



February 2004

## Managed Express Switch

LBG1000A-R2 with its modules  
LBG1006C or LBG1001C



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Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.

Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.

Todas las instrucciones de operación y uso deben ser seguidas.

El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc.

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El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.

Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá de lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.

El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.

El equipo eléctrico debe ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.

El aparato eléctrico deberá ser conectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.

Precaución debe ser tomada de tal manera que la tierra física y la polarización del equipo no sea eliminada.

Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.

El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.

En caso de existir, una antena externa deberá ser localizada lejos de las líneas de energía.

El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.

Cuidado debe ser tomado de tal manera que objetos líquidos no sean derramados sobre la cubierta u orificios de ventilación.

Servicio por personal calificado deberá ser provisto cuando:

- A: El cable de poder o el contacto ha sido dañado; u
- B: Objetos han caído o líquido ha sido derramado dentro del aparato; o
- C: El aparato ha sido expuesto a la lluvia; o
- D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o su cubierta ha sido dañado.

## Preface

This manual describes how to install and use the Manageable Gigabit Switch. This switch introduced here is designed to deliver full scalability with SNMP/RMON web-based management functions by providing:

LBG1000A-R2: 24 x 10/100BaseTX fixed ports and optional 2 x 1000BaseT/SX/LX ports.

The optional modules: LBG1001C: 1 Port 1000Base-SX Gigabit Ethernet (Multi-Mode, SC connector);

LBG1006C: 1000Base-T Gigabit Ethernet Module (RJ-45 connector).

For the two Gigabit ports, it allows options of fiber type and wavelength at user's discretion. This switch brings a simple answer to today's complicated networking environments.

To get the most out of this manual, you should have an understanding of Ethernet networking concepts.

In this manual, you will find:

- Features on the switch
- Illustrative LED functions
- Installation instructions
- Management Configuration
- SNMP, DHCP, IGMP...
- Specifications

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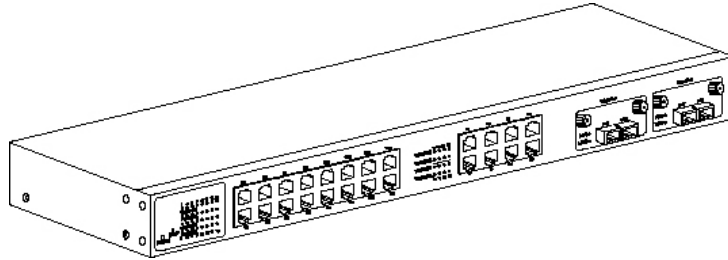
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## Product Overview

### LBG1000A-R2: Manageable 24 + 2 Gigabit Switch



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Front View

### Package Contents

When you unpack the product package, you shall find the items listed below. Please inspect the contents, and report any apparent damage or missing items immediately to your authorized reseller.

- ✓ **LBG1000A-R2: Manageable Switch**
- ✓ **User's Manual**
- ✓ **AC power cord**
- ✓ **RS232 cable**
- ✓ **Rackmount brackets with screws**



## Product Highlights

### Basic Features

LBG1000A-R2: 24 x 10/100BaseTX ports with RJ-45 connectors, plus options of 2 x 1000BaseT/SX/LX ports, auto-MDIX on port 17 ~ port 24

Auto-negotiation for speed and duplexity on all 10/100BaseTX ports

Full wire-speed forwarding rate

Store-and-forward mechanism

Back-pressure and IEEE 802.3x compliant flow control

Supports 32K MAC addresses

Provides 2MBytes memory buffer

Front panel reset button

Front panel port status LEDs

◆ Standard 19" rackmount size, one-unit-height

### Management Support

#### VLAN

Port-based VLAN

802.1Q tagged VLAN

#### PORT-SECURITY

Limit number of MAC addresses learned per port

Static MAC addresses stay in the filtering table

#### PORT-MIRRORING

Port-mirroring provided through dedicated

#### COS (IEEE802.1p Classification of Service)

4-level transmission priorities: 4 queues per output port

Packet transmission scheduled using Weighted Round Robin (WRR)

User-defined weights

Classification of packet priority can be based on either a VLAN tag on packet or a user-definable port priority

#### INTERNETWORKING PROTOCOLS

Bridging:

802.1D Spanning Tree

802.1p/Q – GARP/GVRP

Routing:

RIP

RIP-2

DHCP-Relay

ICMP Router Discovery Message

IP Multicast:

IGMP Snooping

Maximum of 128 VLANs and IP multicast sessions

Bandwidth Control

**NETWORK MANAGEMENT METHODS**

Console port access via RS-232 cable

Telnet remote access

SNMP agent:

MIB-2 (RFC1213)

Bridge MIB (RFC1493)

RMON MIB (RFC1757) – statistics, history, alarm and events

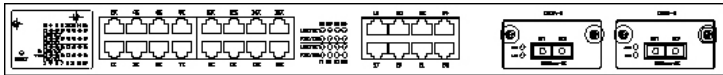
VLAN MIB (802.1Q/RFC2674)

Private MIB

Java applet-based MIB browser

Web browser support based on HTTP server and CGI parser

Kermit/TFTP software-upgrade capability

**Front Panel Display**

## ① POWER

This LED comes on when the switch is properly connected to power and turned on.

## ② Port Status LEDs

The LEDs are located at the left side of each section, displaying status for each respective port. Please refer to the following table for more details.

LED	State	Indication
<b>LNK/ACT</b>	On	A valid network connection established. LNK stands for LINK.
	Flashing	Transmitting or receiving data. ACT stands for ACTIVITY.
<b>FDX/COL</b>	On	Connection in full duplex mode. FDX stands for FULL-DUPLEX.
	Flashing	Collision occurred. COL stands for COLLISION.
	Off	Connection in half-duplex mode.

### ③ Gigabit Port Status LEDs

The LEDs are located at the left side of each Gigabit module, displaying status for each respective port. Please refer to the following table for more details.

LED	State	Indication
ACT	Flashing	Transmitting or receiving data. ACT stands for ACTIVITY.
	Off	No activity.
LNK	On	A valid network connection established. LNK stands for LINK.
	Off	No connection.

## Physical Ports

The Manageable Gigabit Switch provides:

24 x 10/100TX fixed ports and options of 2 x 1000T/SX/LX ports.

16 x 10/100TX fixed ports and options of 1 x 8-Port 10/100TX/100FX module, 2 x 1000T/SX/LX ports.

### CONNECTIVITY

SC connectors on Gigabit ports

ST, SC, VF-45, MT-RJ connectors on 100FX ports

RJ-45 connectors on TX ports

### MODE SELECTION

- 10BaseT full-duplex mode
- 10BaseT half-duplex mode
- 100BaseTX/FX full-duplex mode
- 100BaseTX/FX half-duplex mode
- 1000BaseT/SX/LX full-duplex mode
- Auto-negotiating mode

## Switch Management

### Administration console via RS-232 serial port

The switch provides an onboard serial port, which allows the switch to be configured via a directly connected terminal or a Telnet session.

### Web-based browser interface

The switch also boasts a point-and-click browser-based interface that lets users access full switch configuration and functionality from a Netscape or Internet Explorer browser.

### External SNMP-based network management application

The switch can also be configured via SNMP.

## Installation

This chapter gives step-by-step instructions about how to install the switch:

### Selecting a Site for the Switch

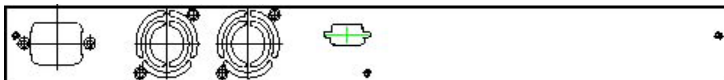
As with any electric device, you should place the switch where it will not be subjected to extreme temperatures, humidity, or electromagnetic interference. Specifically, the site you select should meet the following requirements:

- The ambient temperature should be between 32 and 104 degrees Fahrenheit (0 to 40 degrees Celsius).
- The relative humidity should be less than 90 percent, non-condensing.
- Surrounding electrical devices should not exceed the electromagnetic field (RFC) standards for IEC 801-3, Level 2 (3V/M) field strength.
- Make sure that the switch receives adequate ventilation. Do not block the ventilation holes on each side of the switch or the fan exhaust port on the rear of the switch.
- The power outlet should be within 1.8 meters of the switch.

### Connecting to Power

**Step 1:** Connect the supplied AC power cord to the receptacle on the back of the switch, and then plug it into a standard AC outlet with a voltage range from 100 to 240 Vac.

**Step 2:** Disconnect the power cord if you want to shut down the switch.



Rear view

## Connecting to Your Network

### Cable Type & Length

It is necessary to follow the cable specifications below when connecting the switch to your network. Use appropriate cables that meet your speed and cabling requirements.

Cable Specifications

Speed	Connector	Port Speed Half/Full Duplex	Cable	Max. Distance
10BaseT	RJ-45	10/20 Mbps	2-pair UTP/STP Cat. 3, 4, 5	100 m
100BaseTX	RJ-45	100/200 Mbps	2-pair UTP/STP Cat. 5	100 m
100BaseFX (*Wavelength of 850nm)	ST, SC, VF-45, MT-RJ	100/200 Mbps	62.5/125 $\mu$ m multi-mode fiber	2 km
100BaseFX (*Wavelength of 1300nm)	SC	100/200 Mbps	10/125 $\mu$ m single-mode fiber	75 km
1000BaseT	RJ-45	1000/2000 Mbps	4-pair UTP/STP Cat. 5	100 m
1000BaseSX (*Wavelength of 850nm)	SC	1000/2000 Mbps	62.5/125 $\mu$ m multi-mode fiber	220 m
	SC	1000/2000 Mbps	50/125 $\mu$ m multi-mode fiber	550 m
1000BaseLX (*Wavelength of 1300nm)	SC	1000/2000 Mbps	62.5/125 $\mu$ m multi-mode fiber	550 m
	SC	1000/2000 Mbps	10/125 $\mu$ m single-mode fiber	20 km

### Cabling

**Step 1:** First, ensure the power of the switch and end devices is turned off.

**<Note>** Always ensure that the power is off before any installation.

**Step 2:** Prepare cable with corresponding connectors for each type of port in use.

**<Note>** To connect two regular RJ-45 ports between switches or hubs, you need a cross-over cable.

**Step 3:** Consult Cable Specifications Table on previous page for cabling requirements based on connectors and speed.

**Step 4:** Connect one end of the cable to the switch and the other end to a desired device.

**Step 5:** Once the connections between two end devices are made successfully, turn on the power and the switch is operational.

## Switch Management

This chapter explains the methods that you can use to configure management access to the switch. It describes the types of management applications and the communication and management protocols that deliver data between your management device (workstation or personal computer) and the system. It also contains information about port connection options.

This chapter covers the following topics:

- Management Access Overview
- Key Concepts
- Key Guidelines for Implementation
- Administration Console Access
- Web Management Access
- SNMP Access
- Standards, Protocols, and Related Reading

### Management Access Overview

The switch gives you the flexibility to access and manage the switch using any or all of the following methods.

The administration console and web browser interface support are embedded in the switch software and are available for immediate use.

### Administration Console

The administration console is an internal, character-oriented, menu-driven user interface for performing system administration such as displaying statistics or changing option settings.

Using this method, you can view the administration console from a terminal, personal computer, Apple Macintosh, or workstation connected to the switch's console port.

There are two ways to use this management method: direct access or modem access. The following sections describe these methods.

#### Direct Access

Direct access to the administration console is achieved by directly connecting a terminal or a PC equipped with a terminal-emulation program (such as HyperTerminal) to the switch console port.

When using the management method, configure the terminal-emulation program to use the following parameters (you can change these settings after login):

#### [DEFAULT PARAMETERS]

- ◆ 115,200bps
- ◆ 8 data bits
- ◆ No parity
- ◆ 1 stop bit

This management method is often preferred because you can remain connected and monitor the system during system reboots. Also, certain error messages are sent to the serial port, regardless of the interface through which the associated action was initiated. A Macintosh or PC attachment can use any terminal-emulation program for connecting to the terminal serial port. A workstation attachment under UNIX can use an emulator such as TIP.

#### Modem Access

You can access the switch's administration console from a PC or Macintosh using an external modem attached to the console port. The switch management program provides **Console Port** screen, accessible from the **Basic Management** screen, that lets you configure parameters for modem access.

When you have configured the external modem from the administration console, the switch transmits characters that you have entered as output on the modem port. The switch echoes characters that it receives as input on the modem port to the current administration console session. The console appears to be directly connected to the external modem.

#### Web Management

The switch provides a browser interface that lets you configure and manage the switch remotely.

After you set up your IP address for the switch, you can access the switch's web interface applications directly in your web browser by entering the IP address of the switch. You can then use your web browser to list and manage switch configuration parameters from one central location, just as if you were directly connected to the switch's console port.

Web Management requires either Microsoft Internet Explorer 4.01 or later or Netscape Navigator 4.03 or later.

## SNMP-Based Network Management

You can use an external SNMP-based application to configure and manage the switch. This management method requires the SNMP agent on the switch and the SNMP Network Management Station to use the same community string. This management method, in fact, uses two community strings: the get community string and the set community string. If the SNMP Network management station only knows the set community string, it can read and write to the MIBs. However, if it only knows the get community string, it can only read MIBs. **The default get and set community strings for the switch are public.**

## Protocols

The switch supports the following protocols:

#### **VIRTUAL TERMINAL PROTOCOLS, SUCH AS TELNET**

A virtual terminal protocol is a software program, such as Telnet, that allows you to establish a management session from a Macintosh, a PC, or a UNIX workstation. Because Telnet runs over TCP/IP, you must have at least one IP address configured on the switch before you can establish access to it with a virtual terminal protocol.

**<Note>** Terminal emulation is different from a virtual terminal protocol in that you must connect a terminal directly to the console port.

#### **SIMPLE NETWORK MANAGEMENT PROTOCOL (SNMP)**

SNMP is the standard management protocol for multivendor IP networks. SNMP supports transaction-based queries that allow the protocol to format messages and to transmit information between reporting devices and data-collection programs. SNMP runs on top of the User Datagram Protocol (UDP), offering a connectionless-mode service.

## Management Architecture

All of the management application modules use the same Messaging Application Programming Interface (MAPI). By unifying management methods with a single MAPI, configuration parameters set using one method (e.g. console port) are immediately displayed the other management methods (e.g. SNMP agent of web browser).

The management architecture of the switch adheres to the IEEE open standard. This compliance assures customers that the switch is compatible with, and will interoperate with other solutions that adhere to the same open standard.

# Menu-Driven Console Management

The switch provides a menu-driven console interface for configuration purposes. The switch can be configured either locally through its RS-232 port or remotely via a Telnet session. For the later, you must specify an IP address for the switch first.

This chapter describes how to configure the switch using its menu-driven console.

\* For initial IP settings, you must configure the switch through its RS232 port.

## Logging on to the switch

### At the screen prompt

Login:  
Password:

#### **LOGIN NAME**

Enter the console interface factory default console name **admin**.

#### **PASSWORD**

Enter the factory default password (no password, **press <Enter> directly**). Or enter a user-defined password if you followed the instructions later and changed the factory default password.

**Factory Default Password:** no password, press **<Enter>** directly.

**<Note>** Only one console and three telnet users can log on to the switch concurrently. However, it is not recommended that multiple users modify the configuration at the same time.



## Switch Management Screen



### **BASIC MANAGEMENT**

Basic management activities.

### **ADVANCED MANAGEMENT**

Advanced management activities.

### **LOGOUT**

Highlight this option and press Enter to log out.

### **SAVE SETTINGS**

Highlight this option and press Enter to save the current settings and remain in the configuration program.

### **RESTORE DEFAULT SETTINGS**

Highlight this option and press Enter to restore the factory default settings.

### **REBOOT**

Highlight this option and press Enter to reboot.

## Navigating Through the Console Interface

The console interface consists of a series of menu boxes. Each menu box has several options, which are listed vertically. Move the highlight to select an option as you wish; press the Enter key to activate that option.

Press this key...	To
Up Arrow or K*	Move the highlight one line up in a menu box
Down Arrow or J*	Move the highlight one line down in a menu box
Tab	Move the highlight between screens
Enter	Select the highlighted option
Esc	Move to a previous menu

<Note> \* Remember to release the <Caps Lock> key if you press <K> or <J> and cannot move the highlight on the screen.

## Performing Basic Management Activities

Basic management activities consist of General, LAN Port, and Console Port tasks.

```
Gigabit Switch                               switch_a
|/Switch Management/Basic Management         |admin|
|-----|
| Basic Management |
| |General|
| |LAN Port|
| |Console Port|
|-----|
|<UpArrow><DownArrow>Move |<Enter>Select |<ESC>Previous
```

### Start with Selection Menu

**Step 1:** Highlight [Basic Management] from [Switch Management] screen and press <Enter>. The [Basic Management] screen appears:

**Step 2:** Highlight a desired option and press <Enter>. Or press <Esc> to exit.

```
Gigabit Switch                               switch_a
|/Switch Management/Basic Management/General|admin|
|-----|
| General |
| |-----|
| |Hardware Revision: 36000C Rev. 1 |
| |Hardware Configuration: e1m2g24.rom |
| |Software Revision: v2.63 (Apr 16 2001 17:19:58) |
| |Firmware Revision: No Firmware |
| |-----|
| |System Name: switch_a |
| |Location: |
| |admin Password: xxxxxx |
| |guest Password: xxxxxx |
| |Statistics Collection: Enabled |
| |Reboot-On-Error: Enabled |
| |Remote Telnet Login: Enabled |
| |-----|
|<UpArrow><DownArrow>Move |<Enter>Modify |<ESC>Previous
```

### General Management Configurations

**Step 1:** Highlight [General] from [Basic Management] screen and press <Enter>.

#### System Name

**Step 2:** **System Name** is highlighted. Press <Enter> if you want to change it.

#### Location

**Step 3:** Move to highlight **Location** and press <Enter> if you want to change it.

#### admin Password

**Step 4:** Move to highlight **admin Password** and press <Enter> if you want to change it.

**Guest Password**

Step 5: Move to highlight **guest Password** and press <Enter> if you want to change it.

**Statistics Collection**

Step 6: Move to highlight **Statistics Collection** and press <Enter> if you want to change it, Disabled or Enabled.

**Reboot-On-Error**

Step 7: Move to highlight **Reboot-On-Error** and press <Enter> if you want to change it, Disabled or Enabled.

**Remote Telnet Login**

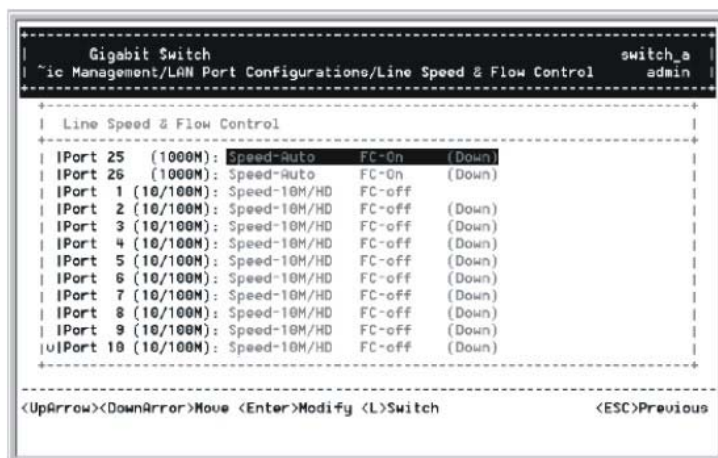
Step 8: Move to highlight **Remote Telnet Login** and press <Enter> if you want to change it, Disabled or Enabled.

**Return to Basic Management**

Step 9: Press <Esc> to return to [Basic Management] screen when completed.

**LAN Port Configurations**

Step 1: Highlight [LAN Port] from [Basic Management] screen and press <Enter>.

**SPEED & FLOW CONTROL**

Step 2: **Speed & Flow Control** is highlighted. Press <Enter> if you want to set speed or flow control on port.

Step 3: Highlight **All (10/100M or 1000M) Ports** and press <Enter> to configure at one time. Otherwise, move to highlight each port and press <Enter> to configure individually.

Step 4: **Port Setting Options** screen appears. Highlight **Speed & Flow Control** and press <Enter>.

#### Line Speed

Step 5: For **Line Speed**, move to highlight a desired setting from **Speed Options** and press <Enter>.

<Note> In the Speed Options, **Auto** denotes auto negotiation on speed and duplex mode, **HD** denotes half-duplex, and **FD** denotes full-duplex.

Step 6: Press <Esc> to previous screen. Highlight **Flow Control** and press <Enter>

#### Flow Control

Step 7: For **Flow Control**, move to highlight a desired setting from the **Flow Cntl Options** and press <Enter>.

Step 8: Press <Esc> to a previous screen as shown in Step 3.

```

Gigabit Switch                               switch_a
~/Basic Management/LAN Port Configurations/Physical Port Address  admin

-----
| Physical Port Address |
|-----|
| Port 25 (A) (100M): 000000000000 |
| Port 26 (B) (100M): 000000000000 |
| Port 1 (1) (10/100M): 000000000000 |
| Port 2 (2) (10/100M): 000000000000 |
| Port 3 (3) (10/100M): 000000000000 |
| Port 4 (4) (10/100M): 000000000000 |
| Port 5 (5) (10/100M): 000000000000 |
| Port 6 (6) (10/100M): 000000000000 |
| Port 7 (7) (10/100M): 000000000000 |
| Port 8 (8) (10/100M): 000000000000 |
| Port 9 (9) (10/100M): 000000000000 |
| Port 10 (10) (10/100M): 000000000000 |
| Port 11 (11) (10/100M): 000000000000 |
| Port 12 (12) (10/100M): 000000000000 |
|-----|
<UpArrow><DownArrow>Move <L>Switch                               <ESC>Previous

```

#### PHYSICAL PORT ADDRESS

Step 9: Press <Esc> to a previous screen as shown in Step 1.

Step 10: Move to highlight **Physical Address** to view physical port address.

Step 11: Press <Esc> to return to [Basic Management] screen when completed.

```

Gigabit Switch                               switch_a
| /Switch Management/Basic Management/Console Port Configurations | admin |
|-----|
| Console Port Configurations |
| Baud Rate: 115200 |
| Flow Control: Disabled |
| Modem Control: Disabled |
| Modem Setup String: AT&F E0 L1 &C1 S0=1 &D2 |
| SLIP: Disabled |
| SLIP Address: |
| SLIP Subnet Mask: |
|-----|
|<UpArrow><DownArrow>Move |<Enter>Modify |
|                               |<ESC>Previous |

```

## Console Port Configurations

Step 1: Move to highlight [Console Port] from [Basic Management] screen.

### Baud Rate

Step 2: **Baud Rate** is highlighted. Press <Enter> if you want to change the current console baud rate.

### Flow Control

Step 3: Move to highlight **Flow Control** and press <Enter> if you want to change the current flow control method.

### Modem Control

Step 4: Move to highlight **Modem Control** and press <Enter> to decide a console modem connection, Disabled or Enabled.

### Modem Setup String

Step 5: When a modem connection is enabled, move to highlight **Modem Setup String** and press <Enter>. Decide whether you want to use Default or Custom Setup String.

<Note> Default Setup String configures the modem to auto answer. It works for all Hayes compatible modems.

### SLIP

Step 6: Move to highlight **SLIP** and press <Enter> if you want to change it, Disabled or Enabled.

<Note> If you enable SLIP, a message tells you that the console port becomes accessible only through the SLIP protocol after you logout from the current console screen.

### SLIP Address

Step 7: Move to highlight **SLIP Address** and press <Enter> if you want to set it.

### SLIP Subnet Mask

Step 8: When SLIP IP address is entered, move to highlight **SLIP Subnet Mask** and press <Enter>. Enter a suitable subnet mask.

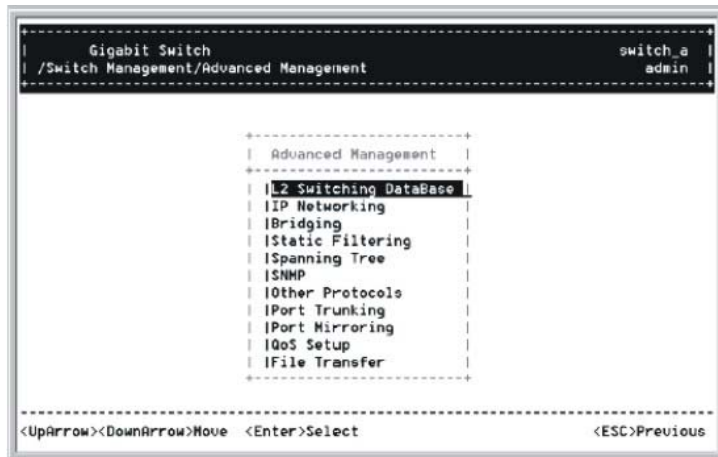
<Note> You must enter a SLIP address before you can enter a SLIP subnet mask.

### Return to Basic Management

Step 9: Press <Esc> to return to [Basic Management] screen when completed.

## Performing Advanced Management Activities

Advanced management activities consist of L2 Switching DataBase / IP Networking / Bridging / Static Filtering / Spanning Tree / SNMP / Other Protocols / Port Mirroring / QoS Setup / File Transfer.



### Start with Selection Menu

**Step 1:** Highlight [Advanced Management] from [Switch Management] screen and press <Enter>. The [Advanced Management] screen appears:

**Step 2:** Move to highlight a desired option and press <Enter>. Or press <Esc> to exit.

#### **L2 SWITCHING DATABASE**

View and change VLAN, MAC address, IP multicast group, and port perspectives.

#### **IP NETWORKING**

View and change IP settings, ARP and routing table parameters, DHCP gateway settings, and ping settings.

#### **BRIDGING**

View and change the aging period for a MAC address and the flood limit for all ports.

#### **STATIC FILTERING**

View / add / delete / search all source or destination MAC addresses to be filtered.

#### **SPANNING TREE**

View and change spanning tree configurations, ports states, path costs, and port priorities.

#### **SNMP**

View and change the SNMP configuration.

#### **OTHER PROTOCOLS**

View and change GVRP and IGMP settings.

#### **PORT MIRRORING**

Mirror one port to another.

#### **QOS SETUP**

Specify Quality of Service parameter.

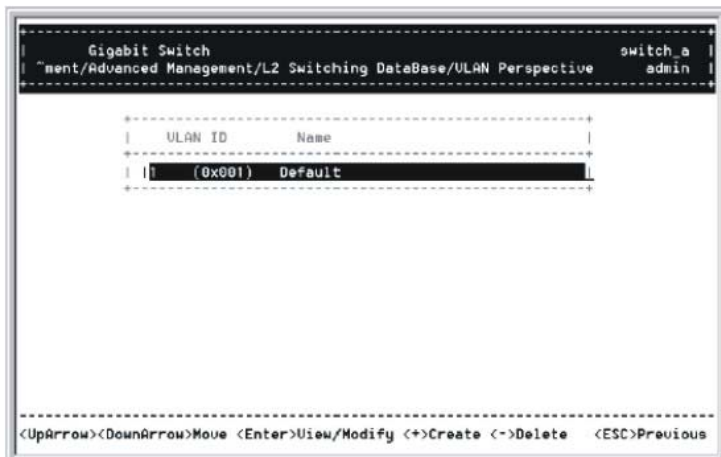
#### **FILE TRANSFER**

Send files using the TFTP or Kermit protocol.



## L2 Switching DataBase

Highlight [L2 Switching DataBase] from [Advanced Management] screen and press <Enter>.



### VLAN PERSPECTIVE

Step 1: The VLAN Perspective is highlighted. Press <Enter> to view VLAN info of the default VLAN or if you want to obtain a VLAN perspective instead of the default VLAN.

**<Note>** Default VLAN:  
The IEEE802.1Q standard defines VLAN ID #1 as the default VLAN. The default VLAN includes all the ports as the factory default. The default VLAN's egress rule restricts the ports to be all untagged, so it can, by default, be easily used as a simple 802.1D bridging domain. The default VLAN's domain shrinks as untagged ports are defined in other VLANs.

### Create VLAN

Step 2: Press <Shift> and [+ ] on keypad to enter **New VLAN Settings**.  
Enter new VLAN ID and VLAN name.

**<Note>** "Remote" is appended to the VLAN ID automatically if the VLAN is learned from a remote switch.

### Add New Switch Ports

Step 3: Press <Esc> and appears the following screen. Press <Shift> and [+ ] to add new switch ports to the newly created VLAN.

Step 4: Move to highlight a suitable option from **Port Options** and press <Enter>, e.g. Untagged Ports.

Step 5: From **Select Untagged Ports**, press <Enter> to select **All Ports** or move to highlight each port individually and press <Enter>. Similar procedure when you select Tagged Ports and Forbidden Ports in Step 4.

<Note> If you added untagged ports and want to now add tagged ports or forbidden ports, or vice versa, repeat **Step 4** and **Step 5**.

**Step 6:** Press <Esc> to a previous screen as shown in **Step 1**.

#### Delete VLAN

**Step 7:** Delete VLAN: highlight a VLAN ID and press [-] to delete it. Note that you cannot delete the default VLAN.

**Step 8:** Press <Esc> to a previous screen as shown in **Step 1** when completed with deleting a VLAN.

#### VLAN Info

**Step 9:** Highlight an existing VLAN and press <Enter> to view VLAN information.

**Step 10:** Move to highlight **VLAN Activities** and press <Enter> to view or search activity information.

**Step 11:** Return to **Step 9**. Move to highlight **VLAN Settings** and press <Enter>. The screen appears as shown in **Step 3** for adding or deleting switch ports.

```

Gigabit Switch                               switch_a
Management/L2 Switching DataBase/IP Multicast Group Perspective   admin
-----
| IP Multicast Group Address |
|-----|
| 225.1.2.3   VLAN 1 (0x001) |
| 225.1.2.5   VLAN 1 (0x001) |
| 225.1.3.7   VLAN 1 (0x001) |
|-----|
<UpArrow><DownArrow>Move <Enter>View           <ESC>Previous

```

#### IP MULTICAST GROUP PERSPECTIVE

**Step 1:** Move to highlight [IP Multicast Group Perspective] from [L2 Switching DataBase] screen and press <Enter>.

**Step 2:** Move to highlight an address to view information associated with this IP multicast group.

```

Gigabit Switch                               switch_a
Advanced Management/L2 Switching DataBase/MAC Address Perspective   admin
-----
| Enter MAC Address: |
| _ |
|-----|
Enter 6-byte hex number and press <ENTER>           <ESC>Previous

```

#### MAC ADDRESS PERSPECTIVE

**Step 1:** Move to highlight [MAC Address Perspective] from [L2 Switching DataBase] screen and press <Enter>.



Step 2: Enter a MAC address to view characteristics information, corresponding VLANs, and corresponding ports in the switching database.



### PORT PERSPECTIVE

Step 1: Move to highlight [Port Perspective] from [L2 Switching DataBase] screen and press <Enter>.

You can view VLAN activities and RMON statistics here.

#### Per Port VLAN Activities

Step 2: **Per Port VLAN Activities** is highlighted. Press <Enter>.

Step 3: Move to highlight a port and press <Enter>.

E.g. select Port A to view corresponding VLAN Activities.

Step 4: View or search by MAC address individually.

Step 5: Press <Esc> to return to a previous screen as shown in Step 1.

#### Per Port Statistics

Step 6: Move to highlight **Per Port Statistics** and press <Enter>.

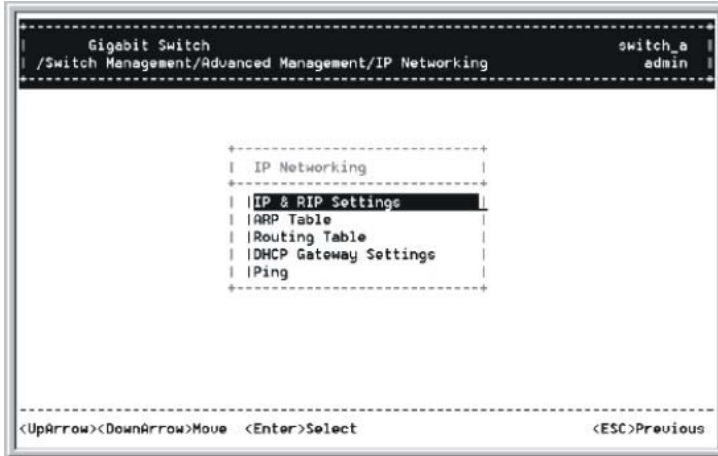
Step 7: Move to highlight a port and press <Enter>.

Press <R> to reset counter for this port.

#### Per Port MAC Limit

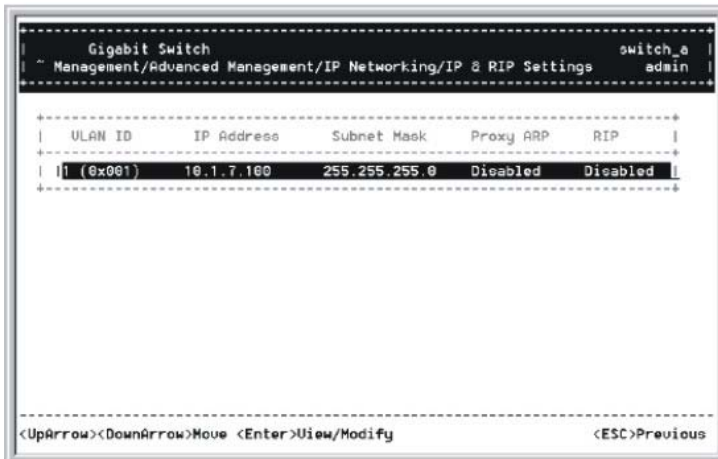
Step 8: Move to highlight **Per Port MAC Limit** and press <Enter>.

Step 9: Move to highlight a port and press <Enter>.



## IP Networking

Move to highlight [IP Networking] from [Advanced Management] screen and press <Enter>.



### IP & RIP SETTINGS

Step 1: Highlight [IP & RIP Settings] from [IP Networking] and press <Enter>.

Step 2: The screen shows a list of VLAN IDs, IP addresses, subnet masks, proxy ARPs, and RIPs currently defined.

Step 3: Move to highlight the row that contains the parameters you want to change, and then press <Enter>.

Step 4: Move to highlight a parameter you want to change, and then press <Enter> for modifications. Otherwise, you may press [-] to delete that parameter.

#### Initial IP Settings

Step 5: Move to highlight **IP Address** and press <Enter>.

Step 6: Type an IP address and press <Enter>

Step 7: Press <Esc> until you return to [Switch Management] screen. Make sure you save the settings before you log out.

```

Gigabit Switch                               switch_a
/ Switch Management/Advanced Management/IP Networking/ARP Table  admin
-----
| Internet Address  Physical Address  ULAN ID  Type  |
| 10.1.7.100       0000AAAA1234  1 (0x001)  static |
-----
<UpArrow><DownArrow>Move <+>Add <->Delete <s>Search          <ESC>Previous

```

### ARP TABLE SETTING

Step 1: Move to highlight [ARP Table] from [IP Networking] and press <Enter>. The screen shows the ARP table entries that have been defined or learned.

#### Add/Delete Static ARP Table Entries

Step 2: Press <Shift> and [+] on keypad to add an entry into the ARP Table. Enter Internet/Physical Addresses then.

Step 3: Press [-] on keypad if you want to delete a static entry from the ARP Table.

\* No precautionary message appears before you delete an entry from the ARP table.  
\* Be sure you want to delete it before doing so.

#### Search for ARP Table Entries

Step 4: Press <S> to search a static entry. You can search by Internet address or physical address.

```

Gigabit Switch                               switch_a
/ Switch Management/Advanced Management/IP Networking/Routing Table  admin
-----
| Network      Mask      Gateway  Metric ULAN  Type  Protocol |
| 0.0.0.0      255.0.0.0  0.0.0.0  1       0x001  Martian Local |
| 10.1.7.0     255.255.255.0  10.1.7.100  1       0x001  Direct Local |
| 10.1.7.0     255.255.255.255  10.1.7.255  1       0x001  Martian Local |
| 10.1.7.100   255.255.255.255  10.1.7.100  1       0x001  Myself Local |
| 10.1.7.255   255.255.255.255  10.1.7.255  1       0x001  Bcast Local |
| 1127.0.0.0  255.0.0.0   0.0.0.0   1       0x001  Martian Local |
| 1224.0.0.0  224.0.0.0   0.0.0.0   1       0x001  Martian Local |
| 1224.0.0.0  240.0.0.0   0.0.0.0   1       0x001  Mcast Local |
| 1224.0.0.9  255.255.255.255  0.0.0.0   1       0x001  Mcast Local |
| 1255.255.255.255  255.255.255.255  255.255.255.255  1       0x001  Bcast Local |
-----
<UpArrow><DownArrow>Move <+>Add <->Delete <s>Search          <ESC>Previous

```

### ROUTING TABLE

Step 1: Move to highlight [Routing Table] from [IP Networking] and press <Enter>. The screen shows the Routing Table allows you to view, add, delete or search a particular routing path.

### Routing Table Columns

Column	Description	
<b>Network</b>	The IP subnetwork address to which the switch can route packets.	
<b>Mask</b>	The related IP subnetwork mask to which the switch can route packets.	
<b>Gateway</b>	The IP address of the router at the next hop.	
<b>Metric</b>	The number of hops needed between the switch and the destination network.	
<b>VLAN</b>	The VLAN within which the gateway or destination resides.	
<b>Type</b>	The IP route type for the IP subnetwork. There are six IP route types:	
	<i>Direct</i>	A directly connected subnetwork.
	<i>Remote</i>	A remote IP subnetwork or host address.
	<i>Myself</i>	A switch IP address on a specific IP subnetwork.
	<i>Bcast</i>	A subnetwork broadcast address.
	<i>Mcast</i>	An IP multicast address.
<b>Protocol</b>	<i>Martian</i>	An illegal IP address to be filtered.
	Indicates one of the following:	
	<i>Local</i>	A manually configured routing entry.
	<i>NetMgmt</i>	A routing entry set via SNMP.
	<i>ICMP</i>	A routing entry obtained via ICMP redirect.
	<i>RIP</i>	A routing entry learned via the RIP protocol.
<i>Other</i>	A protocol other than one of the other four listed above.	

### Add/Delete Routing Table Entries

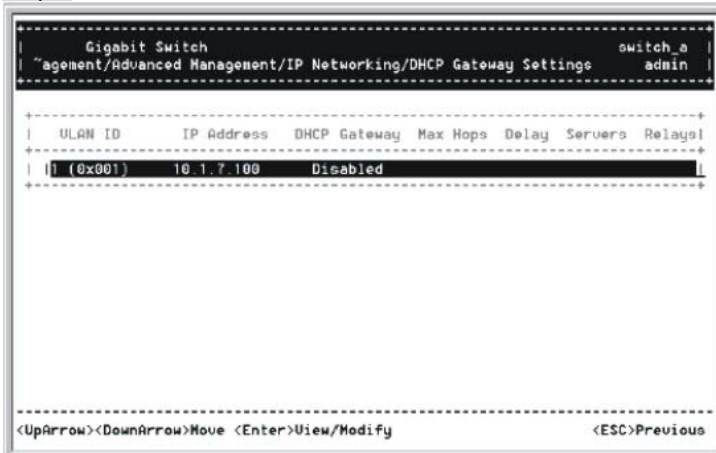
Step 2: Press <Shift> and [+] on keypad to enter **Route Options** as shown below.

Step 3: Press [-] to delete an entry in the routing table.

\* No precautionary message appears before you delete an entry from the routing table.  
\* Be sure you want to delete it before doing so.

### Search for Routing Table Entries

Step 4: Press <S> to search a network address. Enter the network address you want you are looking for.



```
Gigabit Switch                               switch_a
Management/Advanced Management/IP Networking/DHCP Gateway Settings  admin

+-----+-----+-----+-----+-----+-----+-----+
|  ULAN ID  | IP Address | DHCP Gateway | Max Hops | Delay | Servers | Relays |
+-----+-----+-----+-----+-----+-----+-----+
|  (0x001)  | 10.1.7.100 | Disabled     |          |      |         |       |
+-----+-----+-----+-----+-----+-----+-----+

<UpArrow><DownArrow>Move <Enter>View/Modify                <ESC>Previous
```

### DHCP GATEWAY SETTINGS

Step 1: Move to highlight [DHCP Gateway Settings] from [IP Networking] and press <Enter>.

Step 2: Move to highlight a row you want to change the DHCP Gateway Settings, and press <Enter>

#### Add/Delete Relay IP

Step 3: Press <Shift> and [+] on keypad to add a relay IP. Choose a suitable interface or **All Interfaces** from **Select Outbound Relay Interfaces**.

Otherwise, you may press [-] on keypad to delete a relay IP.

\* No precautionary message appears before you delete a relay IP.  
\* Be sure you want to delete it before doing so.

### DHCP Gateway Options

Step 4: Move to highlight **DHCP Gateway** and press <Enter>.

Decide to have it Disabled or Enabled.

### Maximum Hops

Step 5: Move to highlight **Maximum Hops** and press <Enter>

Step 6: Enter decimal number (1-16) to configure the maximum number of hops.

### Delay (sec)

Step 7: Move to highlight **Delay (sec)** and press <Enter>.

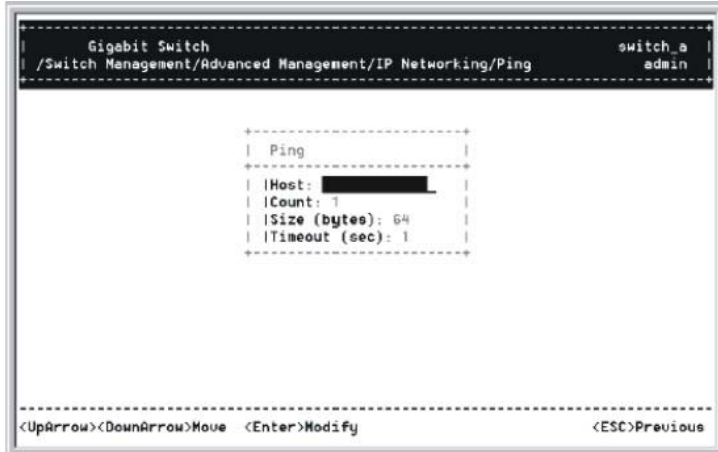
Step 8: Enter decimal number (0-65535) configure the delay in seconds.

### Preferred Server

Step 9: Move to highlight **Preferred Server** and press <Enter>.

Step 10: Enter IP address for the Preferred Server.

Step 11: To specify up to three more Preferred Servers, repeat the above steps.



### PING SETTINGS

Step 1: Move to highlight [Ping] from [IP Networking] and press <Enter>.

#### Host

Step 2: Move to highlight **Host** and press <Enter>.

Step 3: Enter 4 decimal bytes (dot separated) as the IP address to ping.

#### Count

Step 4: Move to highlight **Count** and press <Enter>.

Step 5: Specify a packet count number from 1 to 999, or type 0 for an infinite packet count. Press <Enter>.

#### Size (bytes)

Step 6: Move to highlight **Size** and press <Enter>.

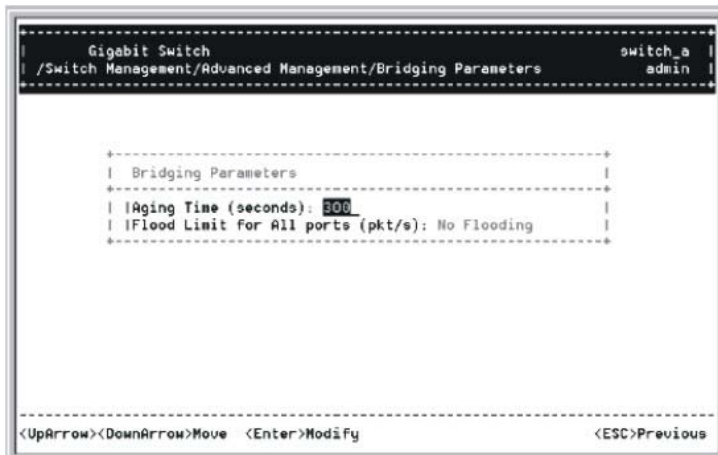
Step 7: Specify a packet size from 0-1500. Press <Enter>.

#### Timeout (sec)

Step 8: Move to highlight **Timeout** and press <Enter>.

Step 9: Specify a timeout value from 1-999. Press <Enter>.

Step 10: Press <Esc> to start to ping when completed with the ping parameters.



## Bridging

Move to highlight [Bridging] from [Advanced Management] screen, and press <Enter>.

### AGING TIME

Step 1: Move to highlight **Aging Time** and press <Enter>.

**Aging Options**

Step 2: **Set Aging Time** is highlighted. Press <Enter>. Enter a decimal number as bridge aging period in seconds.

Step 3: Otherwise, you may move to highlight **No Aging**, and press <Enter>.

**FLOOD LIMIT FOR ALL PORTS**

Step 1: Move to highlight [Flood Limit for All ports] and press <Enter>.

**Flooding Options**

Step 2: **Set Flood Limit** is highlighted. Press <Enter>. Enter a decimal number as flood limit in packets per second.

Step 3: Otherwise, you may move to highlight **Unlimited**, and press <Enter>.

```

Gigabit Switch                               switch_a |
| /Switch Management/Advanced Management/Static Filtering      admin |
+-----+
| Static Filtering |
| Source MAC Address Out-Filters |
| Destination MAC Address Out-Filters |
| MAC Address In-Filters |
+-----+
<UpArrow><DownArrow>Move  <Enter>View/Modify          <ESC>Previous

```

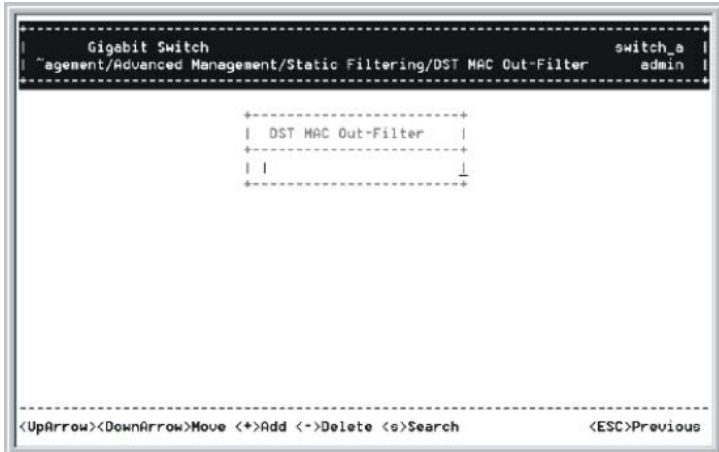
**Static Filtering**

Move to highlight [Static Filtering] from [Advanced Management] screen, and press <Enter>.

```

Gigabit Switch                               switch_a |
| Management/Advanced Management/Static Filtering/SRC MAC Out-Filter  admin |
+-----+
| SRC MAC Out-Filter |
| | |
+-----+
<UpArrow><DownArrow>Move <+>Add <->Delete <S>Search          <ESC>Previous

```



### SOURCE/DESTINATION MAC ADDRESS OUT-FILTERS

Step 1: Move to highlight source MAC addresses or destination MAC addresses for static filtering, and press <Enter>.

#### Add/Delete/Search

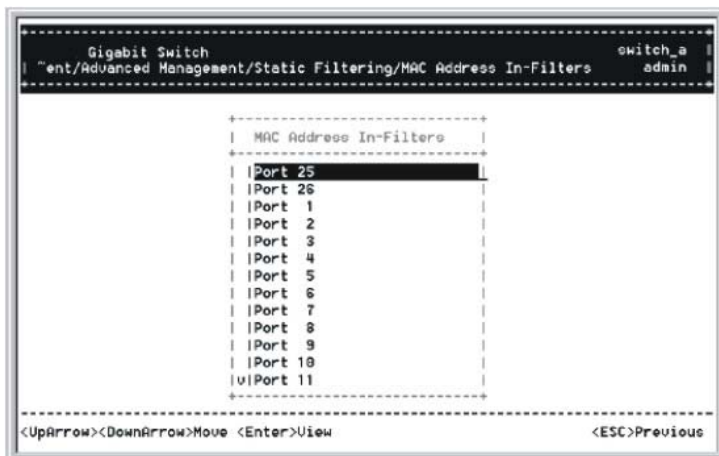
Step 2: Press <Shift> and [+] on keypad to add a specific MAC address to be filtered.

Press [-] to delete a specific MAC address from being filtered.

Press <S> to search through current list of MAC addresses in the static filtering database. The static filtering database maximum capacity is 64.

\* No precautionary message appears before you delete a specific MAC address from being filtered.

\* Be sure you want to delete it before doing so.



### MAC Address In-Filters

Move to highlight [Static Filtering] from [Advanced Management] screen, and press <Enter>.

#### MAC ADDRESS IN-FILTERS

Step 1: Move to highlight MAC addresses In-Filters and press <Enter>.

#### Add/Delete/Search

Step 2: Press <Shift> and [+] on keypad to add a specific MAC address to be filtered.

Press [-] to delete a specific MAC address from being filtered.

Press <S> to search through current list of MAC addresses in the static filtering database. The static filtering database maximum capacity is 64.



- \* No precautionary message appears before you delete a specific MAC address from being filtered.
- \* Be sure you want to delete it before doing so.

```

Gigabit Switch                               switch_a
| /Switch Management/Advanced Management/Spanning Tree Protocol      admin |
|-----|
| Spanning Tree Protocol |
| | Spanning Tree Configurations |
| | Spanning Tree Port States |
| | Spanning Tree Path Costs |
| | Spanning Tree Port Priorities |
|-----|
|<UpArrow><DownArrow>Move |<Enter>Select |<ESC>Previous

```

### Spanning Tree Functions

Move to highlight [Spanning Tree] from [Advanced Management] screen, and press <Enter>.

```

Gigabit Switch                               switch_a
| /nt/Spanning Tree Protocol/Spanning Tree Protocol Configurations  admin |
|-----|
| Spanning Tree Protocol Configurations |
| | Bridge ID: 8000.000000AAAA00 |
| | Designated Root: N/A |
| | Root Port: N/A |
| | Root Path Cost: N/A |
| | Current Max Age (sec): N/A |
| | Current Hello Time (sec): N/A |
| | Current Forward Delay (sec): N/A |
| | Hold Time (sec): N/A |
| | Topology Change Count: N/A |
| | Time Since Last Topology Change (sec): N/A |
| | |
| | Spanning Tree Protocol: Disabled |
| | Bridge Priority: 32.768 |
| | Hello Time (sec): 2 |
|-----|
|<UpArrow><DownArrow>Move |<Enter>Modify |<L>Switch |<ESC>Previous

```

### SPANNING TREE CONFIGURATIONS

Step 1: Move to highlight [Spanning Tree Configurations] if you want to change Spanning Tree Protocol Configurations.

#### Spanning Tree Protocol

Step 2: Press <Enter> to enter **Spanning Tree Options**.  
Decide to have it Disabled or Enabled.

#### Bridge Priority

Step 3: Move to highlight **Bridge Priority** and press <Enter>.  
Type a decimal number for the bridge priority and press <Enter>.

#### Hello Time (sec)

Step 4: Move to highlight **Hello Time** and press <Enter>.  
Type a decimal number for the hello time and press <Enter>.

#### Max Age (sec)

Step 5: Move to highlight **Max Age** and press <Enter>.  
Type a decimal number for the max age.

**Forward Delay (sec)**

Step 6: Move to highlight **Forward Delay** and press <Enter>. Type a decimal number for the forward delay.

```

Gigabit Switch                               switch_a |
| /Switch Management/Advanced Management/Spanning Tree Protocol   admin |
+-----+
| Spanning Tree Port States |
+-----+
| IPort 25: Disabled (Link Down) |
| IPort 26: Disabled (Link Down) |
| IPort 1: Forwarding             |
| IPort 2: Disabled (Link Down) |
| IPort 3: Forwarding             |
| IPort 4: Disabled (Link Down) |
| IPort 5: Disabled (Link Down) |
| IPort 6: Disabled (Link Down) |
| IPort 7: Disabled (Link Down) |
| IPort 8: Disabled (Link Down) |
| IPort 9: Disabled (Link Down) |
| IPort 10: Disabled (Link Down) |
| IPort 11: Disabled (Link Down) |
+-----+
|<UpArrow><DownArrow>Move <Enter>Change Status <L>Switch          <ESC>Previous

```

**SPANNING TREE PORT STATES**

Step 1: Move to highlight [Spanning Tree Port States] if you want to change per port administration status, and press <Enter>.

Step 2: Move to highlight a port if you want to change its administration status, and press <Enter>.

'Disabled (Link Down)' denotes Admin Status Up without a link.

'Forwarding' denotes Admin Status Up with a link.

'Admin Status Down' denotes no TX/RX transmission allowed

'Admin Status Up' denotes TX/RX transmission allowed.

```

Gigabit Switch                               switch_a |
| /Switch Management/Advanced Management/Spanning Tree Protocol   admin |
+-----+
| Spanning Tree Path Costs |
+-----+
| All Ports:                 |
| IPort 25: 10              |
| IPort 26: 4               |
| IPort 1: 19               |
| IPort 2: 19               |
| IPort 3: 19               |
| IPort 4: 19               |
| IPort 5: 19               |
| IPort 6: 19               |
| IPort 7: 19               |
| IPort 8: 19               |
| IPort 9: 19               |
| IPort 10: 19              |
+-----+
|<UpArrow><DownArrow>Move <Enter>Modify <L>Switch          <ESC>Previous

```

**SPANNING TREE PATH COSTS**

Step 1: To change the path cost, move to highlight [Spanning Tree Path Costs] and press <Enter>.

Step 2: Move to highlight **All Ports** or each port individually, and press <Enter>. For new path cost, type a decimal number and press <Enter>.

```

Gigabit Switch                               switch_a
/ Switch Management/Advanced Management/Spanning Tree Protocol  admin

+-----+
| Spanning Tree Port Priorities |
+-----+
| All Ports: 128 |
| Port 25: 128 |
| Port 26: 128 |
| Port 1: 128 |
| Port 2: 128 |
| Port 3: 128 |
| Port 4: 128 |
| Port 5: 128 |
| Port 6: 128 |
| Port 7: 128 |
| Port 8: 128 |
| Port 9: 128 |
| Port 10: 128 |
+-----+

<UpArrow><DownArrow>Move <Enter>Modify <L>Switch          <ESC>Previous

```

### SPANNING TREE PORT PRIORITIES

Step 1: To change the priority level per port, move to highlight [Spanning Tree Port Priorities] and press <Enter>.

Step 2: Move to highlight **All Ports** or each port individually, and press <Enter>. For new priority value, type a decimal number from 0-255, and press <Enter>. A low value gives the port a greater likelihood of becoming a Root port.

```

Gigabit Switch                               switch_a
/ Switch Management/Advanced Management/SNMP Configurations  admin

+-----+
| SNMP Configurations |
+-----+
| SNMP: Disabled |
| Get Community Name: public |
| Set Community Name: public |
| Trap Community Name 1: public |
| Trap Community Name 2: public |
| Trap Community Name 3: public |
| Trap Community Name 4: public |
| Trap Community Name 5: public |
| Trap Host 1 IP Address: |
| Trap Host 2 IP Address: |
| Trap Host 3 IP Address: |
| Trap Host 4 IP Address: |
| Trap Host 5 IP Address: |
| Cold Start Trap: Enabled |
+-----+

<UpArrow><DownArrow>Move <Enter>Modify <->Delete IP Address  <ESC>Previous

```

### SNMP Functions

Move to highlight [SNMP] from [Advanced Management] screen, and press <Enter>.

#### SNMP Options

Step 1: Move to highlight **SNMP** and press <Enter>. Decide to have it Disabled or Enabled.

#### Get Community Name

Step 2: Move to highlight **Get Community Name** and press <Enter>. Enter text and press <Enter>.

#### Set Community Name

Step 3: Move to highlight **Set Community Name** and press <Enter>. Enter text and press <Enter>.

#### Trap Community Name

Step 4: move to highlight **Trap Community Name 1** and press <Enter>. Enter text and press <Enter>. Repeat to specify up to three more trap community names.

### Trap Host IP Address

Step 5: Move to highlight **Trap Host 1 IP Address** and press <Enter>.  
Type an IP address for trap host 1 and press <Enter>  
Repeat to specify up to three more trap host IP addresses

### Cold Start Trap

Step 6: Move to highlight **Cold Start Trap** and press <Enter>.  
Decide to have it Disabled or Enabled.

### Warm Start Trap

Step 7: Move to highlight **Warm Start Trap** and press <Enter>.  
Decide to have it Disabled or Enabled.

### Link Down Trap

Step 8: Move to highlight **Link Down Trap** and press <Enter>.  
Decide to have it Disabled or Enabled.

### Link Up Trap

Step 9: Move to highlight **Link Up Trap** and press <Enter>.  
Decide to have it Disabled or Enabled.

### Authentication Failure Trap

Step 10: Move to highlight **Authentication Failure Trap** and press <Enter>.  
Decide to have it Disabled or Enabled.

### Rising Alarm Trap

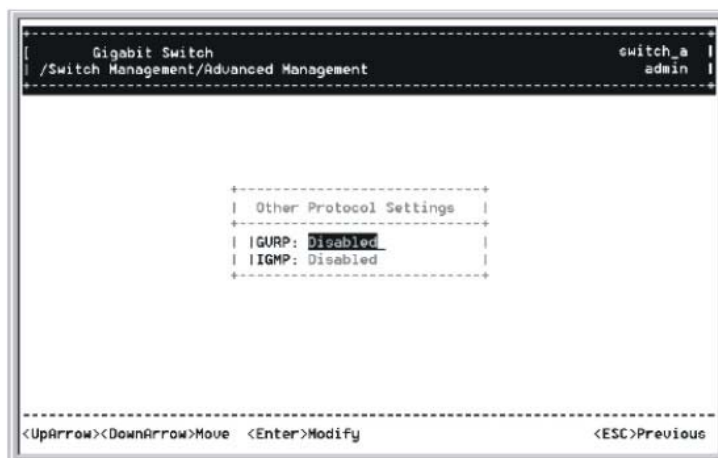
Step 11: Move to highlight **Rising Alarm Trap** and press <Enter>.  
Decide to have it Disabled or Enabled.

### Falling Alarm Trap

Step 12: Move to highlight **Falling Alarm Trap** and press <Enter>.  
Decide to have it Disabled or Enabled.

### Topology Change Trap

Step 13: Move to highlight **Topology Change Trap** and press <Enter>.  
Decide to have it Disabled or Enabled.



## Other Protocols

Move to highlight [Other Protocols] from [Advanced Management] screen, and press <Enter>.

### GVRP

Step 1: Move to highlight **GVRP** and press <Enter>.

Step 2: Decide to have it Disabled or Enabled.

**IGMP**

Step 1: Move to highlight **IGMP** and press <Enter>.

Step 2: Decide to have it Disabled or set in either Passive or Active mode.

```

Gigabit Switch                               switch_a
/ Switch Management/Advanced Management/Port Mirroring  admin

+-----+
| Mirror Index | Mirror To | Mirror From | Mode |
+-----+
| 1            |           |             |     |
| 2            |           |             |     |
+-----+

<UpArrow><DownArrow>Move <Enter>Select <L>Switch      <ESC>Previous

```

**Port Mirroring**

Move to highlight [Port Mirroring] from [Advanced Management] screen, and press <Enter>.

**Mirror To**

Step 1: Press <Enter> to enter **Mirror To Options**, listing the ports that can be mirrored to.

Step 2: Move to highlight the port you want to mirror to and press <Enter>.

**Mirror From**

Step 3: Press <Enter> to enter **Mirror From Options**, listing the ports that can be mirrored from.

Step 4: Move to highlight the port you want to mirror from and press <Enter>.

**Mirror Mode**

Step 5: Move to select **Mirror Mode**. From **Mode Options**, decide whether the port to be mirrored from will be receiving or transmitting.

Step 6: Press <Esc> when completed.

```

Gigabit Switch                               switch_a
/ Switch Management/Advanced Management/QoS Setup      admin

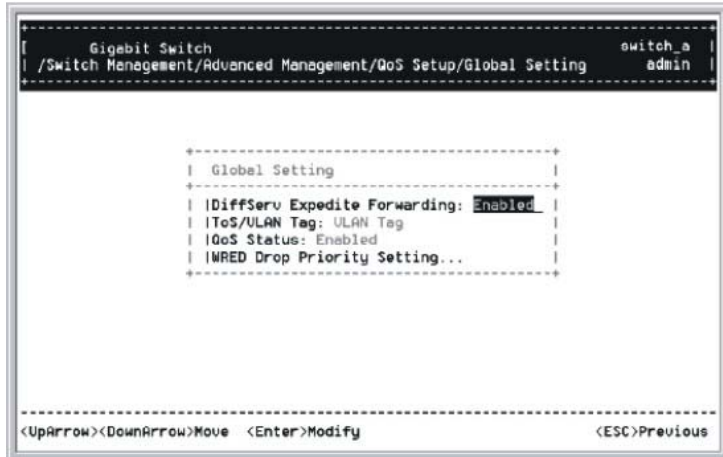
+-----+
| QoS Setup |
+-----+
| Global Setting |
| Logical Port  |
| IULAN        |
| IToS         |
| IProfile     |
| IPort Configuration |
| IRate Control |
+-----+

<UpArrow><DownArrow>Move <Enter>Select      <ESC>Previous

```

## QoS Setup

Move to highlight [QoS Setup] from [Advanced Management] screen, and press <Enter>.



### Global Setting

Step 1: Move to highlight **Global Setting** and press <Enter>.

Step 2: Move to highlight **Diffserv Expedite Forwarding** and press <Enter>. Move to highlight to enable or disable **Diffserv Expedite Forwarding** and press <Enter>.

Step 3: Move to highlight **ToS/ULAN** and press <Enter>. Highlight the desired setting then press <Enter>.

Step 4: Move to highlight **QoS Status** and press <Enter>. Move to highlight to enable or disable **QoS Status** and press <Enter>.

Step 5: Move to highlight **WRED Drop Priority Setting** and press <Enter>. Move to highlight to **Low Drop Percentage** or **High Drop Percentage** and press <Enter>.

Step 6: Press <Esc> when completed



### Logical Port

Step 7: Move to highlight **Logical Port** and press <Enter>.

Step 8: Move to highlight **User Define Port**, **Well-Known Port**, or **Range Port** and press <Enter>.

Step 9: Move to highlight the appropriate port and press <Enter>.

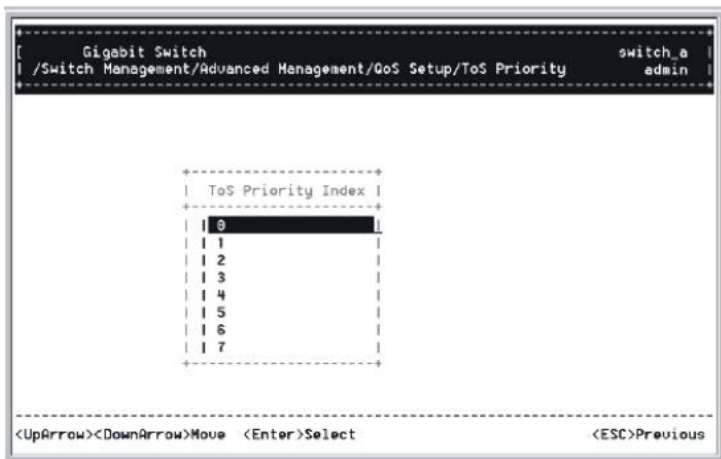
Step 10: Press <Esc> when completed

**VLAN**

Step 11: Move to highlight **VLAN** and press <Enter> to specify the QoS VLAN priority.

Step 12: Move to highlight **Drop Priority** or **Transmit Priority** and press <Enter>.

Step 13: Press <Esc> when completed

**ToS**

Step 14: Move to highlight **TOS** and press <Enter> to specify the ToS priority.

Step 15: Move to highlight **Drop Priority** or **Transmit Priority** and press <Enter>.

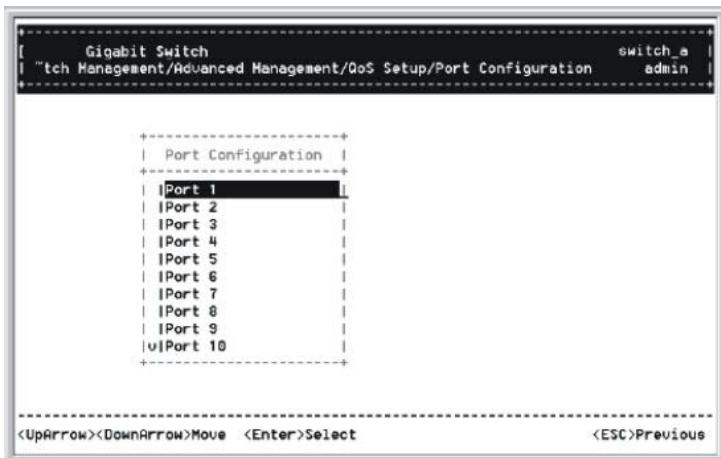
Step 16: Press <Esc> when completed

**Profile**

Step 17: Move to highlight **Profile** and press <Enter> to select a QoS profile.

Step 18: Move to highlight **Megabit Profile** or **Gigabit Profile** and press <Enter>.

Step 19: Press <Esc> when completed

**Port Configuration**

Step 20: Move to highlight **Port Configuration** and press <Enter> to specify the port configuration parameters.

Step 21: Move to highlight Active Profile, Fixed Drop Priority, or Fixed Transmit Priority and press <Enter>.

Step 22: Press <Esc> when completed



```

Gigabit Switch                               switch_a
/ Switch Management/Advanced Management/Rate Control  admin
-----
| Rate Control |
| |Rate Control: Disabled|
| |Port Number...|
-----
<UpArrow><DownArrow>Move  <Enter>Modify                <ESC>Previous

```

**Rate Control**

Step 23: Move to highlight **Rate Control** and press <Enter> to specify rate control parameters.

Step 24: Move to highlight **Rate Control**, or **Port Number** and press <Enter>.

Step 25: Press <Esc> when completed.

```

Gigabit Switch                               switch_a
/ Switch Management/Advanced Management/File Transfer  admin
-----
| File Transfer |
| |Receive File Via TFTP|
| |Send File Via TFTP|
| |Receive File Via Kermit|
| |Send File Via Kermit|
-----
<UpArrow><DownArrow>Move  <Enter>Select                <ESC>Previous

```

**Sending and Receiving Files**

Move to highlight [File Transfer] from [Advanced Management] screen, and press <Enter>.

If you access the administration console by connecting an RS232 cable directly to the console port at the back of the switch, you will see a [File Transfer] screen.

**RECEIVE FILE VIA TFTP**

Step 1: Move to highlight **Receive File Via TFTP** and press <Enter>.

Step 2: Type the name of the file you intend to receive and press <Enter>.

Step 3: Move to highlight **IP Address** and press <Enter>. Type the IP address from where the file will be obtained.

Step 4: Press <Esc> when completed.

Step 5: A dialog box appears to ask if you want to transfer file now. Highlight [Yes] and press <Enter> to start file transfer. Otherwise, move to highlight [No] and press <Enter> to deny it.

Step 6: Press <Esc> to a previous screen.

#### **SEND FILE VIA TFTP**

Step 1: In [File Transfer] screen, move to highlight **Send File Via TFTP** and press <Enter>.

Step 2: If the default **File Type** is not the one you intend to send, press <Enter>. Select the file type you intend to send and press <Enter>.

Step 3: Repeat Step 3-5.

#### **RECEIVE FILE VIA KERMIT**

Step 1: In [File Transfer] screen obtained via console port, move to highlight **Receive File Via Kermit** and press <Enter>.

Step 2: A dialog box appears to ask if you want to transfer file now. Move to highlight [Yes] and press <Enter> to start file transfer. Otherwise, highlight [No] and press <Enter> to deny it.

Step 3: Press <Esc> to a previous screen.

#### **SEND FILE VIA KERMIT**

Step 1: In [File Transfer] screen obtained via console port, move to highlight **Send File Via Kermit** and press <Enter>.

Step 2: Move to highlight a file type you intend to send and press <Enter>.

Step 3: A dialog box appears to ask if you want to transfer file now. Move to highlight [Yes] and press <Enter> to start file transfer. Otherwise, highlight [No] and press <Enter> to deny it.

Step 4: Press <Esc> to a previous screen.

## **Logout**

To log out, highlight [Logout] from [Switch Management] screen and press <Enter>. Please remember to save settings you have changed before you log out.

## **Save Settings**

To save the current settings and remain in the configuration program, highlight [Save Settings] from [Switch Management] and press <Enter>.

## **Restore Default Settings**

To restore the factory default settings, highlight [Restore Default Settings] from [Switch Management] and press <Enter>.

The switch will be rebooted after confirming Yes as to restore the default settings.

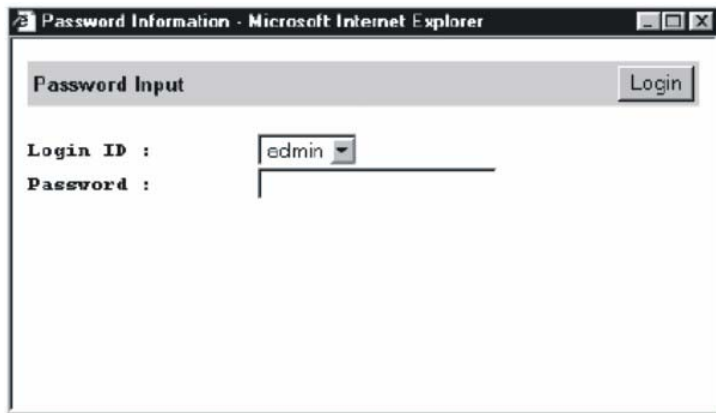
## **Reboot**

To reboot the switch, highlight [Reboot] from [Switch Management] and press <Enter>.

## Web-Based Browser Management

The switch provides a web-based browser interface for configuring and managing the switch. This interface allows you to access the switch using a preferred web browser.

This chapter describes how to configure the switch using its web-based browser interface.



### Logging on to the switch

#### SWITCH IP ADDRESS

In your web browser, specify the IP address of the switch.

#### LOGIN ID

Enter the factory default login ID: **admin**.

#### PASSWORD

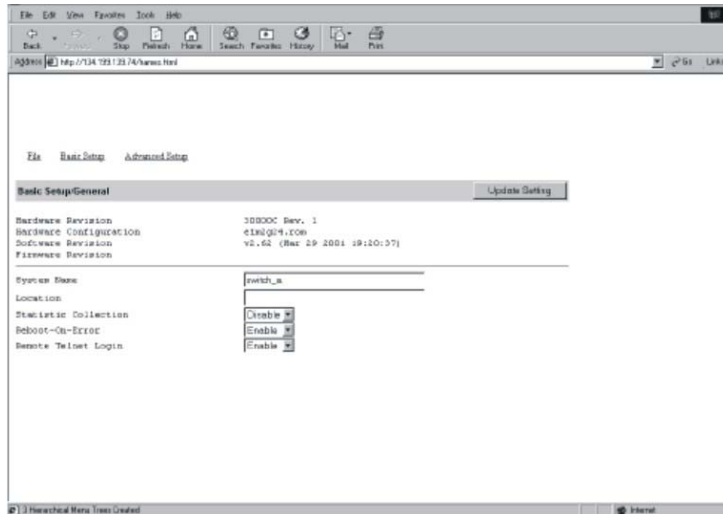
Enter the factory default password (no password, **press Enter directly**). Otherwise, enter a user-defined password if you followed the instructions later and changed the factory default password.

### Understanding the Browser Interface

The web browser interface provides three point-and-click buttons at the upper field of the screen for configuring and managing the switch.

In addition, you can click any port on the switch image to view the switch's current speed, duplex, and activity status.

The **Basic Setup/General** parameters appear at the lower field of the screen. These parameters can also be displayed by clicking **Basic Setup** button and select **General** in sub-menu.



## FILE

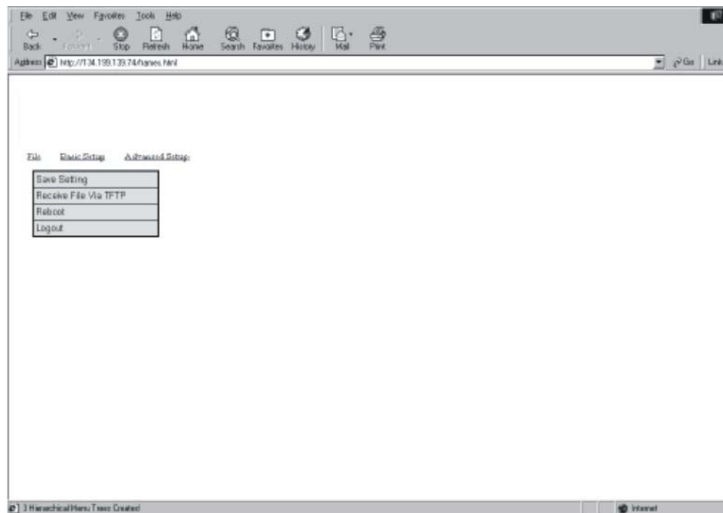
Save settings configured in the browser interface / download upgraded software via TFTP / reboot the switch / logout of the browser interface.

## BASIC SETUP

Perform general, LAN port, and console port activities.

## ADVANCED SETUP

Perform MAC address management / IP networking / per port statistics / bridging / static MAC filters / IP multicast group / VLAN perspective / Spanning Tree perspective / SNMP / other protocols / port mirroring / QoS tasks.



## Performing File Activities

### Start with Selection Menu

Click the [File] button at the upper field of the main display, the menu options appear.

### SAVING SETTING

**Step 1:** Click **Saving Setting** to save your configuration settings.

**Step 2:** When you click it, a message asks "Are you sure you want to save setting?", click **OK** to save it or **Cancel** to abort it.

### RECEIVE FILE VIA TFTP

**Step 1:** Click **Receive File Via TFTP** on the [File] display

<Note> The TFTP protocol is used to download upgraded software to the switch.  
A VLAN with the proper IP address and routing path to the TFTP server must be configured for the switch to access the specified TFTP server.

**Step 2:** For **File Name**, type the name of the file you intend to receive.

**Step 3:** For **IP Address**, type the IP address from where the file will be obtained.

**Step 4:** Click **Receive Now!** .

### REBOOT

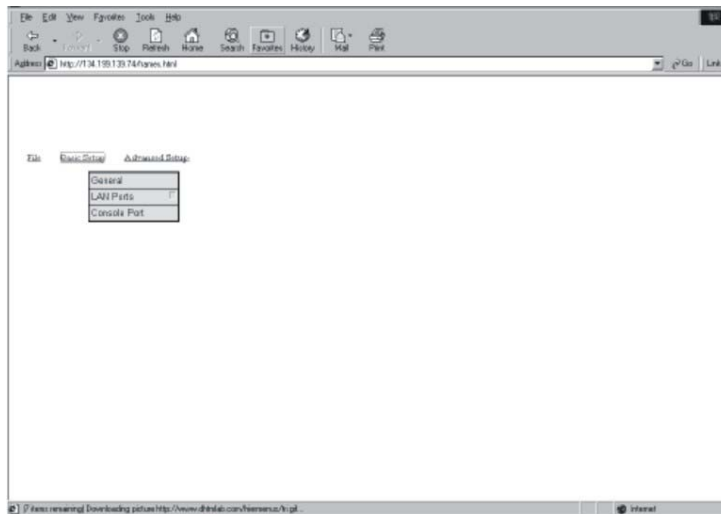
**Step 1:** Click **Reboot** on the [File] display.

**Step 2:** When you click it, a message asks "Are you sure you want to save setting?", click **OK** to save it or **Cancel** to abort it.

### LOGOUT

**Step 1:** Click **Logout** on the [File] display.

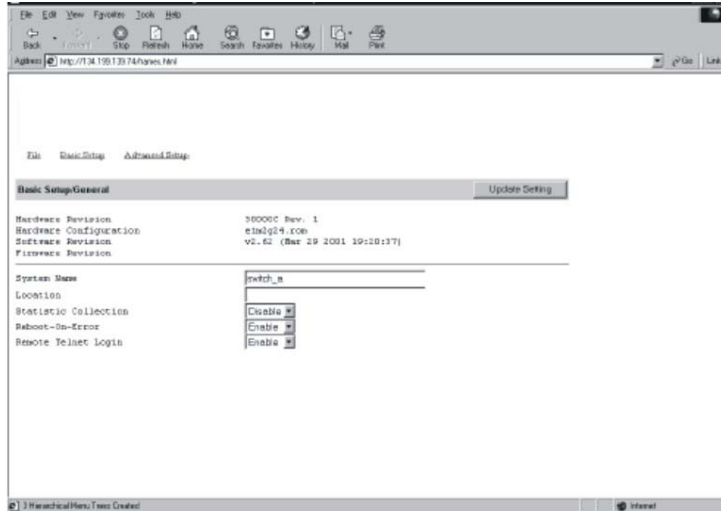
**Step 2:** When you click it, a message asks "Are you sure you want to save setting?", click **OK** to save it or **Cancel** to abort it.



## Performing Basic Setup Activities

### Start with Selection Menu

Click the [Basic Setup] button at the upper field of the main display, the menu options appear.



## GENERAL MANAGEMENT CONFIGURATION

Step 1: Click **General** and the screen shows the Basic Setup/General parameters.

### System Name

Step 2: Click in **System Name** text box on the field of **Basic Setup/General**.

Step 3: Type a system name if it is blank, or replace the current system name with a new one.

### Location

Step 4: Click in **Location** text box on the field of **Basic Setup/General**.

Step 5: Type a location name if it is blank, or replace the current location name with a new one.

### Statistic Collection

Step 6: To enable or disable statistics collection at the switch, click the appropriate option from **Statistic Collection** drop-down menu.

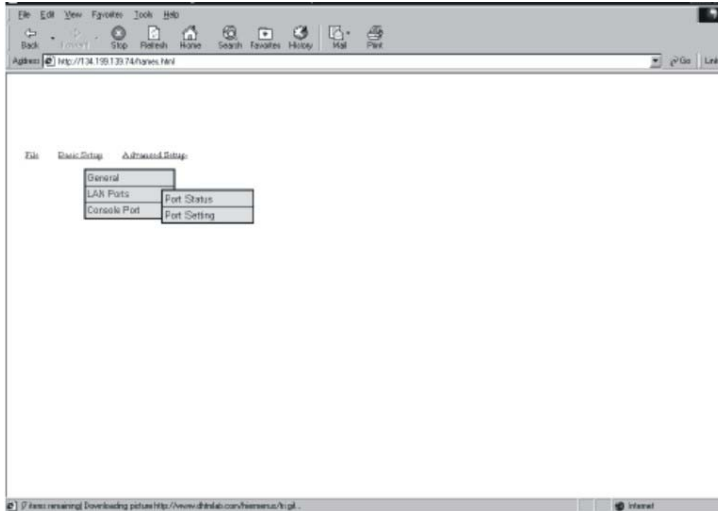
### Reboot-On-Error

Step 7: To allow or prevent the switch from rebooting when a fatal error is detected, click the appropriate option from **Reboot-On-Error** drop-down menu.

### Remote Telnet Login

Step 8: To enable or disable access to the switch management program via Telnet, click the appropriate option from **Remote Telnet Login** drop-down menu.

Step 9: Click **Update Setting**. A confirmation window appears. Click any button at the upper field of the screen to exit.



## LAN Port Configuration

To access the LAN configuration parameters, click **Basic Setup** button first and then point to **LAN Ports** and click a suitable option.

Port	Speed	Type	Link Status	Speed Status	Duplex Status	Flow Control Status
1	100M	100M	Down	N/A	N/A	N/A
2	100M	100M	Down	N/A	N/A	N/A
3	100M	100M	Down	N/A	N/A	N/A
4	100M	100M	Down	N/A	N/A	N/A
5	100M	100M	Down	N/A	N/A	N/A
6	100M	100M	Down	N/A	N/A	N/A
7	100M	100M	Down	N/A	N/A	N/A
8	100M	100M	Down	N/A	N/A	N/A
9	100M	100M	Down	N/A	N/A	N/A
10	100M	100M	Down	N/A	N/A	N/A
11	100M	100M	Down	N/A	N/A	N/A
12	100M	100M	Down	N/A	N/A	N/A
13	100M	100M	Up	100M bps	Full	Disabled
14	100M	100M	Down	N/A	N/A	N/A
15	100M	100M	Down	N/A	N/A	N/A
16	100M	100M	Down	N/A	N/A	N/A
17	100M	100M	Down	N/A	N/A	N/A
18	100M	100M	Down	N/A	N/A	N/A
19	100M	100M	Down	N/A	N/A	N/A
20	100M	100M	Down	N/A	N/A	N/A

## PORT STATUS

Step 1: Click **Basic Setup** ⇒ **LAN Port** ⇒ **Port Status** to access a read-only table shows the current settings for all ports.

Port	Speed	Type	Admin Setting	Speed Setting	Duplex Setting	Flow Control Setting
1	1000	Dpdx	Enable	Auto	Auto	Auto
2	1000	Dpdx	Enable	Auto	Auto	Auto
3	1000	Dpdx	Enable	Auto	Auto	Auto
4	1000	Dpdx	Enable	Auto	Auto	Auto
5	1000	Dpdx	Enable	Auto	Auto	Auto
6	1000	Dpdx	Enable	Auto	Auto	Auto
7	1000	Dpdx	Enable	Auto	Auto	Auto
8	1000	Dpdx	Enable	Auto	Auto	Auto
9	1000	Dpdx	Enable	Auto	Auto	Auto
10	1000	Dpdx	Enable	Auto	Auto	Auto
11	1000	Dpdx	Enable	Auto	Auto	Auto
12	1000	Dpdx	Enable	Auto	Auto	Auto
13	1000	Dpdx	Enable	Auto	Auto	Auto
14	1000	Dpdx	Enable	Auto	Auto	Auto
15	1000	Dpdx	Enable	Auto	Auto	Auto
16	1000	Dpdx	Enable	Auto	Auto	Auto
17	1000	Dpdx	Enable	Auto	Auto	Auto
18	1000	Dpdx	Enable	Auto	Auto	Auto
19	1000	Dpdx	Enable	Auto	Auto	Auto
20	1000	Dpdx	Enable	Auto	Auto	Auto
21	1000	Dpdx	Enable	Auto	Auto	Auto
22	1000	Dpdx	Enable	Auto	Auto	Auto
23	1000	Dpdx	Enable	Auto	Auto	Auto
24	10 Gbps	10 Gbps	Enable	10 Gbps	Auto	Enable
25	10 Gbps	10 Gbps	Enable	Auto	Auto	Enable

## PORT SETTING

**Step 1:** Click **Basic Setup** ⇒ **LAN Port** ⇒ **Port Setting** to show the configuration for all ports.

**Step 2:** In the **Port** column, click the port you want to configure.

### Admin Setting

**Step 3:** Click the drop-down menu under **Admin Setting**, decide to disable or enable it.

**<Note>** Disable: places the port in DOWN state. In this state, packets cannot be switched to and from the port  
 Enable: places the port in UP state. In this state, packets can be switched to and from the port.

### Speed/Duplex Options

**Step 4:** Click the drop-down menu under **Speed/Duplex Options** if you want to change the line speed and duplex settings.

**<Note>** Auto: allows the switch to automatically ascertain the line speed and duplex mode.  
 All the other selections force the port to use a specific line speed and duplex mode.  
 'HD' denotes half-duplex mode; FD denotes full-duplex mode.

### Flow Control Options

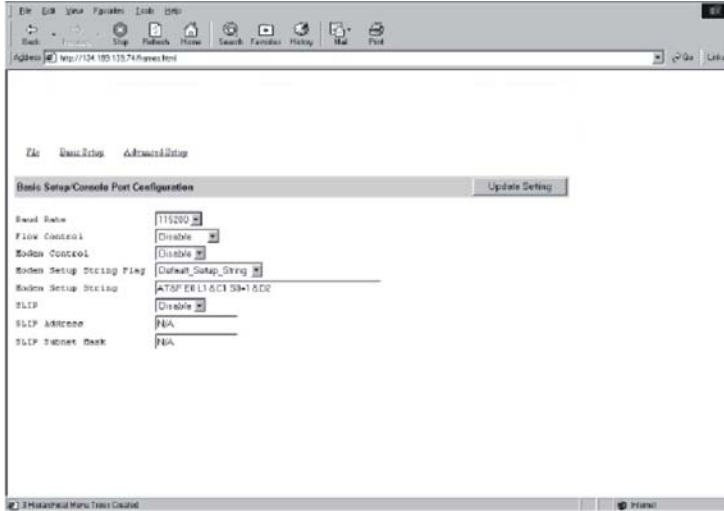
**Step 5:** Click the drop-down menu under **Flow Control Options** if you want to configure (Auto/Disable/Enable) the flow control for this port.

**<Note>** Auto: allows the switch to automatically ascertain whether or not to use flow control.  
 Enable: turns on flow control at all times.  
 Disable: turns off flow control at all times.

**Step 6:** Click **Update Setting** when completed. A confirmation window appears.

**<Note>** The information here displayed automatically updates every 15 seconds, without requiring you to refresh the window.





## Console Port Configuration

To access the console port configuration parameters, click **Basic Setup** button first and then click **Console Port**.

### Baud Rate

**Step 1:** Click an appropriate speed from **Baud Rate** drop-down menu on the field of **Basic Setup/Console Port Configuration**.

**<Note>** Auto: allows the switch to autobaud between 9600bps and 115,200bps  
All the other selections force a specific console baud rate.

### Flow Control

**Step 2:** Click a flow control method from **Flow Control** drop-down menu.

### Modem Control

**Step 3:** Click an appropriate option from **Modem Control** drop-down menu to disable or enable a modem connection to the console port.

### Modem Setup String Flag

**Step 4:** If you enabled a modem connection to the console port, click in **Modem Setup String Flag** drop-down menu to decide whether you want to use a Default\_Setup\_String or Custom\_Setup\_String.

### Modem Setup String

**Step 5:** If you select Custom\_Setup\_String, enter the string in the **Modem setup String** text box.

**<Note>** The default modem setup string configures the modem to auto answer. It works for all Hayes-compatible modems.

### SLIP

**Step 6:** Click an appropriate option from **SLIP** drop-down menu to disable or enable SLIP.

### SLIP Address

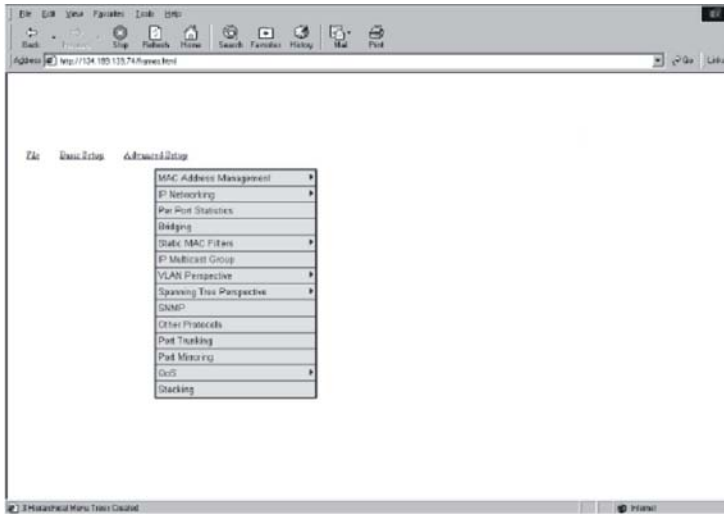
**Step 7:** If you enable SLIP, type a SLIP address in **SLIP Address** text box.

### SLIP Subnet Mask

**Step 8:** If you enable SLIP, type a SLIP subnet mask in **SLIP Subnet Mask** text box.

**Step 9:** Click **Update Setting** when completed. A confirmation window appears.

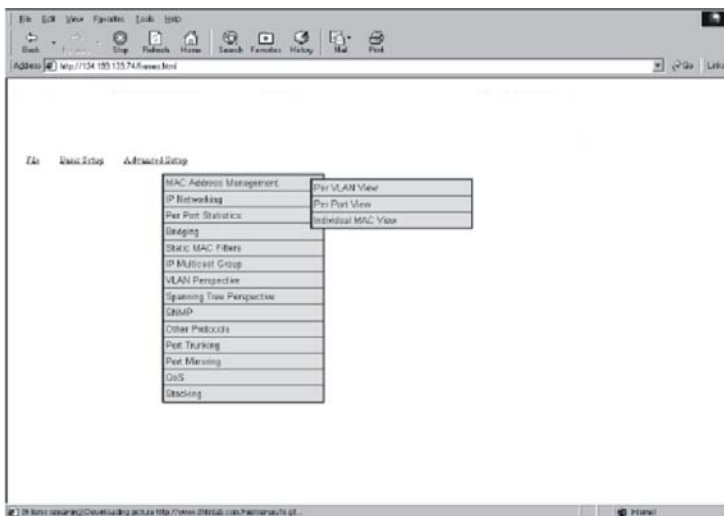
**<Note>** If you enable SLIP, a message tells you that the console port becomes accessible only through the SLIP protocol after you click Update Setting.  
**If you enabled SLIP but did not specify a SLIP address and SLIP subnet mask, a message tells you to enter these parameters.**



## Performing Advanced Setup Activities

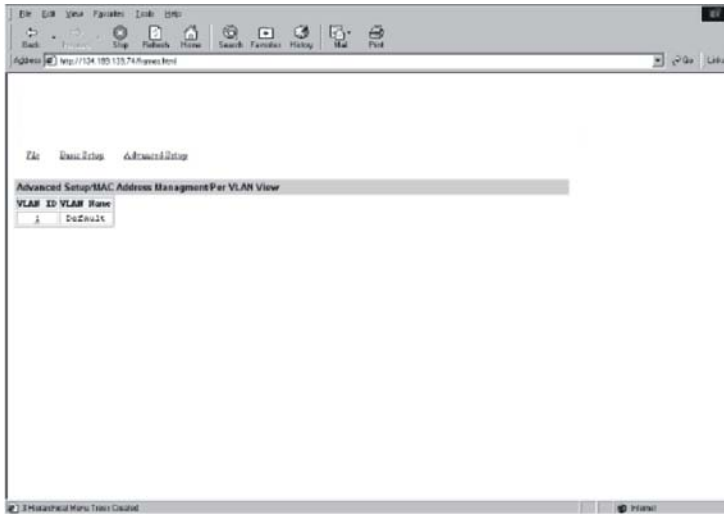
### Start with Selection Menu

Click the [Advanced Setup] button at the upper field of the main display, the menu options appear.



### MAC Address Management

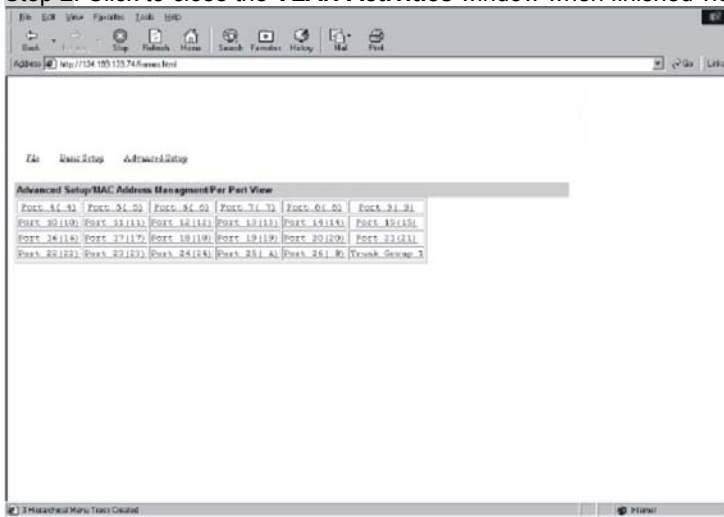
From the **Advanced Setup** menu, point to **MAC Address Management** to view VLANs and their associated MAC addresses.



### PER VLAN VIEW

**Step 1:** Click **Per VLAN View** first, and click on the VLAN ID that you want to view.

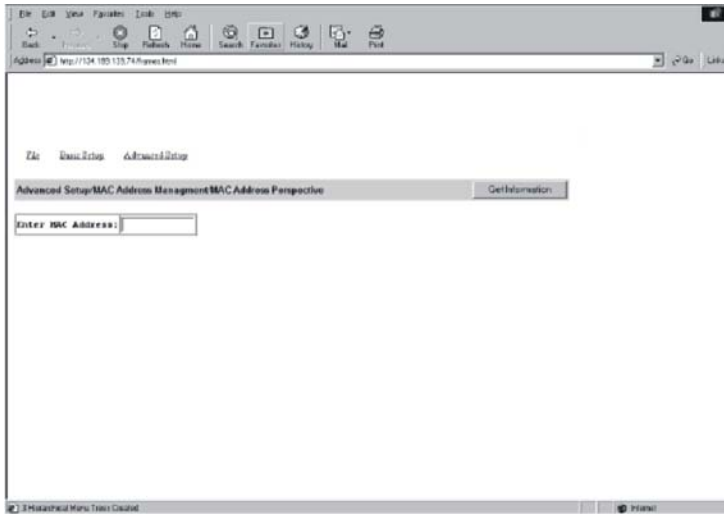
**Step 2:** Click to close the **VLAN Activities** window when finished viewing.



### PER PORT VIEW

**Step 1:** Click **Advanced Setup** ⇒ **MAC Address Management** ⇒ **Per Port View** first, and click on the port that you want to view.

**Step 2:** Click to close the **Per Port VLAN Activities** window when finished viewing.



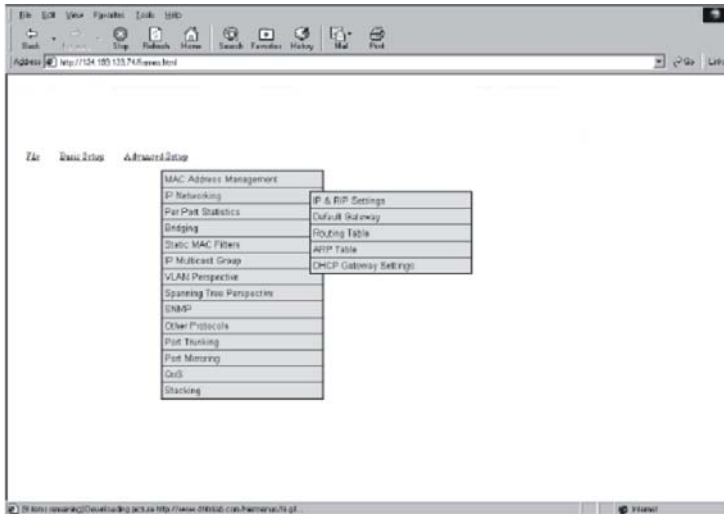
### INDIVIDUAL MAC VIEW

**Step 1:** Click Advanced Setup ⇒ MAC Address Management ⇒ Individual MAC View.

**Step 2:** Click in the **Enter MAC Address** text box and type the MAC address that you want to view.

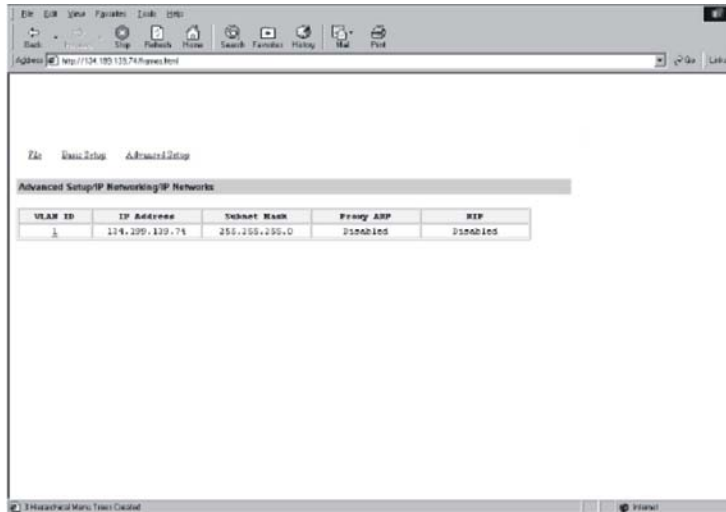
**Step 3:** Then click on the **Get Information** button.

**Step 4:** Click to close the **Individual MAC View** window when finished viewing.



### IP Networking

To access the IP networking parameters, click the **Advanced Setup** button, and Point to **IP Networking** from the selection menu.



### IP & RIP SETTINGS

Step 1: Click **IP & RIP Settings** to access IP and RIP settings. A list of VLAN IDs appears, along with their corresponding IP address and subnet mask.

Step 2: In the **VLAN ID** column, click a VLAN ID whose settings you want to view and/or change.

#### IP Address

Step 3: Click in the text box and type a new address.

Alternatively, you can use the **Delete IP** button to delete the IP address.

- \* No precautionary message appears before you delete the IP address.
- \* Be sure you want to delete it before doing so.
- \* The IP address is not deleted until you click **Update Setting**.

#### IP Subnet Mask

Step 4: Click in the text box and type a new address.

#### Frame Type

Step 5: Click a value from the drop-down list.

#### BOOTP

Step 6: Click a value from the drop-down list.

#### Proxy ARP

Step 7: Click a value from the drop-down list.

#### RIP Setting

Step 8: Click a value from the drop-down list.

#### Use Broadcast/Multicast

Step 9: Specify whether you want to broadcast, multicast, or neither from the drop-down list.

#### Advertise Routes

Step 10: Specify whether you want to advertise routes.

#### Advertise Default Route

Step 11: Specify whether you want to advertise the default route.

**Accept RIP V1/V2 Updates**

Step 12: Specify whether you want to accept RIP V1/V2 updates.

**Accept Default Route Updates**

Step 13: Specify whether you want to accept default route updates.

**Use Split Horizon**

Step 14: Specify whether split horizon is to be used.

**Use Poisoned Reverse**

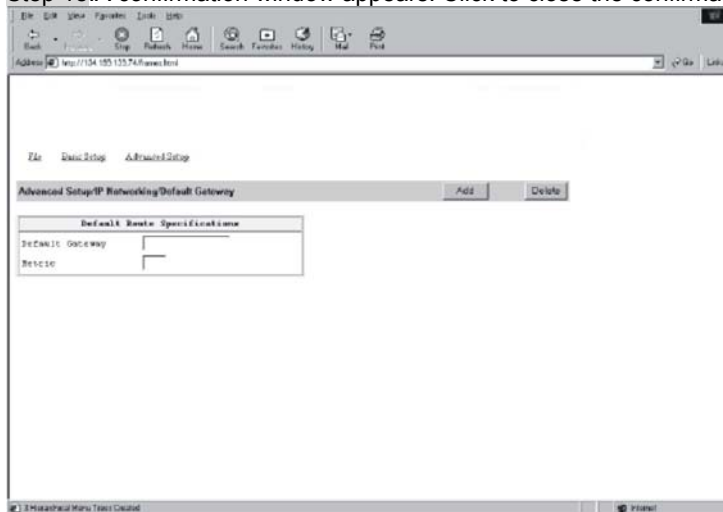
Step 15: Specify whether poisoned reverse is to be used.

**Send Triggered Responses**

Step 16: Specify whether the switch is to send triggered responses.

Step 17: When you finished with these selections, click **Update Setting**.

Step 18: A confirmation window appears. Click to close the confirmation window.

**DEFAULT GATEWAY**

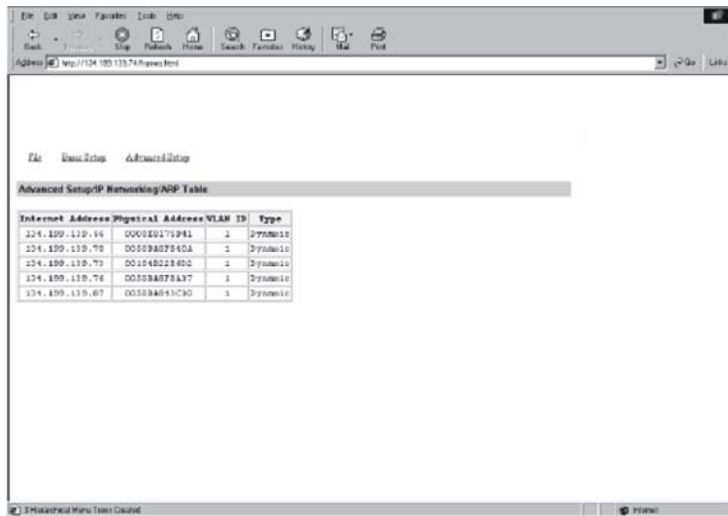
Step 1: Click Advanced Setup ⇒ IP Networking ⇒ Default Gateway to access gateway settings.

**Default Gateway**

Step 2: For **Default Gateway**, click in the text box and type the IP address of the router at the next hop.

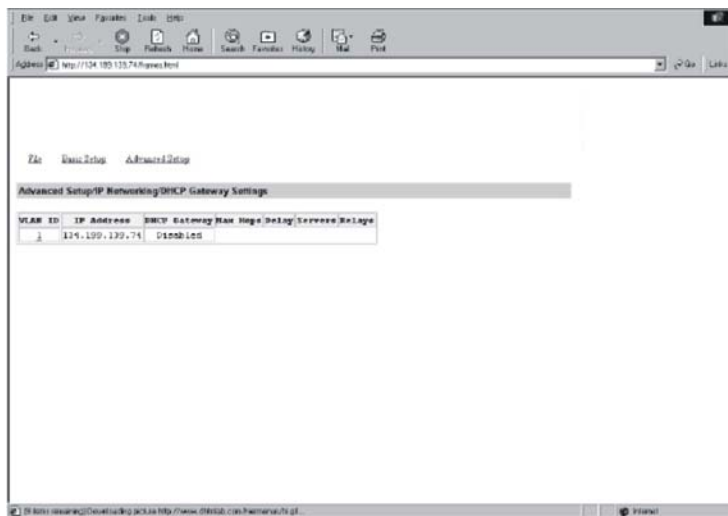
**Metric**

Step 3: For **Metric**, click in the text box and type the number of hops needed between the switch and the destination network.



### ARP TABLE

Step 1: Click **Advanced Setup** ⇒ **IP Networking** ⇒ **ARP Table** to view ARP table settings. The information here is read-only.





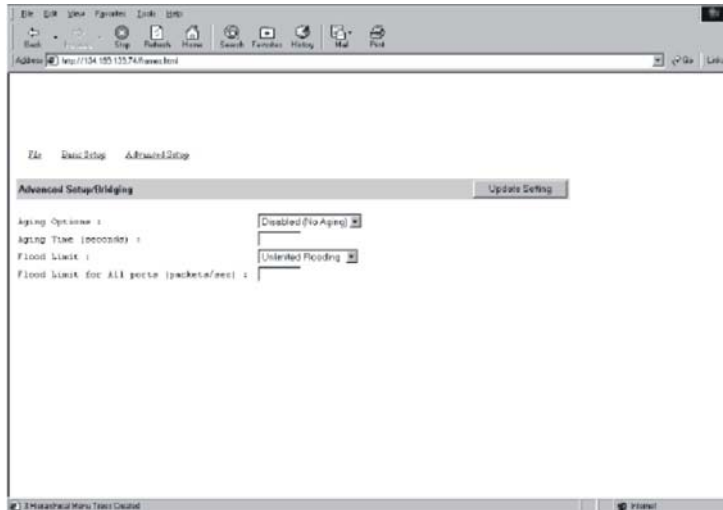


## Per Port Statistics

**Step 1:** To access per port statistics, click the **Advanced Setup** button, and then click **Per Port Statistics** from the selection menu.

**Step 2:** Click a port to view statistic data.

**Step 3:** Click **Update Setting** when completed.



## Bridging

To access bridging parameters, click the **Advanced Setup** button, and then click **Bridging** from the selection menu.

### Aging Options

**Step 1:** Click the drop-down list for **Disabled (No Aging)** or **Set Aging Time**.

### Aging Time

**Step 2:** When **Set Aging Time** is selected, click in this text box and type a decimal number as bridge aging period in seconds.

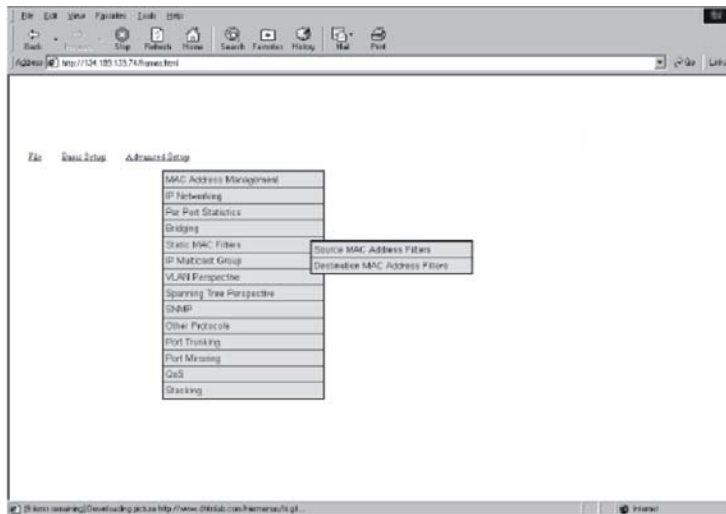
### Flood Limit

**Step 3:** Click the drop-down list for No Flooding, Controlled Flooding, Unlimited Flooding.

### Flood Limit for All Ports

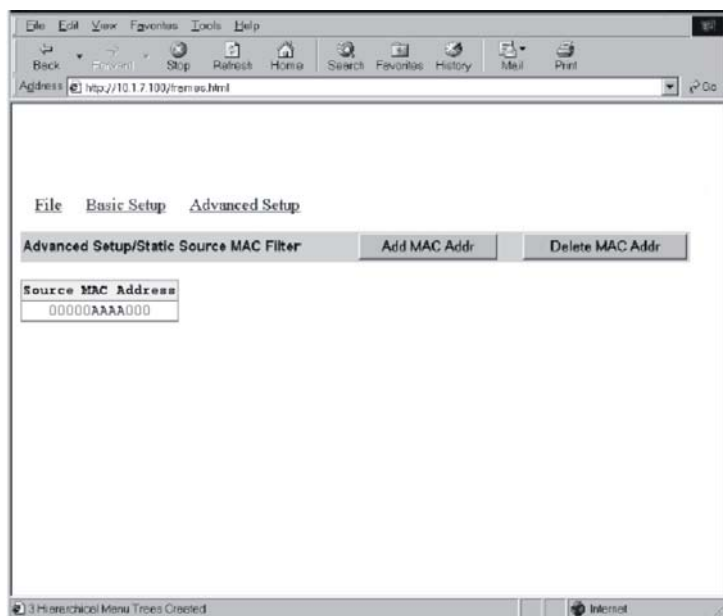
**Step 4:** When **Controlled Flooding** is selected, click the text box and type a decimal number as flood limit in packets per second.

**Step 5:** Click **Update Setting** when completed.



## Static MAC Filter

To access the static MAC filter parameters, click the **Advanced Setup** button, and point to **Static MAC Filter** in the selection menu.



### SOURCE MAC ADDRESS

Step 1: Click Source MAC Address.

#### Add Source MAC Address

Step 2: Click **Add MAC Addr** button to add a source MAC address for static filtering.

Step 3: The **Static Source MAC Filter** window appears.

Click in the **Source MAC Address Filter** text box and type a unique MAC source address you want to add.

Step 4: Click the **Add** button.

Step 5: A confirmation window appears. Click to close the confirmation window.

**Delete Source MAC Address**

Step 6: If you no longer need a source MAC address, click **Delete MAC Addr** button to delete it in Step 2.

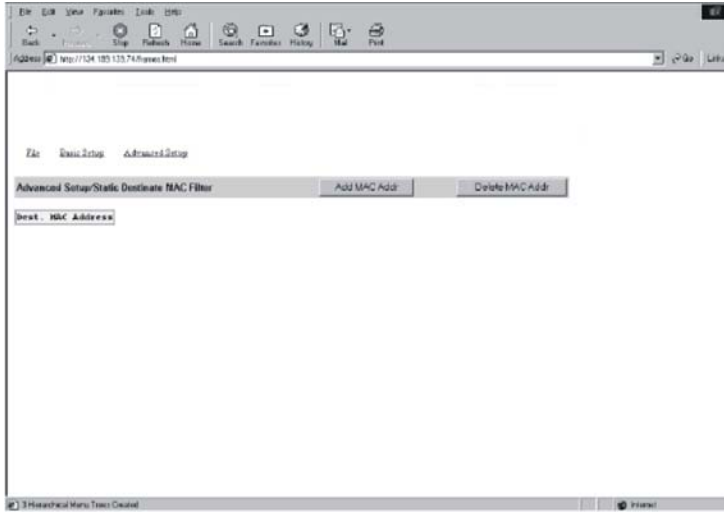
Step 7: The **Delete Source MAC Address** window appears.

Click the **Select a MAC Address** drop-down list and select the source MAC address you want to delete.

Step 8: Click the **Delete** button.

\* No precautionary message appears before you delete a MAC address.

\* Be sure you want to delete it before doing so.

**DESTINATION MAC ADDRESS**

Step 1: Click the **Advanced Setup** button, and point to **Static MAC Filter** in the selection menu. Click **Destination MAC Address**.

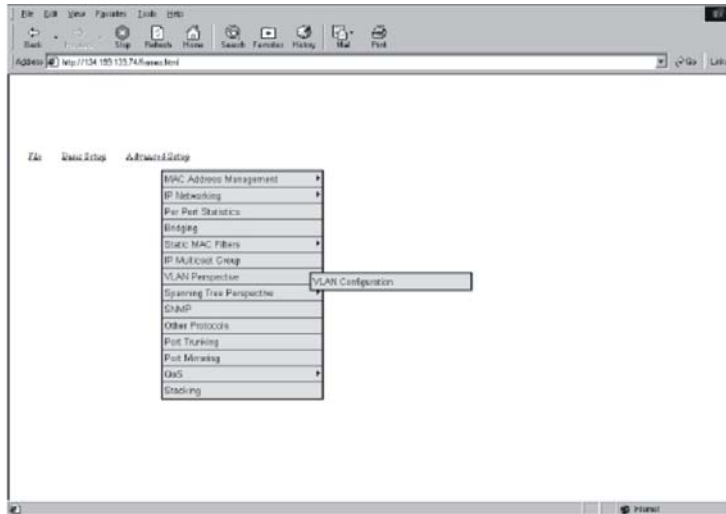
Step 2: Click **Add MAC Addr** button to add a destination MAC address for static filtering. Refer to Step 2~5 in **Source MAC Address** section for similar procedure.

Step 3: Click **Delete MAC Addr** button to delete a destination MAC address for static filtering. Refer to Step 6~9 in **Source MAC Address** section for similar procedure.

**IP Multicast Group**

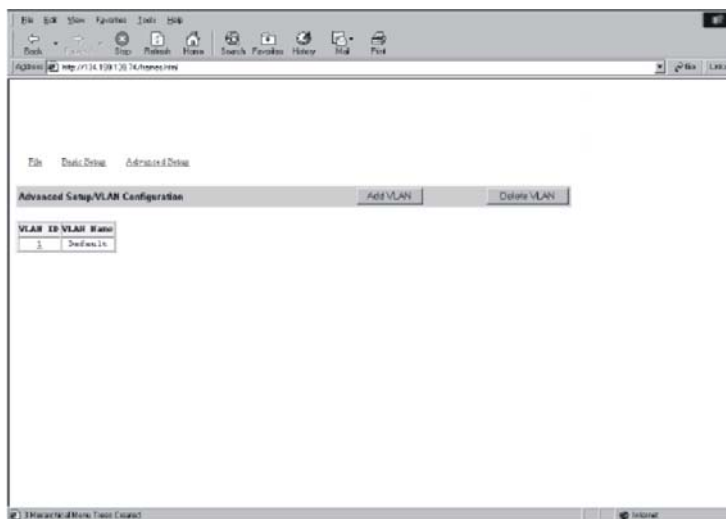
To view the IP multicast group addresses, click the **Advanced Setup** button, and click **IP Multicast Group** in the selection menu.

The information is read-only.



## VLAN Perspective

To view the VLAN configuration information, click the **Advanced Setup** button, and point to **VLAN Perspective** in the selection menu.



## VLAN CONFIGURATION

Step 1: Click VLAN Configuration.

Step 2: Click on a VLAN ID whose VLAN configuration you want to change.

Step 3: The **VLAN Information** window appears.

Click to assign switch ports to VLAN ID 1.

For each switch, the port options include **Tagged Ports**, **Untagged Ports**, or **Forbidden Ports**.

Step 4: Click to close the **VLAN Information** window.

**Add a VLAN Entry**

Step 5: Click on the **Add VLAN** button to create a new VLAN.

Step 6: The **Add a VLAN Entry** window appears.

Step 7: Click in the **VLAN ID** textbox and specify a new VLAN ID number from 2~4094.

Step 8: Click in the **VLAN Name** textbox and type a name for this newly created VLAN.

Step 9: Click to assign switch ports to this VLAN.

For each switch, the port options include **Tagged Ports**, **Untagged Ports**, or **Forbidden Ports**.

Step 10: Click **Add Now!** button

#### Delete a VLAN Entry

Step 11: Click on the **Delete VLAN** button to delete a VLAN.

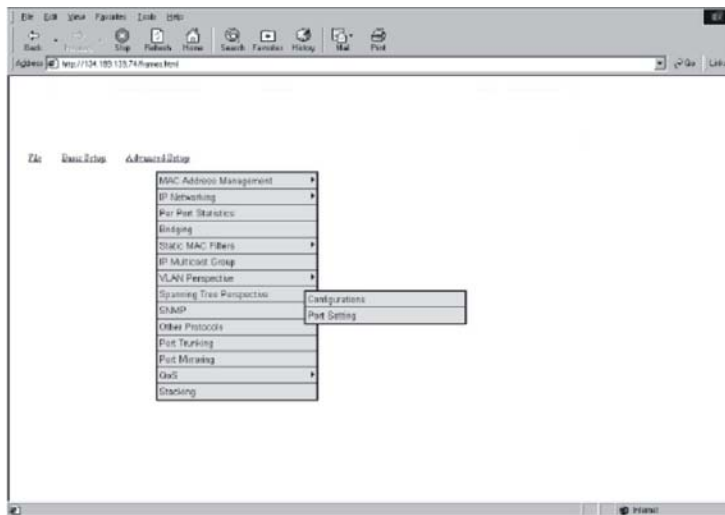
VLAN ID 1 is the default VLAN and cannot be deleted.

Step 12: The **Delete a VLAN Entry** window appears.

Step 13: Click the drop-down menu to select a VLAN ID, which you want to delete.

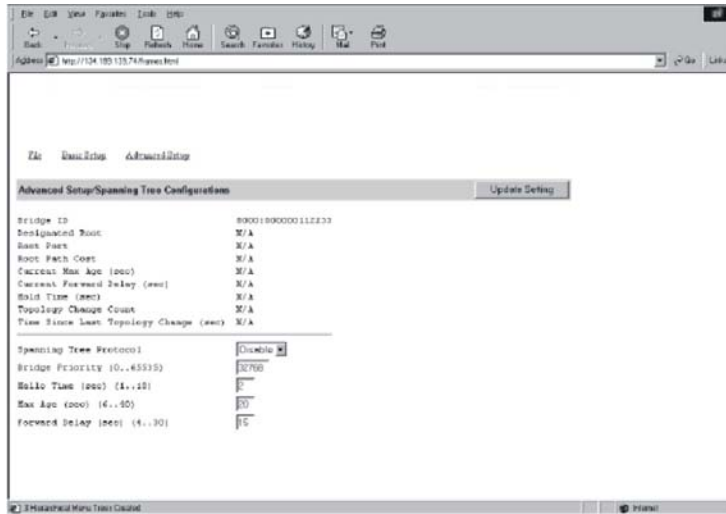
Step 14: Click the **Delete** button.

- \* No precautionary message appears before you delete a VLAN.
- \* Be sure you want to delete it before doing so.



## Spanning Tree Perspective

To view the spanning tree perspective parameters, click the **Advanced Setup** button, and point to **Spanning Tree Perspective** in the selection menu.



## CONFIGURATIONS

**Step 1:** To view and/or change the Spanning Tree configurations, click **Configurations** from the above screen.

### Spanning Tree Protocol

**Step 2:** Specify whether you want to have it Disabled or Enabled by clicking the drop-down list.

### Bridge Priority

**Step 3:** Click in the text box and type a decimal number between 0 and 65535.

### Hello Time

**Step 4:** Click in the text box and type a decimal number between 0 and 10.

### Max Age

**Step 5:** Click in the text box and type a decimal number between 6 and 40.

### Forward Delay

**Step 6:** Click in the text box and type a decimal number between 4 and 30.

**Step 7:** Click **Update Setting**. A confirmation window appears.

Click to close the confirmation window.

Port	Port Priority	Path Costs	Port Status
1/1	120	10	Disable Link Down
2/1	120	10	Disable Link Down
3/1	120	10	Disable Link Down
4/1	120	10	Disable Link Down
5/1	120	10	Disable Link Down
6/1	120	10	Disable Link Down
7/1	120	10	Disable Link Down
8/1	120	10	Disable Link Down
9/1	120	10	Disable Link Down
10/1	120	10	Disable Link Down
11/1	120	10	Disable Link Down
12/1	120	10	Disable Link Down
13/1	120	10	Disable Link Down
14/1	120	10	Disable Link Down
15/1	120	10	Disable Link Down
16/1	120	10	Disable Link Down
17/1	120	10	Disable Link Down
18/1	120	10	Disable Link Down
19/1	120	10	Disable Link Down
20/1	120	10	Disable Link Down
21/1	120	10	Disable Link Down
22/1	120	10	Disable Link Down
23/1	120	10	Disable Link Down
24/1	120	10	Disable Link Down
25/1	120	10	Disable Link Down
26/1	120	10	Disable Link Down
27/1	120	10	Disable Link Down
28/1	120	10	Disable Link Down
29/1	120	10	Disable Link Down
30/1	120	10	Disable Link Down
31/1	120	10	Disable Link Down
32/1	120	10	Disable Link Down
33/1	120	10	Disable Link Down
34/1	120	10	Disable Link Down
35/1	120	10	Disable Link Down
36/1	120	10	Disable Link Down
37/1	120	10	Disable Link Down
38/1	120	10	Disable Link Down
39/1	120	10	Disable Link Down
40/1	120	10	Disable Link Down
41/1	120	10	Disable Link Down
42/1	120	10	Disable Link Down
43/1	120	10	Disable Link Down
44/1	120	10	Disable Link Down
45/1	120	10	Disable Link Down
46/1	120	10	Disable Link Down
47/1	120	10	Disable Link Down
48/1	120	10	Disable Link Down
49/1	120	10	Disable Link Down
50/1	120	10	Disable Link Down
51/1	120	10	Disable Link Down
52/1	120	10	Disable Link Down
53/1	120	10	Disable Link Down
54/1	120	10	Disable Link Down
55/1	120	10	Disable Link Down
56/1	120	10	Disable Link Down
57/1	120	10	Disable Link Down
58/1	120	10	Disable Link Down
59/1	120	10	Disable Link Down
60/1	120	10	Disable Link Down
61/1	120	10	Disable Link Down
62/1	120	10	Disable Link Down
63/1	120	10	Disable Link Down
64/1	120	10	Disable Link Down
65/1	120	10	Disable Link Down
66/1	120	10	Disable Link Down
67/1	120	10	Disable Link Down
68/1	120	10	Disable Link Down
69/1	120	10	Disable Link Down
70/1	120	10	Disable Link Down
71/1	120	10	Disable Link Down
72/1	120	10	Disable Link Down
73/1	120	10	Disable Link Down
74/1	120	10	Disable Link Down
75/1	120	10	Disable Link Down
76/1	120	10	Disable Link Down
77/1	120	10	Disable Link Down
78/1	120	10	Disable Link Down
79/1	120	10	Disable Link Down
80/1	120	10	Disable Link Down
81/1	120	10	Disable Link Down
82/1	120	10	Disable Link Down
83/1	120	10	Disable Link Down
84/1	120	10	Disable Link Down
85/1	120	10	Disable Link Down
86/1	120	10	Disable Link Down
87/1	120	10	Disable Link Down
88/1	120	10	Disable Link Down
89/1	120	10	Disable Link Down
90/1	120	10	Disable Link Down
91/1	120	10	Disable Link Down
92/1	120	10	Disable Link Down
93/1	120	10	Disable Link Down
94/1	120	10	Disable Link Down
95/1	120	10	Disable Link Down
96/1	120	10	Disable Link Down
97/1	120	10	Disable Link Down
98/1	120	10	Disable Link Down
99/1	120	10	Disable Link Down
100/1	120	10	Disable Link Down

## PORT SETTING

**Step 1:** To view and/or change the Spanning Tree configurations by port, click the **Advanced Setup** button, point to **Spanning Tree Perspective** in the selection menu, and click **Port Setting**.

**Step 2:** In the **Port** column, click the port whose Spanning Tree information you want to view.

#### Port Priority

**Step 3:** Click in the text box and type a decimal number between 0 and 255. A low value gives the port a greater likelihood of becoming a Root port.

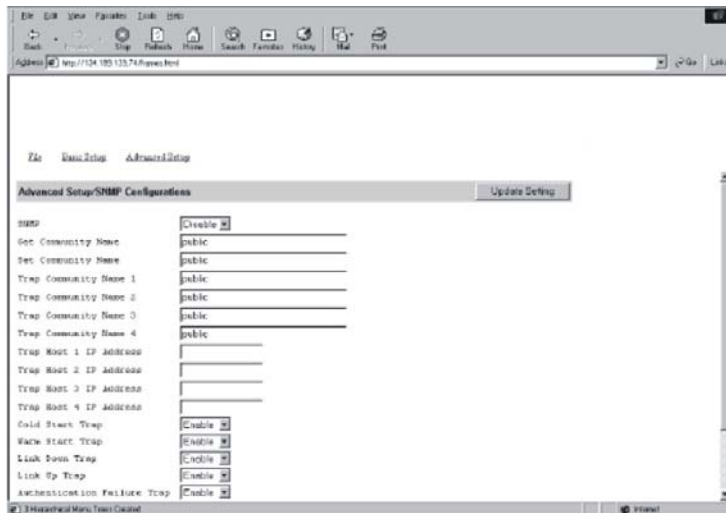
#### Path Cost

**Step 4:** For **Path Cost**, click in the text box and type a decimal number as a new path cost value.

#### Port Status

**Step 5:** For **Port Status**, specify whether the port is up or down by clicking the drop-down list.

**Step 6:** Click **Update Setting**. A confirmation window appears. Click to close the confirmation window.



## SNMP

To view and/or change all SNMP-related information, click the **Advanced Setup** button, and click **SNMP** in the selection menu.

The **SNMP Configurations** window appears. As shown below, the factory-default **SNMP** value is **Enabled** and the factory-default **Community Name** value is **public**.

#### SNMP

**Step 1:** Specify whether it is Disabled or Enabled by clicking the drop-down list.

#### Get Community Name

**Step 2:** Click in the text box and type a get community name.

#### Set Community Name

**Step 3:** Click in the text box and type a set community name.

#### Trap Community Name

**Step 4:** Click in the text box and type a trap community name.

#### Trap Host IP Address

**Step 5:** Click in the text box and type a IP address for trap host 1~4.

#### Cold Start Trap

**Step 6:** Specify whether it is Disabled or Enabled by clicking the drop-down list.

#### Warm Start Trap

**Step 7:** Specify whether it is Disabled or Enabled by clicking the drop-down list.

**Link Down Trap**

Step 8: Specify whether it is Disabled or Enabled by clicking the drop-down list.

**Link Up Trap**

Step 9: Specify whether it is Disabled or Enabled by clicking the drop-down list.

**Authentication Failure Trap**

Step 10: Specify whether it is Disabled or Enabled by clicking the drop-down list.

**Rising Alarm Trap**

Step 11: Specify whether it is Disabled or Enabled by clicking the drop-down list.

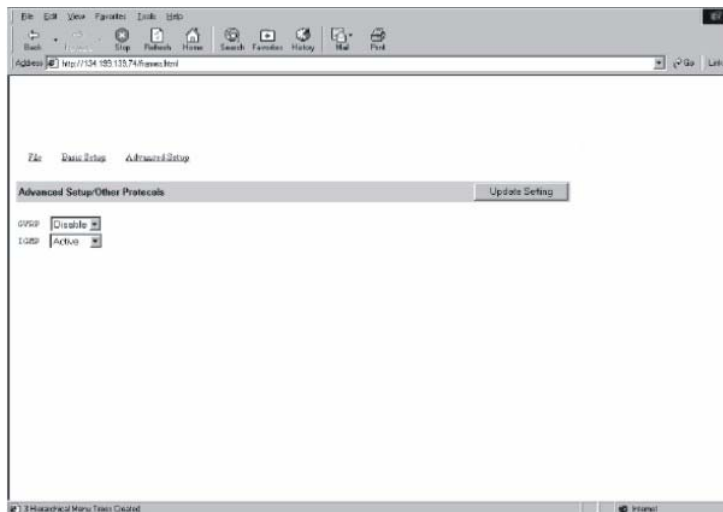
**Falling Alarm Trap**

Step 12: Specify whether it is Disabled or Enabled by clicking the drop-down list.

**Topology Alarm Trap**

Step 13: Specify whether it is Disabled or Enabled by clicking the drop-down list.

Step 14: Click **Update Setting** when completed. A confirmation window appears. Click to close the confirmation window.

**Other Protocols**

To enable or disable the GVRP and/or IGMP protocols, click the **Advanced Setup** button, and click **Other Protocols** in the selection menu.

**GVRP**

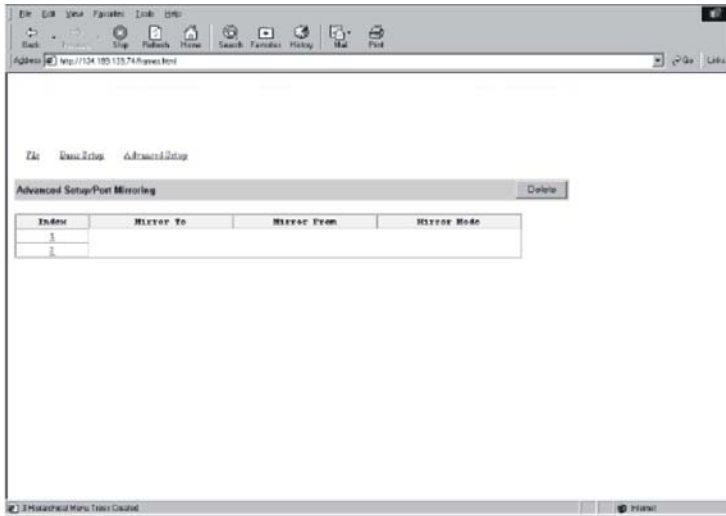
Step 1: Specify whether it is Disabled or Enabled by clicking the drop-down list.

**IGMP**

Step 2: Specify whether it is Disabled or Passive or Active by clicking the drop-down list.

Step 3: Click **Update Setting** when completed. A confirmation window appears. Click to close the confirmation window.





## Port Mirroring

To use the switch's mirroring capability to mirror one port to another, click the **Advanced Setup** button, and click **Port Mirroring** in the selection menu.

**Step 1:** Click the port you want to mirror to in the **Mirror To** column.

**Step 2:** The **Port Mirroring Setting** window appears.

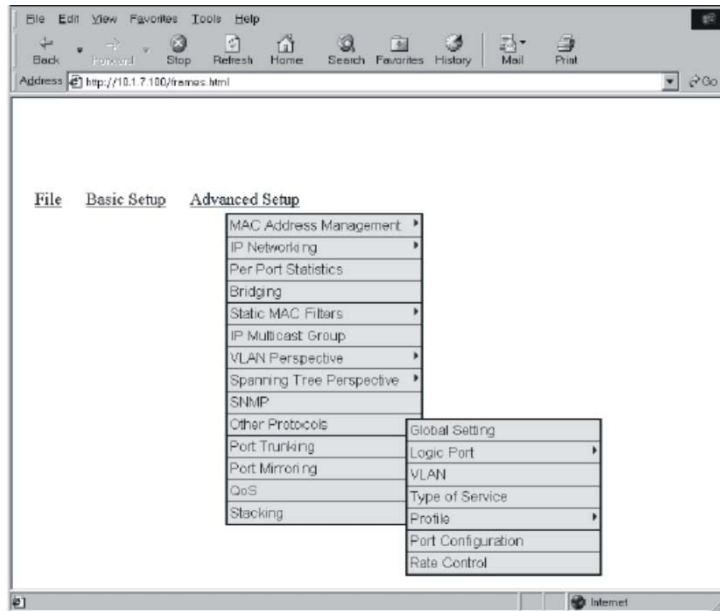
### Mirror From

**Step 3:** In the **Mirror From** column, select a "mirror from" port by clicking the drop-down list.

### Mirror Mode

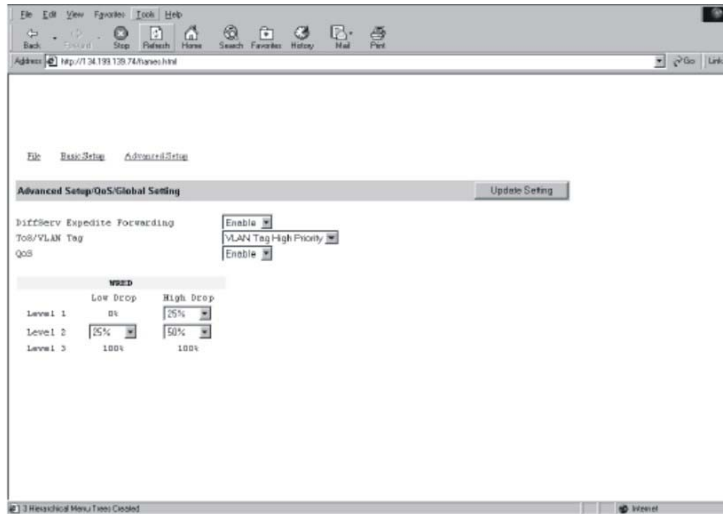
**Step 4:** In the **Mirror Mode** column, specify whether the "mirrored from" port will be receiving or transmitting data by clicking the drop-down list.

**Step 5:** Click **Update Setting** when completed. A confirmation window appears. Click to close the confirmation window.



## QoS

To use the switch's mirroring capability to mirror one port to another, click the **Advanced Setup** button, and click **QoS** in the selection menu.



### Global Setting

**Step 1:** Point to **Advanced Setup**, point to **QoS**, and Click **Global Setting**.

**Step 2:** Use the **DiffServ Expedite Forwarding** drop-down list to specify whether you want to enable or disable DiffServ Expedite Forwarding.

**Step 3:** Use the **TOS/VLAN Tag** drop-down list to select the priority you want to use.

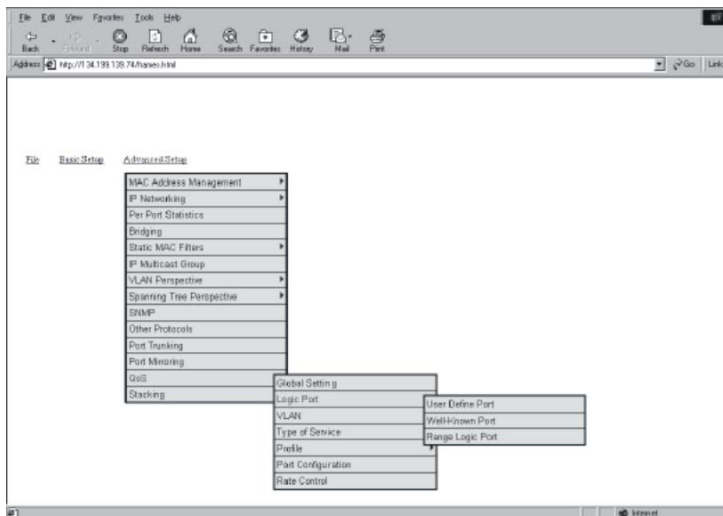
**Step 4:** Use the **QoS** drop-down list to enable or disable QoS.

**Step 5:** Under **WRED**, use the drop-down list boxes to select the:

- High drop percentage for level 1.
- Low drop and high drop percentages for level 2.

The low drop percentage for level 1 remains fixed at 0%, while the low drop and high drop percentages for level 3 remain fixed at 100%.

**Step 6:** Click **Update Setting** when completed. A confirmation window appears. Click to close the confirmation window.

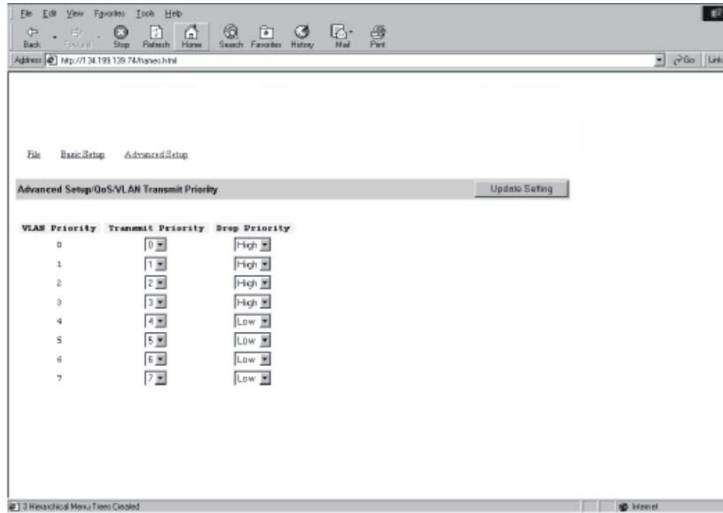


### Logic Port

**Step 7:** Point to **Advanced Setup**, point to **QoS**, and Click **Logic Port**.

**Step 8:** Point to **Advanced Setup**, point to **QoS**, point to **Logic Port**, and click **User Define Port**, **Well-Known Port**, or **Range Logic Port**.

**Step 9:** Click **Update Setting** when completed. A confirmation window appears. Click to close the confirmation window.

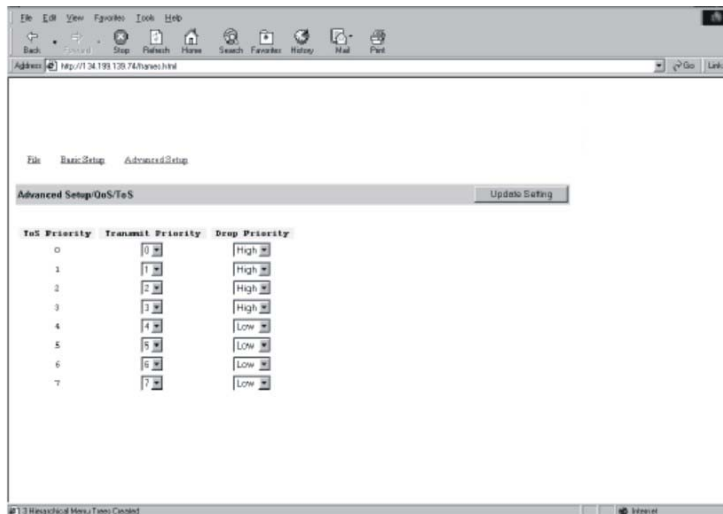


## VLAN

**Step 10:** Point to **Advanced Setup**, point to **QoS**, and Click **VLAN**.

**Step 11:** For each VLAN priority, use the left drop-down list to select a transmit priority for that VLAN and use the right drop-down list to select a high or low drop priority for that VLAN.

**Step 12:** Click **Update Setting** when completed. A confirmation window appears. Click to close the confirmation window.

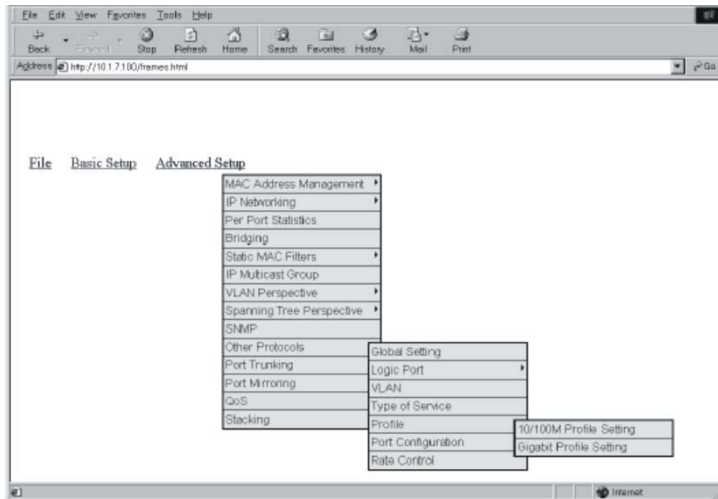


## Type of Service

**Step 13:** Point to **Advanced Setup**, point to **QoS**, and Click **Type of Service**.

**Step 14:** For each Type of Service priority, use the left drop-down list to select a transmit priority for that Type of Service and use the right drop-down list to select a high or low drop priority for that Type of Service.

**Step 15:** Click **Update Setting** when completed. A confirmation window appears. Click to close the confirmation window.

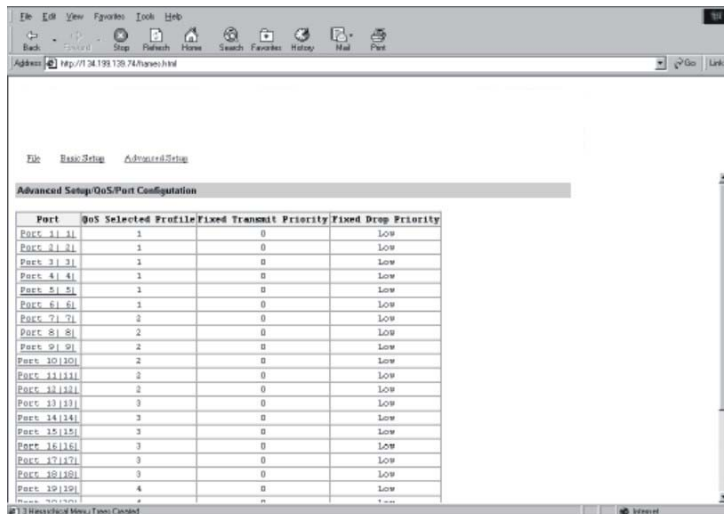


### Profile

**Step 16:** Point to **Advanced Setup**, point to **QoS**, and Click **Profile**.

**Step 17:** You can specify 10/100M Profile Settings or Gigabit Profile Settings.

**Step 18:** Click **Update Setting** when completed. A confirmation window appears. Click to close the confirmation window.

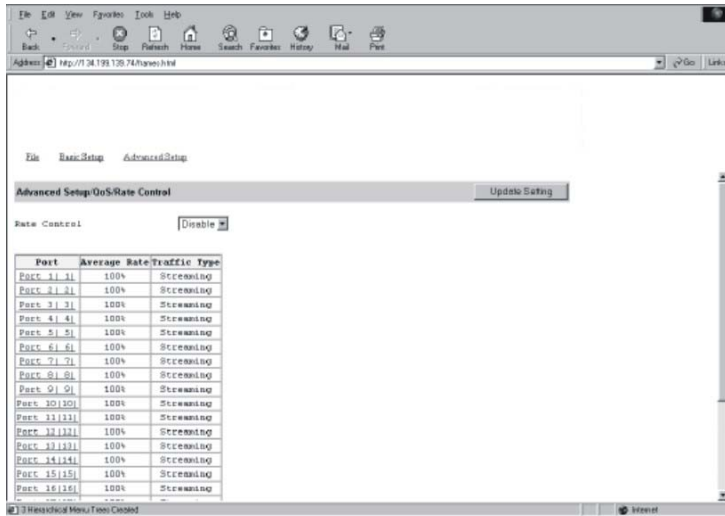


### Port Configuration

**Step 19:** Point to **Advanced Setup**, point to **QoS**, and Click **Port Configuration**.

**Step 20:** Click a port number under **Port**. Use the **Active Profile** drop-down list to select a different active profile.

**Step 21:** Click **Update Setting** when completed. A confirmation window appears. Click to close the confirmation window.



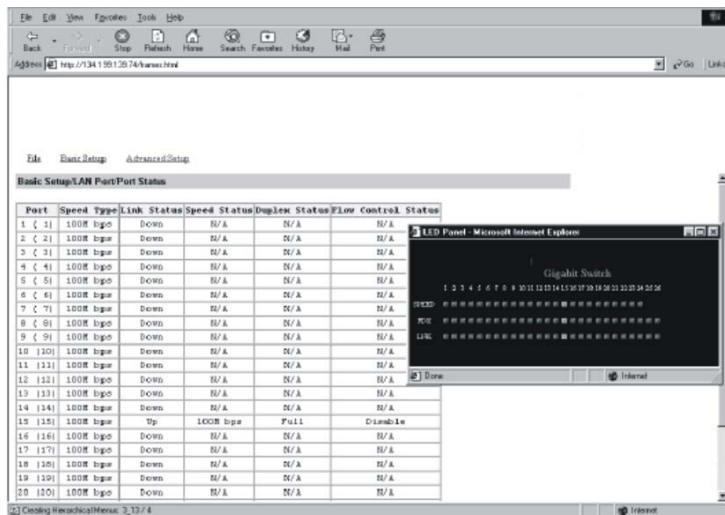
**Rate Control**

Step 22: Point to **Advanced Setup**, point to **QoS**, and Click **Rate Control**.

Step 23: Use the **Rate Control** drop-down list to enable or disable rate control.

Step 24: Click a port number under **Port**. Use the **Average Rate** drop-down list to select an average rate percentage. Use the **Traffic Type** drop-down list to select **Bursting** or **Streaming**.

Step 25: Click **Update Setting** when completed. A confirmation window appears. Click to close the confirmation window.



**Viewing Speed, Duplex, and Link Activity**

Step 1: To view the current speed, duplex setting, and link activity for the switch, click the ports on the switch shown in your Browser's window. The LED Panel window appears.

# SNMP & RMON Management

This chapter describes the switch's Simple Network Management Protocol (SNMP) and Remote Monitoring (RMON) capabilities.

## Overview

RMON is an abbreviation for the Remote Monitoring MIB (Management Information Base). RMON is a system defined by the Internet Engineering Task Force (IETF) document RFC 1757, which defines how networks can be monitored remotely.

RMONs typically consist of two components: an RMON probe and a management workstation:

- The RMON probe is an intelligent device or software agent that continually collects statistics about a LAN segment or VLAN. The RMON probe transfers the collected data to a management workstation on request or when a pre-defined threshold is reached.
- The management workstation collects the statistics that the RMON probe gathers. The workstation can reside on the same network as the probe, or it can have an in-band or out-of-band connection to the probe.

The switch provides RMON capabilities that allow network administrators to set parameters and view statistical counters defined in MIB-II, Bridge MIB, and RMON MIB. RMON activities are performed at a Network Management Station running an SNMP network management application with graphical user interface.

## SNMP Agent and MIB-2 (RFC 1213)

The SNMP Agent running on the switch manager CPU is responsible for:

- Retrieving MIB counters from various layers of software modules according to the SNMP GET/GET NEXT frame messages.
- Setting MIB variables according to the SNMP SET frame message.
- Generating an SNMP TRAP frame message to the Network Management Station if the threshold of a certain MIB counter is reached or if other trap conditions (such as the following) are met:

**WARM START**  
**COLD START**  
**LINK UP**  
**LINK DOWN**  
**AUTHENTICATION FAILURE**  
**RISING ALARM**  
**FALLING ALARM**  
**TOPOLOGY ALARM**

MIB-II defines a set of manageable objects in various layers of the TCP/IP protocol suites. MIB-II covers all manageable objects from layer 1 to layer 4, and, as a result, is the major SNMP MIB supported by all vendors in the networking industry. The switch supports a complete implementation of SNMP Agent and MIB-II.

## **RMON MIB (RFC 1757) and Bridge MIB (RFC 1493)**

The switch provides hardware-based RMON counters in the switch chipset. The switch manager CPU polls these counters periodically to collect the statistics in a format that complies with the RMON MIB definition.

### **RMON Groups Supported**

The switch supports the following RMON MIB groups defined in RFC 1757:

- RMON Statistics Group – maintains utilization and error statistics for the switch port being monitored.
- RMON History Group – gathers and stores periodic statistical samples from the previous Statistics Group.
- RMON Alarm Group – allows a network administrator to define alarm thresholds for any MIB variable. An alarm can be associated with Low Threshold, High Threshold, or both. A trigger can trigger an alarm when the value of a specific MIB variable exceeds a threshold, falls below a threshold, or exceeds or falls below a threshold.
- RMON Event Group – allows a network administrator to define actions based on alarms. SNMP Traps are generated when RMON Alarms are triggered. The action taken in the Network Management Station depends on the specific network management application.

### **Bridge Groups Supported**

The switch supports the following four groups of Bridge MIB (RFC 1493):

- The dot1dBase Group – a mandatory group that contains the objects applicable to all types of bridges.
- The dot1dStp Group – contains objects that denote the bridge's state with respect to the Spanning Tree Protocol. If a node does not implement the Spanning Tree Protocol, this group will not be implemented. This group is applicable to any transparent only, source route, or SRT bridge that implements the Spanning Tree Protocol.
- The dot1dTp Group – contains objects that describe the entity's transparent bridging status. This group is applicable to transparent operation only and SRT bridges.
- The dot1dStatic Group – contains objects that describe the entity's destination-address filtering status. This group is applicable to any type of bridge which performs destination-address filtering.



## Specifications

<b>Manageable 16/24 + 2 Gigabit Switch</b>	1) Two 1000BaseT ports with RJ-45 connectors (LBG1006C), or 1000BaseSX (LBG1001C)/LX ports SC connectors (*modules optional) 2) Sixteen 10/100BaseTX auto-negotiating ports with RJ-45 connectors with optional 8-port 10/100TX/100FX module, or twenty-four 10/100BaseTX auto-negotiating ports with RJ-45 connectors
<b>Applicable Standards</b>	IEEE 802.3 10BaseT IEEE 802.3u 100BaseTX/FX IEEE 802.3ab 1000BaseT IEEE 802.3z 1000BaseSX/LX
<b>Switching Method</b>	<b>Store-and-Forward</b>
<b>Forwarding Rate</b>	
10BaseT:	10 / 20Mbps half / full-duplex
100BaseTX/FX:	100 / 200Mbps half / full-duplex
1000BaseT/SX/LX:	1000 / 2000Mbps half / full-duplex
<b>Performance</b>	148,80pps for 10Mbps 148,800pps for 100Mbps 1,488,000pps for 1000Mbps
<b>Cable</b>	
10BaseT:	2-pair UTP/STP Cat. 3, 4, 5
100BaseTX:	2-pair UTP/STP Cat. 5 Both up to 100m (328ft)
100BaseFX	62.5/125µm multi-mode fiber (850nm) Up to 2km 10/125µm single-mode fiber (1300nm) Up to 75km
1000BaseT	4-pair UTP/STP Cat. 5 Both up to 100m (328ft)
1000BaseSX:	62.5/125µm multi-mode fiber (850nm) Up to 220m 50/125µm multi-mode fiber (850nm) Up to 550m
1000BaseLX:	62.5/125µm multi-mode fiber (1300nm) Up to 550m 10/125µm single-mode fiber (1300nm) Up to 20km
<b>LED Indicators</b>	Per unit – Power status Per port – LNK (Link) /ACT (Activity) FDX/COL Per Gigabit port – ACT, LNK
<b>Dimensions</b>	W440 mm × D285 mm × H45mm
<b>Net Weight</b>	3.4kg (7.5lb) approx.
<b>AC Input</b>	100~240VAC, 50~60Hz internal universal power supply
<b>Input Fuse</b>	2A
<b>Power Consumption</b>	52W max.
<b>Operating Temperature</b>	0°C to 40° C (32°F to 104°F)

Storage Temperature	-25°C to 70°C (-13°F to 158°F)
Humidity	10%-90% non-condensing
Emissions	FCC part 15 Class A, CE Mark Class A