detection and thresholds, see "Switch Port Control/Status" on page 4-14.

Optimizing Network Performance

All Ethernet Desktop Switch resources, including memory, are shared by all the ports. The network utilization varies from port to port depending on the devices attached to each port. The Ethernet Desktop Switch allows you to set relative priorities among the switch ports for the number of available transmit buffers. This is done by setting transmit the (TX) Buffer Mode for each port. The three buffer modes are High, Middle, and Low. Each mode distributes the TX buffer resources among the switch ports. To select a buffer mode , select PORT CONFIG, scroll and select the port number, scroll and select BUFF MODE H, BUFF MODE M, or BUFF MODE L. Then press **Enter** until an asterisk (*) is displayed in front of your selection.

Note: If a new mode is selected, you need to restart the Ethernet Desktop Switch to active the change. For restart information, see "System Restart" on page 3-10.

Unit Configuration

The UNIT CONFIG menu allows you to configure the Ethernet Desktop Switch. Table 3-5 lists the Ethernet Desktop Switch unit configuration options.

Table 3-5. Unit Configuration Settings

LONG FRAME	ENABLE/DISABLE
CONSOLE LOCK	ENABLE
NETWORK CONF	IP ADDRESS SUBNET MASK DEF GATEWAY
SET PASSWORD	* * * * PSW
SYS RESTART	CONTINUE
SYSTEM INFO	(scrolls)

Long Frame

The Long Frame option allows frames of up to 1536 bytes to pass through the switch without error. Frames can be this length if they are priority, VLAN, or tagged frames. If the bridged local area network contains these types of packets and the long frame handling is disabled, the frames are counted as oversized packets and discarded.

Disable is the default.

Console Lock

Control panel security is maintained by the console lock. The lock icon is an amber lock symbol on the lower right of the VFD. When the control panel is unlocked, it automatically locks again after 15 minutes of inactivity. You must unlock the control panel to access the port configuration and unit configuration menus. The default password is 0000.

To unlock the control panel, scroll to UNIT CONFIG and press **Enter**. Scroll to the first digit of the password and press **Enter**. Scroll to the second digit of the password and press **Enter**. Repeat until all digits are entered. The control panel is now unlocked.

To lock the control panel at any time, scroll to CONSOLE LOCK and press **Enter**. When ENABLE is displayed, press **Enter**. The lock icon appears and the console remains locked until the password is entered.

Network Configuration

To configure the network configuration of your Ethernet Desktop Switch, scroll to UNIT CONFIG and press **Enter**. Scroll to NETWORK CONF and press **Enter**. You then can scroll and select an item described in Table 3-6.

Note: To configure the addresses, you must scroll and press enter for *each* digit until all 12 digits are entered.

Table 3-6. Network Configuration

IP Address	The dotted decimal IP address assigned to the Ethernet Desktop Switch. The default address is 0.0.0.0.
Subnet Mask	The dotted decimal subnet mask assigned to the Ethernet Desktop Switch. The default subnet mask is 0.0.0.0.
Default Gateway	The dotted decimal IP address of the default router assigned to the Ethernet Desktop Switch. The default address is 0.0.0.0.
SLIP Addr	Reserved

Setting the Password

To change the control panel password, scroll to UNIT CONFIG and press **Enter**. Scroll to SET PASSWORD and press **Enter**. When the first asterisk (*) blinks, scroll to the first new digit and press **Enter**. Repeat until all four digits are entered. If you enter a password of all asterisks (****), the control panel lock is disabled.

Attention: Be sure to record your new password. If you forget the password, you must access the Ethernet Desktop Switch through a management session using the management port or Telnet to reconfigure another control panel password. For more information, see "User Authentication" on page 4-22.

System Restart

To restart the Ethernet Desktop Switch, scroll to UNIT CONFIG and press **Enter**. Scroll to SYS RESTART and press **Enter**. Scroll to CONTINUE and press **Enter**. This begins a warm restart. If you have entered SYS RESTART and you want to cancel the restart, scroll to CANCEL and press **Enter**, or press **Menu** to return to UNIT CONFIG.

System Information

The following system information is displayed:

- Size of DRAM (packet buffer).
- Size of SRAM (MAC address buffer).
- HW version.
- SW version.

To display the system information, scroll to UNIT CONFIG and press **Enter**. Scroll to SYS INFO and press **Enter**. The system information is displayed in a continuous cycle until You interrupt it by pressing any control key.

Chapter 4. Using the Management Interface

The Ethernet Desktop Switch incorporates a powerful management interface that can be used to manage switch ports using a terminal emulation program that supports VT100 emulation (referred to as *out of band*), or using Telnet over an IP connection (referred to as *in band*).

Note: Telnet is a component of most TCP/IP applications. You need to install TCP/IP before you can use this interface.

Setting Up a Management Session

You can set up a management session by connecting a direct, null modem cable between the EIA 232 management port on the Ethernet Desktop Switch and the communication port of your PC or terminal.

To connect a local terminal to the Ethernet Desktop Switch, perform the following steps:

Step 1. Install a terminal emulation application such as Windows Hyperterminal on your PC.

Step 2. Configure the terminal emulation application as follows:

Baud rate	9600
Parity	None
Data bits	8
Stop bits	1
Flow Control	Off

Step 3. If you are using Microsoft Windows terminal emulation, disable the "Use Function, Arrow, and Ctrl Keys for Windows" option in the Terminal Preferences menu under Settings.

Step 4. Connect the EIA 232 management port on the Ethernet Desktop Switch to your PC or DTE device using a null-modem cable or straight-through cable and null-modem adapter. The Ethernet Desktop Switch has a 9-pin, male connector. For more information, see "Connecting a Null Modem Cable to the Management Port" on page 2-4.

Step 5. Press **Enter** 2 or 3 times and the login panel to the management interface appears.

Setting up a Telnet Session

You can use any Telnet application that emulates VT100 to establish a Telnet session with the Ethernet Desktop Switch over a TCP/IP network. Only one Telnet session can be active at a time. Before you can start a Telnet session, you must configure IP parameters for the Ethernet Desktop Switch. This is done by using the Network Configuration Menu on the control panel or locally through the management port. To open a Telnet session, you must specify the IP address assigned to the Ethernet Desktop Switch. For information on how to specify an IP

address in your Telnet application, refer to your Telnet application documentation. When the connection is established, the management interface login panel is displayed, as shown in Figure 4-2 on page 4-3.

Note: Your Telnet connection must be on VLAN 1.

Navigating the Management Session

Selecting Help on any panel presents the Help Menu shown in Figure 4-1

```
                        IBM Ethernet Desktop Switch 8275-113
                                 - Help Menu -


        <Ctrl>-Q : Invoke the Help Menu
        <Ctrl>-R : Refresh Screen


        [Enter] : Confirm Input
        [Tab] : Goto next Tabstop

        <Ctrl>-Z : Goto next Tabstop
        <Ctrl>-W : Goto previous Tabstop
        <Ctrl>-S/<Ctrl>-A : Select/Toggle <FIELD> value
        [Esc] : Exit to Previous Menu




                 [ESC] : TO GO BACK
```

Figure   4-1. Help Menu

The Help menu lists the additional keystroke functions.

Panel Command Usage: The commands available on each panel are displayed at the bottom of the panel. Use the Tab key and Up/Down arrow keys to toggle through available commands. Use the Left and Right arrow keys to toggle through selections (indicated by "< >") within a command.

If a field on a panel is enclosed by brackets, [*field*], then you must type in the value for that field. If a field on a panel is enclosed by less-than and greater-than signs, <*field*>, then you can toggle through a list of values to be used for that field.

Beginning a Management Session

The login panel, as shown in Figure 4-2, appears when you establish a connection between your terminal and the Ethernet Desktop Switch.

Note: If the login panel does not appear, press **Enter** two or three times.

```
                     IBM Ethernet Desktop Switch 8275-113




        XXXXXXXXXX        XXXXXXXXXX        XXXXX     XXXXX
          XXXXX          XXXX    XXX        XXXXXX   XXXXXX
          XXXXX           XXXXXXXXXX        XXXXXXX XXXXXXX
          XXXXX          XXXX    XXX        XXX  XXXXX  XXX
        XXXXXXXXXX        XXXXXXXXXX        XXX    XXX    XXX



                    User Name:[            ]
                    Password :[            ]




   Use <Tab> key to move between User Name and Password, then press <Enter>
```

Figure   4-2. Login Panel

To begin a console session, perform the following steps:

1. Type your *user name*, if one has been configured. User names and passwords are **not** case sensitive. The Ethernet Desktop Switch comes with two default user names. One default is "ADMIN" and requires no password. The other default is "GUEST" and has a password of "GUEST." Press **Enter**.

2. Type in the password, if one has been configured. There is no default password for a user name. Press **Enter** to advance to the Main Menu.

Main Menu

On the Main Menu, shown in Figure 4-3, you can select an item by highlighting with the **Tab** key and then pressing **Enter**.

```
┌─────────────────────────────────────────────────────────────────────────┐
│                  IBM Ethernet Desktop Switch 8275-113                    │
│                             - Main Menu -                                │
│                                                                          │
│                                                                          │
│                          System Information                              │
│                                                                          │
│                          Management Setup                                │
│                                                                          │
│                          Device Control                                  │
│                                                                          │
│                          User Authentication                             │
│                                                                          │
│                          System Utility                                  │
│                                                                          │
│                                                                          │
│                                                                          │
│                                                                          │
│                     LOGOUT                    HELP                        │
│              Use <Tab> key to select the item, then press <Enter>        │
└─────────────────────────────────────────────────────────────────────────┘
```
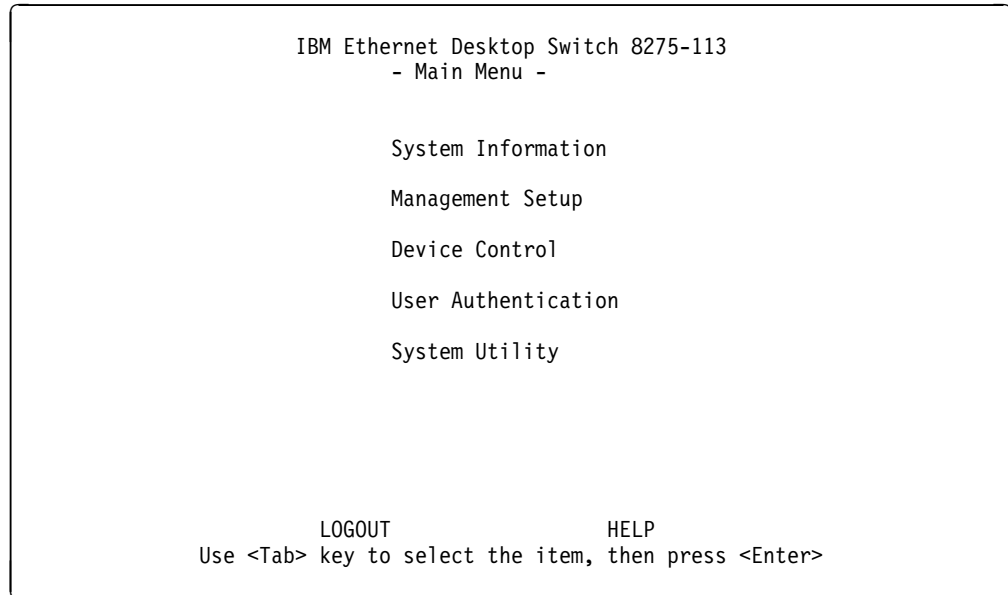
Figure 4-3. Main Menu

System Information
> Allows you to view general system information as well as specifying location and contact information.

Management Setup
> Allows you to view and specify management configurations.

Device Control
> Allows you to configure switch ports, permanent addresses, VLANs, and STP.

User Authorization
> Allows you to configure user names and passwords.

System Utility
> Allows you to configure software downloads, restart options, and Telnet session timeout intervals.

System Information

Selecting this option displays the System Information panel shown in Figure 4-4.

```
                        IBM Ethernet Desktop Switch 8275-113
                              - System Information Menu -


          System Description: 10/100 Mbps Ethernet Switch

              Product Version:            1
              BOOT ROM Version:           1.00
              System Software Version:    1.00
              Web-Pages Version:          1.00

          System Object ID:    1.3.6.1.4.1.2.6.148
          System Up Time:      0 day  0 hr 16 min  7 sec
          System Contact:      [                                          ]
          System Name:         [IBM Ethernet Desktop Switch - 8275        ]
          System Location:     [                                          ]
          System Manager:      Web and SNMP

          MIBs Supported:
              RFC1213, RFC1215, RFC1643, RFC1757, and proprietary MIB.


          SAVE               EXIT             MAIN MENU            HELP

```

Figure 4-4. System Information Menu

The System Information Menu provides information related to the version of the system software installed on the Ethernet Desktop Switch.

You can specify up to 48 alphanumeric characters each for the System Name, Contact, and Location to provide useful information to all users concerning the Ethernet Desktop Switch. The information on this panel should be kept current so that persons requiring assistance know whom to contact.

Note: You must select **Save** to save any changes you have made.

Management Setup

Selecting this option displays the Management Setup Menu shown in Figure 4-5.

```
                    IBM Ethernet Desktop Switch 8275-113
                          - Management Setup Menu -


                    Network Configuration

                    Serial Port Configuration

                    SNMP Community Setup

                    Trap Receiver

                    Management Capability Setup







          EXIT               MAIN MENU              HELP
             Use <Tab> key to select the item, then press <Enter>
```
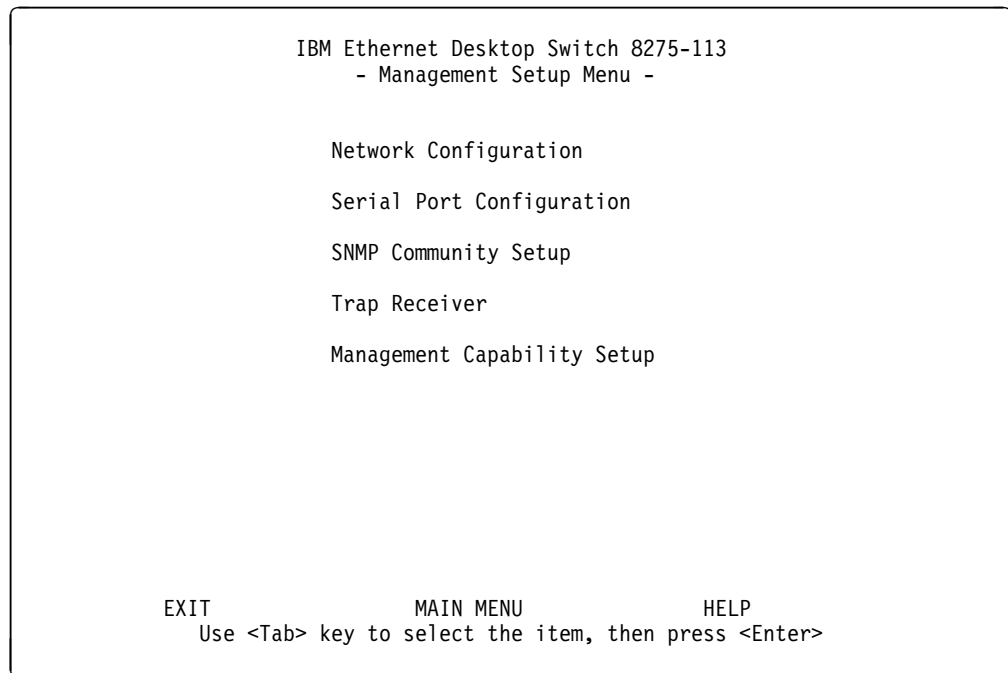
Figure   4-5. Management Setup Menu

Network Configuration
> Set IP address, Subnet Mask, and Default Gateway address.

Serial Port Configuration
> View management port configuration.

SNMP Community Setup
> Configure community names and access.

Trap Receiver
> Set up community trap addresses.

Management Capability Setup
> Enable or disable Web access.

Network Configuration

Selecting this option displays the Network Configuration Menu shown in Figure 4-6.

```
                    IBM Ethernet Desktop Switch 8275-113
                      - Network Configuration Menu -


          Network Interface  <1>

             Interface Type:   Ethernet

             MAC Address:      00-60-94-BF-01-84

          Configuration:          Current          New

             IP Address:       0.0.0.0          [9.67.210.250   ]

             Subnet Mask:      0.0.0.0          [255.255.255.240]

             Default Gateway:  0.0.0.0          [9.67.210.241   ]




          SAVE            EXIT            MAIN MENU            HELP
```

Figure 4-6. Network Configuration Menu

IP Address
> The dotted decimal address assigned to the Ethernet Desktop Switch

Subnet Mask
> The dotted decimal subnet mask assigned to the Ethernet Desktop Switch

Default Gateway
> The dotted decimal IP address of the default router assigned to the Ethernet Desktop Switch

The Ethernet Desktop Switch must be restarted before the IP address, subnet mask, and default gateway can take effect. To ensure the new information is correct, a "ping" should be done from another device connected to the Ethernet Desktop Switch to the Ethernet Desktop Switch.

Note: The switch does not respond to ping packages that are greater than 1484 bytes.

Serial Port Configuration

Selecting this option displays the Serial Port Configuration Menu shown in Figure 4-7.

```
                   IBM Ethernet Desktop Switch 8275-113
                    - Serial Port Configuration Menu -


       Operation Mode:  <CONSOLE    > Mode



          Baud Rate:       9600    Bps

          Character Size:  8       Bits

          Parity:          NO      Parity

          Stop Bits:       1       Bits




       EXIT                  MAIN MENU                 HELP
```

Figure 4-7. Serial Port Configuration Menu

Note: The information displayed on the Serial Port Configuration Menu is for information only and is not configurable.

SNMP Community Setup

Selecting this option displays the SNMP Community Menu shown in Figure 4-8.

```
┌─────────────────────────────────────────────────────────────────────┐
│                                                                       │
│                  IBM Ethernet Desktop Switch 8275-113                 │
│                      - SNMP Community Menu -                           │
│                                                                       │
│                                                                       │
│       Index     SNMP Community Name     Access Right   Status         │
│      ---------  ----------------------- -------------- ----------      │
│                                                                       │
│         1         public                  Read Only      Enable       │
│                                                                       │
│         2         private                 Read/Write     Enable       │
│                                                                       │
│         3                                                             │
│                                                                       │
│         4                                                             │
│                                                                       │
│         5                                                             │
│                                                                       │
│         6                                                             │
│                                                                       │
│      EXIT                    MAIN MENU                    HELP         │
│        Use <Tab> or arrow keys to select entry; <Enter> to EDIT       │
│                                                                       │
└─────────────────────────────────────────────────────────────────────┘
```

Figure 4-8. SNMP Community Menu

This menu lets you assign up to six SNMP communities.

Input Field	Values
SNMP Community Name	Name that identifies each SNMP community.
Access Right	Read Only or Read/Write
Status	Enable or Disable

Trap Receiver

Selecting this option displays the Trap Receiver Menu shown in Figure 4-9.

```
┌─────────────────────────────────────────────────────────────────────────┐
│                                                                           │
│                    IBM Ethernet Desktop Switch 8275-113                    │
│                          - Trap Receiver Menu -                            │
│                                                                           │
│                                                                           │
│      Index    Community Name                   IP Address      Status      │
│      -------- ------------------------------ --------------- --------      │
│                                                                           │
│      1        public                          9.67.240.111    Active       │
│                                                                           │
│      2                                        0.0.0.0         Inactive     │
│                                                                           │
│      3                                        0.0.0.0         Inactive     │
│                                                                           │
│      4                                        0.0.0.0         Inactive     │
│                                                                           │
│      5                                        0.0.0.0         Inactive     │
│                                                                           │
│      6                                        0.0.0.0         Inactive     │
│                                                                           │
│                                                                           │
│                                                                           │
│            EXIT                MAIN MENU                HELP               │
│             Use <Tab> or arrow keys to select index; <Enter> to EDIT      │
│                                                                           │
└─────────────────────────────────────────────────────────────────────────┘
```

Figure   4-9. Trap Receiver Menu

Traps are messages sent across a network to an SNMP Network Manager. These messages alert the manager to changes in the Ethernet Desktop Switch. You can set up six trap receivers.

Community Name

The SNMP community string of the remote network manager.

IP Address

The IP Address of the remote network manager station to which traps should be sent.

Status   A trap receiver's status can be either active or inactive. Trap receivers with active status will receive all traps sent by the switch.

Management Capability Setup

Selecting this option displays the Management Capability Setup Menu shown in Figure 4-10.

```
              IBM Ethernet Desktop Switch 8275-113
               - Management Capability Setup Menu -


         Web-Based Management Control   : <Enabled >

















         SAVE           EXIT         MAIN MENU         HELP
```
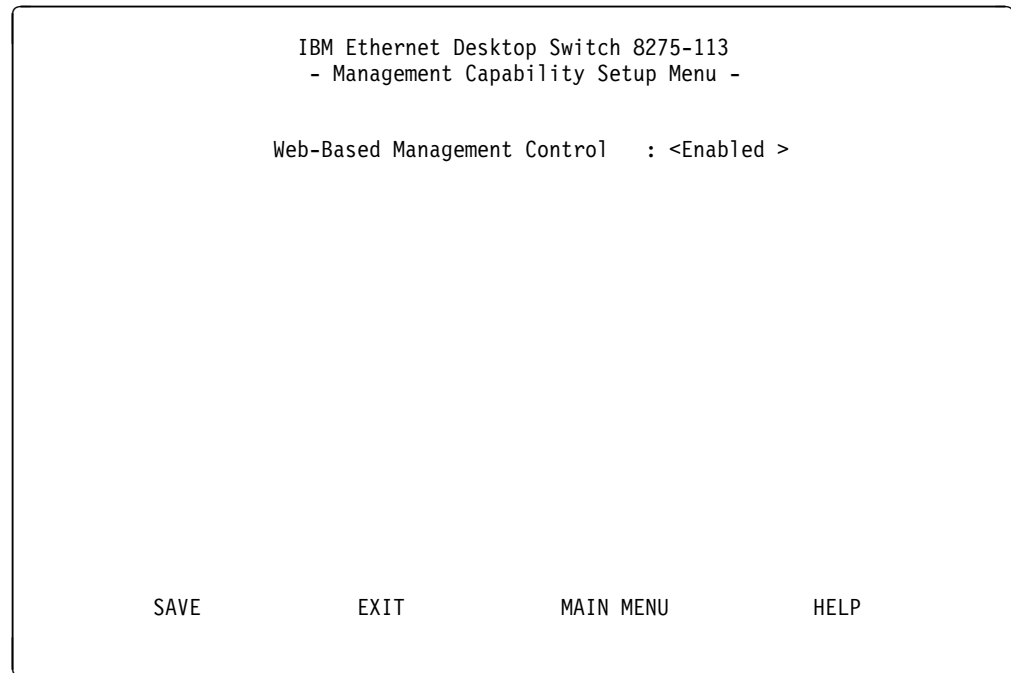
Figure   4-10. Management Capability Setup Menu

This menu lets you enable or disable access to the Ethernet Desktop Switch through a web browser.

Device Control

Selecting this option displays the Device Control Menu shown in Figure 4-11.

```
                    IBM Ethernet Desktop Switch 8275-113
                           - Device Control Menu -


              Switch Control/Status

              Switch Port Control/Status

              Permanent Address Configuration

              VLAN Control

              Spanning Tree Protocol VLAN Group Configuration

              Spanning Tree Protocol VLAN Port Configuration






          EXIT                    MAIN MENU                    HELP
             Use <Tab> key to select the item, then press <Enter>
```

Figure 4-11. Device Control Menu

This menu lets you view and configure the Ethernet Desktop Switch ports and virtual LANs (VLANs).

Switch Control/Status
Enable the monitoring port.

Switch Port Control/Status
Name and configure ports 1–14.

Permanent Address Configuration
Permanently assign a MAC address to a switch port.

VLAN Control
Assign the 14 switch ports to virtual LANs.

Spanning Tree Protocol VLAN Group Configuration
Name and configure the virtual LANs.

Spanning Tree Protocol VLAN Port Configuration
Name and configure the individual ports within a virtual LAN.

Switch Control/Status

Selecting this option displays the Switch Control/Status menu shown in Figure 4-12.

```
                     IBM Ethernet Desktop Switch 8275-113
                        - Switch Control/Status Menu -




             Machine Type:                         8275
             Model Number:                         113
             Switch Board Version:                 1
             Max. VLAN Group:                      4  groups
             MAC Address Learning Table Size:      512  Kbytes
             Max. Number of Permanent Addresses:   16
             Number of Learned Addresses:          10
             Long Frame Handling:                  <Disable>
             Node Monitoring:                      <Disable>
             Monitoring Port ID:                   [1 ]




        SAVE            EXIT         MAIN MENU           HELP
```

Figure 4-12. Switch Control/Status Menu

This menu displays general information about the switch.

Long Frame Handling

> Allows frames of up to 1536 bytes to pass through the switch without error. Frames can be this length if they are priority, VLAN, or tagged frames. If the bridged local area network contains these types of packets and long frame handling is disabled, the frames are counted as oversized packets and discarded. If long frame handling is enabled, the packet size statistic of 1024–1518 octets is increased to 1024&dash1536 octets so long frames are included in this count.

Node Monitoring

> Allows you to monitor all packets sent to the specified MAC address. You should enable node monitoring to enable frames from monitored permanent MAC addresses to be copied to the monitoring port. For information about permanent MAC addresses, see "Permanent Address Configuration" on page 4-15. Disable is the default.

> **Note:** Packets that are sent *from* the permanent MAC address (SA) are not copied to the monitoring node, only those packets sent *to* the permanent MAC address (DA) are copied and sent to the monitoring node.

Monitoring Port ID

The port ID to which monitored permanent MAC address frames are sent. This is the port to which you should attach your network analyzer to enable you to capture the monitored frames. Port 1 is the default.

Note: Select **Save** before you exit this menu to save any changes you have made.

Switch Port Control/Status

Selecting this option displays the Switch Port Control/Status Menu shown in Figure 4-13.

```
                    IBM Ethernet Desktop Switch 8275-113
                      - Switch Port Control/Status Menu -

Port Number:  [ 1]                      Port Name:  [        ]

           Port Status                          Port State
-----------------------------------    -----------------------------------------
Link:               Down
Operation Status:   Yes                Admin. State:                <Enable >
Auto Partition:     Not Partitioned    Broadcasting Storm Detect:   <Enable >
Auto Negotiation:   Enable             Bcast Alarm Level:              <Middle>
Line Speed:         10  Mbps           Bcast Alarm Action: <Auto Partition   >
Duplex Mode:        Half               Speed and Duplex:   <Auto Negotiated   >

                                       Cut Through:                 <Disable>
                                       Transmit Pacing:             <Disable >
Tx Buffer Budget:   8500   buffers     Tx Buffer Budget:            <Middle >
Tx Buffer Residue:  8500   buffers

Interface Type:     10, 10/100 Mbps TP
Capability:         10 Mbps Half/Full Duplex Auto-Negotiation

  PREV PORT      NEXT PORT       SAVE       EXIT      MAIN MENU      HELP
```

Figure   4-13. Switch Port Control/Status Menu

This menu lets you define the operation of individual switched ports.

Port Number

Specifies the port number (1–15) to be displayed. switch port. (Port 15 is the internal CPU port used for network management and is non-configurable.)

Port Name

Specifies the name of the switch port. You can specify up to eight characters for a port name.

Admin State

Allows you to enable or disable a switch port. If you disable a port, the frame indicator around the port number on the control panel is lit and the port is partitioned.

Broadcasting Storm Detect

Allows you to enable or disable the ability to detect broadcast storms. Enable is the default.

Bcast Alarm Level

Allows you to set the relative threshold before a broadcast storm alarm is generated. You can specify High (30%), Middle (20%), or Low (10%). The percentage is calculated as:

`(broadcast packets/total packets)*utilization.`

Middle is the default.

Bcast Alarm Action

Allows you to specify the action to be taken in the event of a broadcast storm alarm. You can specify:

Auto Partition–partitions the port. The port is sampled continuously until the broadcast storm has subsided below the alarm level. The port is then reenabled. Auto Partition is the default.

Trap Auto Partition–sends a trap message to the trap receiver and partitions the port until the broadcast storm subsides and the port is reenabled.

Send Trap–only sends a trap message to the trap receiver. The switch port is not partitioned.

No Action–no action is taken when an alarm level is reached.

Speed and Duplex

Allows you to specify the speed and mode of the switched port. You can specify Auto-Negotiation, 10 Mbps Full Duplex, 10 Mbps Half Duplex, 100 Mbps Full Duplex, or 100 Mbps Half Duplex. The selections are appropriate for the switch port and the device linking to the port. Auto-Negotiation is the default.

Cut Through

Allows you to enable cut-through mode. In cut-through mode, all frames are switched to the correct port as soon as the MAC address is read and processed. Errors are forwarded without checking. If cut-through mode is disabled, store and forward mode is active.

Transmit Pacing

Allows the switch to sense high network traffic and insert an extra amount of delay between transmission attempts. This reduces collision rates, reduces the number of retransmissions, reduces CPU utilization, and reduces network traffic.

Tx Buffer Budget

Allows you to set relative priorities among the switch ports for the number of available transmit buffers. You can specify High, Middle, or Low. For example, you might want a server that is connected to one switch port to have a higher buffer priority than a workstation that is connected to another switch port. Middle is the default setting for all ports.

Permanent Address Configuration

Selecting this option displays the Permanent Address Configuration Menu shown in Figure 4-14 on page 4-16.

```
                    IBM Ethernet Desktop Switch 8275-113
                   - Permanent Address Configuration Menu -

   Index  MAC Address         Port ID  Monitored  Violation  Status
   -----  ------------------   -------  ---------  ---------  ----------
     1

     2

     3

     4

     5

     6

     7

     8


       PREV PAGE       NEXT PAGE       EXIT       MAIN MENU      HELP
         Use <Tab> or arrow keys to select MAC address; <Enter> to EDIT
```

Figure 4-14. Permanent Address Configuration Menu

Note: All MAC addresses must be specified in canonical format (LSB).

This menu lets you define up to 16 permanent MAC addresses. If a permanent address is assigned to a switch port and the port's status is **active**, then that MAC address can be connected only through that assigned switch port. If the device is connected to a port other than the assigned port, then a violation occurs and the packets are not sent.

When the monitored status of a permanent MAC address is set to Yes, a copy of all frames that have a destination address of the permanent MAC address is sent to the monitor port.

Note: You must have a network analyzer connected to the monitor port to capture the frames.

To add a permanent MAC address:

1. Use the Tab key to select an index number.

2. Press **Enter** to edit.

3. Define the MAC address, Port ID, Monitored, and Status.

4. Select **ADD**.

5. Select **EXIT**.

6. Repeat this Steps 1 through 4 for each MAC address.

   Note: There are 2 pages of MAC addresses. At least one MAC address must be entered in the first page before the second page can be entered. Use the Next Page command to enter the second page.

To delete a MAC address:

1. Highlight the index number.

2. Press **Enter** to edit.

3. Press **Delete** and the MAC address is deleted.

4. Select **EXIT**.

VLAN Control

Selecting this option displays the VLAN Control Menu shown in Figure 4-15.

```
                IBM Ethernet Desktop Switch 8275-113
                      - VLAN Control Menu -

         Port Number   VLAN 1   VLAN 2   VLAN 3   VLAN 4
         -----------   ------   ------   ------   ------
              1         <X>      < >      < >      < >
              2         <X>      < >      < >      < >
              3         <X>      < >      < >      < >
              4         <X>      < >      < >      < >
              5         <X>      < >      < >      < >
              6         <X>      < >      < >      < >
              7         <X>      < >      < >      < >
              8         <X>      < >      < >      < >
              9         <X>      < >      < >      < >
             10         <X>      < >      < >      < >
             11         <X>      < >      < >      < >
             12         <X>      < >      < >      < >
             13         <X>      < >      < >      < >
             14         <X>      < >      < >      < >
             15         <*>      < >      < >      < >


       EXIT                  MAIN MENU                   HELP
            Use <Tab> or arrow keys to select; <Enter> to set
```

Figure 4-15. VLAN Control Menu

This menu lets you configure up to four VLANs on the Ethernet Desktop Switch. You can group the ports into virtual logical workgroups. VLAN devices can communicate only with other devices on the same VLAN.

To group ports into logical workgroups, select a port under a VLAN and press **Enter**. A switch port can belong to only one VLAN at a time.

Note: In order to make a Telnet (in-band) or a Web management connection to the Ethernet Desktop Switch, that port must be in VLAN 1. The port in which you are conducting SNMP management must remain in VLAN 1.

Spanning Tree Protocol VLAN Group Configuration

Selecting this option displays the Spanning Tree Protocol VLAN Group
Control/Status Menu shown in Figure 4-16.

```
                         IBM Ethernet Desktop Switch 8275-113
                    - Spanning Tree Protocol VLAN Group Control/Status Menu -

        VLAN ID:  [1]              VLAN Name:  [                      ]
    --------------------------------------------------------------------------------
        STP Specification:                    IEEE 802.1D
        STP Base MAC Address:                 00-60-94-BF-01-84
        STP Topology Change Count:            2          (Can be reset by CLRCNT)
        STP Time Since Topology Changed:      0 day  0 hr 33 min 33 sec
        STP Designated Root:                  8000:002035931BB0
        STP Root Port:                        1
        STP Root Cost:                        100
        STP Max. Age:                         2000  (1/100 seconds)
        STP Hello Time:                       200   (1/100 seconds)
        STP Forward Delay:                    1500  (1/100 seconds)
        STP Hold Time:                        100   (1/100 seconds)
        Group STP Operation Mode:             <Enable >
        STP Bridge Priority:                  [32768](0..65535)
        STP Bridge Max. Age:                  [20] (6..40)seconds
        STP Bridge Hello Time:                [ 2] (1..10)seconds
        STP Bridge Forward Delay:             [15] (4..30)seconds
        Role of STP Bridge:                   Leaf Bridge
      PREV VLAN    NEXT VLAN    CLRCNT    SAVE    EXIT     MAIN MENU     HELP
```

Figure 4-16. Spanning Tree Protocol VLAN Group Control/Status Menu

This menu allows you to configure and manage an STP system for each VLAN on
the Ethernet Desktop Switch. The Ethernet Desktop Switch has a separate STP
system for each VLAN that you have enabled. However, there is only one MAC
address assigned to the switch and it belongs to VLAN 1. Each VLAN has its own
root bridge, root ports, and BPDUs.

Table 4-1. Spanning Tree Protocol Group Port Configuration

VLAN ID	Allows you to select a VLAN ID (1–4).
VLAN Name	Allows you to specify a VLAN name of up to 16 characters.
STP Topology Change Count	Shows the number of network topology changes as a group that have occurred in the current VLAN. This field can be reset by using CLRCNT.
STP Time Since Topology Change	Shows the time since the last topology change was detected (read only).
STP Designated Root	Shows the bridge identifier of the designated root bridge (read only).
STP Root Port	Shows the root port of the switch (read only).
STP Root Cost	Shows the path cost from the switch to the root bridge (read only).
STP Hold Time	Shows the shortest time interval allowed between the transmission of BPDUs (read only).
Group STP Operation Mode	Allows you to enable or disable the VLAN as a group.
STP Bridge Priority	Allows you to specify the priority of the switch. By changing the priority of the switch, you can make it more or less likely to become the root bridge. The lower the number, the more likely the bridge will become the root bridge. The range is 0–65 535. The default is 32 768.
STP Bridge Max. Age	Allows you to specify the time in seconds that the switch waits before trying to reconfigure the network when it is the root bridge. If the switch has not received a BPDU within the time specified in this field, it tries to reconfigure the STP topology. The range is 6–40 seconds. The default is 20 seconds.
STP Bridge Hello Time	Allows you to specify the time delay in seconds between the transmission of BPDUs from the switch when it is the root bridge. The range is 1–10 seconds. The default is 2 seconds.
STP Bridge Forward Delay	Allows you to specify the time in seconds that the ports on the switch spend in the learning and listening and learning states when the switch is in the root bridge. The range is 4–30 seconds. The default setting is 15 seconds.

Spanning Tree Protocol VLAN Port Configuration

Selecting this option displays the Spanning Tree Protocol VLAN Port Control/Status Menu shown in Figure 4-17.

```
                    IBM Ethernet Desktop Switch 8275-113
              - Spanning Tree Protocol VLAN Port Control/Status Menu -

                 VLAN ID:  [1]        Port ID:   1
    -------------------------------------------------------------------------------
       STP Port ID                       81:01
       STP Port Designated Root:         8000:002035931BB0
       STP Port Designated Cost:         0
       STP Port Designated Bridge:       8000:002035931BB0
       STP Port Designated Port:         80:01
       STP Port Forward Transitions Count: 1          (Can be reset by CLRCNT)
       STP Port State:                   Forwarding
       Role of STP Port:                 Root Port

       STP Port Enable Status:           <Enable >
       Port Join STP:                    <Enable >
       STP Port Priority:                [129](0..255)
       STP Port Path Cost:               [  100](1..65535)




      PREV VLAN   NEXT VLAN   PREV PORT   NEXT PORT   CLRCNT  SAVE  EXIT   MAIN MENU
```

Figure   4-17. Spanning Tree Protocol VLAN Port Control/Status Menu
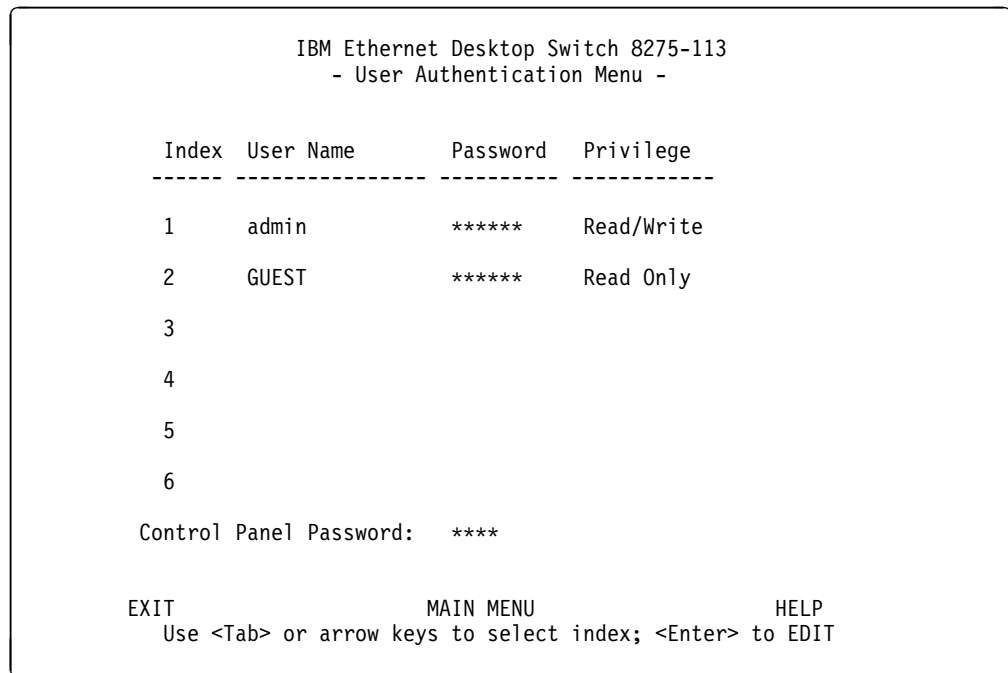
This menu allows you to configure and manage the STP parameters of each port on the Ethernet Desktop Switch.

Table 4-2. Spanning Tree Protocol VLAN Port Configuration

VLAN ID	Allows you to specify a VLAN ID (1–4).
Port ID	Scroll to the next port ID by selecting NEXT PORT
STP Port ID	Shows the ID of the designated bridge port for the current port's VLAN (read only).
STP Port Designated Root	Shows the bridge identifier of the root bridge (read only).
STP Port Designated Cost	Shows the path cost from the root bridge to the designated bridge port for the current port's VLAN (read only).
STP Port Designated Bridge	Shows the bridge identifier of the designated bridge for the current port's VLAN (read only).
STP Port Designated Port	Shows the ID of the designated bridge port for the current port's VLAN (read only).
STP Port Forward Transitions Count	Shows the number of times that the current port has changed from the learning state to the forwarding state (read only).
STP Port Enable Status	Allows you to enable or disable the port.
Status Port Join STP	Allows you to enable or disable the port as part of a VLAN group.
STP Port Priority	Allows you to specify the priority of the port. By changing the priority of the port, you can make it more or less likely to become the root port. The lower the number, the more likely it is that the port will be the root port. The range is 0–255. The default is 129.
STP Port Path Cost	Allows you to specify the path cost of the port. The default port costs are: 100 for 10-Mbps ports (ports 1–11) 10 for 10/100-Mbps ports (ports 12–14)

User Authentication

Selecting this option displays the User Authentication Menu shown in Figure 4-18.

```
                IBM Ethernet Desktop Switch 8275-113
                    - User Authentication Menu -


        Index  User Name         Password   Privilege
        ------ ----------------  ---------- ------------

          1      admin           ******     Read/Write

          2      GUEST           ******     Read Only

          3

          4

          5

          6

        Control Panel Password:   ****


        EXIT                    MAIN MENU                   HELP
           Use <Tab> or arrow keys to select index; <Enter> to EDIT
```

Figure   4-18. User Authentication Menu

This menu lets you define up to six different users. The passwords are the same for both the management session and the web. You can also change the password for the control panel.

Note: User Names and Passwords are not case sensitive. To define a user, perform the following steps:

1. Select an Index number and press **Enter**.

2. Enter a user name of up to 12 characters.

3. Enter a password of up to 6 alphanumeric characters.

4. Specify Read Only or Read/Write privilege, and press **Enter**.

5. Select **ADD**.

6. Select **EXIT**.

Note: The control panel password can be only four digits (0–9).

System Utility

Selecting this option displays the System Utility Menu shown in Figure 4-19.

```
┌──────────────────────────────────────────────────────────────────────┐
│                                                                        │
│                    IBM Ethernet Desktop Switch 8275-113                │
│                          - System Utility Menu -                       │
│                                                                        │
│                                                                        │
│                          System Download                               │
│                                                                        │
│                          System Restart                                │
│                                                                        │
│                          Factory Reset                                 │
│                                                                        │
│                          Download Port Setting                         │
│                                                                        │
│                          Login Timeout Interval                        │
│                                                                        │
│                                                                        │
│                                                                        │
│                                                                        │
│                                                                        │
│            EXIT                MAIN MENU                HELP            │
│            Use <Tab> key to select the item, then press <Enter>        │
│                                                                        │
└──────────────────────────────────────────────────────────────────────┘
```
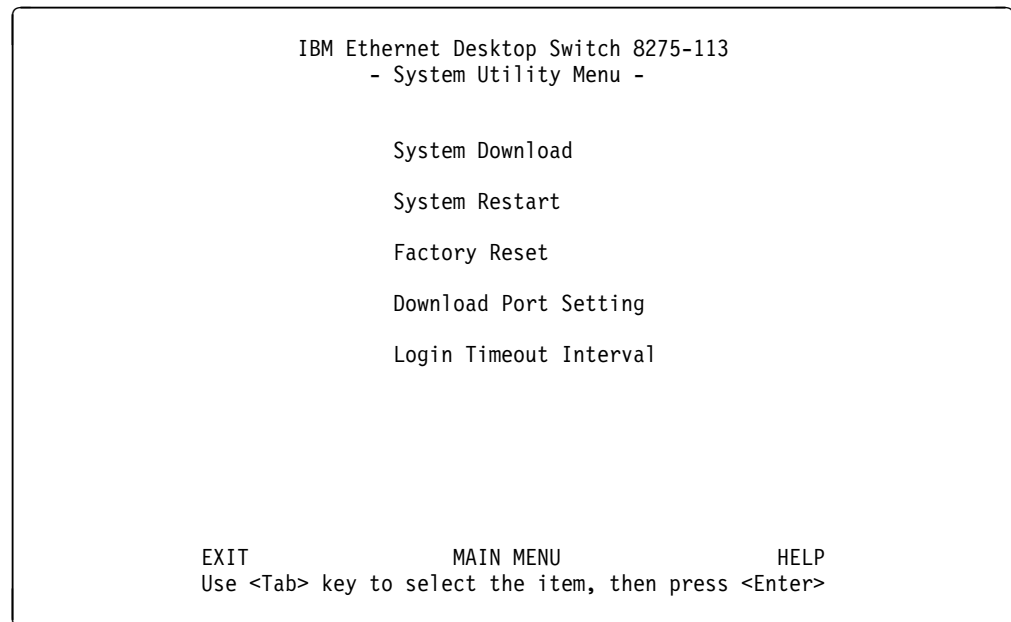
Figure 4-19. System Utility Menu

This menu lets you download microcode, restart the switch, reset the switch to the factory defaults, specify which port will receive the downloaded microcode, and specify the inactivity time for Telnet logouts.

Table 4-3. System Utility

System Download	Configure type of download
System Restart	Restart the switch
Factory Reset	Reset to factory configuration
Download Port Setting	Specify the port that will receive the software download
Login Timeout Interval	Specify the inactivity time for Telnet logouts.

System Download

Selecting this option displays the System Download Menu shown in Figure 4-20.

```
                    IBM Ethernet Desktop Switch 8275-113
                          - System Download Menu -


        ( ) Bootp Request

        File Download Request:

          TFTP Server IP Address:        [2.13.76.132    ]



            ( ) Boot ROM Code Download
                File Name: [                                    ]

            ( ) Web-Pages Database Information Download
                File Name: [                                    ]

            ( ) System Software Download
                File Name: [                                    ]


            SAVE              EXIT          MAIN MENU         HELP
```

Figure 4-20. System Download Menu

This menu lets you perform a BootP request and a TFTP code download. To
request an IP address, subnet mask, and a default gateway address from your
BootP server perform the following steps:

1. Select **BootP Request**

   Note: Not all DHCP servers support basic BootP services.

2. Perform a cold restart on the system. For information on restarting your
   system, see "System Restart" on page 4-25.

You should perform a code download only to update existing software or if existing
code has become corrupted. Before performing a system download, make sure
that you know the IP address of your TFTP server and the location of the files on
the server.

Note: Use the following naming convention:

- Boot ROM Code download - 8275V*xxx*.BT

- Web Pages Database Information Download - 8275V*xxx*.WEB

- System Software Download - 8275V*xxx*.RT

where, *xxx* is the version number.

To perform a TFTP code download, do the following steps:

1. Enter the IP address of the TFTP server.

2. Select the downloads that you want to perform.

3. Enter the path and filename for each of the downloads you have selected (for example, C:\microcode\8275V101.BT).

4. Save the configuration.

5. Set the download port (see "Download Port Setting" on page 4-27).

6. Restart the system (see "System Restart").

System Restart

Selecting this option displays the System Restart Menu shown in Figure 4-21.

```
                     IBM Ethernet Desktop Switch 8275-113
                          - System Restart Menu -




                     System Restart:  <Cold Start>










          EXECUTE          EXIT          MAIN MENU          HELP

```
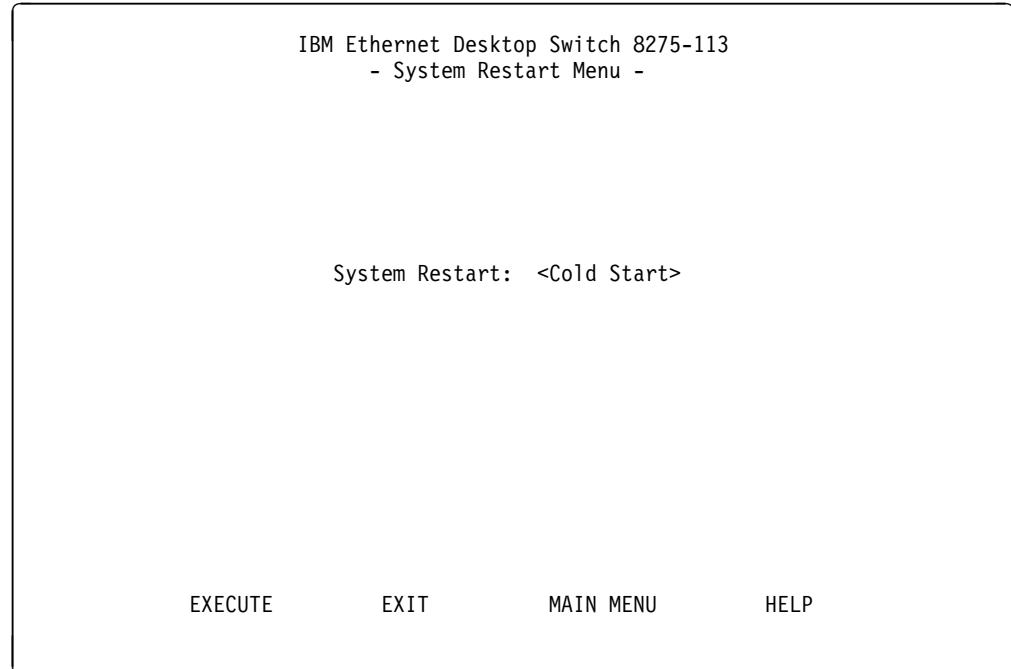
Figure 4-21. System Restart Menu

This menu lets you perform a *cold* or *warm* restart.

You can restart the system at any time without losing configuration settings, except if you do a factory reset. For most restarts, a warm restart is sufficient. A cold restart is needed when you perform a BootP request or code download.

Factory Reset

Selecting this option displays the Factory Reset Menu shown in Figure 4-22.

```
                  IBM Ethernet Desktop Switch 8275-113
                       - Factory Reset Menu -


       Network Configurations: <Not Reset              >

           Factory Default:
               IP Address:      0.0.0.0
               Subnet Mask:     0.0.0.0
               Default Gateway: 0.0.0.0

       User Authentication Configuration:  <Not Reset            >

           Factory Default:
                               User Name    Password  Privilege
                               ------------ --------  ----------
           System Console :    admin                  Read/Write

           Control Panel  :    ------------ 0000      Read/Write



          EXECUTE          EXIT         MAIN MENU          HELP

```

Figure   4-22. Factory Reset Menu

This menu lets you return all switch settings to the original default settings.

When you execute a factory reset, all of your custom settings are overwritten. The Ethernet Desktop Switch can then be restarted warm or cold. For most restarts, warm restart is sufficient.
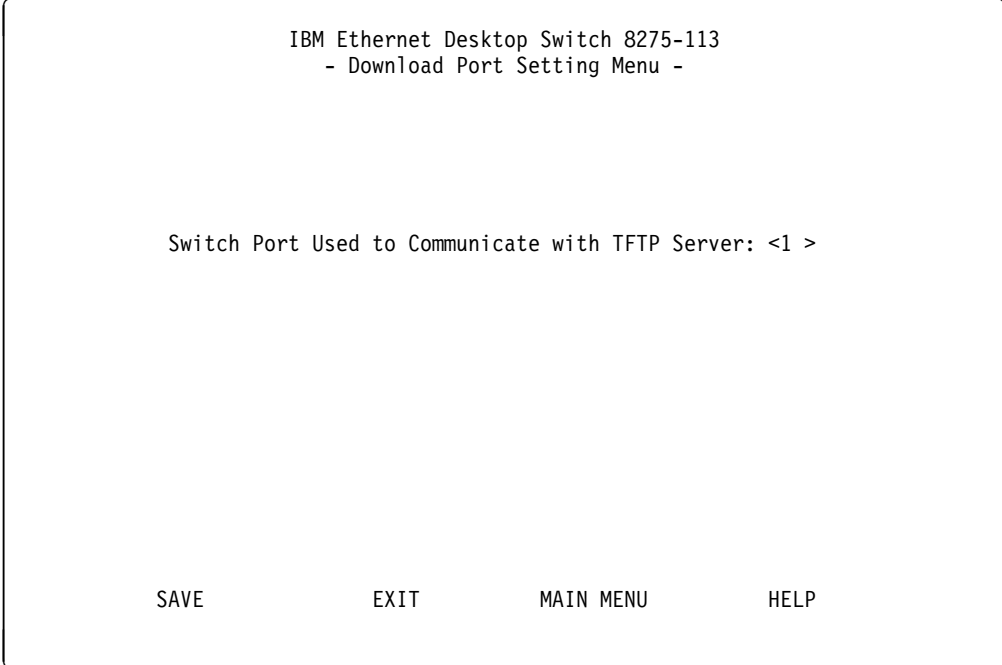
To perform a factory reset, do the following steps :

1. Select how you want your network configuration processed during a factory reset:

   - *Not Reset*—Your current network configuration is saved.

   - *Reset from BootP*—You request a new network configuration from your BootP server.

   - *Reset to Factory default*—Your current network configuration is reset to factory defaults.

2. Select how you want to have your user authentication configuration processed during a factory reset:

   - *Not Reset*—Your current user authentication configuration is saved.

   - *Reset to Factory default*—Your current user authentication configuration returns to factory defaults.

3. Select **Execute** and press **Enter**.

   The switch performs a cold restart and returns your custom configuration to factory default values.

Download Port Setting

Selecting this option displays the Download Port Setting Menu shown in Figure 4-23.

```
                    IBM Ethernet Desktop Switch 8275-113
                       - Download Port Setting Menu -




          Switch Port Used to Communicate with TFTP Server: <1 >









          SAVE              EXIT          MAIN MENU          HELP

```

Figure   4-23. Download Port Setting Menu

This menu lets you specify which port will receive downloaded system software. The download port must be set before you can perform a download. The download port is the switch port that is connected to your TFTP server.

Login Timeout Interval

Selecting this option displays the Login Timeout Interval menu shown in
Figure 4-24.

```
┌─────────────────────────────────────────────────────────────────────┐
│                                                                       │
│                  IBM Ethernet Desktop Switch 8275-113                 │
│                       - Login Timeout Interval -                      │
│                                                                       │
│                                                                       │
│                                                                       │
│          Telnet Session Auto Logout Interval: <5 > Minutes (0..60)    │
│                                                                       │
│                                                                       │
│                                                                       │
│                                                                       │
│                                                                       │
│          SAVE            EXIT         MAIN MENU        HELP            │
│                                                                       │
└─────────────────────────────────────────────────────────────────────┘
```
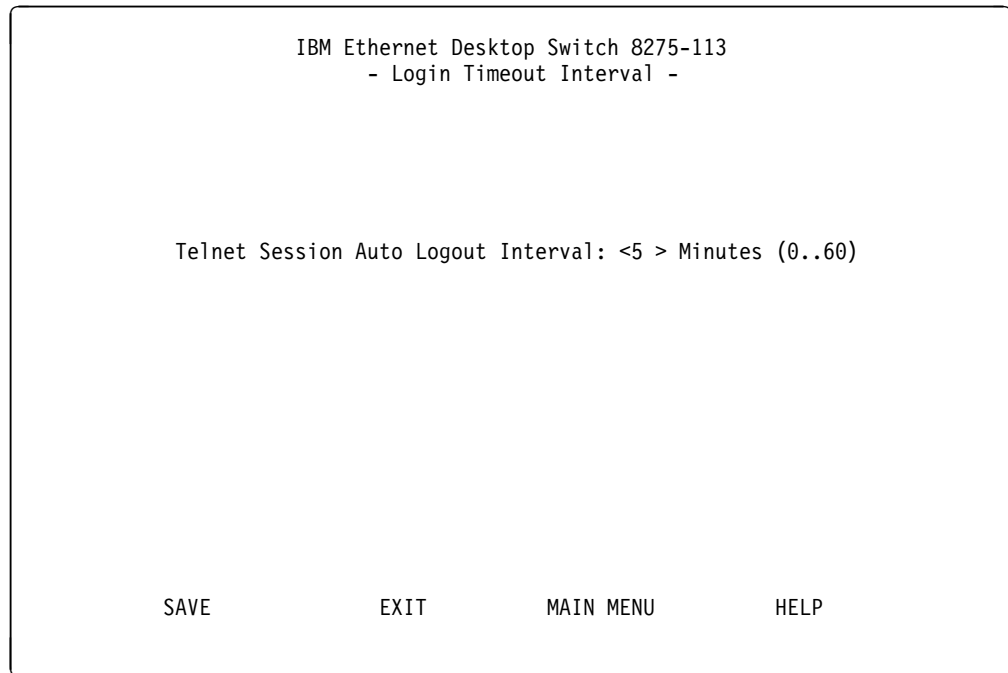
Figure 4-24. Login Timeout Interval Menu

This menu lets your select the time after which an established Telnet session is
automatically logged out if inactive. The range is 0–60 minutes. The default is 5
minutes. If you specify zero, the session remains logged in regardless of how long
it is inactive.

Chapter 5. Using Web Management

Using Web Browser Management

You can use your web browser to configure the Ethernet Desktop Switch. Enter the IP address or host name in your web browser's address field. You are prompted for a user name and password.

Notes:

1. The Ethernet Desktop Switch comes with two default user names. One default is "ADMIN" and requires no password. The other default is "GUEST" and has a password of GUEST. (User names and passwords are not case sensitive.)

2. Your web management connection must be on VLAN 1.

Basic Functions

Select **Basic** to view the following list of basic functions:

- Home Page–returns you to the Ethernet Desktop Switch home page.
- System Information–provides version information and contacts.
- Networking Information–provides IP configuration information.
- Serial Port Information–shows management port configuration information.

Home Page

Selecting this option returns you to the IBM Ethernet Desktop Switch 8275-113 home page shown in Figure 5-1 on page 5-2. This panel also contains a link to the IBM home page (www.ibm.com).

Figure 5-1. The IBM Ethernet Desktop Switch 8275-113 Home Page

Trap Frame Panel

The Trap Frame panel is displayed when the web browser connects to the Ethernet Desktop Switch.

This panel receives all traps from the switch except for coldstart, Hello, and RMON traps. The maximum number of traps displayed depends on system resources and capacity.

Table 5-1. Trap Frame Information

Display	Lets you manage how you want to display traps:
	• Pause - Stops displaying any new traps.
	• Continue - Resumes displaying new traps.
	• Clear - Clears the traps displayed on the Trap Frame panel.
Buffer	Lets you control the traps in the buffer:
	• Delete - Deletes all the traps in the buffer.
	• Dump - Dumps all the traps in the buffer to the Trap Frame panel.

Switch Graphic

A graphic picture of the Ethernet Desktop Switch displayed in the top section of the each of the web pages is a Java applet that allows you to operate the Ethernet Desktop Switch. The control panel keys work the same as if you were at the switch itself. Use your left mousebutton to "press" the keys. For information on the menu structure you can access, see "Menu Structure" on page 3-3.

Note: You need to enter the control panel password to access port and unit configuration menus.

If you click with the right mousebutton on any port, a menu is presented. You can use your left mousebutton to make the following port selections:

Table 5-2. Port Information

INFO	Displays the Switch Port Control/Status panel for the selected port (see Figure 5-7 on page 5-8).
Statistics	Displays the RMON Information Statistics Group panel for the selected port (see Figure 5-16 on page 5-21).
Control	Lets you enable or disable ports: • ADMIN Enable - enables the selected port • ADMIN Disable - disables the selected port

The status of the individual ports is shown in the switch picture. Figure 5-2 shows how port status is graphically displayed for each port.

Orange = Auto-partitioned
Black = Not autopartitioned

Gray = Enabled
White = Disabled

Link Up
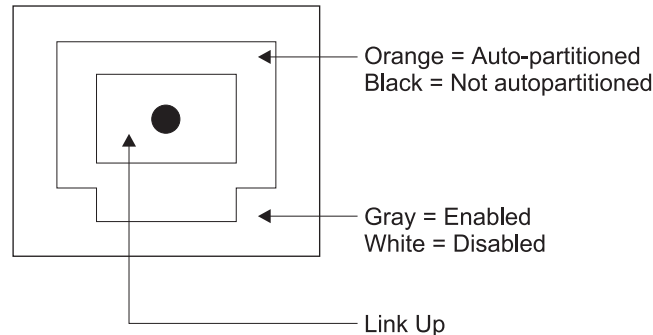
Figure 5-2. Switch Port Status Legend

If you click with the right mousebutton on the unit itself, a menu is presented. You can use your left mousebutton to make the following unit selections:

Table 5-3. Unit Information

INFO	Displays the Switch Control/Status panel for the unit. (see Figure 5-6 on page 5-7).
Trap	Displays the Trap Frame panel.

System Information

Selecting the System Info option displays the System Information panel shown in Figure 5-3.
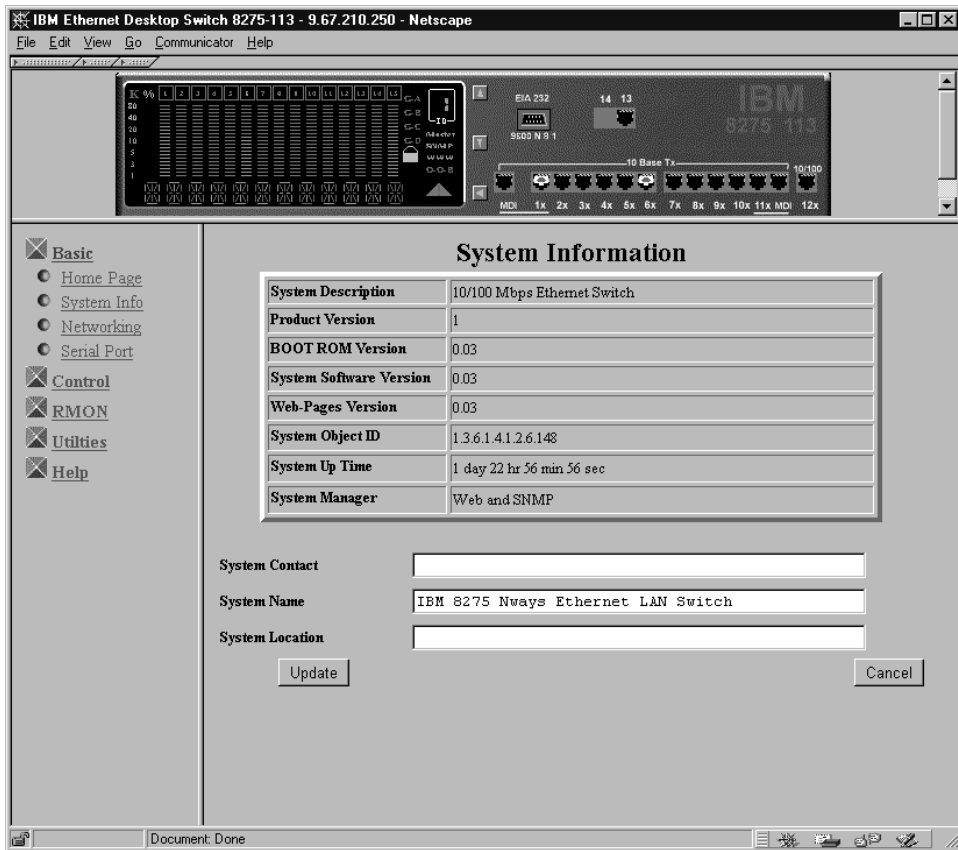
Figure 5-3. System Information Panel

This panel provides information related to the version of the system software installed on the Ethernet Desktop Switch.

You can specify up to 48 alphanumeric characters each for the System Name, Contact, and Location to provide useful information to all users concerning the Ethernet Desktop Switch. The information on this panel should be kept current so that persons requiring assistance know whom to contact.

Note: You must select **Update** to save any changes you have made.

Networking

Selecting this option displays the Network Configuration panel shown in Figure 5-4 on page 5-5.
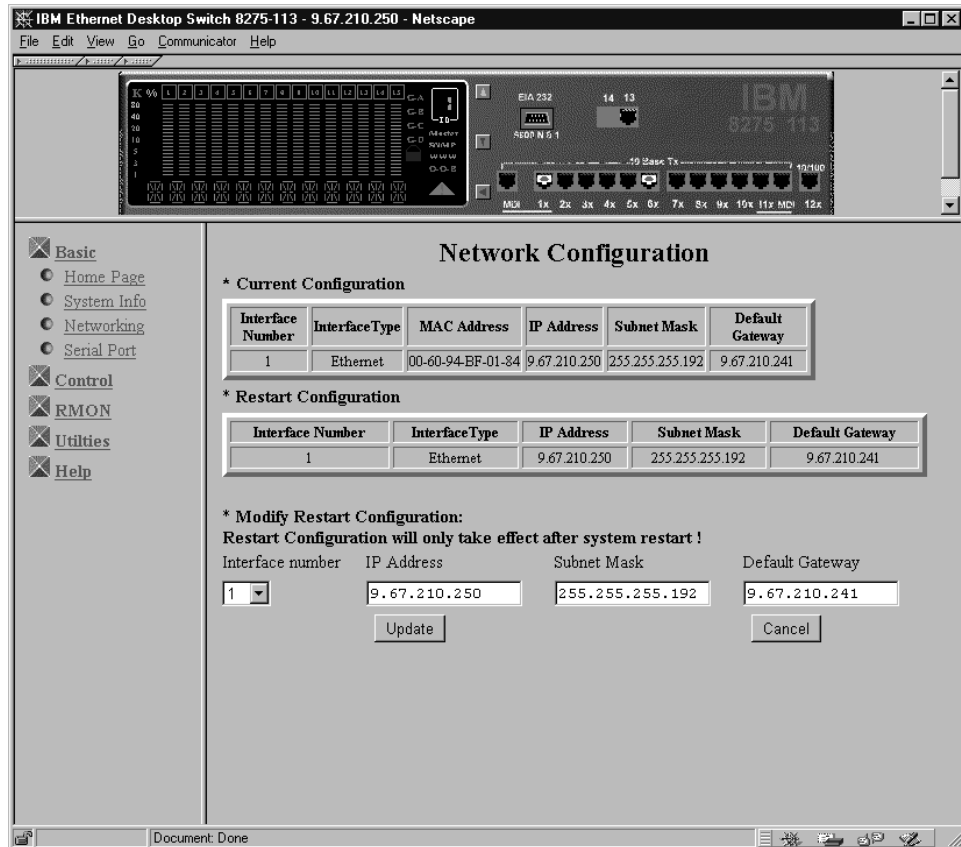
Figure 5-4. Network Configuration Information

Current Configuration
> The IP configuration that is currently running on the Ethernet Desktop Switch.

IP Address
> The dotted decimal IP address assigned to the Ethernet Desktop Switch.

Subnet Mask
> The dotted decimal subnet mask assigned to the Ethernet Desktop Switch.

Default Gateway
> The dotted decimal IP address of the default router assigned to the Ethernet Desktop Switch.

Restart Configuration
> The IP configuration that will become the new current configuration when the switch is restarted.

Modify Restart Configuration
> Used to update IP configuration. Enter the IP address, Subnet Mask, and Default Gateway fields you want to change and select **Update**. The restart configuration then reflects your changes.
>
> **Note:** The Ethernet Desktop Switch must be restarted for the changes to take effect. For information on restarting the Ethernet Desktop Switch, see "Utilities" on page 5-25.

Serial Port

Selecting this option displays the Serial Port Information panel shown in Figure 5-5.
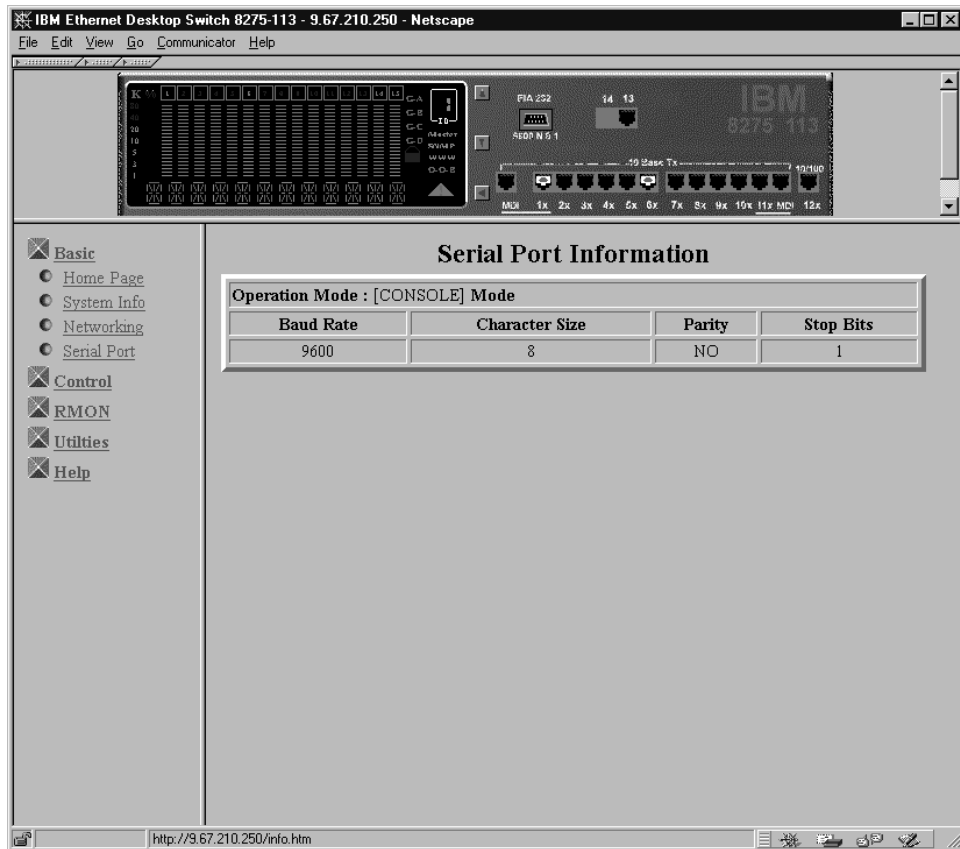
Figure 5-5. Serial Port Information

Note: The information displayed on the Serial Port Information panel is for information only and is not configurable.

Control

This function lets you view and configure the Ethernet Desktop Switch ports and virtual LANs (VLANs).

Select **Control** to view the following list of control functions:

- Switch—Enable the monitoring port.

- Port—Name and configure ports 1-14.

- Permanent Address—permanently assign a MAC address to a switch port.

- VLAN Control—Assign the 14 switch ports to virtual LANs.

- STP Control—Name and configure the virtual LANs.

- STP Port Configuration—Name and configure the individual ports within a virtual LAN.

Device

Selecting this option displays the Switch Control/Status panel shown in Figure 5-6.

The Switch Control/Status panel displays general information about the switch.
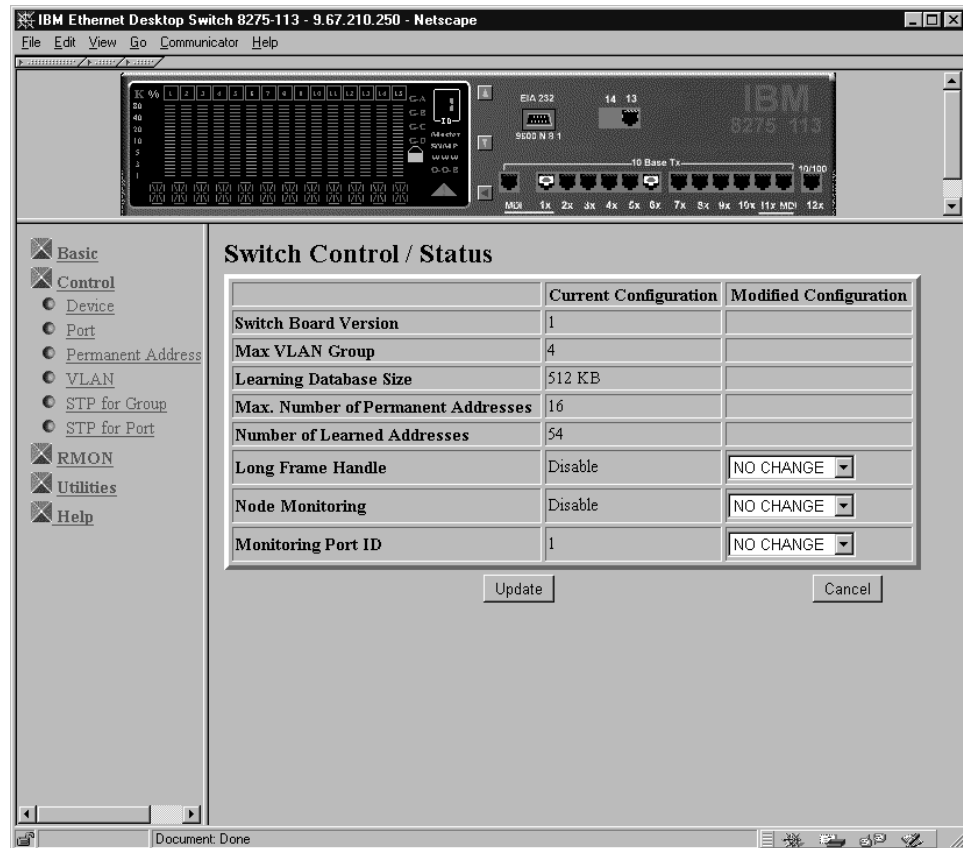
Figure 5-6. Switch Control/Status

Long Frame Handle

Allows frames of up to 1536 bytes to pass through the switch without error. Frames can be this length if they are priority, VLAN, or tagged frames. If the bridged local area network contains these types of packets and long frame handling is disabled, the frames are counted as oversized packets and discarded. If long frame handling is enabled, the packet size statistic of 1024–1518 octets is increased to 1024–1536 octets so long frames are included in this count.

Node Monitoring

Allows you to monitor all packets sent to the specified MAC address. You should enable node monitoring to enable frames from monitored permanent MAC addresses to be copied to the monitoring port. For information about permanent MAC addresses, see "Permanent Address" on page 5-9. Disable is the default.

Monitoring Port ID

The port ID to which monitored permanent MAC address frames are sent. This is the port to which you should attach your network analyzer to capture the monitored frames. Port 1 is the default.

Note: Select **Update** before you exit this panel to save any changes you have made.

Port

Selecting this option displays the Switch Port Control/Status panel shown in Figure 5-7.
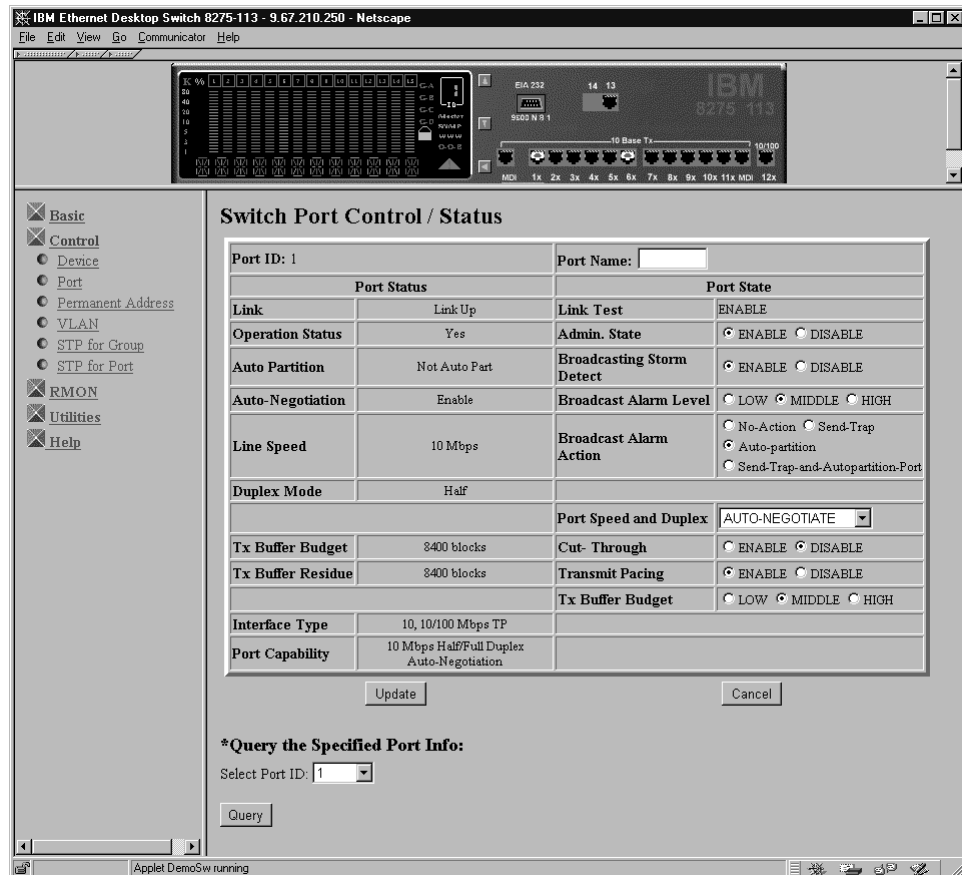
Figure 5-7. Switch Port Control/Status

This panel shows the Ethernet Desktop Switch's port status and port state. To configure a port, select the Port ID Number and then select **Query**.

The following status information is presented:

Port Name
> Allows you to specify the name of the switch port. You can specify up to eight characters for a port name.

Broadcasting Storm Detect
> Allows you to enable broadcast storm detection.

Bcast Alarm Level
> Allows you to set the relative threshold before a broadcast storm alarm is generated. You can specify High (30%), Middle (20%), or Low (10%). The percentage is calculated as :
>
> `(broadcast packets/total packets)*utilization.`

Bcast Alarm Action

Allows you to specify the action to be taken in the event of a broadcast storm alarm. You can specify:

Auto Partition–partitions the port. The port is sampled continuously until the broadcast storm has subsided below the alarm level. The port is then reenabled.

Trap Auto Partition–sends a trap message to the trap receiver and partitions the port until the broadcast storm subsides and the port is reenabled.

Send Trap–only sends a trap message to the trap receiver. The switch is not partitioned.

No Action–no action is taken when an alarm level is reached.

Speed and Duplex

Allows you to specify the speed and mode of the switched port. You can specify Auto-Negotiation, 10 Mbps Full Duplex, 10 Mbps Half Duplex, 100 Mbps Full Duplex, or 100 Mbps Half Duplex. The selections are appropriate for the switch port and the device linking to the port.

Cut Through

Allows you to enable cut-through mode. In cut-through mode, all frames are switched to the correct port as soon as the MAC address is read and processed. Errors are forwarded without checking.

Transmit Pacing

Allows the switch to sense high network traffic and insert an extra amount of delay between transmission attempts. This reduces collision rates, reduces the number of retransmissions, reduces CPU utilization, and reduces network traffic.

Tx Buffer Budget

Allows to set relative priorities among the switched ports for the number of available transmit buffers. You can specify High, Middle, or Low. For example, you might want a server that is connected to one switch port to have a higher buffer priority than a workstation that is connected to another switch port.

Notes:

1. Port Speed and Duplex defaults to Auto-Negotiation. You should only need to change this setting if the connected device doesn't support auto negotiation. In order for auto-negotiate to work consistently, both the switch port and the device should be set to auto negotiation.

2. You must select **Update** to save any changes you have made.

Permanent Address

Selecting this option displays the Permanent Addresses panel shown in Figure 5-8 on page 5-10.
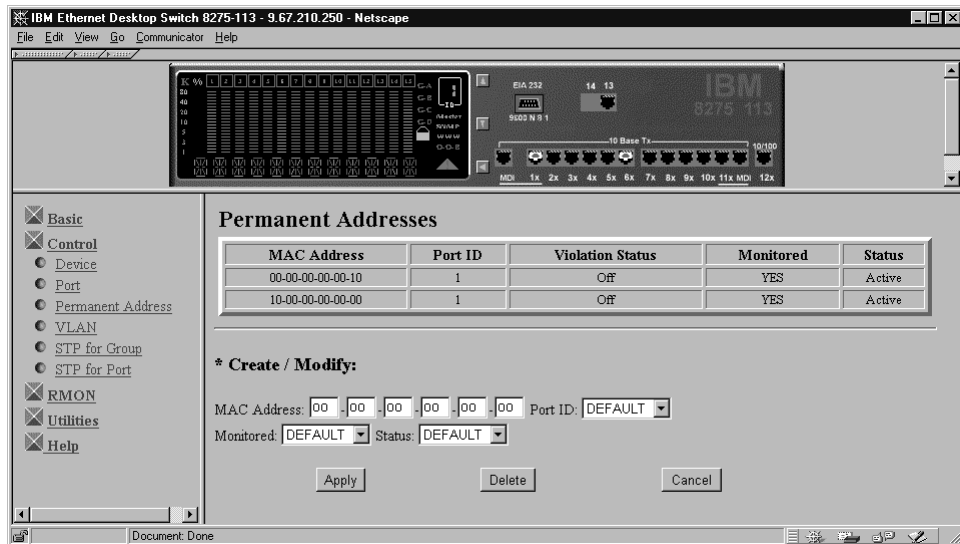
Figure 5-8. Permanent Address

This panel lets you define up to 16 permanent MAC Addresses. If a permanent address is assigned to a switch port and the port's status is *active*, then that MAC address can only be connected through that assigned switch port. If the device is connected to a port other than the assigned port, then a violation occurs and the packets are not sent.

When the monitored status of a permanent MAC address is set to Yes, a copy of all frames that have a destination address of the permanent MAC address is sent to the monitor port.

Note: You must have a network analyzer connected to the identified monitor port to capture the frames.

To assign a permanent MAC address to a port, perform the following steps:

1. Enter the MAC address and select the port ID.

2. Select the Monitored and Status fields.

   Note: The Default option results in different values depending if you are *creating* a new permanent MAC address or *modifying* an existing permanent MAC address. If you are creating a new address, the default values are Port ID=1, Monitored=No, and Status=Inactive. If you are modifying an existing address, the default values are the current values. The Default option can be chosen when you do not want to change the current value.

3. Select **Apply**.

4. Repeat steps 1 through 3 for each MAC address.

A list of permanent addresses appears at the top of the panel.

VLAN Control

Selecting this option displays the VLAN Control panel shown in Figure 5-9.
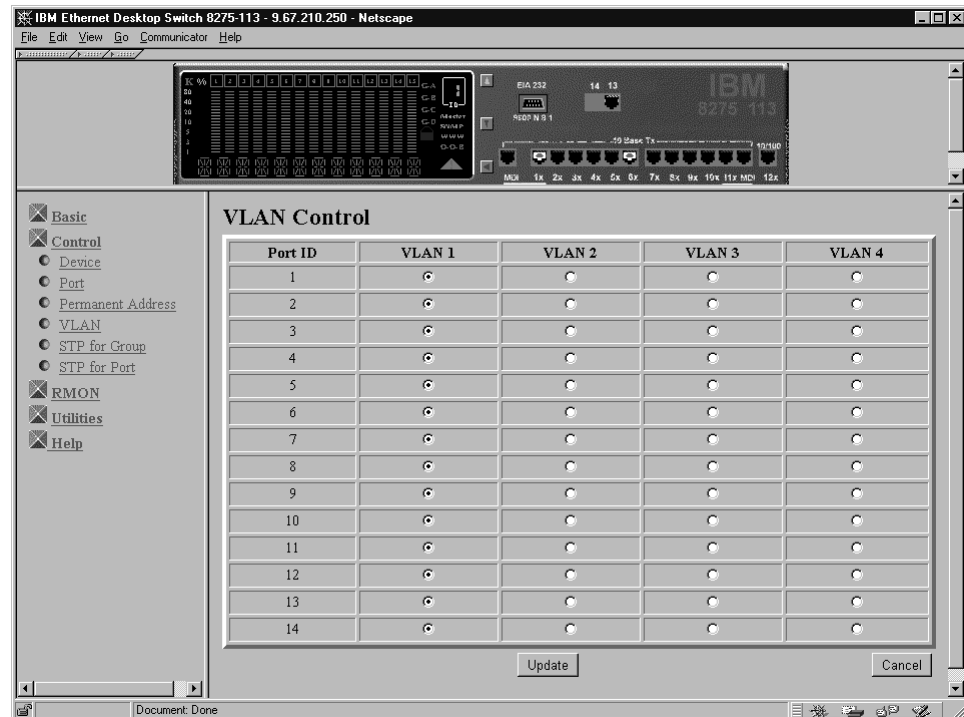
Figure   5-9. VLAN Control

This panel lets you configure up to four VLANs on the Ethernet Desktop Switch. You can group the ports into virtual logical workgroups. VLAN devices can communicate only with other devices on the same VLAN.

To group ports into logical workgroups, select a port under a VLAN name. The port in which you are conducting Web management must remain in VLAN 1. In order to make a Telnet (in-band) connection to the Ethernet Desktop Switch, that port must be in VLAN 1. A switch port can belong to only one VLAN at a time.

Notes:

1. You must select **Update** to save any changes.

2. In order to make a Telnet (in-band) or a Web management connection to the Ethernet Desktop Switch, that port must be in VLAN 1.

3. The port on which you are conducting SNMP management must remain in VLAN 1.

Spanning Tree Protocol VLAN Group Configuration

Selecting this option displays the Spanning Tree Protocol Control (for VLAN Group) panel shown in Figure 5-10 on page 5-12.
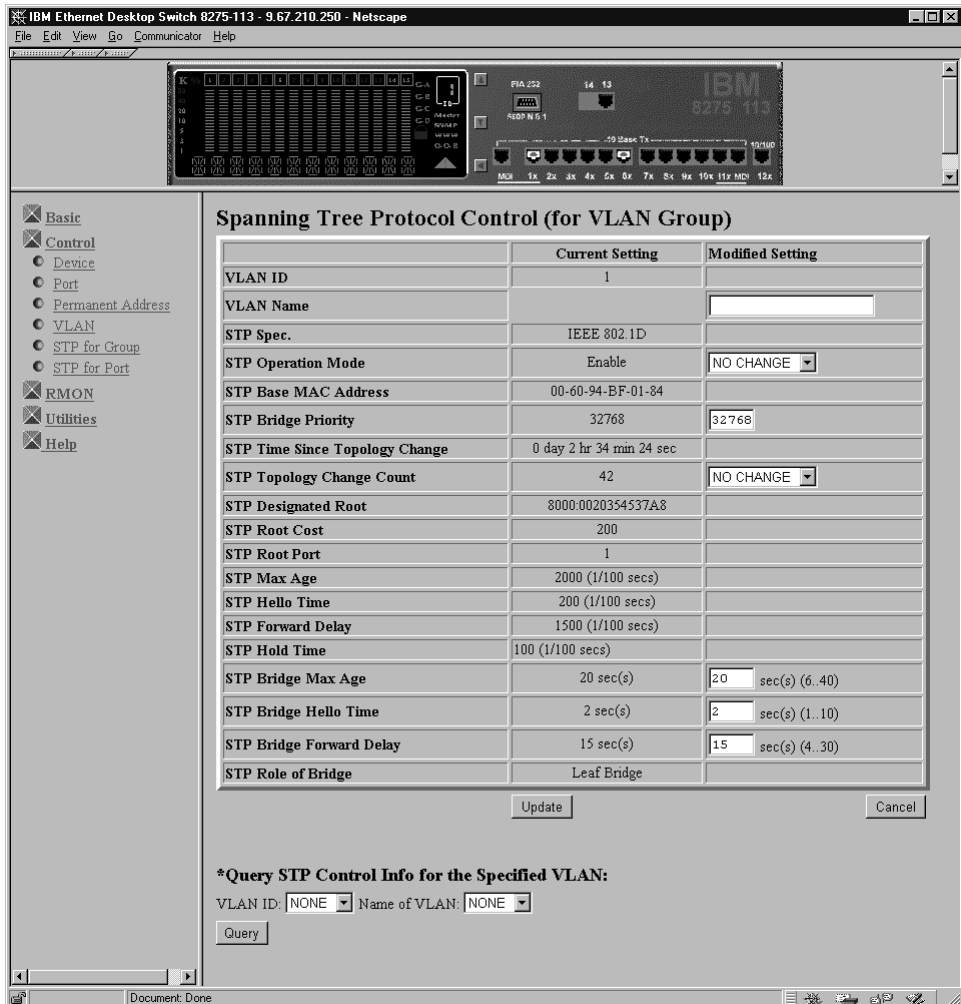
Figure   5-10. Spanning Tree Protocol Control (for VLAN Group)

This panel allows you to configure and manage an STP system for each VLAN on the Ethernet Desktop Switch. The Ethernet Desktop Switch has a separate STP system for each VLAN that you have enabled. Each VLAN has its own root bridge, root ports, and BPDUs.

You can query a different VLAN group by selecting the VLAN ID or name and selecting **Query**.

Table 5-4 on page 5-13 lists the fields on the Spanning Tree Protocol Control (for VLAN Group) panel.

Table 5-4. Spanning Tree Protocol Control (for VLAN Group)

VLAN ID	Allows you to select a VLAN ID (1–4).
VLAN Name	Allows you to specify a VLAN name of up to 16 characters.
STP Operation Mode	Allows you to enable or disable all the VLANs as a group
STP Bridge Priority	Allows you to specify the priority of the switch. Changing the priority of the switch, you can make it more or less likely to become the root bridge. The lower the number, the more likely the bridge will become the root bridge. The range is 0–65 535. The default is 32 768.
STP Topology Change Count	Shows the time since the last topology change was detected. This field can be reset by using CLRCNT.
STP Designated Root	Shows the time bridge identifier of the designated root bridge (Read only).
STP Hold Time	shows the shortest time interval allowed between the transmission of BPDUs (Read only).
STP Bridge Max Age	Allows you to specify the time in seconds that the switch waits before trying to reconfigure the network when it is the root bridge. If the switch has not received a BPDU within the time specified in this field, it tries to reconfigure the STP topology. The range is 6–40 seconds. The default is 20 seconds.
STP Bridge Hello Time	Allows you to specify the time delay in seconds between the transmission of BPDUs from the switch when it is the root bridge. The range is 1–10 seconds. The default is 2 seconds.
STP Bridge Forward Delay	Allows you to specify the time in seconds that the ports on the switch spend in the learning and listening and learning states when the switch is in the root bridge. The range is 4–30 seconds. The default setting is 15 seconds.

Note: You must select **Update** to save any changes.

Spanning Tree Protocol VLAN Port Configuration

Selecting this option displays the Spanning Tree Protocol (for VLAN Port) panel shown in Figure 5-11.
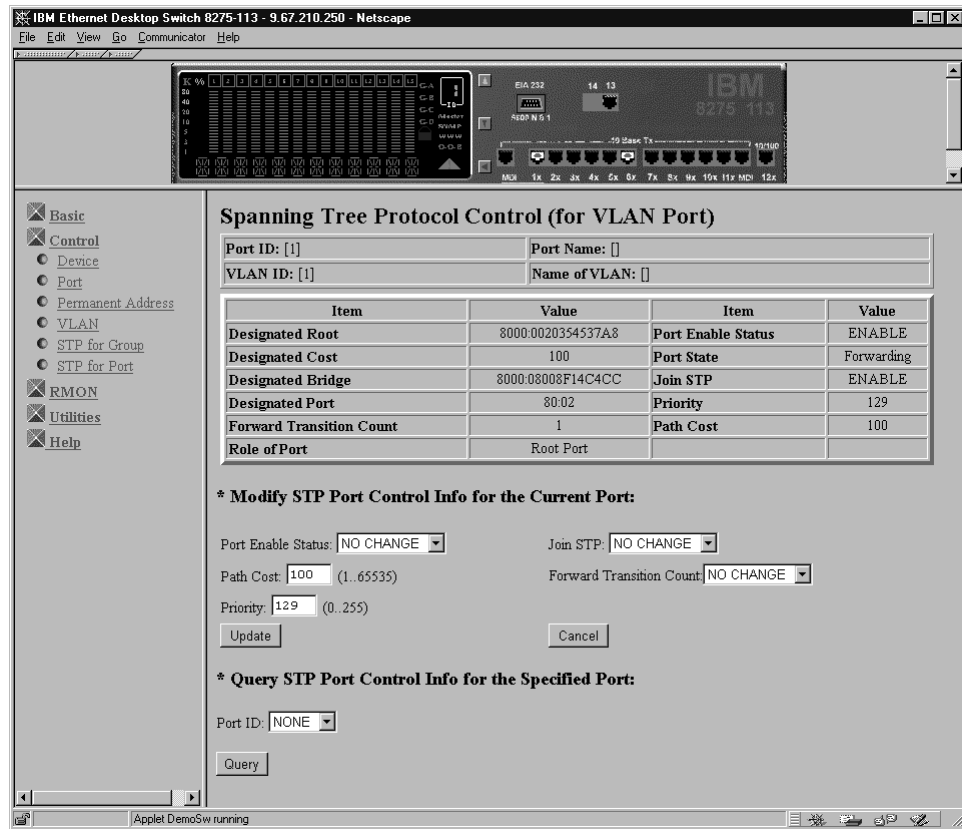
Figure   5-11. Spanning Tree Protocol Control (for VLAN Port)

This panel allows you to configure and manage the STP parameters of each port on the Ethernet Desktop Switch.

You can query a different switch port by selecting the Port ID and selecting **Query**.

Table 5-5 lists the fields on the Spanning Tree Protocol Control (for VLAN Port) panel.

Table   5-5 (Page 1 of 2). Spanning Tree Protocol Control (for VLAN Port)

Port ID	The port number, currently queried.
Port Name	The name of the port, currently queried.
VLAN ID	Number of the VLAN currently queried (1–4).
Name of VLAN	Name of the VLAN currently queried.
Designated Root	Shows the bridge identifier of the root bridge (read only).
Designated Cost	Shows the path cost from the root bridge to the designated bridge port for the current port's VLAN (read only).
Designated Bridge	Shows the bridge identifier of the designated bridge for the current port's VLAN (read only).

Table 5-5 (Page 2 of 2). Spanning Tree Protocol Control (for VLAN Port)

Forward Transition Count	Shows the number of times that the current port has changed from the learning state to the forwarding state (read only).
Port Enable Status	Allows you to enable or disable the port.
Port State	Listening Forward
Join STP	Allows you to enable or disable the port as part of a VLAN group.
Path Cost	Allows you to specify the path cost of the port. The default port costs are: 10 for 100BASE-X (ports 1–11) 100 for 10BASE-T (ports 12–14)
Priority	Allows you to specify the priority of the port. By changing the priority of the port, you can make it more or less likely to become the root port. The lower the number, the more likely it is that the port will be the root port. The range is 0–255. The default is 129.

Note: You must select **Update** to save any changes.

RMON

Remote Monitoring MIB (RMON) allows you to monitor LANs remotely. RMON allows you to remain at one workstation and collect information on all switch ports.

Configuration

Selecting this option allows you to select from the following types of RMON configuration information:

- Statistics
- History
- Alarm
- Event

RMON Configuration - Statistics

Selecting **Statistics Grp** displays the RMON Configuration - Statistics Group panel shown in Figure 5-12 on page 5-16.
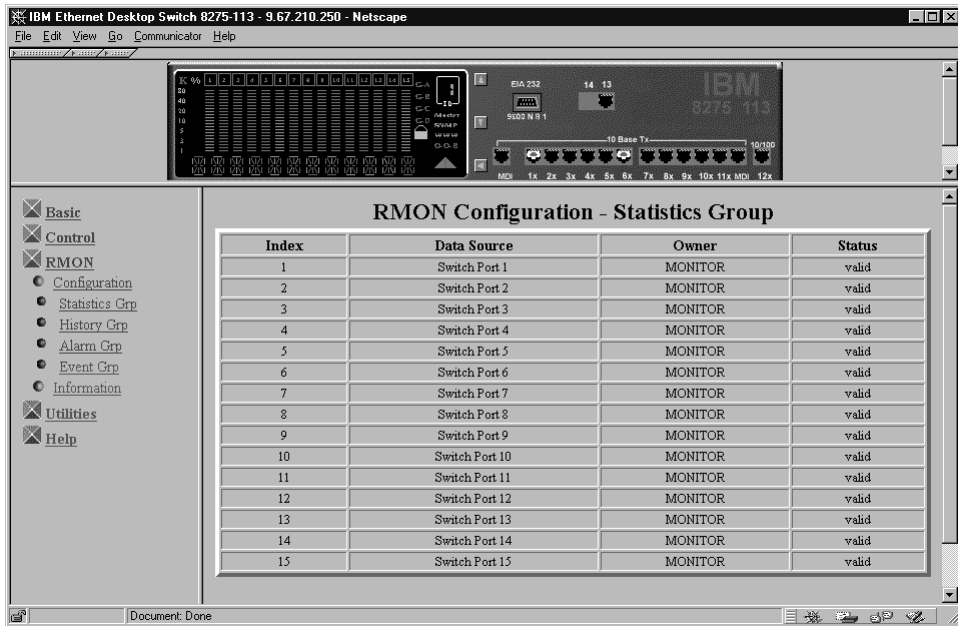
Figure 5-12. RMON Configuration - Statistics Group

This panel provides an overview of the current switch port activity.

Table 5-6. RMON Configuration - Statistics Group

Index	Displays the switch port indexes from 1–15.
Data Source	Displays the data source as the switch ports 1–15.
Owner	Displays the owner of the statistics. The owner is always the monitor.
Status	Displays the current status of each port—Valid, CreateRequest, UnderCreation, or Invalid.

RMON Configuration - History

Selecting **History Grp** displays the RMON Configuration - History Group panel shown in Figure 5-13 on page 5-17.
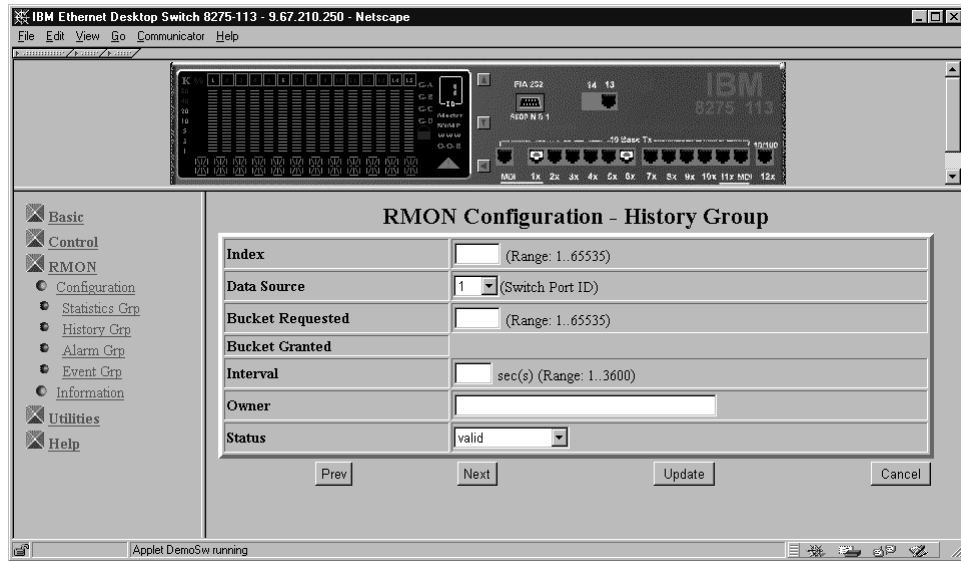
Figure 5-13. RMON Configuration - History Group

This panel provides a means of correlating the data gathered by the statistics group over time. It records statistical samples according to the user-specified time interval and duration and stores them for later retrieval.

Table 5-7. RMON Configuration - History Group

Index	Number chosen to identify the entry. The range is 1–65 535.
Data Source	Port ID for which data will be gathered (1–15).
Bucket Requested	Number of sample buckets you want to collect and store. The range is 1– 65 535. The default is 50.
Buckets Granted	Number of sample buckets what will be collected and stored. The number granted is affected by the number of buckets requested and by available resources. Buckets Granted will change as resources fluctuate.
Interval	Time in seconds over which the data is sampled for each bucket. The range 1–3600 seconds (1 hour). The default is 1800 seconds.
Owner	Text field to identify the owner.
Status	• Valid - An entry is fully configured and consistent. • createRequest—Create a new entry of default values. Select an index, select status of createRequest, and then select UPDATE. An entry of default values is created with a new status of underCreation. • underCreation—entry is in the process of being created and might be incomplete. If an entry is valid, the entry should be made underCreation to be modified. • Invalid—Entry is cleared.

RMON Configuration - Alarm

Selecting **Alarm Grp** displays the RMON Configuration - Alarm Group panel shown in Figure 5-14.
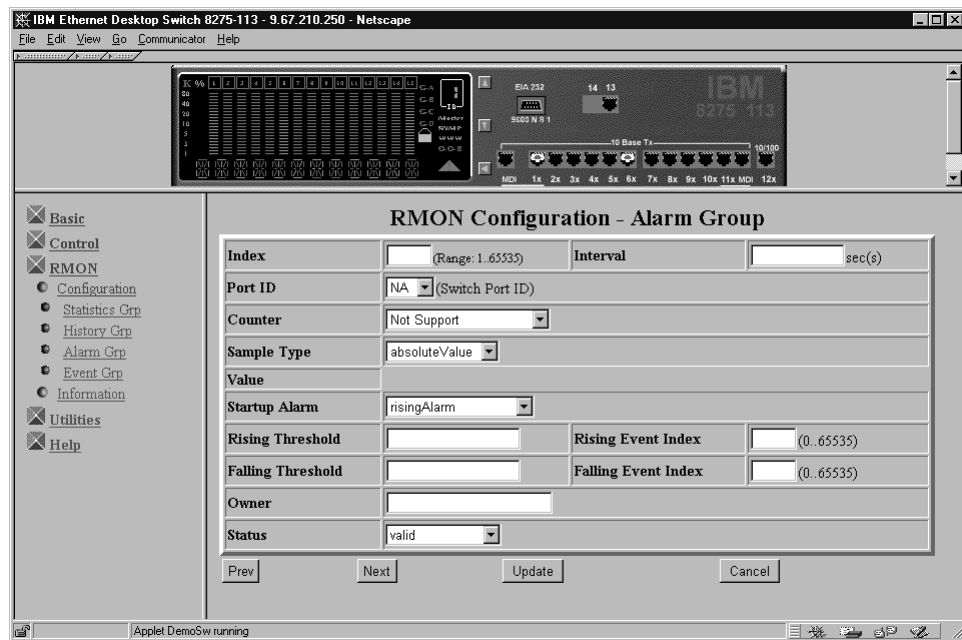
Figure 5-14. RMON Configuration - Alarm Group

This panel tracks extraordinary events or activities. It permits you to set the RMON alarms to specific thresholds. When the traffic volume exceeds or drops below those thresholds, an event is activated. A *rising* threshold is used to monitor the value of a counter when it rises above a particular level. A *falling* threshold is used to monitor the value of a counter when it falls below a particular level. Thresholds can be set against either an absolute value or a *delta* (change in) value. Alarms can generate an action response through the Events Group.

Table 5-8 (Page 1 of 2). RMON Configuration - Alarm Group

Index	Number chosen to identify the entry. The range is 1–6535.
Interval	Time in seconds over which the data is sampled for each bucket. The range is 1–3600 seconds (1 hour). The default is 1800 seconds.
Port ID	Switch Port number (1–15).
Counter	Choose an event to track. If Not Support is chosen, the counter field defaults to the octets counter.
Sample Type- Absolute Value	Value stored is compared directly to the threshold level.
Sample Type- Delta Value	The value of the selected variable at the last sample is subtracted from the current value, and the difference is compared with the threshold value.
Value	Value of the statistic during the last sampling period.

Table 5-8 (Page 2 of 2). RMON Configuration - Alarm Group

Startup Alarm	Of rising and falling thresholds, the one that must be crossed first for an event to be generated.
	• risingAlarm - Event is generated when the rising threshold is crossed first.
	• fallingAlarm - Event is generated when the falling threshold is crossed first.
	• risingOrfallingAlarm - Event is generated when either the rising or falling threshold is crossed first.
Rising Threshold	Threshold for the sampled statistic. When the current sampled value is **greater than or equal to** this threshold, **and** the value of this sample at the last sampling interval was **less than** the threshold, then a single event is generated. After a rising event is generated, another rising event is not generated until the sampled value falls below this threshold and reaches the falling threshold.
Rising Event Index	Index of the event entry that is used when the rising threshold is crossed. It must coincide with the Event Group Index. If you choose 0, no event is generated when this threshold is met.
Falling Threshold	Threshold for the sampled statistic. When the current sampled value is **less than or equal to** this threshold, **and** the value of this sample at the last sampling interval was **greater than** the threshold, then a single event is generated. After a falling event is generated, another falling event is not generated until the sampled value rises above this threshold and reaches the rising threshold.
Falling Event Index	Index of the event entry that is used when the falling threshold is crossed. It must coincide with the Event Group Index. The range is 0–65 535. If you choose 0, no event is generated when this threshold is met.
Owner	Text field to identify the owner.
Status	• Valid - An entry is fully configured and consistent.
	• createRequest—Create a new entry of default values. Select an index, select status of createRequest, and then select UPDATE. An entry of default values is created with a new status of underCreation.
	• underCreation—An entry is in the process of being created and might be incomplete. If an entry is valid, the entry should be made underCreation to be modified.
	• Invalid–Entry is cleared.

RMON Configuration - Event

Selecting **Event Grp** displays the RMON Configuration - Event Group panel shown in Figure 5-15 on page 5-20.
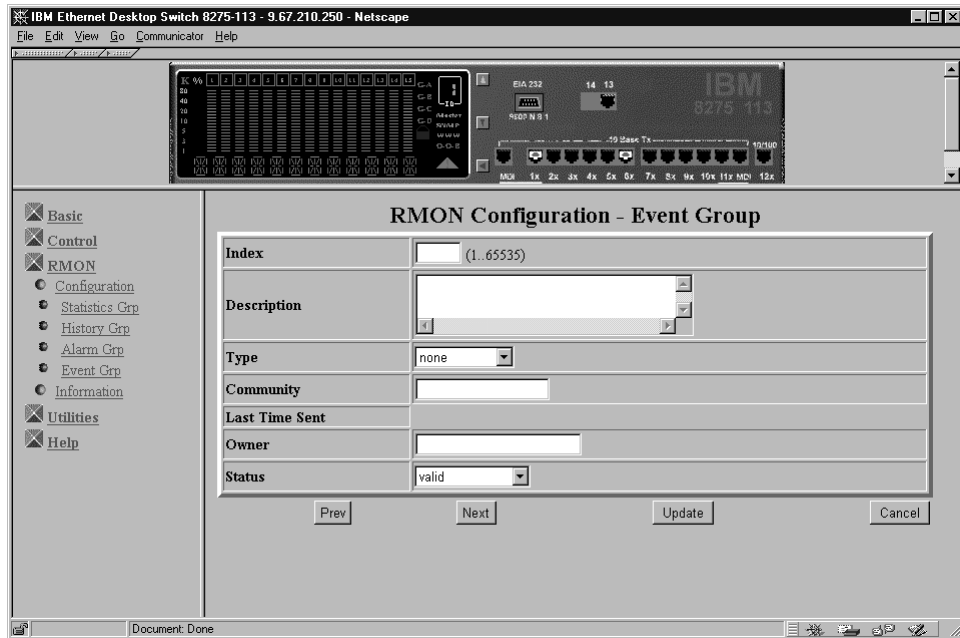
Figure 5-15. RMON Configuration - Event Group

This panel creates entries in an event log and sends SNMP traps to the management workstation.

Table 5-9. RMON Configuration - Event Group

Index	A number that identifies an entry in the event table
Description	A comment that describes this event.
Type - none	No action taken.
Type - log	An entry is made in the log table for each event.
Type - snmp-trap	An SNMP trap is sent to one or more management stations.
Type - log-and-trap	An entry is made in the log table and an SNMP trap is sent to one or more management stations.
Community	An octet string that specifies the SNMP community to which an SNMP trap is to be sent.
Last Time Sent	The value of System Up Time at the time this event entry last generated an event.
Owner	Text field to identify the owner.
Status	• Valid - An entry is fully configured and consistent. • createRequest—Create a new entry of default values. Select an index, select status of createRequest, and then select UPDATE. An entry of default values is created with a new status of underCreation. • underCreation—An entry is in the process of being created and might be incomplete. If an entry is valid, the entry should be made underCreation to be modified. • Invalid—Entry is cleared.

Information

Selecting this option allows you to select from the following types of RMON informational topics:

- Statistics
- History
- Event

RMON Information - Statistics

Selecting **Statistics** displays the RMON Information - Statistics Event Group panel shown in Figure 5-16.
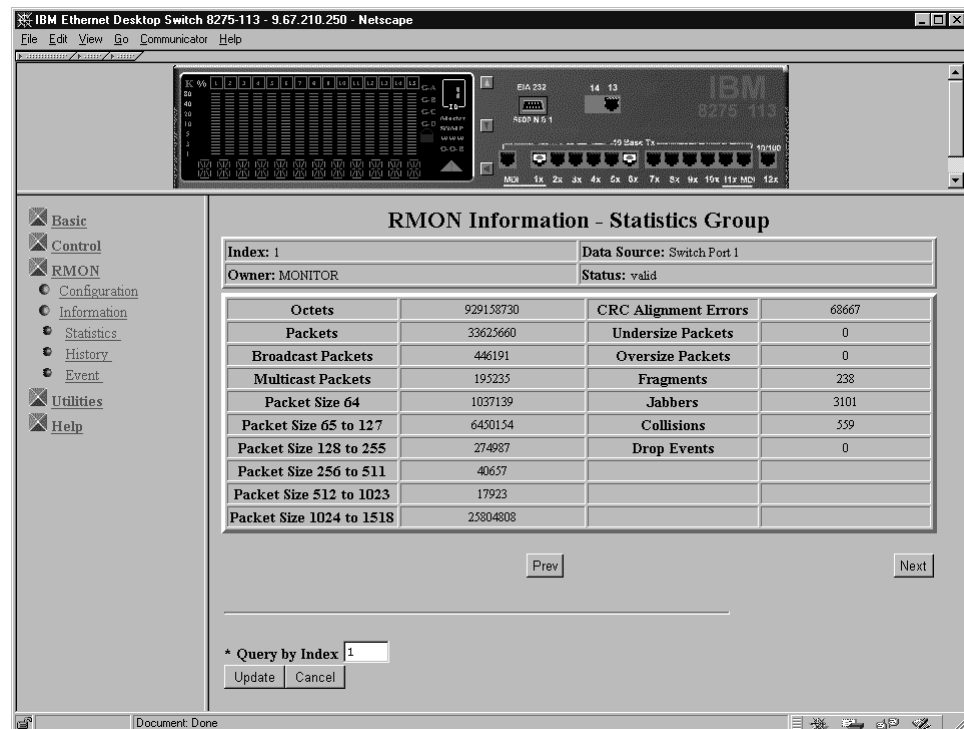
Figure 5-16. RMON Information - Statistics

This panel provides traffic and error statistics counters. To view other ports, select either **Prev** or **Next** or enter a port ID in the Query by Index field and select **Update**. See Table 5-10 on page 5-21 for the type of statistic counters that are recorded.

Table 5-10 (Page 1 of 2). RMON Information - Statistics

Octets	A whole number representing the total readable octets received by the port.
CRC Alignment Errors	The total CRC or alignment error frames within the proper size (64–1518 octets) received by the port.
Packets	Total number of packets received by the port, including bad packets, broadcast packets and multicast packets.
Undersize Packets	The number of small (less than 64 octets long) packets received.
Broadcast Packets	The total number of packets transmitted that were directed to the broadcast address.

Table 5-10 (Page 2 of 2). RMON Information - Statistics

Oversize Packets	The number of large (greater than 1518 octets long) packets received. If the Long Frame mode is selected, only those packets longer than 1536 octets are counted.
Multicast Packets	The number of packets received that were directed to the Multicast Address.
Fragments	The total number of packets that were received that were longer than 1518 octets and had an FCS or alignment error.
Packet Size 64	The number of packets received that were 64 octets.
Jabbers	The total number of packets that were received that were less than 64 octets and had an FCS or alignment error.
Packet Size 65 to 127	The number of packets received that were from 65 to 127 octets.
Collisions	The number of collisions.
Packet Size 128 to 255	The number of packets received that were from 128 to 255 octets.
Drop Events	The number of events in which packets were dropped by the monitor because of lack of resources.
Packet Size 256 to 511	The number of packets received that were from 256 to 511 octets.
Packet Size 512 to 1023	The number of packets received that were from 512 to 1023 octets.
Packet Size1024 to 1518	The number of packets received that were from 1024 to 1518 octets.

RMON Information - History

Selecting **History** displays the RMON Information - History panel shown in
Figure 5-17 on page 5-23.
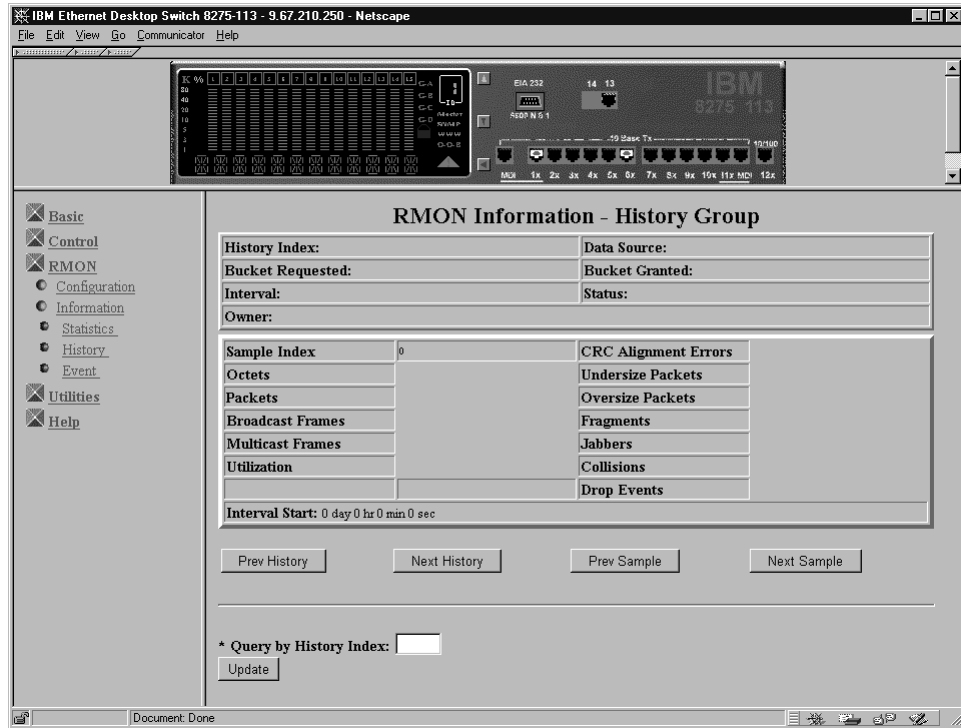
Figure 5-17. RMON Information - History

The History Group provides a means of correlating the data gathered by the Statistical Group over time. Each interval saved is called a *bucket*. The number of buckets requested represents the number of times you want to collect and store the samples. The probe responds with the number of buckets granted depending on the request and the resources available.

Table 5-11. RMON Information - History

Prev History	Select the previous history index.
Next History	Select the next history index.
Prev Sample	Select the previous sample.
Next Sample	Select the next sample.

You can also enter a specific history index and select **Update**.

For definitions of the Information History fields, see the field definitions in "RMON Information - Statistics" on page 5-21 and "RMON Configuration - History" on page 5-16.

RMON Information - Event

Selecting **Event** displays the RMON Information - Event Group panel shown in Figure 5-18 on page 5-24.
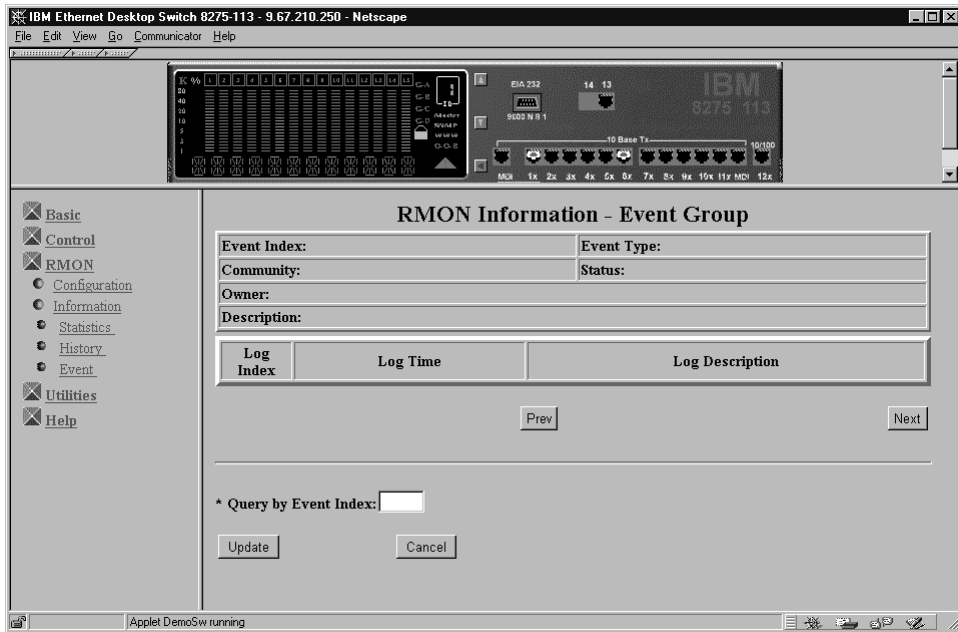
Figure 5-18. RMON Information - Event Group

The Event Group requires implementation the Alarm Group. The Alarm Group periodically takes statistical samples and compares them with thresholds that have been configured. The event table stores configuration entries that define an index, polling period, and alarm threshold values.

To Query an Event Group, select either **Prev** or **Next** or enter the group index in the Query by Event Index field and select **Update**.

For definitions of the Information Event fields, see the field definitions in "RMON Configuration - Event" on page 5-19.

Utilities

Selecting this option displays the System Reset panel shown in Figure 5-19.
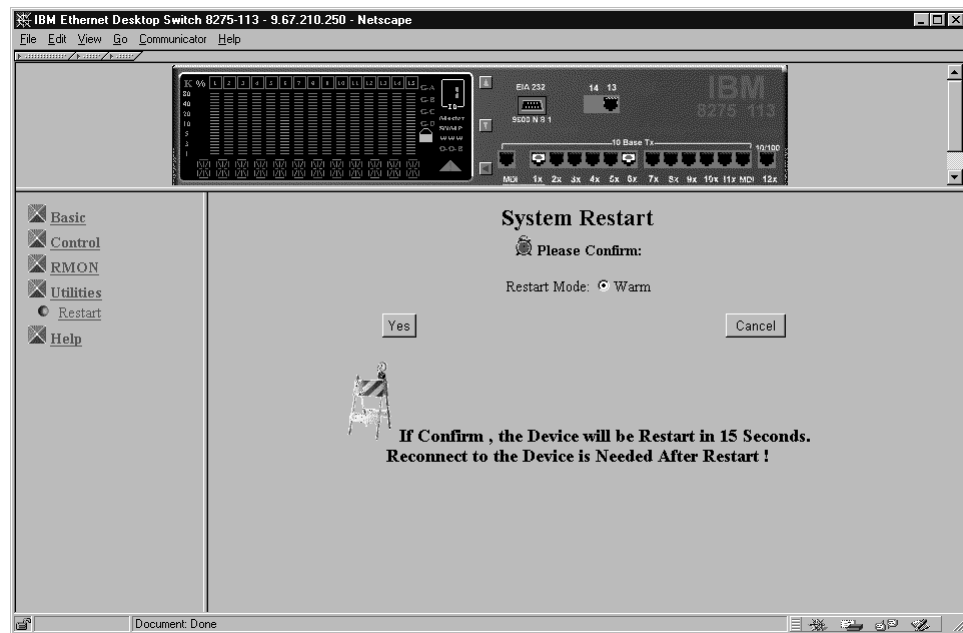
Figure   5-19. System Restart

From this panel, you can issue a warm restart command to the Ethernet Desktop Switch.

Help

Selecting this option displays the Help panel shown in Figure 5-20.
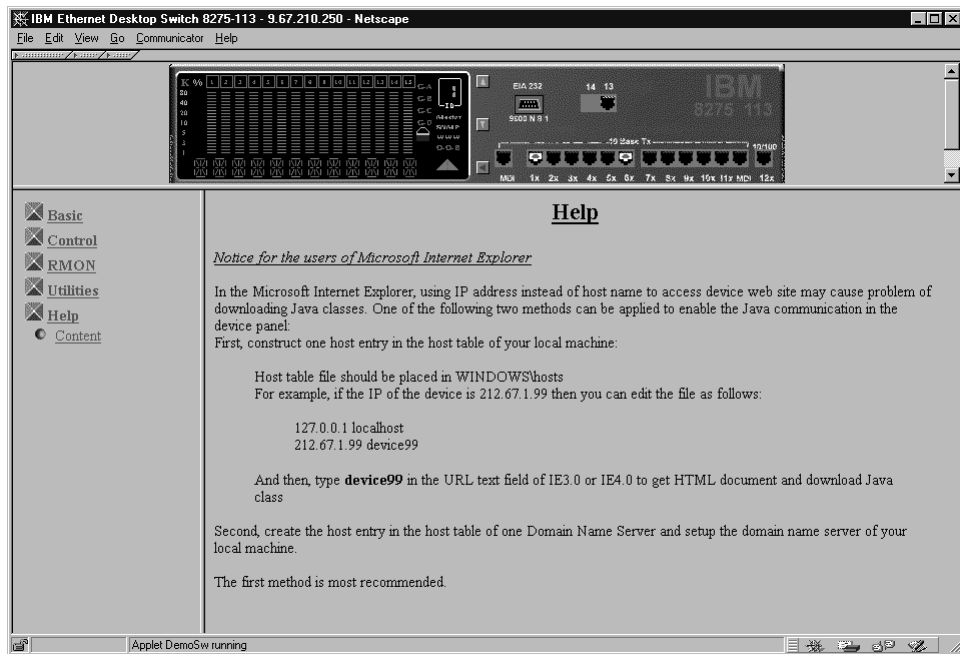
Figure 5-20. Help Panel

The Help panel provides information for Microsoft Internet Explorer users.

Chapter 6. Troubleshooting and Service

This chapter contains procedures that help you troubleshoot problems with an Ethernet Desktop Switch and its connections to other devices.

Be sure to read "Safety Information" on page x before proceeding.

Diagnosing Problems

The following sections contain lists of symptoms and actions to assist in problem resolution prior to contacting IBM Support.

Power-On Self-Test Failures

When the Ethernet Desktop Switch is powered on or if a cold restart is initiated, it performs a power-on self-test (POST). If you are connected to the EIA 232 port and have your VT100-compatible terminal running, the following scrolling text appears on your monitor depending on whether the test fails or completes successfully:

```
BOOT ROM Integrity Test     ........ OK
BOOT ROM Integrity Test     ........ FAILED
      Expected checksum = 0x12345678
      Error checksum    = 0xFFFFFFFF
DRAM Test (04096 Kbytes)    ........ OK
DRAM Test (00000 Kbytes)    ........ FAILED
      Failed location = 0x80000000
      Test pattern    = 0x80001234
      Error pattern   = 0xFFFFFFFF
Secondary BOOT LOADER Detect    .. OK
Secondary BOOT LOADER Detect    .. NOT FOUND
```

if (Secondary BOOT LOADER Detect = NOT FOUND)

```
Extracting bootrom code      .. OK
Extracting bootrom code      .. FAILED
```

if (Secondary BOOT LOADER Detect = OK)

```
Extracting second bootrom code      OK
Extracting second bootrom code      FAILED
NMU -- Switch Communication Channel Test    ........ OK
NMU -- Switch Communication Channel Test    ........ FAILED
Flash Memory (2048 Kbytes) Installed    ........ OK
Flash Memory Device Type      ........ UNKNOWN
Run Time Image Integrity Test      ........ OK
Run Time Image Integrity Test      ........ FAILED
-- Please reload run time image
Web-Pages Integrity Test      ........ OK
Web-Pages Integrity Test      ........ FAILED
-- Please reload Web-Pages
EEPROM Read/Write Test      .. OK
EEPROM Read/Write Test      .. FAILED
NIC Controller Access Test      ........ OK
NIC Controller Access Test      ........ FAILED
MAC Address = 00 60 94 bf 12 34
Switch Controller Access Test      ........ OK
Switch Controller Access Test      ........ FAILED
```

If any of the POST fails, disconnect and reconnect the power to retry the POST.

RunTime Integrity Test Failures: If the runtime integrity test fails, you might have a problem that could be corrected by reloading the system software. For information on reloading your system software, see "Boot ROM Console."

Web Pages Integrity Test Failures: If the Web pages integrity test fails, you might have a problem that could be corrected by reloading the Web Pages Database information. For information on reloading your Web Pages Database information, see "Boot ROM Console."

If any other test fails, contact IBM Support.

Boot ROM Console

Connect your VT100-compatible terminal emulator to the EIA 232 management port to see the POST's text messages. When the POST completes, the following message is displayed:

```
>>> Please select abort command to enter console menu
```

Notes:

1. If you do not select the abort command within 12 seconds, the Ethernet Desktop Switch is automatically reset.

2. The boot ROM menu is a subset of the functions available on the main menu of the management interface described in Chapter 4, "Using the Management Interface" on page 4-1.

Selecting the abort command displays the boot ROM login panel shown in Figure 6-1 on page 6-3.

```
┌─────────────────────────────────────────────────────────────────────────┐
│                                                                           │
│                     IBM Ethernet Desktop Switch 8275-113                   │
│                        - BOOT ROM Version: 1.00                            │
│                                                                           │
│                                                                           │
│                                                                           │
│          XXXXXXXXXXX        XXXXXXXXXX        XXXXX     XXXXX               │
│            XXXXX          XXXX   XXX        XXXXXX   XXXXXX                 │
│            XXXXX          XXXXXXXXXX        XXXXXXX XXXXXXX                 │
│            XXXXX          XXXX   XXX        XXX  XXXXX  XXX                 │
│          XXXXXXXXXXX        XXXXXXXXXX        XXX   XXX   XXX               │
│                                                                           │
│                                                                           │
│                                                                           │
│                       User Name:[  ADMIN     ]                            │
│                       Password :[            ]                            │
│                                                                           │
│                                                                           │
│                                                                           │
│                      <CTRL+E> to Resume BOOT LOADER                       │
│          Use <Tab> key to move between User Name and Password, then press <Enter>│
│                                                                           │
└─────────────────────────────────────────────────────────────────────────┘
```

Figure   6-1. Boot ROM Login Panel

You can log in using a previously defined user name and password, or you can use
one of the two default user names. One default user name, ADMIN, requires no
password. The other default user name, GUEST, has a password of GUEST.
(Note that the user IDs and passwords are not case sensitive.)

After you have logged in, the boot ROM console main menu, shown in Figure 6-2,
is presented.

```
┌─────────────────────────────────────────────────────────────────────────┐
│                                                                           │
│                     IBM Ethernet Desktop Switch 8275-113                   │
│                              - Main Menu-                                  │
│                                                                           │
│                       System Information                                  │
│                                                                           │
│                       Network Configuration                               │
│                                                                           │
│                       Serial Port Configuration                           │
│                                                                           │
│                       Management Capability Setup                         │
│                                                                           │
│                       System Download                                     │
│                                                                           │
│                       System Restart                                      │
│                                                                           │
│                       Factory Reset                                       │
│                                                                           │
│                       Download Port Setting                               │
│                                                                           │
│                                                                           │
│                                                                           │
│          RESUME BOOTLOAD                                      HELP         │
│          Use <Tab> key to select the item, then press <Enter>             │
│                                                                           │
└─────────────────────────────────────────────────────────────────────────┘
```

Figure   6-2. Boot ROM Main Menu

You can select **System Download** to reload the code on your Ethernet Desktop Switch. See "System Download" on page 4-24 more information on downloading code. To exit the main menu, select **RESUME BOOTLOAD** to continue booting the Ethernet Desktop Switch.

LEDs

Symptom	Action
Power LED does not light.	• Check the power cable to ensure that it is firmly connected to both the Ethernet Desktop Switch and the power outlet. • Ensure that there is power at the power outlet.
OK LED is Off or fault LED is On	The Ethernet Desktop Switch is malfunctioning. Re-power or cold restart the switch. If the Ethernet Desktop Switch still fails, contact IBM Support.

Control Panel

Symptom	Action
Caution Icon Indicator On	• Check the control panel message zone for errors or failures such as a broadcast storm or a cooling fan failure.
	• If you have an SNMP manager, check your trap log for messages.
	• Re-power or cold restart the switch to see if the POST identifies a failure.
	• Reset the indicator by pressing one of the control keys. If the message reappears, contact IBM Support.
Port indicator frame on	• The port has been disabled by the administrator.
	• The operating status of this port is set to "No."
	• STP has found a network loop and has partitioned the port.
Port number frame blinking	The port has been partitioned due to a broadcast storm. The message zone displays BRDCST STORM and the caution icon is lit. Locate the source of the broadcast storm and correct.
Port number indicator on (but not bright), port number frame off, port is available, but link is still down.	Check that:
	• All connections are secure.
	• The devices at both ends of the cable are powered-on.
	• The cable is good.
	• The correct type of cable (either crossover or straight through) is used. If connected device is MDI-X only, ensure that you are using either a straight through cable with an MDI port or a crossover cable and an MDI-X port.

EIA 232 Port

Symptom	Action
Menu panels incorrectly displayed.	Check that the terminal emulator is correctly configured: 9600 bps, 8 data bits, 1 stop bit, no parity, no flow control, and VT100 emulation.
Login menu does not display.	• Check that the terminal emulator is correctly configured: 9600 bps, 8 data bits, 1 stop bit, no parity, no flow control, and VT100 emulation. • Perform the command line "wake up" procedure by pressing **Enter** two or three times or press **Ctrl+R** to refresh the panel. • Verify that you are using a null-modem cable or a serial cable with a null-modem adapter.

Telnet Session

Symptom	Action
Telnet workstation cannot access the Ethernet Desktop Switch.	• Check that the Ethernet Desktop Switch's IP address, subnet mask, and default gateway are correctly configured. • Ensure that you entered the IP address or host name of the Ethernet Desktop Switch correctly when invoking the Telnet facility. • If you have configured VLANs, check that the Telnet connection is to a port in VLAN 1.

Password

Symptom	Action
Lost Control Panel Password.	Use the management interface (either by a Telnet session or by using the EIA 232 port) and reset the control panel password using the User Authentication Menu, see "User Authentication" on page 4-22.
Lost Login Panel Password (Web or Management Interface)	• Contact network administrator for a new password. • Contact another user with READ/WRITE access and have that user assign you a new password by using the User Authentication Menu. **Note:** If no user has READ/WRITE access, contact IBM support.

Performance

If a large volume of traffic lowers performance and increases the number of collisions, you can optimize Ethernet Desktop Switch performance by:

- Setting the TX buffer mode. (See "Switch Port Control/Status" on page 4-14).

- Setting the switch to detect broadcast storms and take action when a certain level of broadcast storms is detected (for example, allowing automatic partitioning of the port). (See "Switch Port Control/Status" on page 4-14).

- Setting up virtual LANs to group ports together into logical workgroups. (See "VLAN Control" on page 4-17 and "Virtual LANs" on page A-1).

Web Browser

Note: Web browsers must support Java 1.0 and Multiframe HTML. The Ethernet Desktop Switch has been tested using Netscape Navigator Version 3.04, Netscape Communicator Version 4.03 and 4.04, and Microsoft Internet Explorer 3.02 and 4.0 in both Microsoft Windows 95 and Microsoft Windows NT 4.0.

Symptom	Action
Web browser cannot access the switch.	• Check that the Ethernet Desktop Switch's IP address, subnet mask, and default gateway are correctly configured.
	• Ensure that you enter the IP address of the switch correctly on your web browser.
	• If you are using Microsoft Internet Explorer, see "Help for Using Internet Explorer."
The Java applet graphic of the switch does not appear.	Clear the memory cache and the disk cache of your Web browser. For example, in Netscape 4.03 select **Edit/Preferences/Advanced/Cache** and then select **Clear Memory Cache** and **Clear Disk Cache**.

Help for Using Internet Explorer

In the Microsoft Internet Explorer, using an IP address instead of a host name can cause problems related to Java classes. You can use either of the following methods to enable the Java communication in the switch panel.

Method One:

1. Construct a host entry in the host table of your local machine.

   - Place the host table file in WINDOWS\hosts. For example, if the IP address of the switch is 212.67.1.99 and you choose a unique host name, "device99," then you can edit the file as follows:

     - 127.0.0.1 localhost

     - 212.67.1.99 device99

2. Type **device99** in the URL text field of IE 3.0 or IE 4.0 to get the HTML document and download the Java class.

Method Two: Create the host entry in the host table of one Domain Name Server and set up the domain name server of your local machine.

Note: Method One is the recommended method.

Obtaining Software

You can obtain the latest level of code, MIBs, tips, and publications about the Ethernet Desktop Switch through the Internet.

- WWW Site

    1. Access the IBM Networking Technical Support:

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

    2. Select **8275** from the Product Number menu.

        You can access product announcements, publications, technical tips, and code downloads. You can also subscribe to receive e-mail notifications of code updates, tips, and FAQs for the Ethernet Desktop Switch.

    3. Locate and download the file 8275V*xxx*.EXE. This file includes Boot ROM, Web Pages Database information, system software code, and readme file.

        Note: In this file name, *xxx* is the version number.

    4. FTP Site

        a. Access the IBM Networking Environment anonymous FTP site:

            `ftp.networking.ibm.com/pub/products/lanprods/switch`

        b. Login as anonymous.

        c. Enter your entire e-mail address as your password.

        d. Locate and download the file 8275V*xxx*.EXE. This file includes Boot ROM, Web Pages Database information, system software code, and readme file.

        Note: In this file name, *xxx* is the version number.

Obtaining Service

If you need assistance in troubleshooting or if you need service for your Ethernet Desktop Switch, call IBM at **1-800-772-2227** in the United States and **1-800-426-7378 (1-800-IBM-SERV)** in Canada. See "Warranty" on page B-6 for information concerning service for the product.

Appendix A. Introduction to Virtual LANs (VLANs) and Spanning Tree Protocol (STP)

Virtual LANs

Setting up virtual local area networks (VLANs) on the switch provides you with less time-consuming network administration and more efficient network operation.

The following sections explain more about the concept of VLANs and how they can be implemented on the switch.

What are VLANs?

A VLAN is defined as a group of location- and topology-independent devices that communicate as if they are on the same physical LAN. This means that LAN segments are not restricted by the hardware that physically connects them; the segments are defined by flexible user groups that you create using software.

With VLANs, you can define your network according to:

- **Departmental groups**—For example, you can have one VLAN for the Marketing department, another for the Finance department, and another for the Development department.

- **Hierarchical groups**—For example, you can have one VLAN for directors, another for managers, and another for general staff.

- **Usage groups**—For example, you can have one VLAN for users of e-mail and another VLAN for users of multimedia.

Benefits of VLANs

Implementing VLANs has three main advantages:

- It eases the change and movement of devices on IP networks.
- It helps to control broadcast traffic.
- It provides extra security.

How VLANs Ease Change and Movement

With traditional IP networks, network administrators spend much of their time dealing with moves and changes. If users move to a different IP subnet, the IP addresses of each device must be updated manually.

With a VLAN setup, if a device in VLAN 1 is moved to a port in another part of the network, you only need to specify that the new port is in VLAN 1.

How VLANs Control Broadcast Traffic

With traditional networks, congestion can be caused by broadcast traffic that is directed to all network devices whether they require it or not. VLANs increase the efficiency of your network because each VLAN can be set up to contain only those devices that need to communicate with each other.

How VLANs Provide Extra Security

Devices within each VLAN can communicate only with devices in the same VLAN. If a device in VLAN 1 needs to communicate with devices in VLAN 2, the traffic must cross a router.

Figure A-1 shows a network configured with three VLANs — one for each of the departments that access the network.
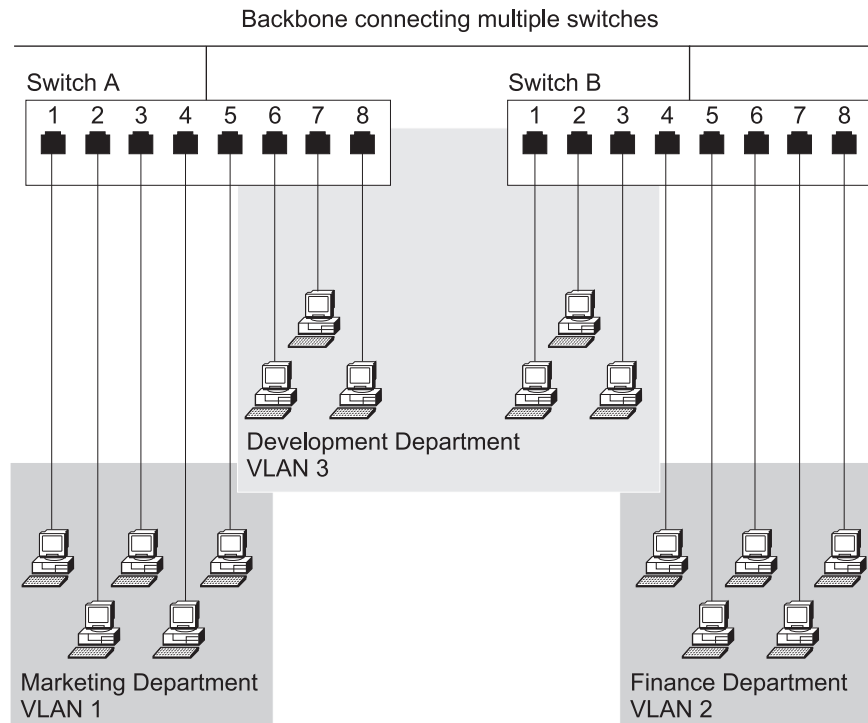
Figure   A-1. An Example of VLANs

The membership of VLAN 1 is restricted to ports 1, 2, 3, 4, and 5 of Switch A; membership of VLAN 2 is restricted to ports 4, 5, 6, 7, and 8 of Switch B while VLAN 3 spans both switches containing ports 6, 7, and 8 of Switch A and 1, 2, and 3 of Switch B.

In this simple example, each of these VLANs can be seen as a *broadcast domain* — physical LAN segments that are not constrained by their physical location.

Specific configurations using the switch are shown later in this appendix.

VLANs and the Switch

The switch supports VLANs that consist of a set of switch ports. Each switch port can belong only to one VLAN at a time, regardless of the device to which it is attached.

Each switch can support up to four VLANs. However, you can have more than four VLANs in your entire network by connecting the four switch VLANs to other VLANs using a router.

The Default VLAN and Moving Ports from the Default VLAN

On each switch, VLAN 1 is the default VLAN of the switch; it has two properties:

- It contains all the ports on a new or initialized switch.

- It is the only VLAN that allows an SNMP Network Manager to access the management agent of the unit.

By default, if a device is attached to a port in the default VLAN and you want to move the device into another VLAN, you need to use the VLAN Setup panel to place the port in that VLAN. For more information about the VLAN Setup panel, see "VLAN Control" on page 4-17 or "VLAN Control" on page 5-11.

Connecting VLANs to a Router

If the devices in a VLAN need to talk to devices in a different VLAN, each VLAN requires a connection to a router. Communications between VLANs can take place only it they are all connected to the router. A VLAN not connected to a router is an isolated VLAN. You need one port for each VLAN connected to the router.

Using Non-routable Protocols

If you are running non-routable protocols on your network (for example, DEC LAT, or NetBIOS), devices within one VLAN are not able to communicate with devices in a different VLAN.

Using Unique MAC Addresses

If you connect a server with multiple network adapters to the switch, you should configure each network adapter with a unique MAC address.

Spanning Tree Protocol

Using the Spanning Tree Protocol (STP) function makes your network more fault-tolerant. The following sections explain more about STP and the STP features supported by the switch.

What is STP?

Note: STP is a part of the 802.1d bridge specification defined by the IEEE Computer Society. To explain STP more effectively, the Ethernet Desktop Switch will be shown as a bridge.

STP is a bridge-based system for providing fault tolerance on networks. STP allows you to implement parallel paths for network traffic and ensure that:

- Redundant paths are disabled when the main paths are operational.
- Redundant paths are enabled if the main paths fail.

For example, Figure A-2 on page A-4 shows a network containing three LAN segments separated by three bridges. With this configuration, each segment can communicate with the others using two paths. This configuration creates loops that cause the network to overload; however, STP allows you to have this configuration because it detects duplicate paths and immediately prevents, or *blocks*, one of them from forwarding traffic.

Figure A-2 on page A-4 shows the result of enabling STP on the bridges in the configuration.

A Network Configuration That Creates Loops

LAN Segment 1

Bridge A

LAN Segment 2

Bridge B

Bridge C

LAN Segment 3

Traffic Flowing Through Bridges C and A

LAN Segment 1

Bridge A

LAN Segment 2

Bridge B

Bridge C

LAN Segment 3

Traffic Flowing Through Bridge B

LAN Segment 1

Bridge A

LAN Segment 2

Bridge B

Bridge C
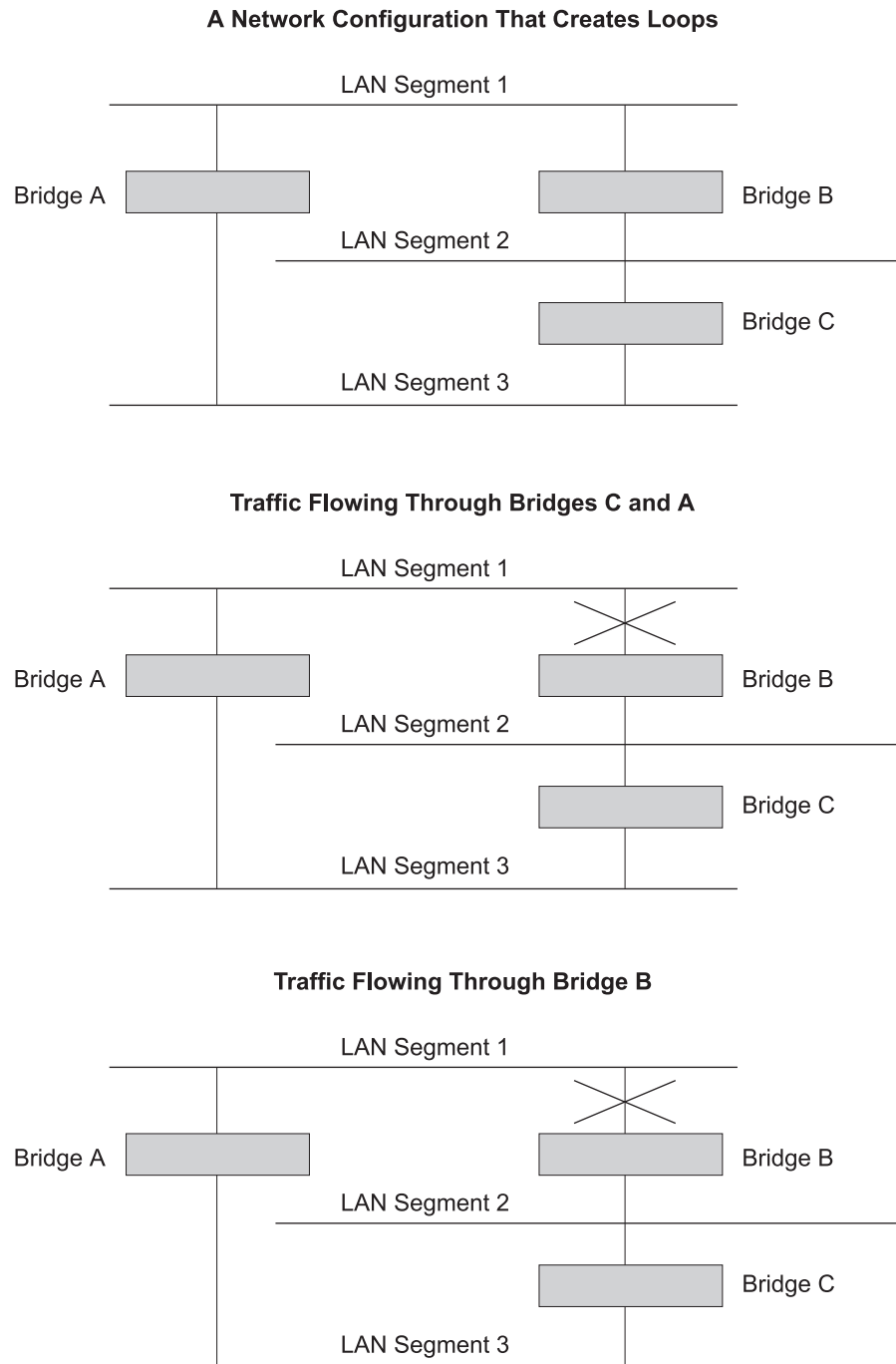
LAN Segment 3

Figure   A-2. Using STP to Control Traffic Flow

The STP system has decided that traffic from LAN segment 2 to LAN segment 1 can flow only through Bridges C and A.

If the link through Bridge C fails, as shown in Figure A-2, the STP system reconfigures the network so that traffic from segment 2 flows through Bridge B.

How STP Works

Initially, the STP system has the following requirements before it can configure the network:

- Communication between all the bridges. This communication is carried out using Bridge Protocol Data Units (BPDUs), which are transmitted in packets with a known multicast address.

- One bridge to start as a master or root bridge, a central point from which the network is configured.

The root bridge is selected on the basis of its having the lowest bridge identifier value. This is a combination of the unique MAC address of the bridge and a priority component defined for the bridge.

The root bridge generates BPDUs on all ports at a regular interval known as the *hello time*. All other bridges in the network have a root port. This is the port nearest to the root bridge, and it is used for receiving the BPDUs initiated by the root bridge.

STP Stabilization

Once the network has stabilized, two rules apply to the network:

1. Each network segment has one designated bridge port. All traffic destined to pass in the direction of or through the root bridge flows through this port. The designated bridge port is the port that has the lowest root path cost for the segment. The root path cost consists of the path cost of the root port of the bridge, plus the path costs across all the root ports back to the root bridge.

2. After all the bridges on the network have determined the configuration of their ports, each bridge forwards traffic only between the root port and the ports that are the designated bridge ports for each network segment. All other ports are *blocked*, which means that they are prevented from forwarding traffic.

STP Reconfiguration

In the event of a network failure, such as a segment going down, the STP system reconfigures the network to cater for the changes. If the topology of your network changes, the first bridge to detect the change sends out an SNMP trap.

Figure A-3 on page A-6 illustrates part of a network.
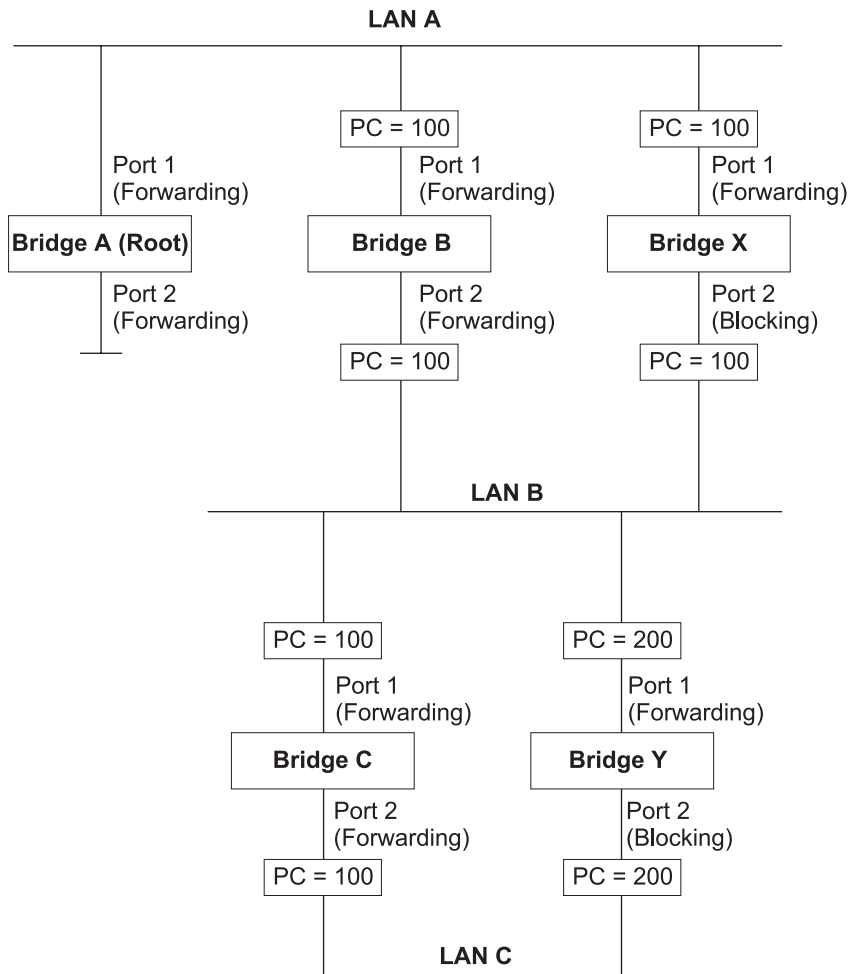
Figure   A-3. Part of a Network

All bridges have a path cost value assigned to each port, identified by PC=*xxx* (where *xxx* is the value).

Bridge A is selected by STP as the root bridge, because it has the lowest bridge identifier. The designated bridge port for LAN A is port 1 on Bridge A. Each of the other four bridges has a root port (the port closest to the root bridge). Bridge X and Bridge B can offer the same path cost to LAN B. In this case Bridge B's port is chosen as the designated bridge port, because it has the lowest root path cost (the route through Bridge C and B costs 200, the route through Bridge Y and B would cost 300). You can set the path cost of a bridge port to influence the configuration of a network with a duplicate path.

Once the network topology is stable, all the bridges listen for special "Hello" BPDUs transmitted from the root bridge at regular intervals. If the STP Max Age time of a bridge expires before receiving a Hello BPDU, the bridge assumes that the root bridge, or a link between itself and the root bridge, has gone down. The bridge then initiates a reconfiguration of the network topology.

You can adjust timers to determine how quickly a network reconfigures and therefore how rapidly it recovers from a path failure. ˚

Appendix B. Notices

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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

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Avis de conformité aux normes d'Industrie Canada

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

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This product is in conformity with the protection requirements of EC 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.

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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."

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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.

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居住的環境中使用時，可
能會造成射頻干擾，在這
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Machine Ethernet Desktop Switch (8275)
            Model 113

Warranty Period* One Year

*Elements and accessories are warranted for three months. Contact your place of purchase for warranty service information.

Production Status

Each Machine is manufactured from new parts, or new and serviceable used parts (which perform like new parts). In some cases, the Machine may not be new and may have been previously installed. Regardless of the Machine's production status, IBM's warranty terms apply.

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IBM warrants that each Machine 1) is free from defects in materials and workmanship and 2) conforms to IBM's Official Published Specifications. IBM calculates the expiration of the warranty period from the Machine's Date of Installation. The date on your receipt is the Date of Installation, unless IBM or your reseller informs you otherwise.

During the warranty period, IBM or your reseller will provide warranty service under the type of service designated for the Machine and will manage and install engineering changes that apply to the Machine. IBM or your reseller will specify the type of service.

For a feature, conversion, or upgrade, IBM or your reseller may require that the Machine on which it is installed be 1) the designated, serial-numbered Machine and 2) at an engineering-change level compatible with the feature, conversion, or upgrade. Some of these transactions (called "Net-Priced" transactions) may include additional parts and associated replacement parts that are provided on an exchange basis. All removed parts become the property of IBM and must be returned to IBM.

Replacement parts assume the remaining warranty of the parts they replace.

If a Machine does not function as warranted during the warranty period, IBM in its sole discretion will repair, replace it (with a Machine that is at least functionally equivalent), or refund the purchase price. To obtain coverage under the warranty you may be required to present proof of purchase.

This warranty is non-transferable by the end-user customer.

Warranty Service

To obtain warranty service for the Machine, you should contact your reseller or call IBM. In the United States call **1-800-772-2227**. In Canada, call **1-800-IBM-SERV (1-800-426-7378)**. You may be required to present proof of purchase.

Depending on the Machine, the service may be 1) a "Repair" service at your location (called "On-site") or at one of IBM's or a reseller's service locations (called "Carry-in") or 2) an "Exchange" service, either On-site or Carry-in.

When a type of service involves the exchange of a Machine or part, the item IBM or your reseller replaces becomes its property and the replacement becomes yours. The replacement may not be new, but will be in good working order and at least functionally equivalent to the item replaced.

It is your responsibility to:

1. obtain authorization from the owner (for example, your lessor) to have IBM or your reseller service a Machine that you do not own;

2. where applicable, before service is provided —

    a. follow the problem determination, problem analysis, and service request procedures that IBM or your reseller provide,

    b. secure all programs, data, and funds contained in a Machine,

    c. inform IBM or your reseller of changes in a Machine's location, and

    d. for a Machine with exchange service, remove all features, parts, options, alterations, and attachments not under warranty service. Also, the Machine must be free of any legal obligations or restrictions that prevent its exchange; and

3. be responsible for loss of, or damage to, a Machine in transit when you are responsible for the transportation charges.

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Installation and Planning Guide

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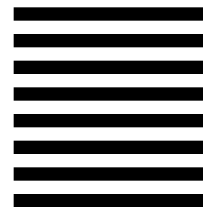Along Line

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