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NETWORK SERVICES

August 2002

Managed Express Switch

LBG1000A
LBG1001C

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INSTRUCCIONES DE SEGURIDAD

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.
2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.
3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.
4. Todas las instrucciones de operación y uso deben ser seguidas.
5. 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.
6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.
7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.
8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.
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10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.
11. El aparato eléctrico deberá ser connectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.
12. Precaución debe ser tomada de tal manera que la tierra fisica y la polarización del equipo no sea eliminada.
13. 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.
14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.
15. En caso de existir, una antena externa deberá ser localizada lejos de las lineas de energia.
16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.
17. Cuidado debe ser tomado de tal manera que objectos liquidos no sean derramados sobre la cubierta u orificios de ventilación.
18. Servicio por personal calificado deberá ser provisto cuando:
    - A: El cable de poder o el contacto ha sido dañado; u
    - B: Objectos 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 LBG1000A. This switch introduced here is designed to deliver full scalability with SNMP/RMON web-based management functions by providing 24x10/100BASE-TX fixed ports and optional 2x1000BASE-SX/LX ports. 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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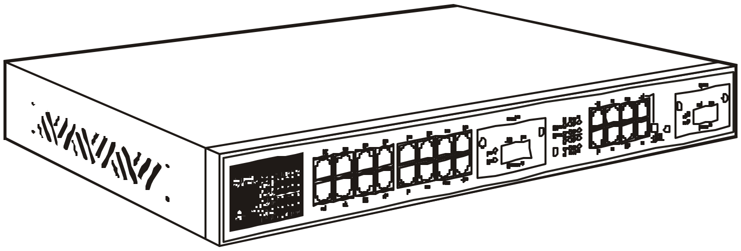
Product Overview

LBG1000A Manageable 24 + 2 Gigabit Switch



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.

- ☞ ***This Manageable Switch***
- ☞ ***User's Manual***
- ☞ ***AC power cord***
- ☞ ***RS232 cable***
- ☞ ***Rackmount brackets with screws***

Product Highlights

Basic Features

High port count:
24x10/100BASE-TX ports with RJ-45 connectors,
plus options of 2x1000BASE-SX/LX ports with SC connectors
Auto-negotiation for speed and duplexity on all TX ports
Full wire-speed forwarding rate
Store-and-forward mechanism
Back-pressure and IEEE 802.3x compliant flow control
Supports 2K MAC addresses
Provides 8M bit memory buffer
Provides one uplink button for port 24X
Front panel reset button
Front panel port status LEDs
? ? Standard 19” rackmount size, one-unit-height

Management Support

VLAN
Port-based VLAN, up to eight groups
802.1Q tagged VLAN

TRUNKING
MAC-based Trunking, up to four groups with a maximum of four ports each group
Load sharing based on source and destination MAC addresses

PORT-SECURITY
Limit number of MAC addresses learned per port
Static MAC addresses stay in the filtering table

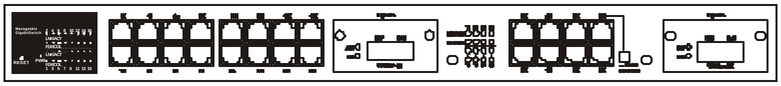
PORT-MIRRORING
Port-mirroring provided through dedicated ports, Port 1 & Port 13

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
IP Multicast Packet Filtering
Maximum of 256 VLANs and IP multicast sessions

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



✍ POWER

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

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

✍ 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.

✍ Uplink button

The uplink button is located at the right side of port 24X on the switch. Connect port 24X to another switch or hub, and depress the button for the uplink function.

Physical Ports

The Manageable Gigabit LBG1000A Switch provides 24x10/100TX fixed ports and options of 2x1000SX/LX ports.

CONNECTIVITY

- SC connectors on Gigabit ports
- RJ-45 connectors on TX ports
- One MDIX port for uplink

<Note> Refer to the table on page 26 for cabling requirements.

MODE SELECTION

- 10BASE-T full-duplex mode
- 10BASE-T half-duplex mode
- 100BASE-TX full-duplex mode
- 100BASE-TX half-duplex mode
- 1000BASE-SX/LX full-duplex mode
- Auto-negotiating mode

<Note>

i. Half-duplex mode uses back pressure flow control to prevent the receiving buffer from being overrun by data from a source node.
ii. Full-duplex mode uses 802.3x flow control standard to prevent fast data traffic from overrunning slow data traffic.
iii. Auto-negotiating mode is in use after auto-negotiating with the other end of the link.
iv. Half-duplex mode is not allowed with Gigabit ports.

Basic Functions

In general, the LBG1000Aswitch is responsible for switching both VLAN tagged and untagged frames from a receiving port to one or more transmitting ports. The switch performs multiple steps during the switching process:

VLAN CLASSIFICATION

LEARNING

FILTERING

FORWARDING

AGING

Below is additional information about tasks that the switch performs during unicast and multicast switching.

Unicast Switching

VLAN CLASSIFICATION

When the LBG1000A switch receives a frame, it classifies the frame in one of two ways:

- If the frame is untagged, the switch classifies the frame to an associated VLAN.
- If the frame is tagged, the switch uses the tagged VLAN ID to identify the broadcasting domain of the frame.

LEARNING

After VLAN classification, the switch checks the <source MAC address, VLAN> pair in the switching database (SDB) to see whether the <source MAC address, VLAN> pair is known.

- If it is unknown, the switch inserts the <source MAC address, VLAN> into the SDB and learns the <source MAC address, VLAN>.
- If it is known, the switch checks the <source MAC address, VLAN> for a mismatched port ID. If the port ID associated with the <source MAC address, VLAN> pair in the SDB is different than the receiving port, the switch modifies the port ID in the SDB and modifies its management database (MDB) accordingly.

FILTERING

After learning the address, the switch checks:

- Whether the source port or destination port is in the forwarding state.
- Whether the source MAC address or destination MAC address is to be filtered.
- Whether the source port ID is the same as destination port ID.

If any of these conditions are met, the switch drops the receiving. Otherwise, it continues with the forwarding process described below.

FORWARDING

During the forwarding process, the switch checks whether the <destination MAC address, VLAN> pair is unknown.

- If it is unknown, the switch floods the receiving frame to all ports in the VLAN, excluding the source port.
- If it is known, the switch forwards the receiving frame to the port associated with the <destination MAC address, VLAN> pair. At the same time, the switch ascertains the individual's port's VLAN tagging/untagging configuration and corresponding VLAN ID to render the appropriate frame tagging when the frame is ready to be transmitted.

Multicast Switching

For multicast switching, the LBG1000A switch checks whether the received frame is a BPDU. If a BPDU is received, the switch forwards the frame to the CPU for processing by the spanning tree protocol. Otherwise, the switch performs the following processes:

VLAN CLASSIFICATION

Same as for unicast switching.

LEARNING

Same as for unicast switching.

FILTERING

After learning the address, the LBG1000A switch checks:

- Whether the source port or destination port is not in the forwarding state.
- Whether the source MAC address or destination MAC address is to be filtered.
- Whether the source port ID is the same as destination port ID.

If any of these conditions are met, the LBG1000A switch drops the receiving. Otherwise, it continues with the forwarding process described below.

FORWARDING

The LBG1000A switch floods the received multicast frame to all ports that are in forwarding state within the VLAN, excluding the source port. At the same time, the switch ascertains the individual port's VLAN tagging/untagging configuration and corresponding VLAN ID to render the appropriate frame tagging when the frame is ready to be transmitted.

AGING

The LBG1000A switch performs the aging process for the <MAC addresses, VLAN> pair in the switching database. Once a <MAC address, VLAN> pair is aged out, the SDB is modified.

SPANNING TREE

The LBG1000A switch supports one Spanning Tree per bridged network.

VLAN

A virtual LAN (VLAN) is a network of computers that behave as if they are connected to the same wire, even though they may actually be physically located on different segments of a LAN. VLANs are analogous to a group of end stations, perhaps on multiple physical LAN segments that are not constrained by their physical location and can communicate as if they were on a common LAN.

VLANs are configured through software rather than hardware, which makes them extremely flexible. One of the biggest advantages of VLANs is that when a computer is physically moved to another location, it can stay on the same VLAN without any hardware reconfiguration.

Because VLANs are not limited by the hardware constraints that physically connect traditional LAN segments to a network, they can define a network into various logical configurations. For example, VLANs can define a network by application. In this scenario, a company might create one VLAN for multimedia users and another for email users. VLANs can also define a network by department. For example, a company might have one VLAN for its Engineering Department, another for its Marketing Department, and another for its Account Payable Department.

VLANs can also be set up according to the organization structure within a company. For example, the company president might have his/her own VLAN, the executive staff might have a different VLAN, and the remaining employees might have yet a different VLAN.

As these examples show, VLANs offer unparalleled flexibility. The following sections describe how deploying VLANs can benefit organizations and reduce administration costs.

Broadcast Containment

In traditional networks, traffic broadcasts to all network devices, whether they are the intended recipients or not. However, VLANs can be set up to contain only those devices that need to communicate with each other. As a result, VLANs significantly reduce network congestion. In addition, VLANs prevent broadcast storms from causing network meltdown due to volumes of traffic.

Multicast-Based Multimedia Applications

Multimedia applications, such as interactive training, video conferencing, and news-video transmissions, require large amounts of bandwidth. These applications are also extremely sensitive to variable delays, which are unavoidable on a shared Ethernet network. By defining a VLAN based on the IP multicast address for all subscribing members on the VLAN, sufficient bandwidth will be available for these application, providing true multimedia on Ethernet.

Enhanced Security

Because VLANs are self-contained, only the devices within the same VLAN can communicate with each other. If a device in one VLAN wants to communicate with a device in another VLAN, the traffic must go through a router.

VLAN Membership

VLAN implementation allows:

- Up to 256 VLANs in one switch.
- VLANs across multiple switches by using explicit or implicit tagging and the GARP/GVRP protocol defined in IEEE802.1p and 802.1Q.
- An end station's network interface card belong to multiple VLANs.
- A switch port to be associated with multiple VLANs.

DEFINITIONS OF VLAN MEMBERSHIP

VLAN implementation allows VLAN membership to be defined based on ports. Port-based VLANs are organized by physical port number. For example, switch ports 1, 2, 4 and 6 can be grouped on VLAN, while server ports 3, 5, 7 and 8 can be on another VLAN. Broadcasts from servers within each group would only go to the members of its own VLAN. This ensures that broadcast storms cannot cause a network meltdown due to volumes of traffic.

VLAN MEMBERSHIP LEARNING

Port-based VLAN is defined using a static binding between a VLAN and its associated ports. The switch's forwarding decision is based on the destination MAC address and its associated port ID. Therefore, to make valid forwarding and flooding decisions, the switch learns the relationship of the MAC address to its related port – and thus to the VLAN – at runtime.

REMOTE VLAN LEARNING

In addition to providing network management tools that allow network administrators to statically add and delete VLAN member ports, the switch also supports GVRP (GARP VLAN Registration Protocol). GVRP allows for dynamic registration of VLAN port members within switch and across multiple switches.

Other than supporting dynamic updating of registration entries in a switch, GVRP is used to communicate VLAN registration information to other VLAN-aware switches, so that a VLAN member can cover a wide span of switches on a network.

GVRP allows both VLAN-aware workstations and switches to issue and revoke VLAN memberships. VLAN-aware switches register an propagate VLAN membership to all ports that belong to the active topology of the VLAN.

VLAN CONFIGURATION

The LBG1000A switch provides a Local/Remote Management Console Interface for VLAN configuration and management An SNMP-based VLAN MIB is also provided.

Intra-VLAN Communication

The LBG1000A switch supports intra-VLAN communication through hardware, as described in "Basic Functions" section.

Inter-VLAN Communication

The LBG1000A switch supports inter-VLAN communication using CPU-based routing software.

Class-of-Service (CoS) Support

The LBG1000A switch provides four transmit queues on each port, with a weighted round-robin scheme. These functions can be used to provide independent priorities for various types of data including real-time video, real-time voice, and best-effort data.

Priority assignment to packet-based switches is accomplished through explicit assignment by end stations, which have applications that require a higher priority than best-effort data. This mechanism utilizes the IEEE802.1p and 802.1Q tag structure, which the switch uses to decide priority assignments for the received packets.

GVRP

In addition to network management tools that allow network administrators to statically add and delete VLAN member ports, the routing switch supports GARP VLAN Registration Protocol (GVRP). GVRP supports dynamic registration of VLAN port members within a switch and across multiple switches.

In addition to dynamically updating registration entries within a switch, GVRP is used to communicate VLAN registration information to other VLAN-aware switches, so that members of a VLAN can cover a wide span of switches on a network.

GVRP allows both VLAN-aware workstations and switches to issue and revoke VLAN memberships. VLAN-aware switches register and propagate VLAN membership to all ports that are part of the active topology of the VLAN.

IGMP Snooping and IP Multicast Filtering

The Internet Group Management Protocol (IGMP) runs between hosts and their immediately neighboring multicast routers. The protocol's mechanisms allow a host to inform its local router that it wants to receive transmissions addressed to a specific multicast group.

Routers periodically query the LAN to determine if known group members are still active. If there is more than one router on the LAN performing IP multicasting, one of the routers is elected "querier" and assumes the responsibility of querying the LAN for group members.

Based on the group membership information learned from the IGMP, a router can determine which (if any) multicast traffic needs to be forwarded to each of its "leaf" subnetworks. Multicast routers use this information, along with a multicast routing protocol, to support IP multicasting across the Internet.

IGMP provides the final step in an IP multicast packet delivery service since it is only concerned with the forwarding of multicast traffic from the local route to group members on directly attached subnetworks.

Routing switches support IP Multicast Filtering by:

- Passively snooping on the IGMP Query and IGMP Report packets transferred between IP Multicast Routers and IP Multicast host groups to learn IP Multicast group members, and
- Actively sending IGMP Query messages to solicit IP Multicast group members.

The purpose of IP multicast filtering is to optimize a switched network's performance, so multicast packets will only be forwarded to those ports containing multicast group hosts members and routers instead of flooding to all ports in the subnet (VLAN).

Routing switches with IP multicast filtering/switching capability not only passively monitor IGMP Query and Report messages, DVMRP Probe messages, PIM, and MOSPF Hello messages; they also actively send IGMP Query messages to learn locations of multicast routers and member hosts in multicast groups within each VLAN.

Note, however, IGMP neither alters nor routes any IP multicast packets. Since IGMP is not concerned with the delivery of IP multicast packets across subnetworks, an external IP multicast router is needed if IP multicast packets have to be routed across different subnetworks.

Switch Management

Administration console via RS-232 serial port

The LBG1000A 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 LBG1000A 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 LBG1000A switch can also be configured via SNMP.

For more information on switch management, refer to the "Switch Management" section on page 28.

Installation

This chapter gives step-by-step instructions about how to install the LBG1000A switch:

Selecting a Site for the Switch

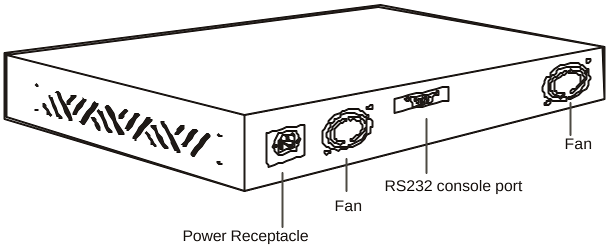
As with any electric device, you should place the LBG1000A switch where it will not be subjected to extreme temperatures, humidity, or electromagnetic interference. Specifically, the site you select should meet the following requirements:

- 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 260 Vac.

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



Rear view

Power-on Self test (POST)

The LBG1000A Switch performs its Power-On Self Test (POST) when the power is switched on. During the POST, the switch CPU will:

- perform a series of diagnostic procedures to make sure the basic system is functioning integrity
- decompress the main switching software runtime image from the flash ROM into DRAM area
- begin executing the main switching software

A command line prompts when you press the Esc key on a terminal connected to the switch serial port during the POST process. Then you can execute the following options:

DOWNLOAD RUNTIME SOFTWARE FROM SERIAL PORT

This will download the runtime system image to the switch via the serial port. Before selecting this option, make sure:

- A host system is running a terminal emulation program that supports the Kermit file transfer protocol.
- The host system's hard drive has the required binary file that will be downloaded to the switch.

CONFIGURE THE SYSTEM

This option lets you modify any configurable parameter in the switch's flash ROM before the switch system boots.

RUN MANUFACTURING DIAGNOSTICS

This option is to download the manufacturer's diagnostics. Refer to Download Runtime Software for download requirements.

When the file transfer is completed, the target system jumps to the entry point of the diagnostic program and starts executing the diagnostic code. The Main Menu of the diagnostic program appears, where you can initiate tests or obtain system information. Note that user intervention is not required when a test runs, unless an error occurs. If an error occurs during testing, you are given the choice of continuing the diagnostics or skip the error.

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
10BASE-T	RJ-45	10/20 Mbps	2-pair UTP/STP Cat. 3, 4, 5	100 m
100BASE-TX	RJ-45	100/200 Mbps	2-pair UTP/STP Cat. 5	100 m
1000BASE-SX (*Wavelength of 850nm)	SC	1000/2000 Mbps	62.5/125µm multi-mode fiber	220 m
	SC	1000/2000 Mbps	50/125µm multi-mode fiber	550 m
1000BASE-LX (*Wavelength of 1300nm)	SC	1000/2000 Mbps	62.5/125µm multi-mode fiber	550 m
	SC	1000/2000 Mbps	10/125µm 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 LBG1000A 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 via RS-232 serial port

Advantages

- No IP address or subnet needed
- Text-based
- Telnet functionality and HyperTerminal built into Windows 95/98/NT/2000 operating systems

Disadvantages

- Must be near switch or use dial-up connection
- Inconvenient for remote users
- Modem connection may prove to be unreliable or slow

- Web-based browser interface

Advantages

- Ideal for configuring the switch remotely
- Compatible with all popular browsers
- Can be accessed from any location
- Most visually appealing

Disadvantages

- Security can be compromised (Hackers need only know the IP address and subnet mask)
- May encounter lag times on poor connections

- External SNMP-based network management application

Advantages

- Communicates with switch functions at the MIB level
- Based on open standards

Disadvantages

- Requires SNMP manager software
- Least visually appealing of all three methods
- Some settings require calculations
- Security can be compromised (Hackers need only know the community name)

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 LBG1000A 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.

Netscape Navigator

If you use Netscape Navigator 4.03 or 4.04, install the Netscape JDK 1.1 Patch. Download the patch from:

http://help.hetscape.com/filelib.html#smartupdate

If you encounter problems accessing Help files when you use Netscape, clear the browser memory cache and disk cache, and restart the browser.

Internet Explorer

If you use Internet Explorer, install the latest 4.01 Service Pack 1. This service pack makes Internet Explorer Year 2000 compliant and fixes other product-support issues. Download the 4.01 Service Pack 1 from the following location:

http://www.microsoft.com/msdownload/iebuild/ie4sp1_win32/en/ie4sp1_win32.htm

If the above link is unavailable, download the service pack from the Microsoft home page:
http://www.microsoft.com

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 Netwo rk 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 LBG1000A 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 LBG1000A 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.
* Please refer to page 62 in this chapter.

Logging on to the switch

At the screen prompt

```
Login:
Password:
```

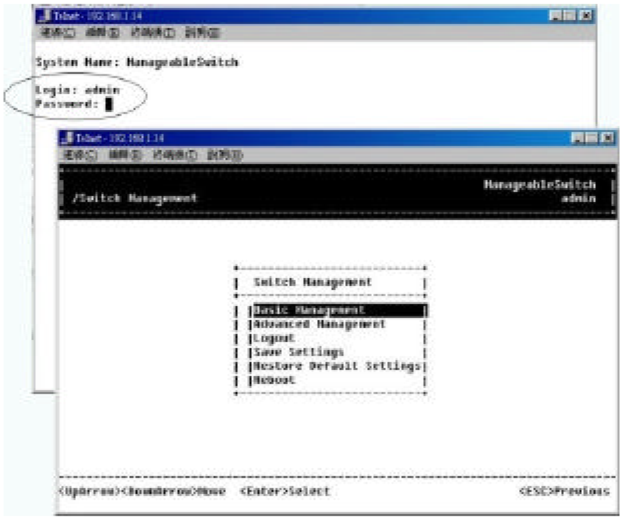
LOGIN NAME
Enter the console interface factory default console name **admin**.

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



```
System Name: ManageableSwitch

Login: admin
Password:
```

```
                                                  ManageableSwitch
 /Switch Management                                          admin

               +--------------------------+
               |  Switch Management       |
               +--------------------------+
               | |Basic Management        |
               | |Advanced Management     |
               | |Logout                  |
               | |Save Settings           |
               | |Restore Default Settings|
               | |Reboot                  |
               +--------------------------+

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

BASIC MANAGEMENT
Refer to page 37 for performing basic management activities.

ADVANCED MANAGEMENT
Refer to page 47 for performing 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

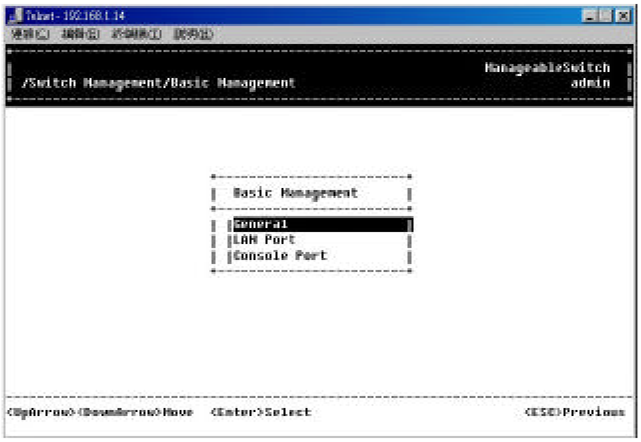
<Note> * Remember to release the <Caps Lock> key if you press <K> or <J> and cannot move the highlight on the screen.

Performing Basic Management Activities

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

Start with Selection Menu

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

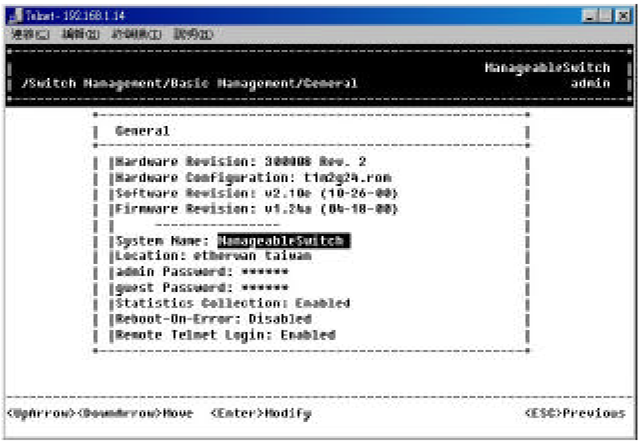


```
                                                    ManageableSwitch
 /Switch Management/Basic Management                           admin

                     Basic Management

                     General
                     LAN Port
                     Console Port

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

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

General Management Configurations

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



```
                                                        ManageableSwitch
 /Switch Management/Basic Management/General                       admin

             General

             |Hardware Revision: 300008 Rev. 2
             |Hardware Configuration: t1m2g24.rom
             |Software Revision: v2.10e (10-26-00)
             |Firmware Revision: v1.24a (04-18-00)
             |       ----------------
             |System Name: ManageableSwitch
             |Location: etherwan taiwan
             |admin Password: ******
             |guest Password: ******
             |Statistics Collection: Enabled
             |Reboot-On-Error: Disabled
             |Remote Telnet Login: Enabled

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

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

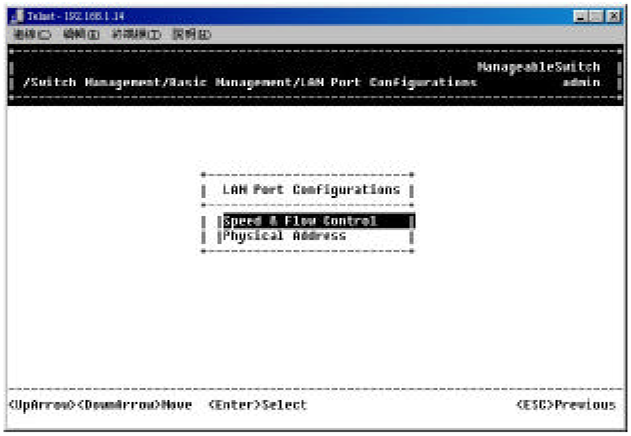
Step 8: Move to highlight **Remote Telnet Login** and press <Enter> if you want to change it, Disabled or Enabled.

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>.

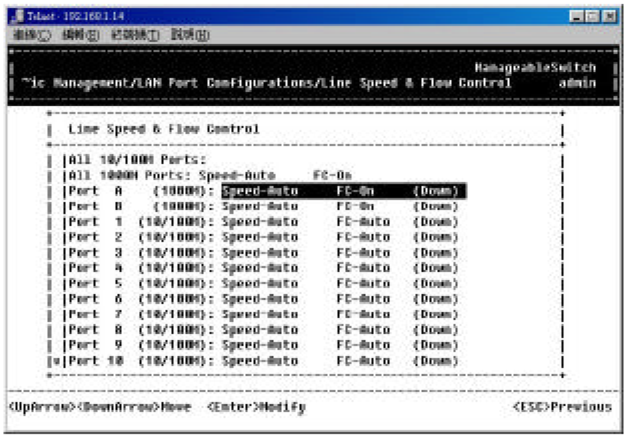


```
+------------------------------------------------------------------------------+
|                                                         ManageableSwitch   |
| /Switch Management/Basic Management/LAN Port Configurations          admin   |
+------------------------------------------------------------------------------+

                        +-------------------------+
                        |  LAN Port Configurations |
                        +-------------------------+
                        |  |Speed & Flow Control   |
                        |  |Physical Address       |
                        +-------------------------+

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

SPEED & FLOW CONTROL

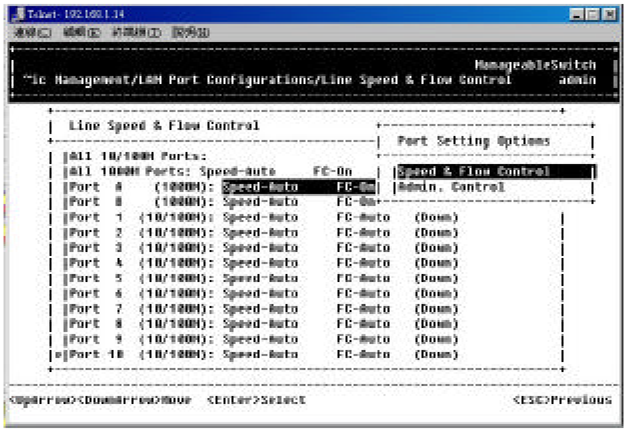
Step 2: **Speed & Flow Control** is highlighted. Press <Enter> if you want to set speed or flow control on port.

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.



```
                                                              ManageableSwitch
 ~ic Management/LAN Port Configurations/Line Speed & Flow Control      admin

     Line Speed & Flow Control

    |All 10/100M Ports:
    |All 1000M Ports: Speed-Auto      FC-On
    |Port  A     (1000M): Speed-Auto      FC-On      (Down)
    |Port  B     (1000M): Speed-Auto      FC-On      (Down)
    |Port  1   (10/100M): Speed-Auto      FC-Auto    (Down)
    |Port  2   (10/100M): Speed-Auto      FC-Auto    (Down)
    |Port  3   (10/100M): Speed-Auto      FC-Auto    (Down)
    |Port  4   (10/100M): Speed-Auto      FC-Auto    (Down)
    |Port  5   (10/100M): Speed-Auto      FC-Auto    (Down)
    |Port  6   (10/100M): Speed-Auto      FC-Auto    (Down)
    |Port  7   (10/100M): Speed-Auto      FC-Auto    (Down)
    |Port  8   (10/100M): Speed-Auto      FC-Auto    (Down)
    |Port  9   (10/100M): Speed-Auto      FC-Auto    (Down)
   v|Port 10   (10/100M): Speed-Auto      FC-Auto    (Down)

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

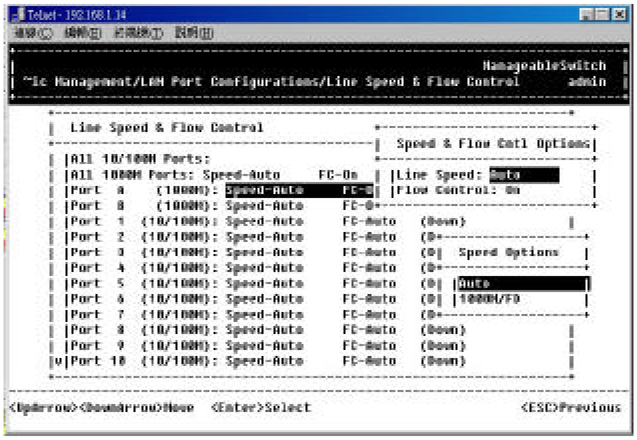
Step 4: **Port Setting Options** screen appears. Highlight **Speed & Flow Contro**l and press <Enter>.



```
                                                              ManageableSwitch
 ~ic Management/LAN Port Configurations/Line Speed & Flow Control      admin

     Line Speed & Flow Control
                                                   | Port Setting Options  |
    |All 10/100M Ports:
    |All 1000M Ports: Speed-Auto      FC-On        | |Speed & Flow Control |
    |Port  A     (1000M): Speed-Auto      FC-On    | |Admin. Control       |
    |Port  B     (1000M): Speed-Auto      FC-On
    |Port  1   (10/100M): Speed-Auto      FC-Auto    (Down)
    |Port  2   (10/100M): Speed-Auto      FC-Auto    (Down)
    |Port  3   (10/100M): Speed-Auto      FC-Auto    (Down)
    |Port  4   (10/100M): Speed-Auto      FC-Auto    (Down)
    |Port  5   (10/100M): Speed-Auto      FC-Auto    (Down)
    |Port  6   (10/100M): Speed-Auto      FC-Auto    (Down)
    |Port  7   (10/100M): Speed-Auto      FC-Auto    (Down)
    |Port  8   (10/100M): Speed-Auto      FC-Auto    (Down)
    |Port  9   (10/100M): Speed-Auto      FC-Auto    (Down)
   v|Port 10   (10/100M): Speed-Auto      FC-Auto    (Down)

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

Line Speed

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



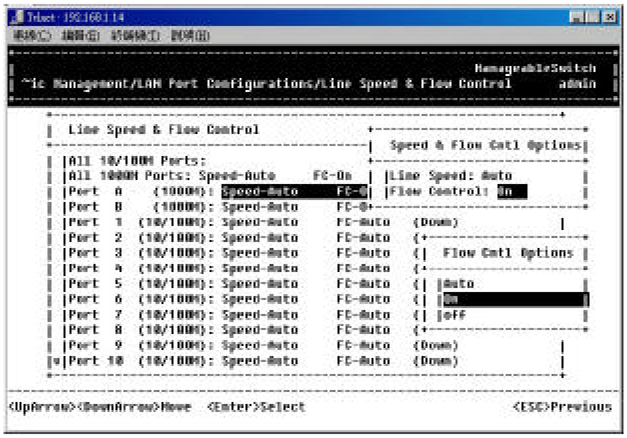
```
                                                              ManageableSwitch
 ~ic Management/LAN Port Configurations/Line Speed & Flow Control      admin

     Line Speed & Flow Control
                                                 | Speed & Flow Cntl Options|
    |All 10/100M Ports:
    |All 1000M Ports: Speed-Auto      FC-On      | |Line Speed: Auto        |
    |Port  A     (1000M): Speed-Auto      FC-On  | |Flow Control: On        |
    |Port  B     (1000M): Speed-Auto      FC-On
    |Port  1   (10/100M): Speed-Auto      FC-Auto    (Down)
    |Port  2   (10/100M): Speed-Auto      FC-Auto    (D
    |Port  3   (10/100M): Speed-Auto      FC-Auto    (D|  Speed Options   |
    |Port  4   (10/100M): Speed-Auto      FC-Auto    (D
    |Port  5   (10/100M): Speed-Auto      FC-Auto    (D| |Auto            |
    |Port  6   (10/100M): Speed-Auto      FC-Auto    (D| |1000M/FD        |
    |Port  7   (10/100M): Speed-Auto      FC-Auto    (D
    |Port  8   (10/100M): Speed-Auto      FC-Auto    (Down)
    |Port  9   (10/100M): Speed-Auto      FC-Auto    (Down)
   v|Port 10   (10/100M): Speed-Auto      FC-Auto    (Down)

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

<Note> In the Speed Options, **Auto** denotes auto negotiation on speed and duplex mode, 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>.



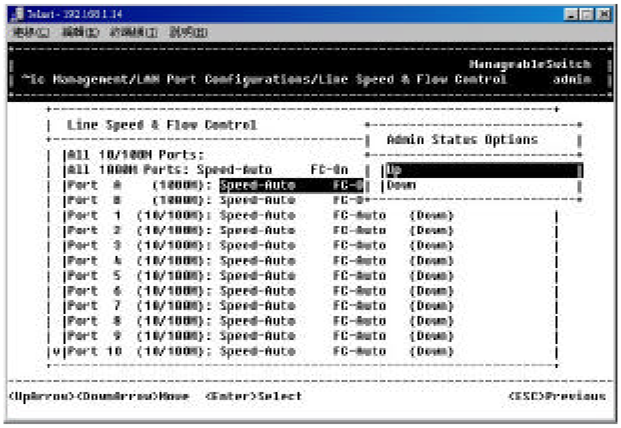
```
+------------------------------------------------------------------------+
|                                                  ManageableSwitch |
| ~ic Management/LAN Port Configurations/Line Speed & Flow Control      admin |
+------------------------------------------------------------------------+
     +-------------------------------------------------------------+
     |  Line Speed & Flow Control            +----------------------------+
     +---------------------------------------|  Speed & Flow Cntl Options|
     | |All 10/100M Ports:                   +----------------------------+
     | |All 1000M Ports: Speed-Auto     FC-On | |Line Speed: Auto          |
     | |Port  A    (1000M): Speed-Auto     FC-O| |Flow Control: On         |
     | |Port  B    (1000M): Speed-Auto     FC-O+----------------------------+
     | |Port  1  (10/100M): Speed-Auto     FC-Auto   (Down)          |
     | |Port  2  (10/100M): Speed-Auto     FC-Auto   (+-----------------------+
     | |Port  3  (10/100M): Speed-Auto     FC-Auto   (|  Flow Cntl Options |
     | |Port  4  (10/100M): Speed-Auto     FC-Auto   (+-----------------------+
     | |Port  5  (10/100M): Speed-Auto     FC-Auto   (| |Auto              |
     | |Port  6  (10/100M): Speed-Auto     FC-Auto   (| |On                |
     | |Port  7  (10/100M): Speed-Auto     FC-Auto   (| |oFF               |
     | |Port  8  (10/100M): Speed-Auto     FC-Auto   (+-----------------------+
     | |Port  9  (10/100M): Speed-Auto     FC-Auto   (Down)          |
     |v|Port 10  (10/100M): Speed-Auto     FC-Auto   (Down)          |
     +-------------------------------------------------------------+
--------------------------------------------------------------------------
<UpArrow><DownArrow>Move  <Enter>Select                      <ESC>Previous
```

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

Admin. Control

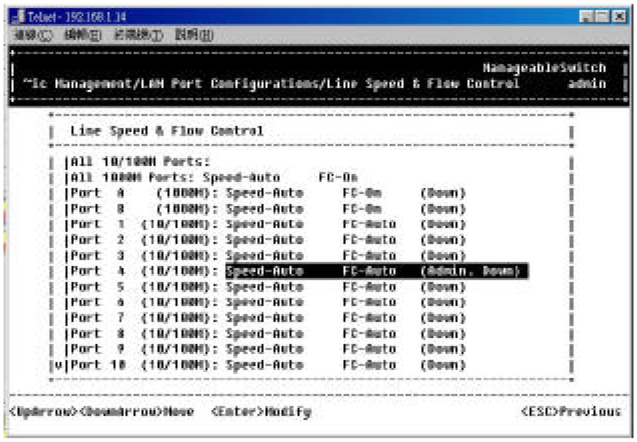
Step 9: Highlight **All Ports** and press <Enter> to configure at one time. Otherwise, move to highlight each port and press <Enter> to configure individually.

Step 10: For **Admin Control**, move to highlight Up or Down from **admin Status Options**.



```
+--------------------------------------------------------------------------------+
|                                                              ManageableSwitch |
| ^Sc Management/LAN Port Configurations/Line Speed & Flow Control       admin   |
+--------------------------------------------------------------------------------+
     +---------------------------------------------------------------------+
     |  Line Speed & Flow Control               +-------------------------+
     +------------------------------------------| Admin Status Options    |
     | |All 10/100M Ports:                      +-------------------------+
     | |All 1000M Ports: Speed-Auto     FC-On   | |Up                     |
     | |Port  A    (1000M): Speed-Auto     FC-O| |Down                   |
     | |Port  B    (1000M): Speed-Auto     FC-O+-------------------------+
     | |Port  1  (10/100M): Speed-Auto     FC-Auto   (Down)             |
     | |Port  2  (10/100M): Speed-Auto     FC-Auto   (Down)             |
     | |Port  3  (10/100M): Speed-Auto     FC-Auto   (Down)             |
     | |Port  4  (10/100M): Speed-Auto     FC-Auto   (Down)             |
     | |Port  5  (10/100M): Speed-Auto     FC-Auto   (Down)             |
     | |Port  6  (10/100M): Speed-Auto     FC-Auto   (Down)             |
     | |Port  7  (10/100M): Speed-Auto     FC-Auto   (Down)             |
     | |Port  8  (10/100M): Speed-Auto     FC-Auto   (Down)             |
     | |Port  9  (10/100M): Speed-Auto     FC-Auto   (Down)             |
     |v|Port 10  (10/100M): Speed-Auto     FC-Auto   (Down)             |
     +---------------------------------------------------------------------+
----------------------------------------------------------------------------------
<UpArrow><DownArrow>Move   <Enter>Select                          <ESC>Previous
```

Step 11: E.g. Port 4 is set as **Admin Down** to stop TX/RX transmission.
To allow TX/RX transmission on Port 4, move to highlight Up from the options in Step 10.



```
+------------------------------------------------------------------------------+
|                                                             ManageableSwitch |
| ~ic Management/LAN Port Configurations/Line Speed & Flow Control       admin |
+------------------------------------------------------------------------------+
    +--------------------------------------------------------------------+
    |  Line Speed & Flow Control                                         |
    +--------------------------------------------------------------------+
    | |All 10/100M Ports:                                                |
    | |All 1000M Ports: Speed-Auto     FC-On                             |
    | |Port  A    (1000M): Speed-Auto     FC-On     (Down)               |
    | |Port  B    (1000M): Speed-Auto     FC-On     (Down)               |
    | |Port  1  (10/100M): Speed-Auto     FC-Auto   (Down)               |
    | |Port  2  (10/100M): Speed-Auto     FC-Auto   (Down)               |
    | |Port  3  (10/100M): Speed-Auto     FC-Auto   (Down)               |
    | |Port  4  (10/100M): Speed-Auto     FC-Auto   (Admin. Down)        |
    | |Port  5  (10/100M): Speed-Auto     FC-Auto   (Down)               |
    | |Port  6  (10/100M): Speed-Auto     FC-Auto   (Down)               |
    | |Port  7  (10/100M): Speed-Auto     FC-Auto   (Down)               |
    | |Port  8  (10/100M): Speed-Auto     FC-Auto   (Down)               |
    | |Port  9  (10/100M): Speed-Auto     FC-Auto   (Down)               |
    |v|Port 10  (10/100M): Speed-Auto     FC-Auto   (Down)               |
    +--------------------------------------------------------------------+
--------------------------------------------------------------------------------
<UpArrow><DownArrow>Move  <Enter>Modify                           <ESC>Previous
```

<Note> The other ports are set **Admin Up** but no link. (**Down** denotes no link).

PHYSICAL PORT ADDRESS

Step 12: Press <Esc> to a previous screen as shown in Step 1.

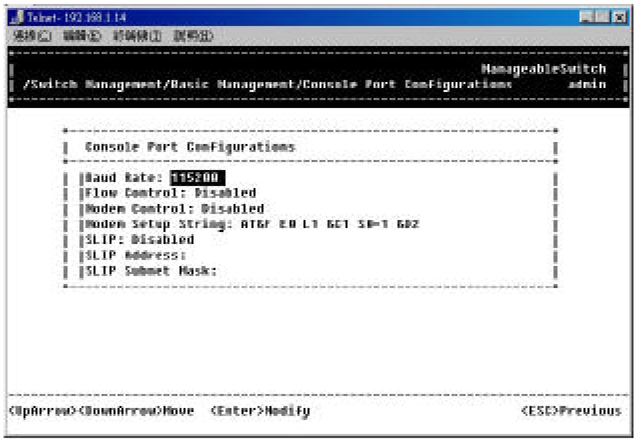
Step 13: Move to highlight **Physical Address** to view physical port address.

Return to Basic Management

Step 14: Press <Esc> to return to [Basic Management] screen when completed.

Console Port Configurations

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



```
                                                        ManageableSwitch
/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
```

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

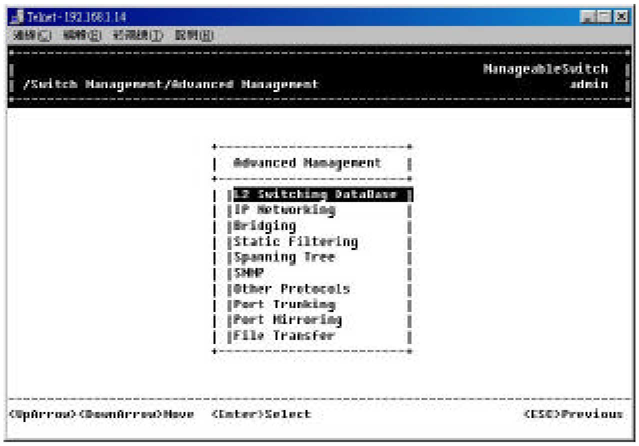
Step 9: Press <Esc> to return to [Basic Management] screen when completed.

Performing Advanced Management Activities

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

Start with Selection Menu

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



```
+------------------------------------------------------------------------------+
|                                                          ManageableSwitch   |
| /Switch Management/Advanced Management                             admin   |
+------------------------------------------------------------------------------+

                         +-------------------------+
                         |  Advanced Management    |
                         +-------------------------+
                         | |L2 Switching DataBase  |
                         | |IP Networking          |
                         | |Bridging               |
                         | |Static Filtering       |
                         | |Spanning Tree          |
                         | |SNMP                   |
                         | |Other Protocols        |
                         | |Port Trunking          |
                         | |Port Mirroring         |
                         | |File Transfer          |
                         +-------------------------+

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

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.

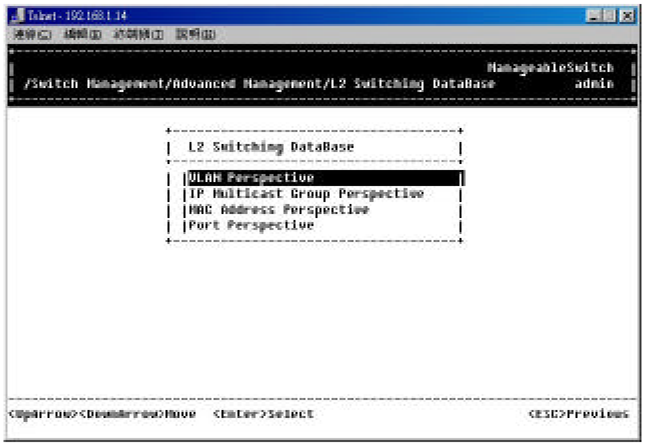
PORT TRUNKING
Assign a range of ports to trunking groups.

PORT MIRRORING
Mirror one port to Port 1 or Port 13.

FILE TRANSFER
Send files using the TFTP or Kermit protocol.

L2 Switching DataBase

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

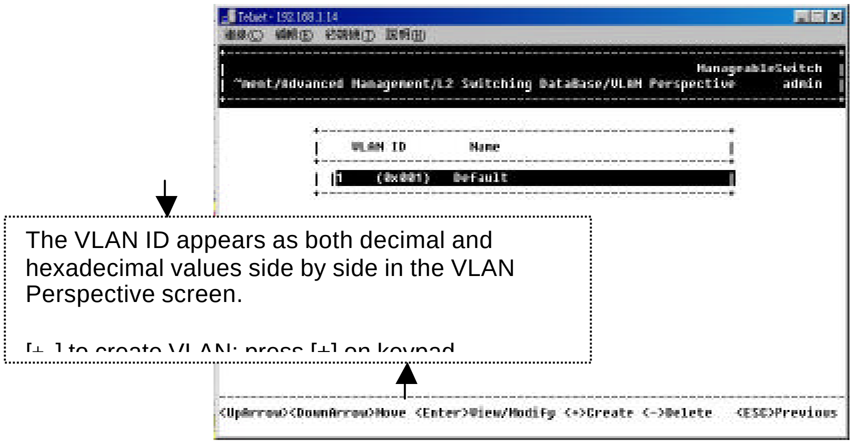


```
                                                        ManageableSwitch
 /Switch Management/Advanced Management/L2 Switching DataBase      admin

          +------------------------------------+
          |  L2 Switching DataBase             |
          +------------------------------------+
          | |VLAN Perspective                  |
          | |IP Multicast Group Perspective    |
          | |MAC Address Perspective           |
          | |Port Perspective                  |
          +------------------------------------+

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

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.



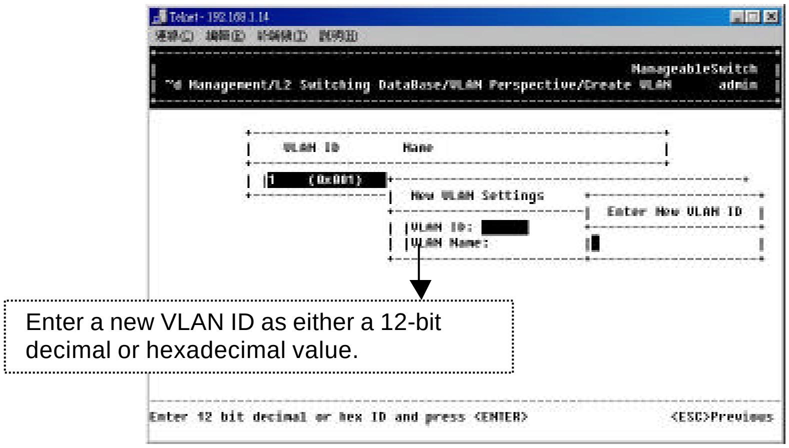
```
                                                        ManageableSwitch
 ~ment/Advanced Management/L2 Switching DataBase/VLAN Perspective  admin

      +-------------------------------------------+
      |    VLAN ID        Name                    |
      +-------------------------------------------+
      | |1     (0x001)    Default                 |
      +-------------------------------------------+

<UpArrow><DownArrow>Move <Enter>View/Modify <+>Create <->Delete  <ESC>Previous
```

The VLAN ID appears as both decimal and hexadecimal values side by side in the VLAN Perspective screen.

[+] to create VLAN: press [+] on keypad

Create VLAN

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



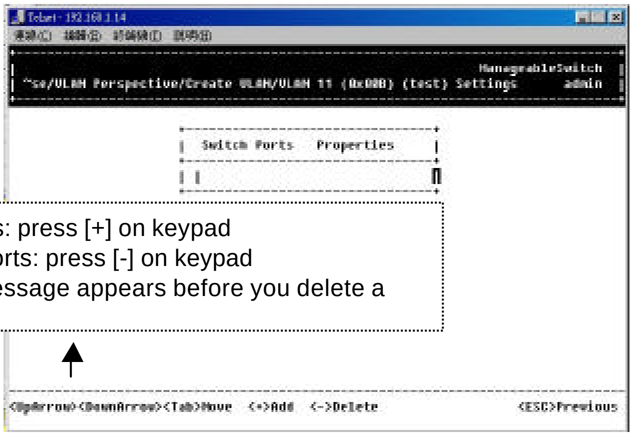
```
                                                          ManageableSwitch
 ~d Management/L2 Switching DataBase/VLAN Perspective/Create VLAN      admin

      VLAN ID        Name

   |1      (0x001)
                   |  New VLAN Settings         | Enter New VLAN ID |
                   | |VLAN ID:
                   | |VLAN Name:                |

Enter 12 bit decimal or hex ID and press <ENTER>                <ESC>Previous
```

Enter a new VLAN ID as either a 12-bit decimal or hexadecimal value.

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

Add New Switch Ports

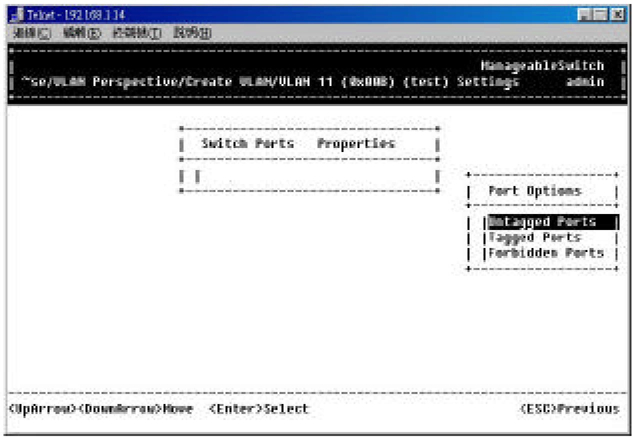
Step 3: Press <Esc> and appears the following screen. Press [+] to add new switch ports to the newly created VLAN.



```
                                                ManageableSwitch
 ~se/VLAN Perspective/Create VLAN/VLAN 11 (0x00B) (test) Settings      admin

                    Switch Ports    Properties

<UpArrow><DownArrow><Tab>Move  <+>Add  <->Delete                <ESC>Previous
```

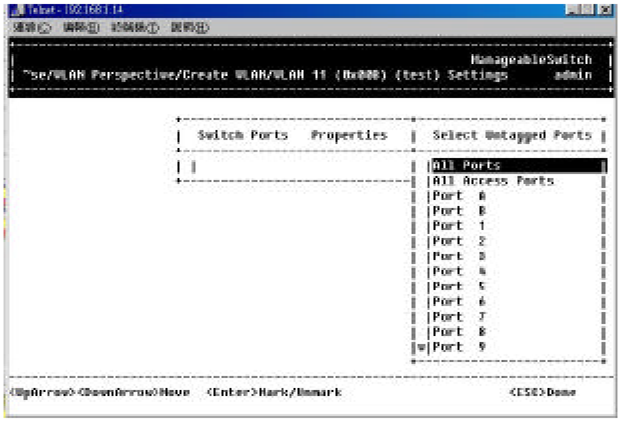
[+] to add switch ports: press [+] on keypad
[-] to delete switch ports: press [-] on keypad
* No precautionary message appears before you delete a switch port

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



```
                                                ManageableSwitch
 ~se/VLAN Perspective/Create VLAN/VLAN 11 (0x00B) (test) Settings      admin

                    Switch Ports    Properties

                                                    Port Options

                                                    Untagged Ports
                                                    Tagged Ports
                                                    Forbidden Ports

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

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.



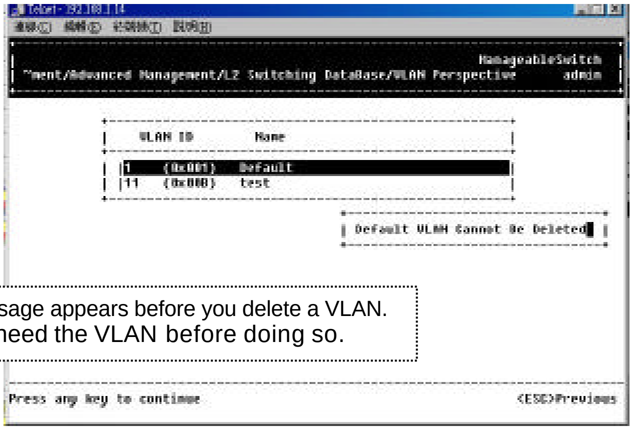
```
+------------------------------------------------------------------------+
|                                                      ManageableSwitch |
| ~se/VLAN Perspective/Create VLAN/VLAN 11 (0x000) (test) Settings   admin |
+------------------------------------------------------------------------+

                    +--------------------------------+-----------------------+
                    |  Switch Ports   Properties     |  Select Untagged Ports |
                    +--------------------------------+-----------------------+
                    | |                              | |All Ports            |
                    +--------------------------------| |All Access Ports     |
                                                     | |Port  A              |
                                                     | |Port  B              |
                                                     | |Port  1              |
                                                     | |Port  2              |
                                                     | |Port  3              |
                                                     | |Port  4              |
                                                     | |Port  5              |
                                                     | |Port  6              |
                                                     | |Port  7              |
                                                     | |Port  8              |
                                                     |v|Port  9              |
                                                     +-----------------------+
--------------------------------------------------------------------------------
<UpArrow><DownArrow>Move  <Enter>Mark/Unmark                      <ESC>Done
```

<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.



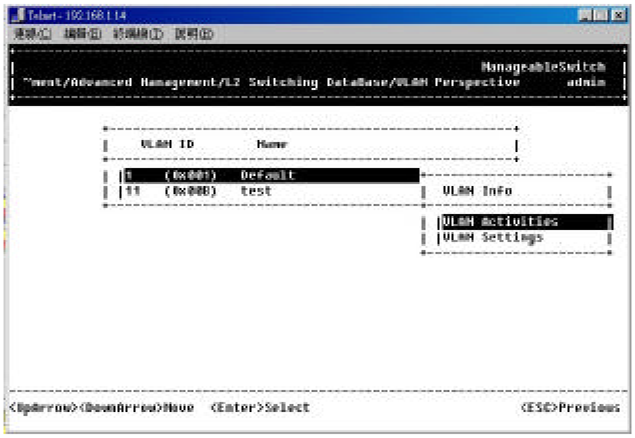
```
                                                                ManageableSwitch
 "ment/Advanced Management/L2 Switching DataBase/VLAN Perspective      admin

            VLAN ID         Name

           1     (0x001)   Default
           11    (0x00B)   test

                                       Default VLAN Cannot Be Deleted

Press any key to continue                                      <ESC>Previous
```

* No precautionary message appears before you delete a VLAN.
* Be sure you do not need the VLAN before doing so.

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

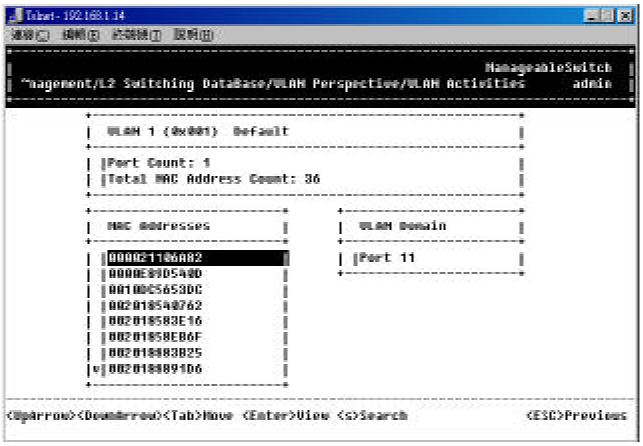
VLAN Info

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



```
Telnet - 192.168.1.14
                                                        ManageableSwitch
 ~ment/Advanced Management/L2 Switching DataBase/VLAN Perspective      admin

       VLAN ID         Name

     |1     (0x001)   Default
     |11    (0x00B)   test                      VLAN Info

                                               |VLAN Activities
                                               |VLAN Settings

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

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



```
Telnet - 192.168.1.14
                                                        ManageableSwitch
 ~nagement/L2 Switching DataBase/VLAN Perspective/VLAN Activities      admin

     VLAN 1 (0x001)  Default

    |Port Count: 1
    |Total MAC Address Count: 36

     MAC Addresses                   VLAN Domain

    |000021106A82                  |Port 11
    |0000E89D540D
    |0010DC5653DC
    |002018540762
    |00201858 3E16
    |00201858EB6F
    |002018883825
   v|00201888 91D6

<UpArrow><DownArrow><Tab>Move  <Enter>View <s>Search            <ESC>Previous
```

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.

IP MULTICAST GROUP PERSPECTIVE

Step 1: Move to highlight [IP Multicast Group Perspective] from [L2 Switching DataBase] screen on page 49, and press <Enter>.

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

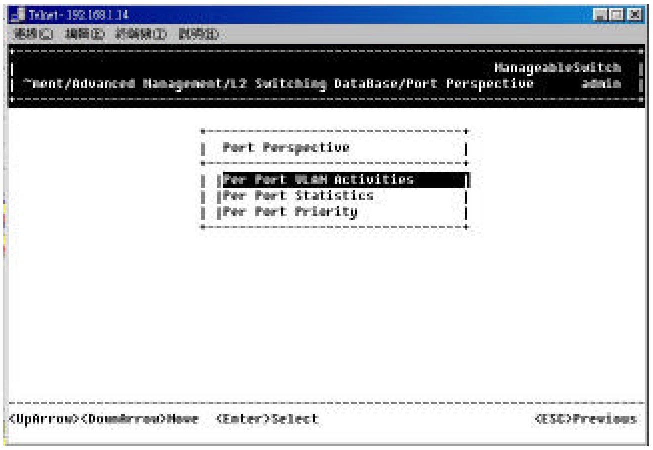
MAC ADDRESS PERSPECTIVE

Step 1: Move to highlight [MAC Address Perspective] from [L2 Switching DataBase] screen on page 49, and press <Enter>.

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

PORT PERSPECTIVE

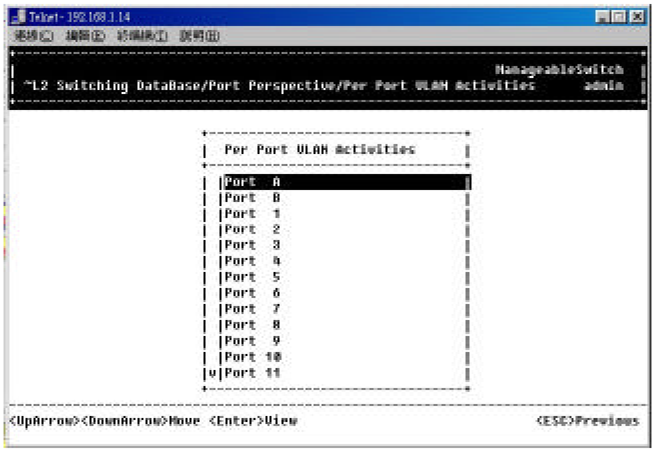
Step 1: Move to highlight [Port Perspective] from [L2 Switching DataBase] screen on page 49, and press <Enter>. You can view VLAN activities and RMON statistics here.



```
+------------------------------------------------------------------------------+
|                                                          ManageableSwitch   |
| ~ment/Advanced Management/L2 Switching DataBase/Port Perspective      admin  |
+------------------------------------------------------------------------------+

                       +---------------------------------+
                       |  Port Perspective               |
                       +---------------------------------+
                       | |Per Port VLAN Activities       |
                       | |Per Port Statistics            |
                       | |Per Port Priority              |
                       +---------------------------------+

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

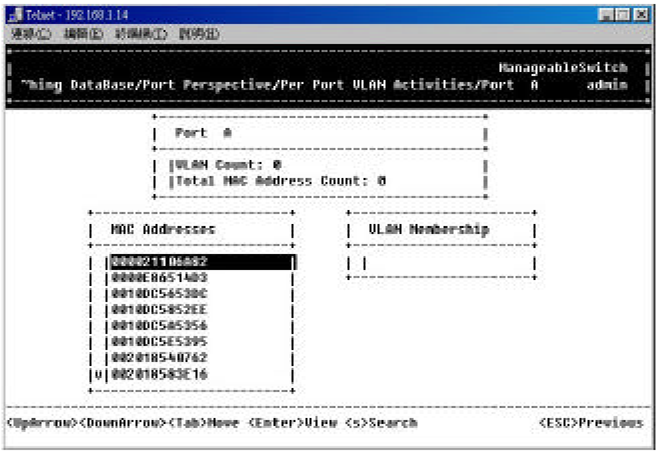
Per Port VLAN Activities

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



```
+------------------------------------------------------------------------------+
|                                                          ManageableSwitch   |
| ~L2 Switching DataBase/Port Perspective/Per Port VLAN Activities      admin  |
+------------------------------------------------------------------------------+

                       +---------------------------------+
                       |  Per Port VLAN Activities       |
                       +---------------------------------+
                       | |Port  A                        |
                       | |Port  B                        |
                       | |Port  1                        |
                       | |Port  2                        |
                       | |Port  3                        |
                       | |Port  4                        |
                       | |Port  5                        |
                       | |Port  6                        |
                       | |Port  7                        |
                       | |Port  8                        |
                       | |Port  9                        |
                       | |Port 10                        |
                       |v|Port 11                        |
                       +---------------------------------+

--------------------------------------------------------------------------------
<UpArrow><DownArrow>Move <Enter>View                            <ESC>Previous
```

Step 3: Move to highlight a port and press <Enter>.
E.g. select Port A to view corresponding VLAN Activities.



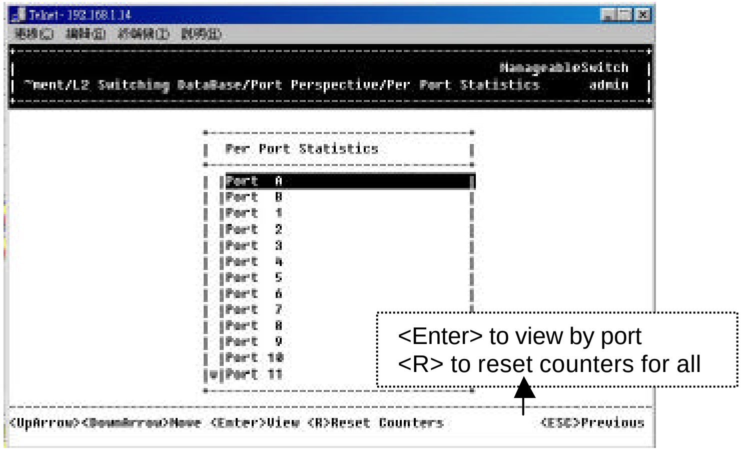
```
                                                                ManageableSwitch
 ~hing DataBase/Port Perspective/Per Port VLAN Activities/Port  A        admin

                  +-------------------------------------------+
                  |  Port  A                                  |
                  +-------------------------------------------+
                  | |VLAN Count: 0                            |
                  | |Total MAC Address Count: 0               |
                  +-------------------------------------------+

       +--------------------------+       +-----------------------+
       |  MAC Addresses           |       |  VLAN Membership      |
       +--------------------------+       +-----------------------+
       |  |000021106A82           |       | |                     |
       |  |0000E8651403           |       +-----------------------+
       |  |0010DC56530C           |
       |  |0010DC5852EE           |
       |  |0010DC5A5356           |
       |  |0010DC5E5395           |
       |  |002018540762           |
       |v |002018583E16           |
       +--------------------------+

<UpArrow><DownArrow><Tab>Move <Enter>View <s>Search                <ESC>Previous
```

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

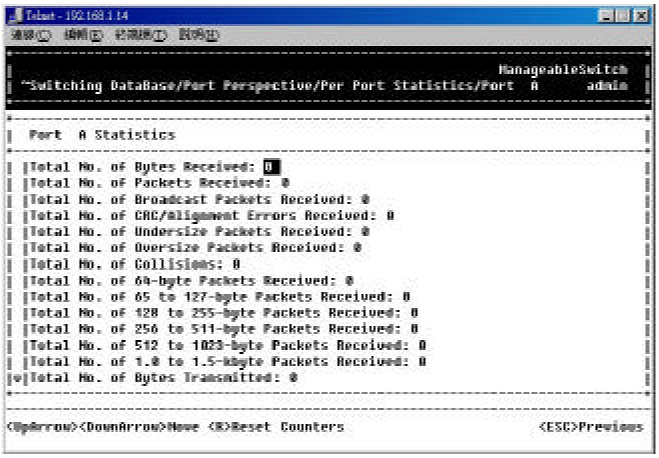
Step 6: Move to highlight **Per Port Statistics** and press <Enter>.



```
Telnet - 192.168.1.14
+------------------------------------------------------------------------------+
|                                                           ManageableSwitch   |
| ~ment/L2 Switching DataBase/Port Perspective/Per Port Statistics      admin  |
+------------------------------------------------------------------------------+

                      +--------------------------------+
                      |  Per Port Statistics           |
                      +--------------------------------+
                      | |Port  A                       |
                      | |Port  B                       |
                      | |Port  1                       |
                      | |Port  2                       |
                      | |Port  3                       |
                      | |Port  4                       |
                      | |Port  5                       |
                      | |Port  6                       |
                      | |Port  7                       |
                      | |Port  8                       |
                      | |Port  9                       |
                      | |Port 10                       |
                      |v|Port 11                       |
                      +--------------------------------+
--------------------------------------------------------------------------------
<UpArrow><DownArrow>Move <Enter>View <R>Reset Counters           <ESC>Previous
```

<Enter> to view by port
<R> to reset counters for all

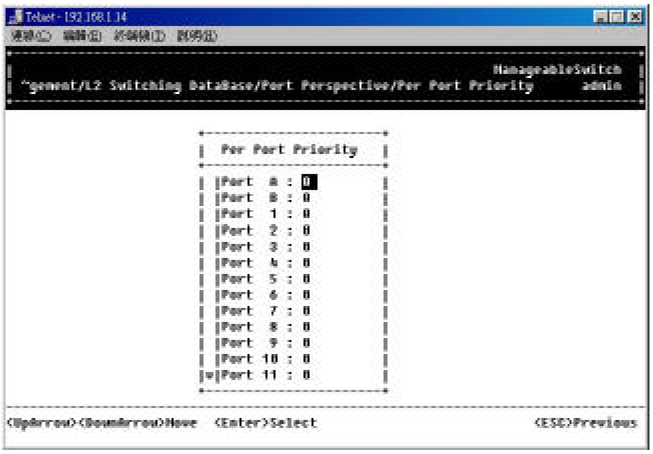
Step 7: Move to highlight a port and press <Enter>.
E.g. select Port 1 to view corresponding VLAN Activities.
Press <R> to reset counter for this port.



```
Telnet - 192.168.1.14
+------------------------------------------------------------------------------+
|                                                           ManageableSwitch   |
| ~Switching DataBase/Port Perspective/Per Port Statistics/Port  A      admin  |
+------------------------------------------------------------------------------+
+------------------------------------------------------------------------------+
|  Port  A Statistics                                                          |
+------------------------------------------------------------------------------+
| |Total No. of Bytes Received: 0                                              |
| |Total No. of Packets Received: 0                                            |
| |Total No. of Broadcast Packets Received: 0                                  |
| |Total No. of CRC/Alignment Errors Received: 0                               |
| |Total No. of Undersize Packets Received: 0                                  |
| |Total No. of Oversize Packets Received: 0                                   |
| |Total No. of Collisions: 0                                                  |
| |Total No. of 64-byte Packets Received: 0                                    |
| |Total No. of 65 to 127-byte Packets Received: 0                             |
| |Total No. of 128 to 255-byte Packets Received: 0                            |
| |Total No. of 256 to 511-byte Packets Received: 0                            |
| |Total No. of 512 to 1023-byte Packets Received: 0                           |
| |Total No. of 1.0 to 1.5-kbyte Packets Received: 0                           |
|v|Total No. of Bytes Transmitted: 0                                           |
+------------------------------------------------------------------------------+
--------------------------------------------------------------------------------
<UpArrow><DownArrow>Move <R>Reset Counters                        <ESC>Previous
```

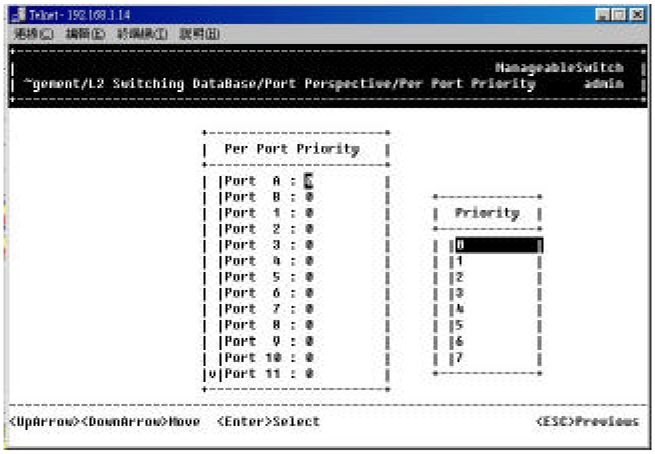
Per Port Priority

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



```
+------------------------------------------------------------------------+
|                                                       ManageableSwitch |
| ~gement/L2 Switching DataBase/Port Perspective/Per Port Priority admin |
+------------------------------------------------------------------------+

                  +-----------------------+
                  |   Per Port Priority   |
                  +-----------------------+
                  | |Port  A : 0          |
                  | |Port  B : 0          |
                  | |Port  1 : 0          |
                  | |Port  2 : 0          |
                  | |Port  3 : 0          |
                  | |Port  4 : 0          |
                  | |Port  5 : 0          |
                  | |Port  6 : 0          |
                  | |Port  7 : 0          |
                  | |Port  8 : 0          |
                  | |Port  9 : 0          |
                  | |Port 10 : 0          |
                  |v|Port 11 : 0          |
                  +-----------------------+
--------------------------------------------------------------------------
<UpArrow><DownArrow>Move  <Enter>Select                      <ESC>Previous
```

Step 9: Move to highlight a port and press <Enter>.
E.g. select Port A to view corresponding priority level.



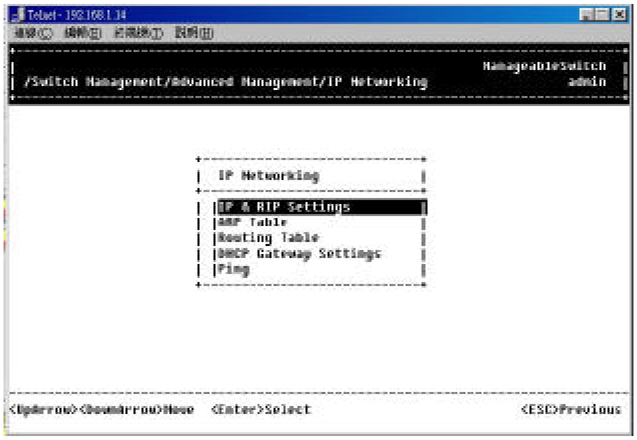
```
+------------------------------------------------------------------------+
|                                                       ManageableSwitch |
| ~gement/L2 Switching DataBase/Port Perspective/Per Port Priority admin |
+------------------------------------------------------------------------+

                  +-----------------------+
                  |   Per Port Priority   |
                  +-----------------------+
                  | |Port  A : 0          |
                  | |Port  B : 0          |      +------------+
                  | |Port  1 : 0          |      |  Priority  |
                  | |Port  2 : 0          |      +------------+
                  | |Port  3 : 0          |      | |0         |
                  | |Port  4 : 0          |      | |1         |
                  | |Port  5 : 0          |      | |2         |
                  | |Port  6 : 0          |      | |3         |
                  | |Port  7 : 0          |      | |4         |
                  | |Port  8 : 0          |      | |5         |
                  | |Port  9 : 0          |      | |6         |
                  | |Port 10 : 0          |      | |7         |
                  |v|Port 11 : 0          |      +------------+
                  +-----------------------+
--------------------------------------------------------------------------
<UpArrow><DownArrow>Move  <Enter>Select                      <ESC>Previous
```

IP Networking

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

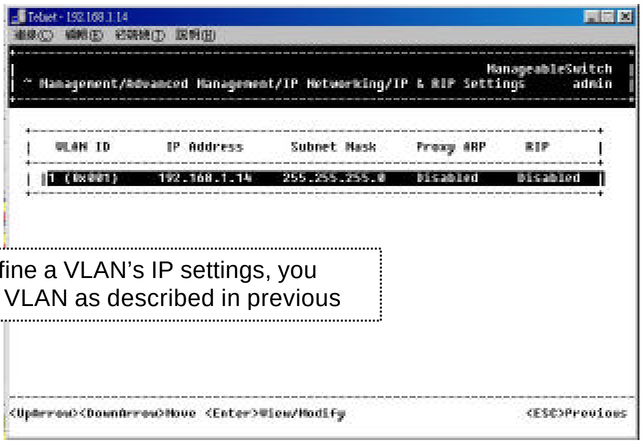
IP & RIP SETTINGS

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



```
+------------------------------------------------------------------------------+
|                                                         ManageableSwitch     |
| /Switch Management/Advanced Management/IP Networking               admin     |
+------------------------------------------------------------------------------+

                        +-----------------------------+
                        |  IP Networking              |
                        +-----------------------------+
                        |  |IP & RIP Settings         |
                        |  |ARP Table                 |
                        |  |Routing Table             |
                        |  |DHCP Gateway Settings     |
                        |  |Ping                      |
                        +-----------------------------+

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

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

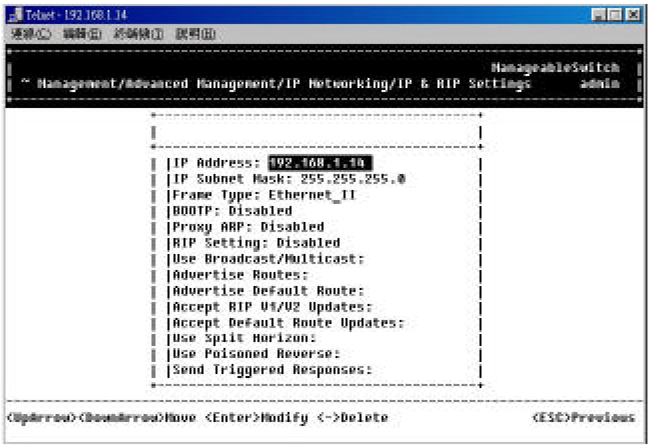


```
+------------------------------------------------------------------------------+
|                                                           ManageableSwitch   |
| ^ Management/Advanced Management/IP Networking/IP & RIP Settings     admin   |
+------------------------------------------------------------------------------+

  +--------------------------------------------------------------------------+
  |   VLAN ID         IP Address       Subnet Mask      Proxy ARP     RIP     |
  +--------------------------------------------------------------------------+
  | |1 (0X001)       192.168.1.14     255.255.255.0     Disabled      Disabled |
  +--------------------------------------------------------------------------+

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

Before you can define a VLAN's IP settings, you must first create a VLAN as described in previous

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.



```
+------------------------------------------------------------------------------+
|                                                           ManageableSwitch   |
| ^ Management/Advanced Management/IP Networking/IP & RIP Settings     admin   |
+------------------------------------------------------------------------------+
                   +----------------------------------------+
                   |                                        |
                   +----------------------------------------+
                   | |IP Address: 192.168.1.14              |
                   | |IP Subnet Mask: 255.255.255.0         |
                   | |Frame Type: Ethernet_II               |
                   | |BOOTP: Disabled                       |
                   | |Proxy ARP: Disabled                   |
                   | |RIP Setting: Disabled                 |
                   | |Use Broadcast/Multicast:              |
                   | |Advertise Routes:                     |
                   | |Advertise Default Route:              |
                   | |Accept RIP V1/V2 Updates:             |
                   | |Accept Default Route Updates:         |
                   | |Use Split Horizon:                    |
                   | |Use Poisoned Reverse:                 |
                   | |Send Triggered Responses:             |
                   +----------------------------------------+
--------------------------------------------------------------------------------
<UpArrow><DownArrow>Move <Enter>Modify <->Delete                  <ESC>Previous
```

Initial IP Settings

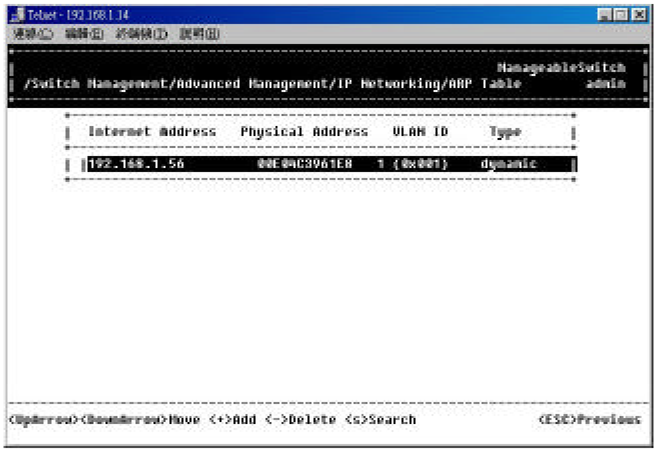
Step 5: Move to highlight **IP Address** and press <Enter>.

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

ARP TABLE SETTING

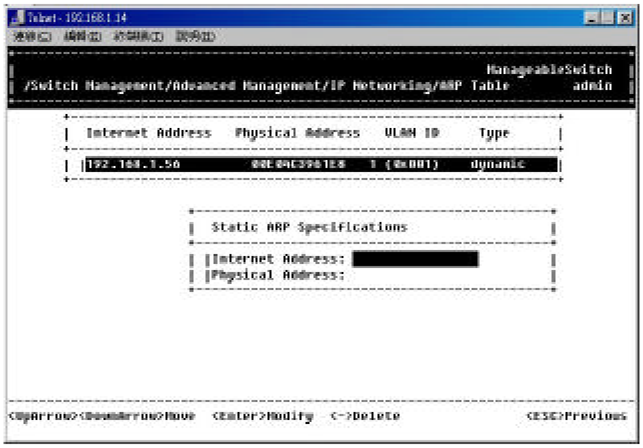
Step 1: Move to highlight [ARP Table] from [IP Networking] and press <Enter>. The screen shows the ARP table entries that have been defined or learned.



```
                                                     ManageableSwitch
 /Switch Management/Advanced Management/IP Networking/ARP Table        admin

   | Internet Address   Physical Address   VLAN ID      Type      |
   | 192.168.1.56         00E04C3961E8    1 (0x001)    dynamic    |

<UpArrow><DownArrow>Move <+>Add <->Delete <s>Search               <ESC>Previous
```

Add/Delete Static ARP Table Entries

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



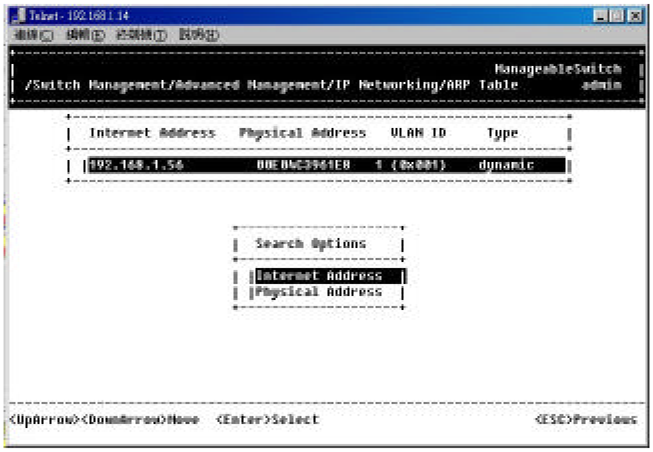
```
Telnet - 192.168.1.14
連線(C)  編輯(E)  終端機(T)  說明(H)
+------------------------------------------------------------------------------+
|                                                              ManageableSwitch |
| /Switch Management/Advanced Management/IP Networking/ARP Table         admin |
+------------------------------------------------------------------------------+
        +---------------------------------------------------------------+
        |  Internet Address   Physical Address   VLAN ID     Type       |
        +---------------------------------------------------------------+
        | |192.168.1.56          00E04C3961E8    1 (0x001)    dynamic   |
        +---------------------------------------------------------------+

                          +----------------------------------------------+
                          |  Static ARP Specifications                   |
                          +----------------------------------------------+
                          | |Internet Address:                           |
                          | |Physical Address:                           |
                          +----------------------------------------------+

--------------------------------------------------------------------------------
<UpArrow><DownArrow>Move  <Enter>Modify  <->Delete                 <ESC>Previous
```

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

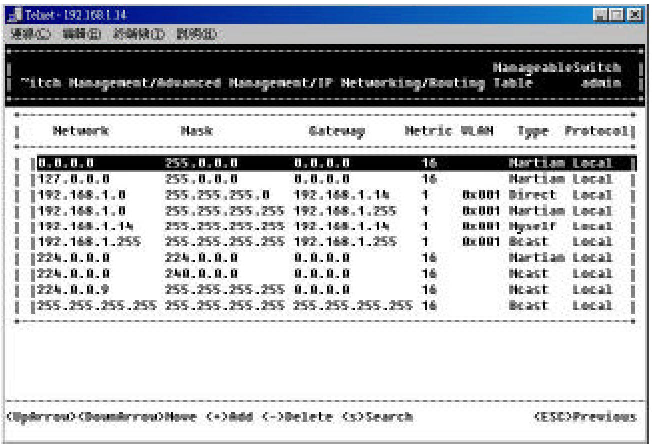
Step 4: Press <S> to search a static entry. You can search by Internet address or physical address.



```
+------------------------------------------------------------------------------+
|                                                            ManageableSwitch  |
| /Switch Management/Advanced Management/IP Networking/ARP Table        admin  |
+------------------------------------------------------------------------------+
        +--------------------------------------------------------+
        |  Internet Address   Physical Address   VLAN ID    Type |
        +--------------------------------------------------------+
        | |192.168.1.56          00E0WC3961E8   1 (0x001)  dynamic|
        +--------------------------------------------------------+

                              +---------------------+
                              |  Search Options     |
                              +---------------------+
                              | |Internet Address  ||
                              | |Physical Address   |
                              +---------------------+

--------------------------------------------------------------------------------
<UpArrow><DownArrow>Move  <Enter>Select                            <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.



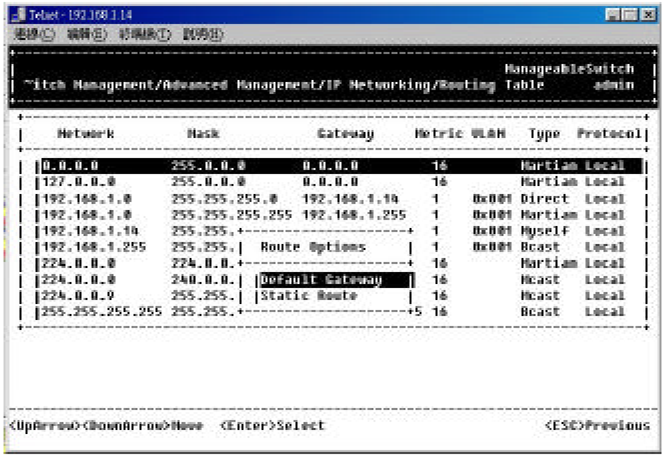
```
+------------------------------------------------------------------------------+
|                                                             ManageableSwitch |
| ~itch Management/Advanced Management/IP Networking/Routing Table       admin |
+------------------------------------------------------------------------------+
 +-----------------------------------------------------------------------------+
 |     Network         Mask              Gateway        Metric VLAN  Type   Protocol|
 +-----------------------------------------------------------------------------+
 | |0.0.0.0         255.0.0.0        0.0.0.0          16           Martian Local |
 | |127.0.0.0       255.0.0.0        0.0.0.0          16           Martian Local |
 | |192.168.1.0     255.255.255.0    192.168.1.14     1      0x001 Direct  Local |
 | |192.168.1.0     255.255.255.255  192.168.1.255    1      0x001 Martian Local |
 | |192.168.1.14    255.255.255.255  192.168.1.14     1      0x001 Myself  Local |
 | |192.168.1.255   255.255.255.255  192.168.1.255    1      0x001 Bcast   Local |
 | |224.0.0.0       224.0.0.0        0.0.0.0          16           Martian Local |
 | |224.0.0.0       240.0.0.0        0.0.0.0          16           Mcast   Local |
 | |224.0.0.9       255.255.255.255  0.0.0.0          16           Mcast   Local |
 | |255.255.255.255 255.255.255.255  255.255.255.255  16           Bcast   Local |
 +-----------------------------------------------------------------------------+

--------------------------------------------------------------------------------
<UpArrow><DownArrow>Move <+>Add <->Delete <s>Search                <ESC>Previous
```

Routing Table Columns

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

Add/Delete Routing Table Entries

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



```
+-----------------------------------------------------------------------------+
|                                                        ManageableSwitch     |
| ~itch Management/Advanced Management/IP Networking/Routing Table      admin |
+-----------------------------------------------------------------------------+
 +---------------------------------------------------------------------------+
 |    Network         Mask              Gateway      Metric VLAN   Type  Protocol|
 +---------------------------------------------------------------------------+
 | |0.0.0.0         255.0.0.0        0.0.0.0          16           Martian Local |
 | |127.0.0.0       255.0.0.0        0.0.0.0          16           Martian Local |
 | |192.168.1.0     255.255.255.0    192.168.1.14     1      0x001 Direct  Local |
 | |192.168.1.0     255.255.255.255  192.168.1.255    1      0x001 Martian Local |
 | |192.168.1.14    255.255.+--------------------+    1      0x001 Myself  Local |
 | |192.168.1.255   255.255.|  Route Options     |    1      0x001 Bcast   Local |
 | |224.0.0.0       224.0.0.+--------------------+    16           Martian Local |
 | |224.0.0.0       240.0.0.| |Default Gateway  |    16           Mcast   Local |
 | |224.0.0.9       255.255.| |Static Route     |    16           Mcast   Local |
 | |255.255.255.255 255.255.+--------------------+5   16           Bcast   Local |
 +---------------------------------------------------------------------------+

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

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

* No precautionary message appears before you delete an entry from the routing table.

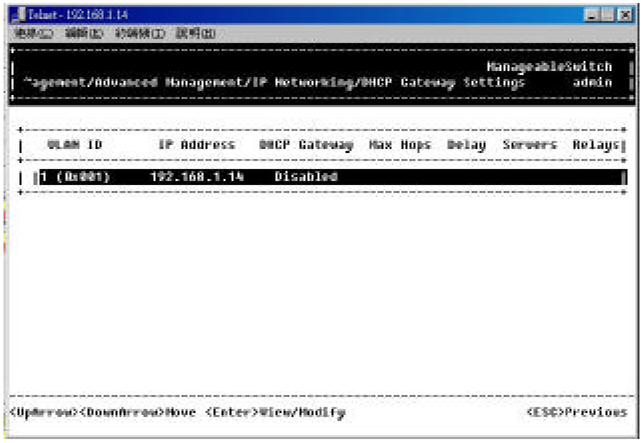
* Be sure vou want to delete it before doina so.

Search for Routing Table Entries

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

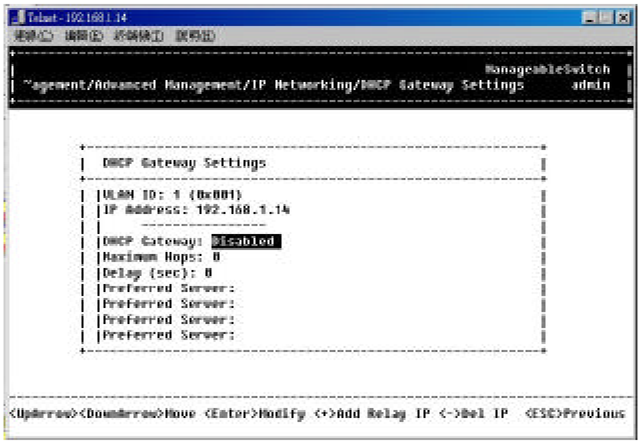
DHCP GATEWAY SETTINGS

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



```
+------------------------------------------------------------------------------+
|                                                            ManageableSwitch |
| ^agement/Advanced Management/IP Networking/DHCP Gateway Settings      admin |
+------------------------------------------------------------------------------+

 +---------------------------------------------------------------------------+
 |   VLAN ID        IP Address   DHCP Gateway  Max Hops  Delay  Servers  Relays|
 +---------------------------------------------------------------------------+
 | |1 (0x001)     192.168.1.14    Disabled                                    |
 +---------------------------------------------------------------------------+

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

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



```
+------------------------------------------------------------------------------+
|                                                            ManageableSwitch |
| ^agement/Advanced Management/IP Networking/DHCP Gateway Settings      admin |
+------------------------------------------------------------------------------+

         +----------------------------------------------------------+
         |  DHCP Gateway Settings                                   |
         +----------------------------------------------------------+
         | |VLAN ID: 1 (0x001)                                      |
         | |IP Address: 192.168.1.14                                |
         | |     ----------------                                   |
         | |DHCP Gateway: Disabled                                  |
         | |Maximum Hops: 0                                         |
         | |Delay (sec): 0                                          |
         | |Preferred Server:                                       |
         | |Preferred Server:                                       |
         | |Preferred Server:                                       |
         | |Preferred Server:                                       |
         +----------------------------------------------------------+

--------------------------------------------------------------------------------
<UpArrow><DownArrow>Move <Enter>Modify <+>Add Relay IP <->Del IP  <ESC>Previous
```

Add/Delete Relay IP

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

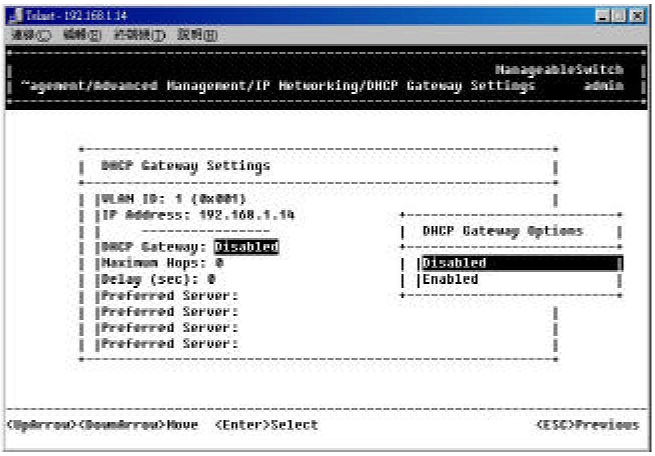
Otherwise, you may press [-] on keypad to delete a relay IP.

* 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.



```
                                                           ManageableSwitch
 ~agement/Advanced Management/IP Networking/DHCP Gateway Settings      admin

      +---------------------------------------------------------+
      |  DHCP Gateway Settings                                  |
      +---------------------------------------------------------+
      | |VLAN ID: 1 (0x001)                                     |
      | |IP Address: 192.168.1.14                  +-------------------------+
      | |      ----------------                    |  DHCP Gateway Options   |
      | |DHCP Gateway: Disabled                    +-------------------------+
      | |Maximum Hops: 0                           | |Disabled               |
      | |Delay (sec): 0                            | |Enabled                |
      | |Preferred Server:                         +-------------------------+
      | |Preferred Server:                                      |
      | |Preferred Server:                                      |
      | |Preferred Server:                                      |
      +---------------------------------------------------------+

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

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

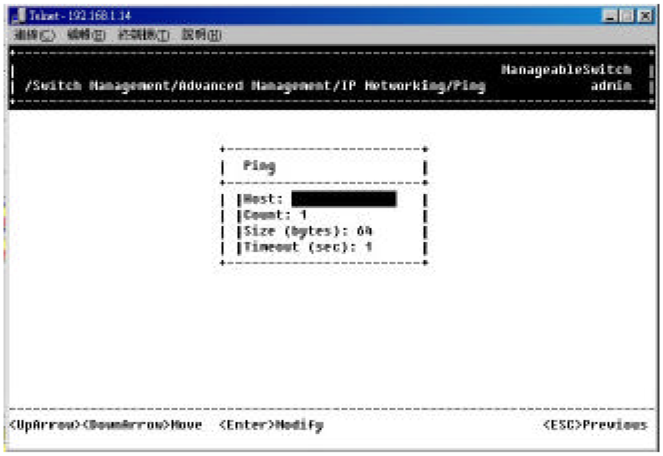
Step 9: Move to highlight **Preferred Server** and press <Enter>.

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>.



```
+------------------------------------------------------------------------------+
|                                                             ManageableSwitch |
| /Switch Management/Advanced Management/IP Networking/Ping              admin |
+------------------------------------------------------------------------------+

                         +------------------------------+
                         |  Ping                        |
                         +------------------------------+
                         | |Host:                       |
                         | |Count: 1                    |
                         | |Size (bytes): 64            |
                         | |Timeout (sec): 1            |
                         +------------------------------+

--------------------------------------------------------------------------------
<UpArrow><DownArrow>Move  <Enter>Modify                          <ESC>Previous
```

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)

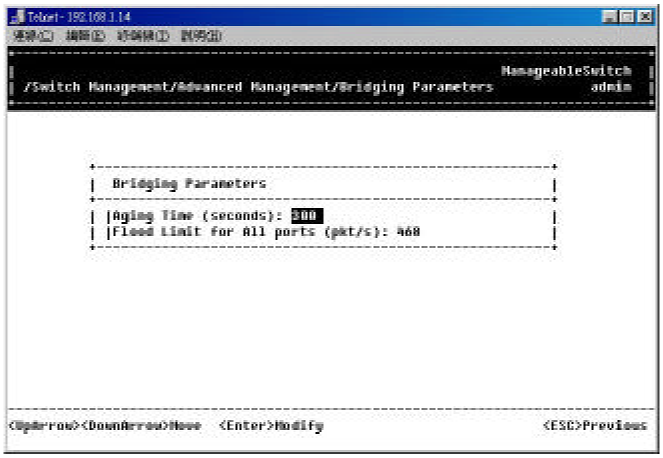
Step 8: Move to highlight **Timeout** and press <Enter>.

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

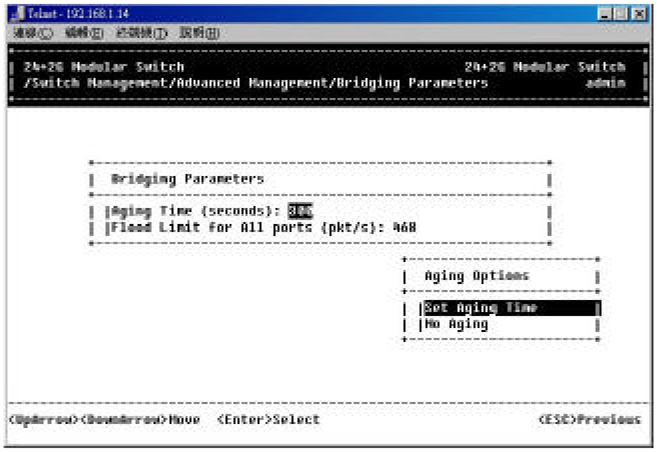
Move to highlight [Bridging] from [Advanced Management] screen, and press <Enter>.



```
+----------------------------------------------------------------------------+
|                                                           ManageableSwitch |
| /Switch Management/Advanced Management/Bridging Parameters           admin |
+----------------------------------------------------------------------------+


          +-----------------------------------------------------------+
          |  Bridging Parameters                                      |
          +-----------------------------------------------------------+
          | |Aging Time (seconds): 300                                |
          | |Flood Limit for All ports (pkt/s): 468                   |
          +-----------------------------------------------------------+



-----------------------------------------------------------------------------
<UpArrow><DownArrow>Move   <Enter>Modify                       <ESC>Previous
```

AGING TIME

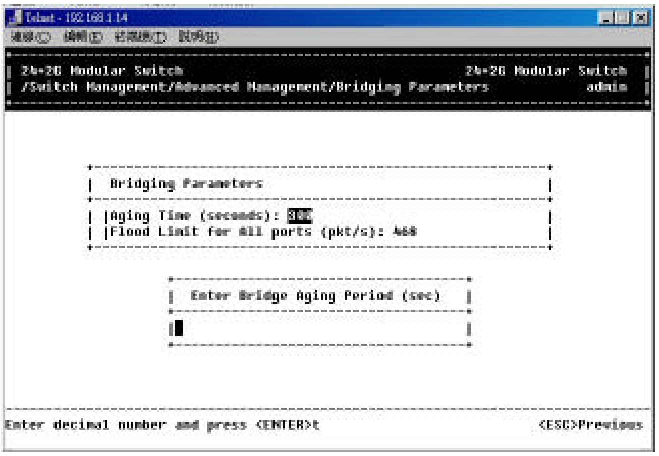
Step 1: Move to highlight **Aging Time** and press <Enter>.



```
+----------------------------------------------------------------------------+
| 24+2G Modular Switch                                  24+2G Modular Switch |
| /Switch Management/Advanced Management/Bridging Parameters           admin |
+----------------------------------------------------------------------------+


          +-----------------------------------------------------------+
          |  Bridging Parameters                                      |
          +-----------------------------------------------------------+
          | |Aging Time (seconds): 300                                |
          | |Flood Limit for All ports (pkt/s): 468                   |
          +-----------------------------------------------------------+
                                         +-------------------------+
                                         |  Aging Options          |
                                         +-------------------------+
                                         | |Set Aging Time         |
                                         | |No Aging               |
                                         +-------------------------+

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

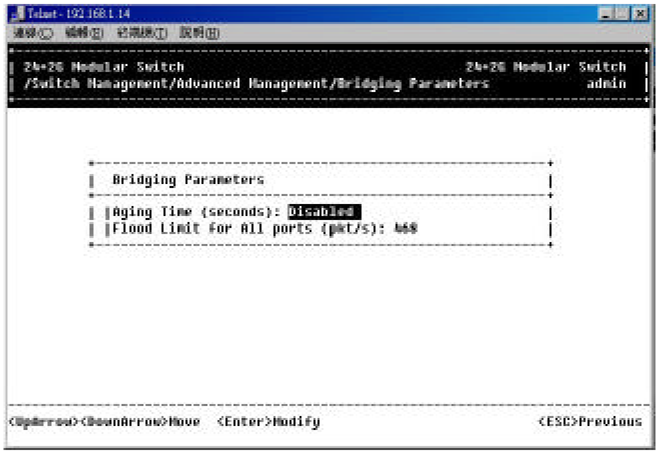
Aging Options

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



```
+------------------------------------------------------------------------------+
| 24+2G Modular Switch                                     24+2G Modular Switch |
| /Switch Management/Advanced Management/Bridging Parameters              admin |
+------------------------------------------------------------------------------+

          +----------------------------------------------------------+
          |  Bridging Parameters                                     |
          +----------------------------------------------------------+
          | |Aging Time (seconds): 300                               |
          | |Flood Limit for All ports (pkt/s): 468                  |
          +----------------------------------------------------------+

                     +--------------------------------------+
                     |  Enter Bridge Aging Period (sec)     |
                     +--------------------------------------+
                     |                                      |
                     +--------------------------------------+

--------------------------------------------------------------------------------
Enter decimal number and press <ENTER>t                           <ESC>Previous
```

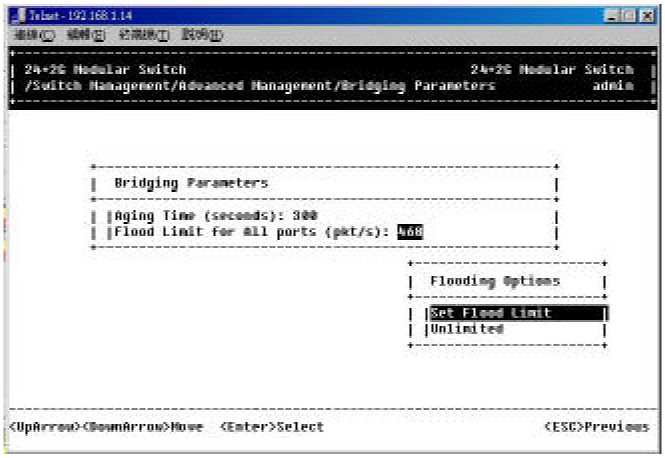
Step 3: Otherwise, you may move to highlight **No Aging**, and press <Enter>.



```
+------------------------------------------------------------------------------+
| 24+2G Modular Switch                                     24+2G Modular Switch |
| /Switch Management/Advanced Management/Bridging Parameters              admin |
+------------------------------------------------------------------------------+

          +----------------------------------------------------------+
          |  Bridging Parameters                                     |
          +----------------------------------------------------------+
          | |Aging Time (seconds): Disabled                          |
          | |Flood Limit for All ports (pkt/s): 468                  |
          +----------------------------------------------------------+

--------------------------------------------------------------------------------
<UpArrow><DownArrow>Move  <Enter>Modify                            <ESC>Previous
```

FLOOD LIMIT FOR ALL PORTS

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

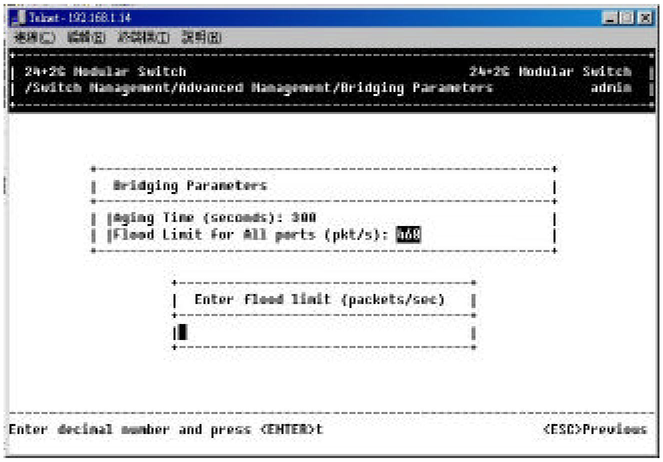


```
+------------------------------------------------------------------------+
| 24+2G Modular Switch                              24+2G Modular Switch |
| /Switch Management/Advanced Management/Bridging Parameters       admin |
+------------------------------------------------------------------------+

          +---------------------------------------------------+
          |  Bridging Parameters                              |
          +---------------------------------------------------+
          | |Aging Time (seconds): 300                        |
          | |Flood Limit for All ports (pkt/s): 468           |
          +---------------------------------------------------+
                                             +--------------------+
                                             |  Flooding Options  |
                                             +--------------------+
                                             | |Set Flood Limit   |
                                             | |Unlimited         |
                                             +--------------------+

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

Flooding Options

Step 2: **Set Flood Limit** is highlighted. Press <Enter>.

Enter a decimal number as flood limit in packets per second.

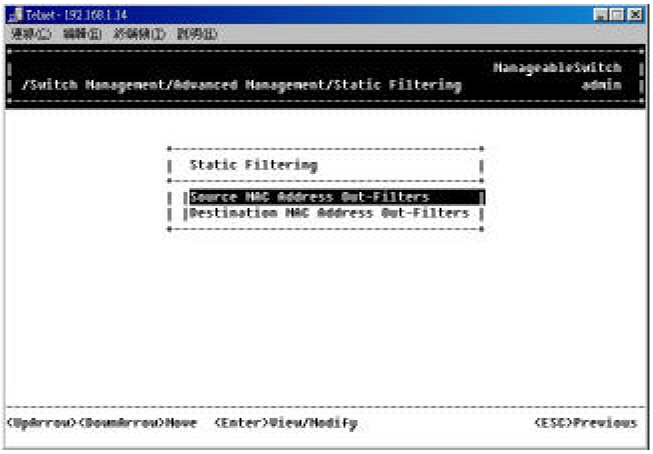


```
+------------------------------------------------------------------------+
| 24+2G Modular Switch                              24+2G Modular Switch |
| /Switch Management/Advanced Management/Bridging Parameters       admin |
+------------------------------------------------------------------------+

          +---------------------------------------------------+
          |  Bridging Parameters                              |
          +---------------------------------------------------+
          | |Aging Time (seconds): 300                        |
          | |Flood Limit for All ports (pkt/s): 468           |
          +---------------------------------------------------+

                   +---------------------------------+
                   |  Enter flood limit (packets/sec) |
                   +---------------------------------+
                   |█                                |
                   +---------------------------------+

--------------------------------------------------------------------------
Enter decimal number and press <ENTER>t                    <ESC>Previous
```

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

Static Filtering

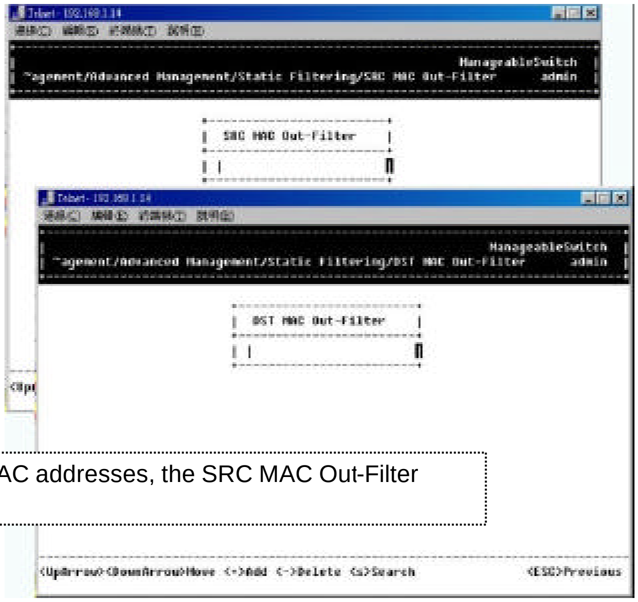
Move to highlight [Static Filtering] from [Advanced Management] screen, and press <Enter>.



```
+--------------------------------------------------------------------------+
|                                                          ManageableSwitch |
| /Switch Management/Advanced Management/Static Filtering            admin |
+--------------------------------------------------------------------------+

                    +-------------------------------------+
                    |  Static Filtering                   |
                    +-------------------------------------+
                    | |Source MAC Address Out-Filters     |
                    | |Destination MAC Address Out-Filters |
                    +-------------------------------------+

----------------------------------------------------------------------------
<UpArrow><DownArrow>Move  <Enter>View/Modify                   <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>.



```
                                                        ManageableSwitch
 ~agement/Advanced Management/Static Filtering/SRC MAC Out-Filter      admin

                  +----------------------+
                  |  SRC MAC Out-Filter  |
                  +----------------------+
                  | |                    |
                  +----------------------+
```

```
                                                        ManageableSwitch
 ~agement/Advanced Management/Static Filtering/DST MAC Out-Filter      admin

                  +----------------------+
                  |  DST MAC Out-Filter  |
                  +----------------------+
                  | |                    |
                  +----------------------+

<UpArrow><DownArrow>Move <+>Add <->Delete <s>Search            <ESC>Previous
```

If you select source MAC addresses, the SRC MAC Out-Filter appears.

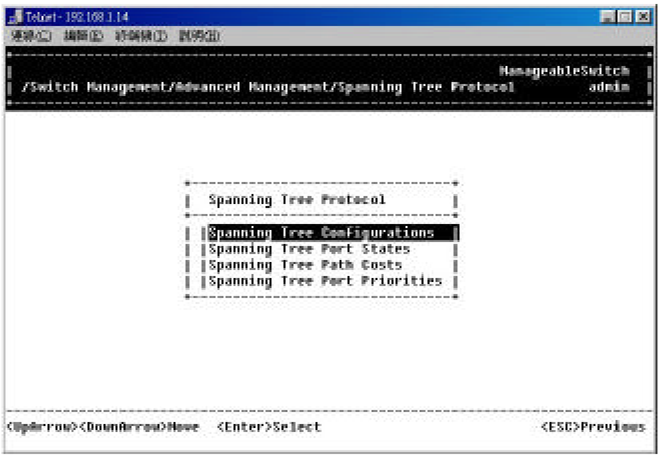
Add/Delete/Search

Step 2: Press [+] 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.

Spanning Tree Functions

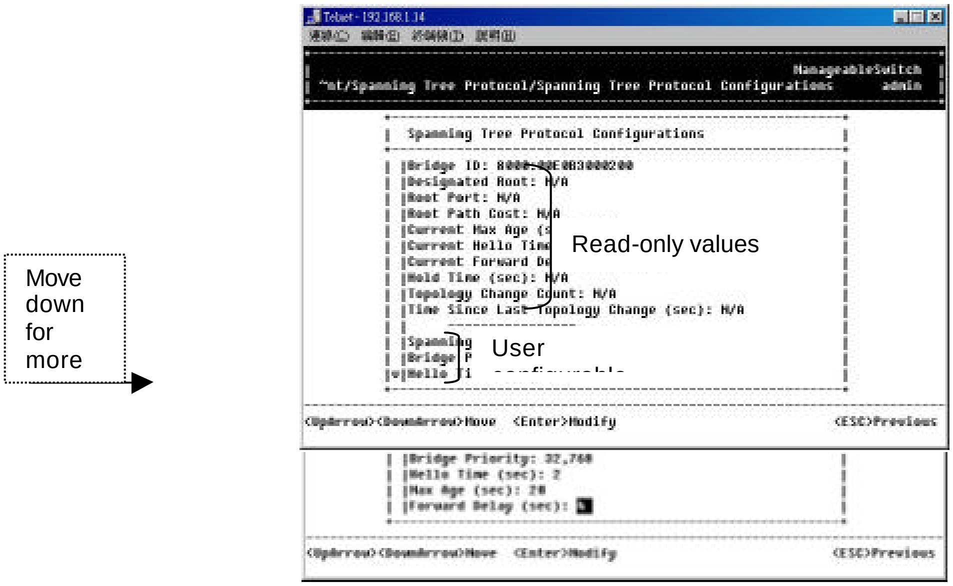
Move to highlight [Spanning Tree] from [Advanced Management] screen, and press <Enter>.



```
+------------------------------------------------------------------------------+
|                                                           ManageableSwitch   |
| /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 CONFIGURATIONS

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



```
Telnet - 192.168.1.14

 ManageableSwitch
 ^nt/Spanning Tree Protocol/Spanning Tree Protocol Configurations      admin

 |  Spanning Tree Protocol Configurations                          |

 | |Bridge ID: 8000:00E0B3000200                                    |
 | |Designated Root: N/A                                            |
 | |Root Port: N/A                                                  |
 | |Root Path Cost: N/A                                             |
 | |Current Max Age (s                                              |
 | |Current Hello Time                                              |
 | |Current Forward De                                              |
 | |Hold Time (sec): N/A                                            |
 | |Topology Change Count: N/A                                      |
 | |Time Since Last Topology Change (sec): N/A                      |
 | |                                                                |
 | |Spanning                                                        |
 | |Bridge P                                                        |
 |v|Hello Ti                                                        |

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

 | |Bridge Priority: 32,768                                         |
 | |Hello Time (sec): 2                                             |
 | |Max Age (sec): 20                                               |
 | |Forward Delay (sec): █                                          |

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

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)

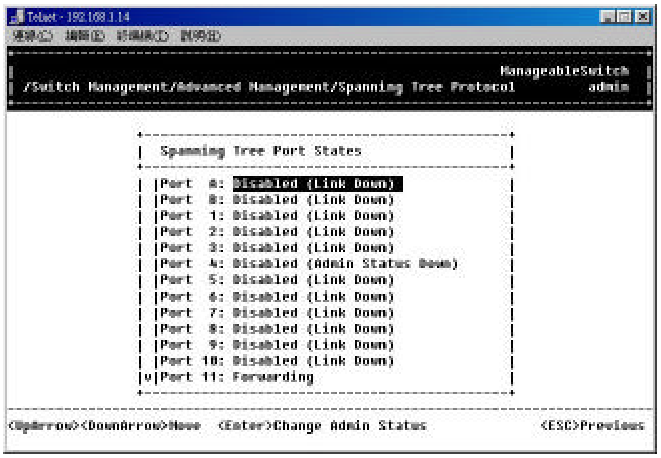
Step 5: Move to highlight **Max Age** and press <Enter>.
Type a decimal number for the max age.

Forward Delay (sec)

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

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>.



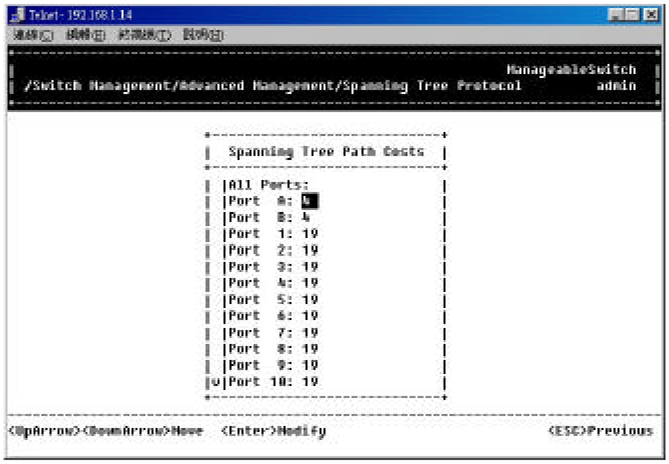
```
+-----------------------------------------------------------------------------+
|                                                            ManageableSwitch |
| /Switch Management/Advanced Management/Spanning Tree Protocol         admin |
+-----------------------------------------------------------------------------+

                  +-----------------------------------------------+
                  |  Spanning Tree Port States                    |
                  +-----------------------------------------------+
                  | |Port  0: Disabled (Link Down)                |
                  | |Port  8: Disabled (Link Down)                |
                  | |Port  1: Disabled (Link Down)                |
                  | |Port  2: Disabled (Link Down)                |
                  | |Port  3: Disabled (Link Down)                |
                  | |Port  4: Disabled (Admin Status Down)        |
                  | |Port  5: Disabled (Link Down)                |
                  | |Port  6: Disabled (Link Down)                |
                  | |Port  7: Disabled (Link Down)                |
                  | |Port  8: Disabled (Link Down)                |
                  | |Port  9: Disabled (Link Down)                |
                  | |Port 10: Disabled (Link Down)                |
                  |v|Port 11: Forwarding                          |
                  +-----------------------------------------------+
-------------------------------------------------------------------------------
<UpArrow><DownArrow>Move  <Enter>Change Admin Status            <ESC>Previous
```

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.

SPANNING TREE PATH COSTS

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

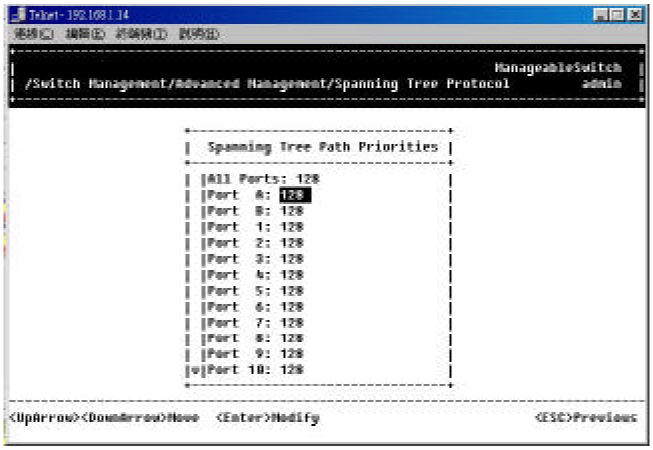


```
+--------------------------------------------------------------------------+
|                                                     ManageableSwitch    |
| /Switch Management/Advanced Management/Spanning Tree Protocol      admin |
+--------------------------------------------------------------------------+

                          +-----------------------------+
                          |   Spanning Tree Path Costs  |
                          +-----------------------------+
                          |  |All Ports:                |
                          |  |Port  A: 4                |
                          |  |Port  B: 4                |
                          |  |Port  1: 19               |
                          |  |Port  2: 19               |
                          |  |Port  3: 19               |
                          |  |Port  4: 19               |
                          |  |Port  5: 19               |
                          |  |Port  6: 19               |
                          |  |Port  7: 19               |
                          |  |Port  8: 19               |
                          |  |Port  9: 19               |
                          |v |Port 10: 19               |
                          +-----------------------------+
----------------------------------------------------------------------------
<UpArrow><DownArrow>Move  <Enter>Modify                        <ESC>Previous
```

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>.

SPANNING TREE PORT PRIORITIES

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

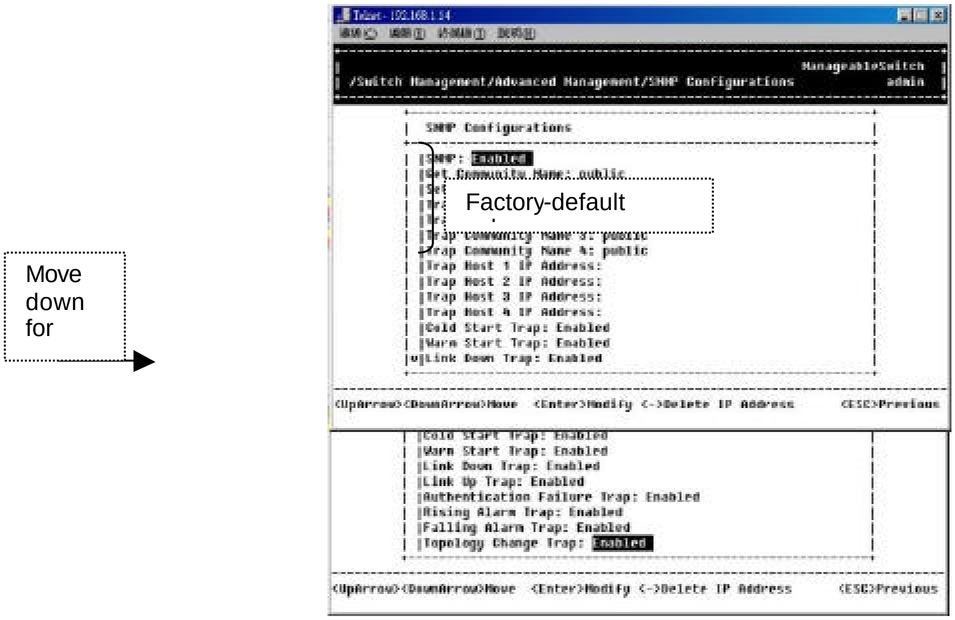


```
+------------------------------------------------------------------------------+
|                                                             ManageableSwitch |
| /Switch Management/Advanced Management/Spanning Tree Protocol          admin |
+------------------------------------------------------------------------------+

                    +-------------------------------+
                    |  Spanning Tree Path Priorities |
                    +-------------------------------+
                    | |All Ports: 128                |
                    | |Port  A: 128                  |
                    | |Port  B: 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                  |
                    |v|Port 10: 128                  |
                    +-------------------------------+
--------------------------------------------------------------------------------
<UpArrow><DownArrow>Move  <Enter>Modify                             <ESC>Previous
```

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.

SNMP Functions

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



```
                                                          ManageableSwitch
 /Switch Management/Advanced Management/SNMP Configurations          admin

 SNMP Configurations

 |SNMP: Enabled
 |Get Community Name: public
 |Set
 |Tra
 |Tra
 |Trap Community Name 3: public
 |Trap Community Name 4: public
 |Trap Host 1 IP Address:
 |Trap Host 2 IP Address:
 |Trap Host 3 IP Address:
 |Trap Host 4 IP Address:
 |Cold Start Trap: Enabled
 |Warm Start Trap: Enabled
v|Link Down Trap: Enabled

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

```
 |Cold Start Trap: Enabled
 |Warm Start Trap: Enabled
 |Link Down Trap: Enabled
 |Link Up Trap: Enabled
 |Authentication Failure Trap: Enabled
 |Rising Alarm Trap: Enabled
 |Falling Alarm Trap: Enabled
 |Topology Change Trap: Enabled

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

Factory-default

Move down for

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>.

Trap Community Name

Step 3: 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 4: 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 5: Move to highlight **Cold Start Trap** and press <Enter>.
Decide to have it Disabled or Enabled.

Warm Start Trap

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

Link Down Trap

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

Link Up Trap

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

Authentication Failure Trap

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

Rising Alarm Trap

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

Falling Alarm Trap

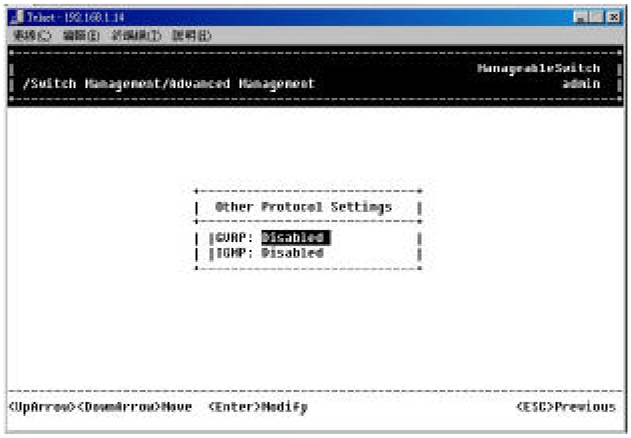
Step 11: Move to highlight **Falling Alarm Trap** and press <Enter>.
Decide to have it Disabled or Enabled.

Topology Change Trap

Step 12: 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>.

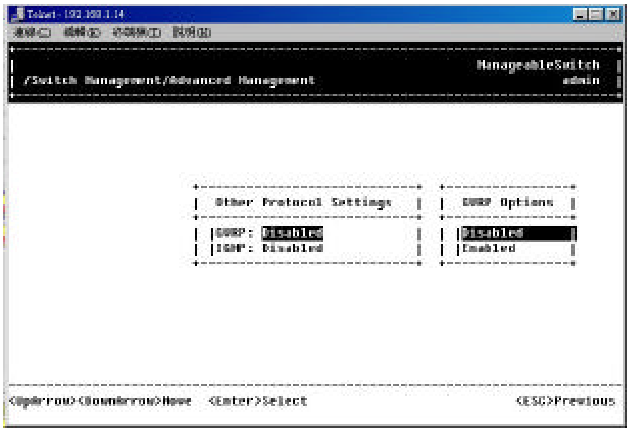


```
                                                     ManageableSwitch
 /Switch Management/Advanced Management                         admin

                  +----------------------------+
                  |  Other Protocol Settings   |
                  +----------------------------+
                  | |GVRP: Disabled            |
                  | |IGMP: Disabled            |
                  +----------------------------+

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

GVRP

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

Step 2: Decide to have it Disabled or Enabled.

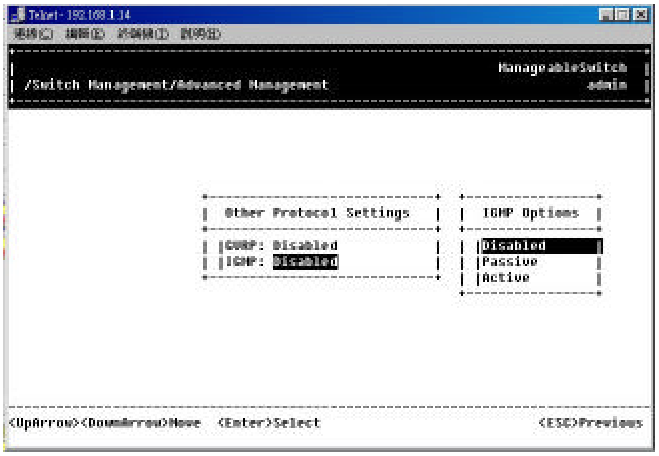


```
                                                     ManageableSwitch
 /Switch Management/Advanced Management                         admin

                  +----------------------------+  +----------------+
                  |  Other Protocol Settings   |  |  GVRP Options  |
                  +----------------------------+  +----------------+
                  | |GVRP: Disabled            |  | |Disabled      |
                  | |IGMP: Disabled            |  | |Enabled       |
                  +----------------------------+  +----------------+

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

IGMP

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

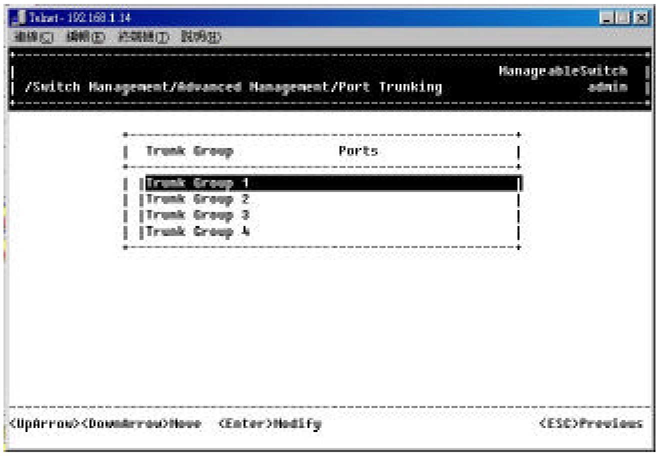
Step 2: Decide to have it Disabled or set in either Passive or Active mode.



```
+----------------------------------------------------------------------------+
|                                                          ManageableSwitch  |
| /Switch Management/Advanced Management                              admin  |
+----------------------------------------------------------------------------+


                       +------------------------------+  +----------------+
                       |  Other Protocol Settings     |  |  IGMP Options  |
                       +------------------------------+  +----------------+
                       | |GVRP: Disabled              |  | |Disabled      |
                       | |IGMP: Disabled              |  | |Passive       |
                       +------------------------------+  | |Active        |
                                                         +----------------+



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

Port Trunking

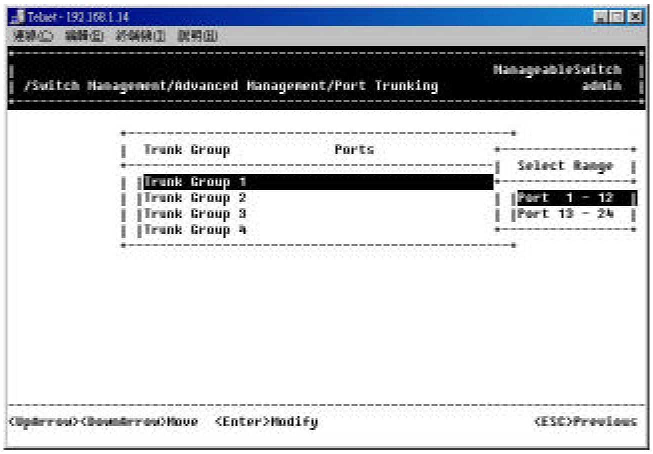
Move to highlight [Port Trunking] from [Advanced Management] screen, and press <Enter>. Note that Gigabit ports, **Port A** or **Port B**, cannot be used for trunking.



```
+------------------------------------------------------------------------------+
|                                                             ManageableSwitch |
| /Switch Management/Advanced Management/Port Trunking                   admin |
+------------------------------------------------------------------------------+

             +-----------------------------------------+
             |  Trunk Group            Ports           |
             +-----------------------------------------+
             | |Trunk Group 1                          |
             | |Trunk Group 2                          |
             | |Trunk Group 3                          |
             | |Trunk Group 4                          |
             +-----------------------------------------+

--------------------------------------------------------------------------------
<UpArrow><DownArrow>Move  <Enter>Modify                            <ESC>Previous
```

Select Range

Step 1:	Move to highlight a trunk group to which you want to assign ports, and press <Enter> to enter **Select Range**.

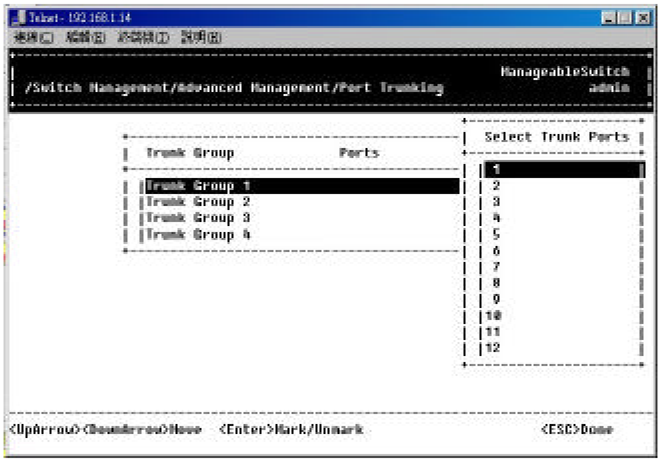


```
+------------------------------------------------------------------------------+
|                                                             ManageableSwitch |
| /Switch Management/Advanced Management/Port Trunking                   admin |
+------------------------------------------------------------------------------+

             +-----------------------------------------+
             |  Trunk Group            Ports        +---------------+
             +--------------------------------------| Select Range  |
             | |Trunk Group 1                       +---------------+
             | |Trunk Group 2                       | |Port  1 - 12 |
             | |Trunk Group 3                       | |Port 13 - 24 |
             | |Trunk Group 4                       +---------------+
             +-----------------------------------------+

--------------------------------------------------------------------------------
<UpArrow><DownArrow>Move  <Enter>Modify                            <ESC>Previous
```

Step 2:	Move to highlight a port range, **Port 1-12** or **Port 13-24**.

Select Trunk Ports

Step 3:	E.g. **Port 1-12** is highlighted.
Move and press <Enter> to select a trunk port.
You can select a maximum of four ports for each Trunk group.

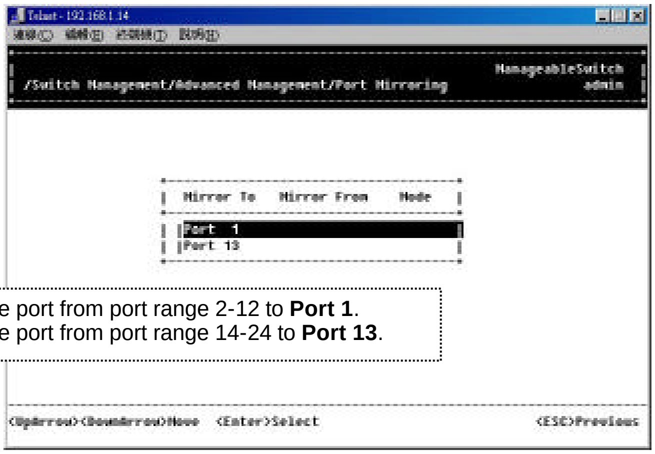


```
+------------------------------------------------------------------------------+
|                                                        ManageableSwitch      |
| /Switch Management/Advanced Management/Port Trunking              admin      |
+------------------------------------------------------------------------------+
                                                       +----------------------+
                +--------------------------------------| Select Trunk Ports   |
                | Trunk Group                Ports     +----------------------+
                +--------------------------------------| |1                   |
                | |Trunk Group 1                       | | 2                  |
                | |Trunk Group 2                       | | 3                  |
                | |Trunk Group 3                       | | 4                  |
                | |Trunk Group 4                       | | 5                  |
                +--------------------------------------| | 6                  |
                                                       | | 7                  |
                                                       | | 8                  |
                                                       | | 9                  |
                                                       | |10                  |
                                                       | |11                  |
                                                       | |12                  |
                                                       +----------------------+

--------------------------------------------------------------------------------
<UpArrow><DownArrow>Move   <Enter>Mark/Unmark                      <ESC>Done
```

Step 4:   Press <Esc> when completed with selecting ports

Port Mirroring

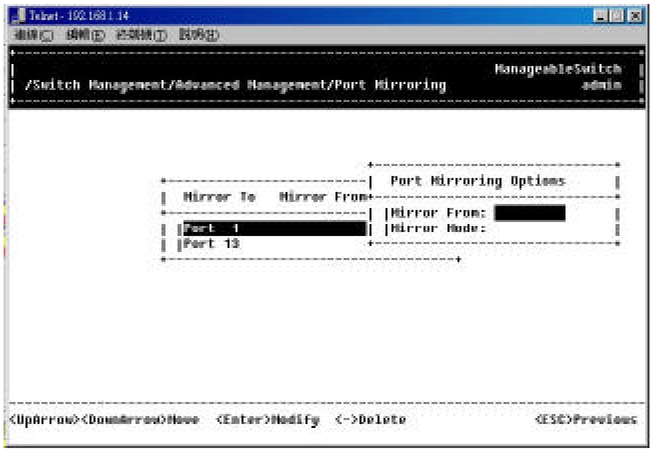
Move to highlight [Port Mirroring] from [Advanced Management] screen, and press <Enter>.



```
                                                          ManageableSwitch
 /Switch Management/Advanced Management/Port Mirroring               admin

           +-------------------------------------+
           |  Mirror To    Mirror From     Mode  |
           +-------------------------------------+
           | |Port  1                            |
           | |Port 13                            |
           +-------------------------------------+

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

You can mirror one port from port range 2-12 to **Port 1**.
one port from port range 14-24 to **Port 13**.

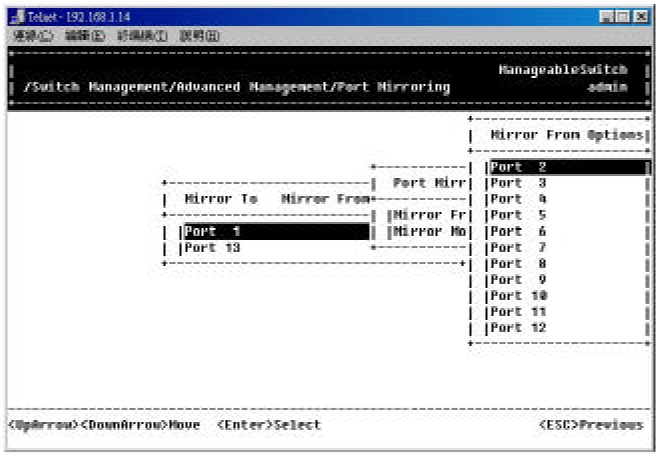
Step 1: Move to highlight **Port 1** or **Port 13**.
E.g. **Port 1** is highlighted. Press <Enter> to enter **Port Mirroring Options**.



```
                                                          ManageableSwitch
 /Switch Management/Advanced Management/Port Mirroring               admin

                                +---------------------------------+
           +--------------------|  Port Mirroring Options         |
           |  Mirror To    Mirror From--------------------------------+
           +--------------------| |Mirror From:                   |
           | |Port  1           | |Mirror Mode:                   |
           | |Port 13           +---------------------------------+
           +-------------------------------------+

<UpArrow><DownArrow>Move  <Enter>Modify  <->Delete             <ESC>Previous
```

Mirror From

Step 2:	Press <Enter> to enter **Mirror From Options**, listing the ports that can be mirrored from.



```
+--------------------------------------------------------------------------+
|                                                         ManageableSwitch |
| /Switch Management/Advanced Management/Port Mirroring             admin  |
+--------------------------------------------------------------------------+
                                                       +-------------------+
                                                       |  Mirror From Options|
                                                       +-------------------+
                                          +------------| |Port  2          |
                   +----------------------|  Port Mirr| |Port  3          |
                   |  Mirror To   Mirror From+--------| |Port  4          |
                   +----------------------| |Mirror Fr| |Port  5          |
                   | |Port  1             | |Mirror Mo| |Port  6          |
                   | |Port 13             +-----------| |Port  7          |
                   +----------------------------------+| |Port  8          |
                                                       | |Port  9          |
                                                       | |Port 10          |
                                                       | |Port 11          |
                                                       | |Port 12          |
                                                       +-------------------+

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

Step 3:	Move to highlight the port you want to mirror from and press <Enter>.

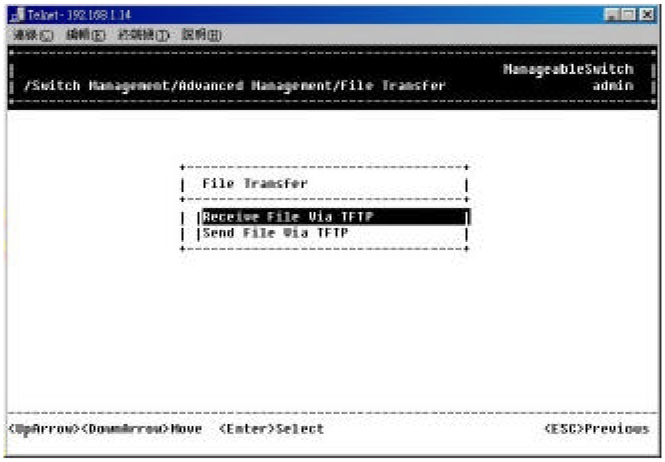
Mirror Mode

Step 4:	Move to select **Mirror Mode**. From **Mode Options**, decide whether the port to be mirrored from will be receiving or transmitting.

Step 5:	Press <Esc> when completed

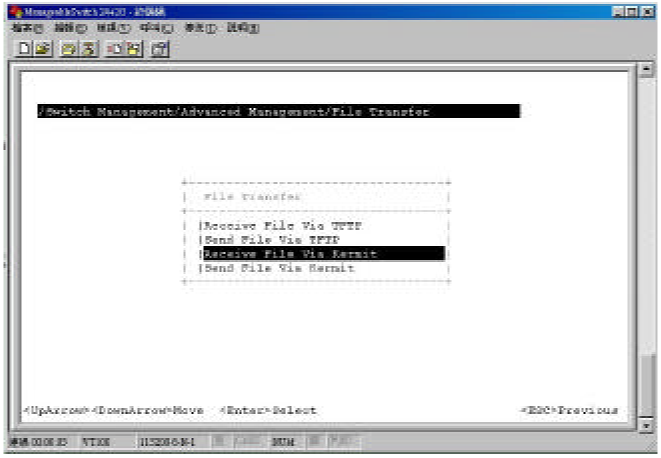
Sending and Receiving Files

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



```
                                                    ManageableSwitch
 /Switch Management/Advanced Management/File Transfer          admin

                    +------------------------------------+
                    |  File Transfer                     |
                    +------------------------------------+
                    | |Receive File Via TFTP             |
                    | |Send File Via TFTP                |
                    +------------------------------------+

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

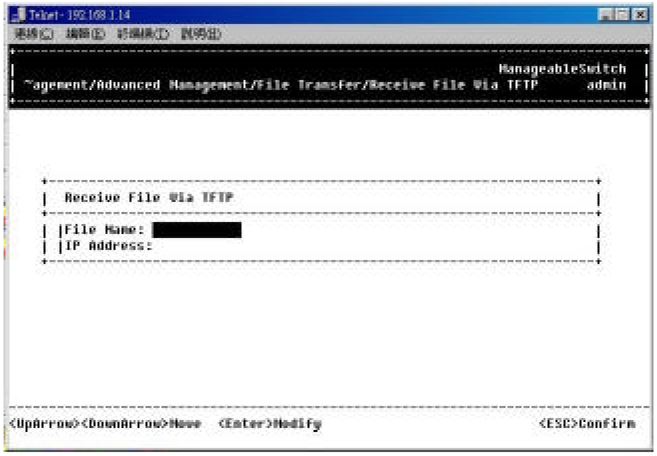
If you access the administration console by connecting an RS232 cable directly to the console port at the back of the switch, you will see a different [File Transfer] screen, as shown below.



```
 /Switch Management/Advanced Management/File Transfer

                    +------------------------------------+
                    |  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
```

RECEIVE FILE VIA TFTP

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



```
+----------------------------------------------------------------------------+
|                                                         ManageableSwitch  |
| ~agement/Advanced Management/File Transfer/Receive File Via TFTP    admin  |
+----------------------------------------------------------------------------+


    +------------------------------------------------------------------+
    |  Receive File Via TFTP                                           |
    +------------------------------------------------------------------+
    | |File Name:                                                      |
    | |IP Address:                                                     |
    +------------------------------------------------------------------+

-----------------------------------------------------------------------------
<UpArrow><DownArrow>Move  <Enter>Modify                        <ESC>Confirm
```

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.

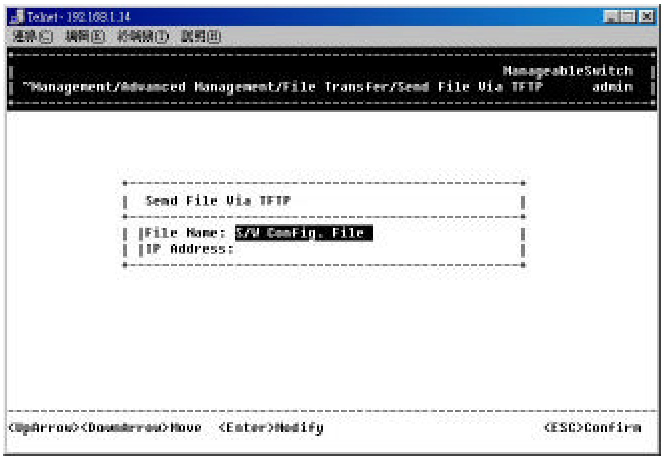
Step 4: Press <Esc> when completed.

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.

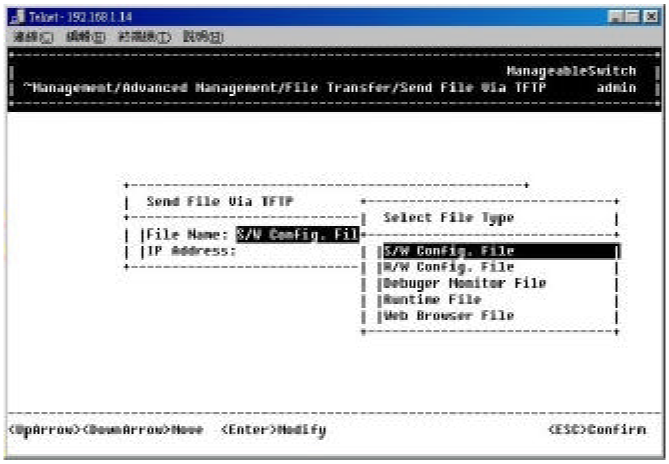
SEND FILE VIA TFTP

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



```
                                                        ManageableSwitch
 ~Management/Advanced Management/File Transfer/Send File Via TFTP      admin

          Send File Via TFTP

         |File Name: S/W Config. File
         |IP Address:

<UpArrow><DownArrow>Move   <Enter>Modify                          <ESC>Confirm
```

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>.



```
                                                        ManageableSwitch
 ~Management/Advanced Management/File Transfer/Send File Via TFTP      admin

          Send File Via TFTP
                                     Select File Type
         |File Name: S/W Config. Fil
         |IP Address:               |S/W Config. File
                                    |H/W Config. File
                                    |Debuger Monitor File
                                    |Runtime File
                                    |Web Browser File

<UpArrow><DownArrow>Move   <Enter>Modify                          <ESC>Confirm
```

Step 3: Repeat Step 3-5 on page 88.

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.

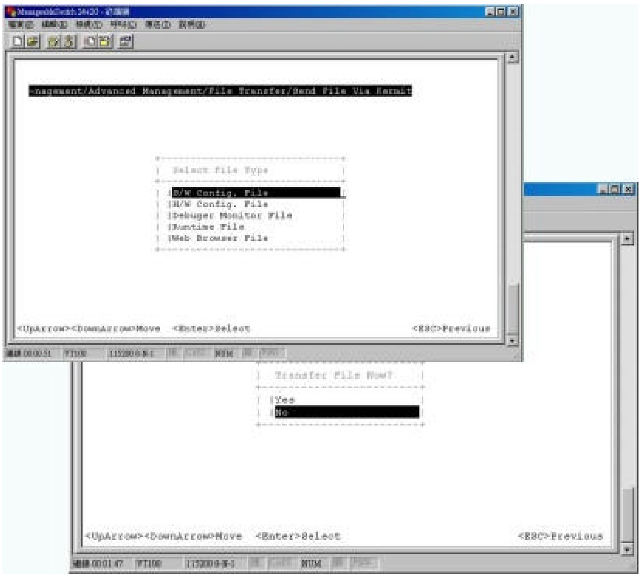
SEND FILE VIA KERMIT

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.



```
-nagement/Advanced Management/File Transfer/Send File Via Kermit

+---------------------------------+
|  Select File Type               |
+---------------------------------+
| |S/W Config. File               |
| |H/W Config. File               |
| |Debuger Monitor File           |
| |Runtime File                   |
| |Web Browser File               |
+---------------------------------+

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

```
+---------------------------------+
|  Transfer File Now?             |
+---------------------------------+
| |Yes                            |
| |No                             |
+---------------------------------+

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

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

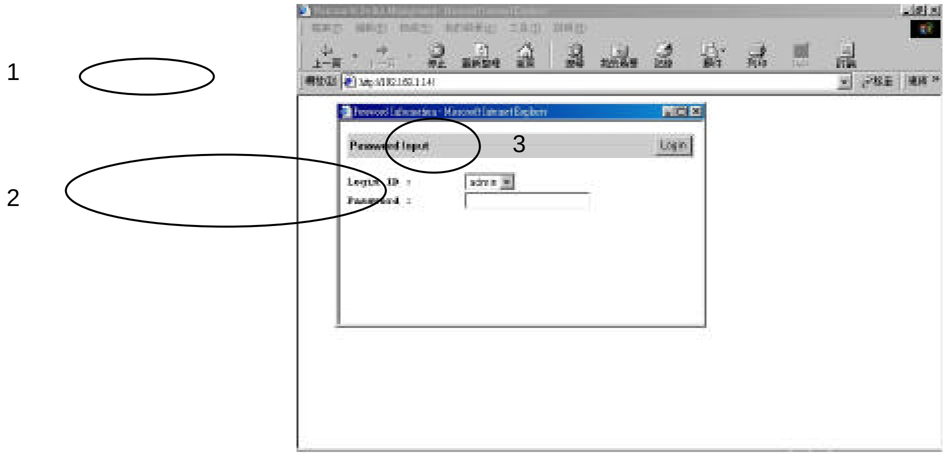
In your web browser, specify the IP address of the switch.

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.



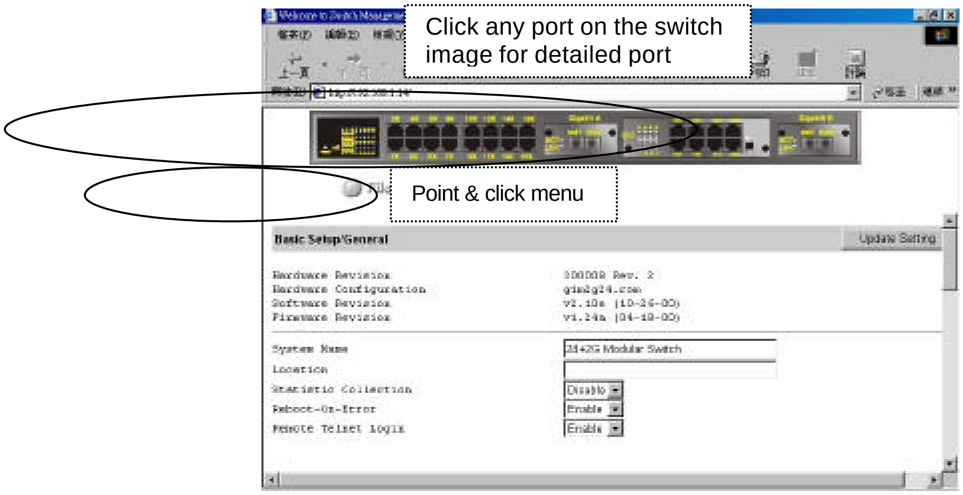
Login ID : admin
Password :

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.



Click any port on the switch image for detailed port

Point & click menu

Basic Setup/General

Hardware Revision	300008 Rev. 2
Hardware Configuration	gim2g24.com
Software Revision	v2.10a (10-26-00)
Firmware Revision	v1.24a (04-18-00)
System Name	24+2G Modular Switch
Location	
Statistic Collection	Disable
Reboot-On-Error	Enable
Remote Telnet login	Enable

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

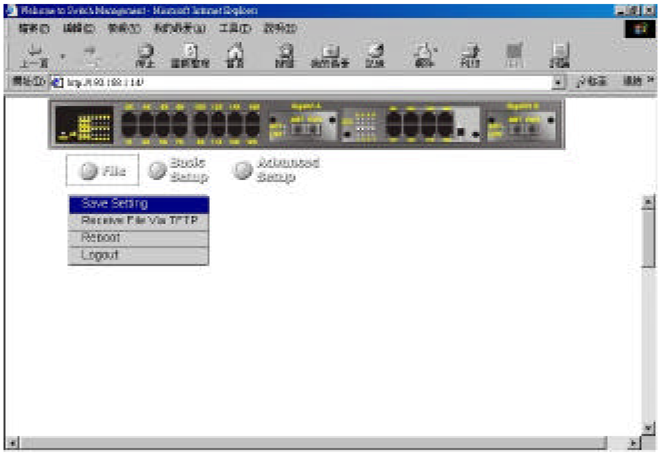
BASIC SETUP
Perform general, LAN port, and console port activities.

ADVANCED SETUP
Perform MAC address management / IP networking / per port statistics / static MAC filters / SNMP / port trunking / port mirroring…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

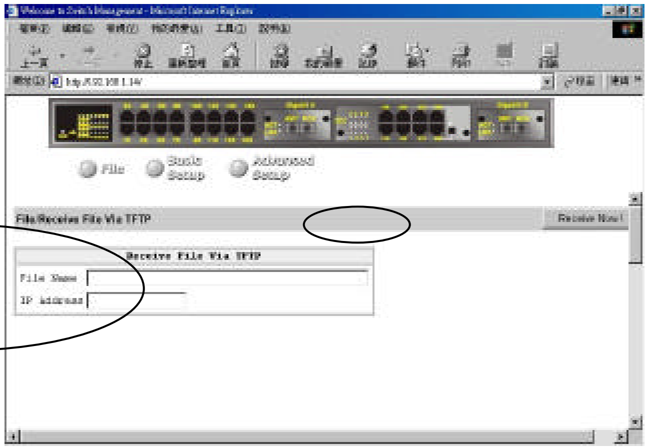
Step 1: Click **Receive File Via TFTP** on the [File] display

<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!** .



File/Receive File Via TFTP

Receive File Via TFTP

File Name

IP Address

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

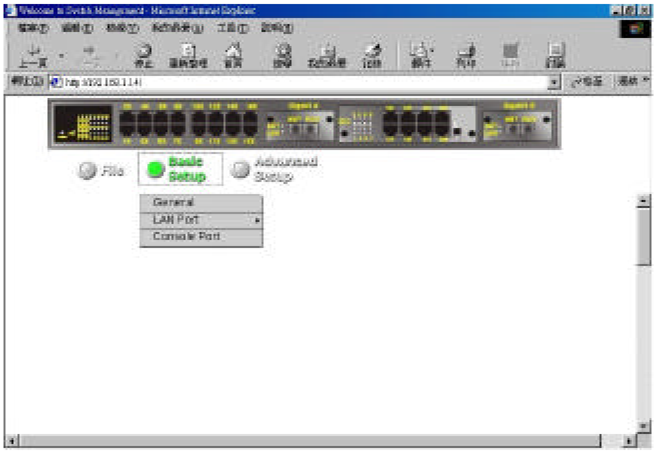
Step 1: Click **Logout** on the [File] display.

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

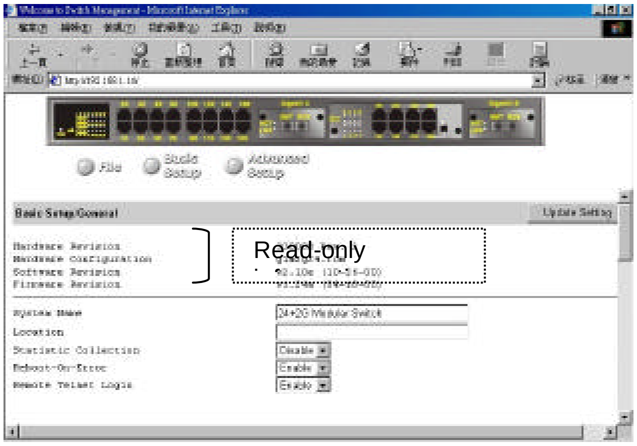
Start with Selection Menu

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. The screen here is the same as shown on page 93 when you first access the switch browser interface.



Basic Setup/General | Update Setting

Hardware Revision
Hardware Configuration
Software Revision
Firmware Revision

Read-only

System Name: 24+2G Modular Switch
Location:
Statistic Collection: Disable
Reboot-On-Error: Enable
Remote Telnet Login: Enable

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.

System Name: ManagementSwitch

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.

Location: EtherWAN Taiwan

Statistic Collection

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

Statistic Collection: Disable

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.

Reboot-On-Error: Disable

Remote Telnet Login

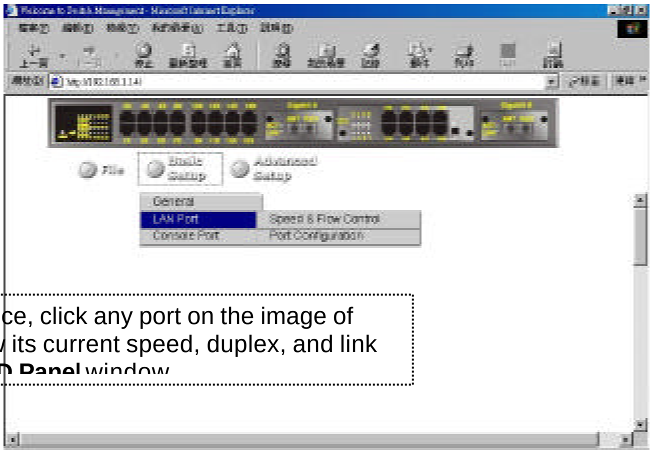
Step 8: To enable or disable access to the switch management program via Telnet, click the appropriate option from **Remote Telnet Login** drop-down menu.

Remote Telnet Login: Enable

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

LAN Port Configuration

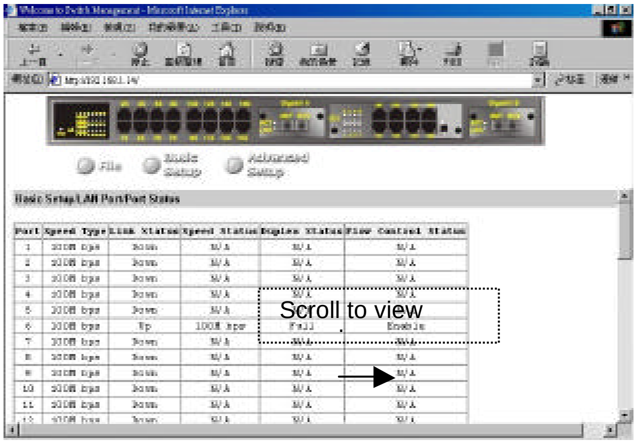
To access the LAN configuration parameters, click **Basic Setup** button first and then point to **LAN Port** and click a suitable option.



For your convenience, click any port on the image of the switch and view its current speed, duplex, and link activity from the **LED Panel** window.

SPEED & FLOW CONTROL

Step 1: Click **Speed & Flow Control** to view the line speed and flow control for all ports.



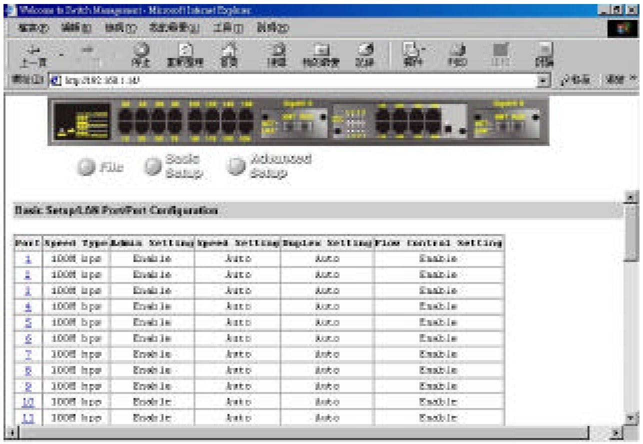
Basic Setup/LAN Port/Port Status

Port	Speed Type	Link Status	Speed Status	Duplex Status	Flow Control Status
1	100M bps	Down	N/A	N/A	N/A
2	100M bps	Down	N/A	N/A	N/A
3	100M bps	Down	N/A	N/A	N/A
4	100M bps	Down	N/A	N/A	N/A
5	100M bps	Down	N/A	[illegible]	[illegible]
6	100M bps	Up	100M bps	Full	Enable
7	100M bps	Down	N/A	N/A	N/A
8	100M bps	Down	N/A	N/A	N/A
9	100M bps	Down	N/A	N/A	N/A
10	100M bps	Down	N/A	N/A	N/A
11	100M bps	Down	N/A	N/A	N/A
12	100M bps	Down	N/A	N/A	N/A

Scroll to view

PORT CONFIGURATION

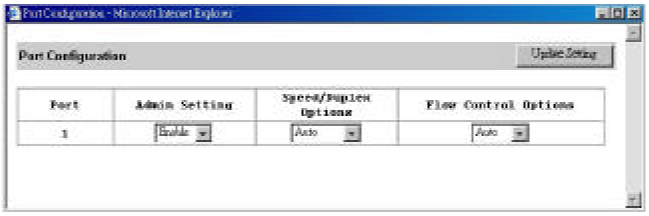
Step 1: Click **Basic Setup** ↴ **LAN Port** ↴ **Port Configuration** to access the configuration information for all ports.



Basic Setup/LAN Port/Port Configuration

Port	Speed Type	Admin Setting	Speed Setting	Duplex Setting	Flow Control Setting
1	100M bps	Enable	Auto	Auto	Enable
2	100M bps	Enable	Auto	Auto	Enable
3	100M bps	Enable	Auto	Auto	Enable
4	100M bps	Enable	Auto	Auto	Enable
5	100M bps	Enable	Auto	Auto	Enable
6	100M bps	Enable	Auto	Auto	Enable
7	100M bps	Enable	Auto	Auto	Enable
8	100M bps	Enable	Auto	Auto	Enable
9	100M bps	Enable	Auto	Auto	Enable
10	100M bps	Enable	Auto	Auto	Enable
11	100M bps	Enable	Auto	Auto	Enable

Step 2: In the **Port** column, click the port you want to configure. E.g. click Port 1.



Port Configuration

Port	Admin Setting	Speed/Duplex Options	Flow Control Options
1	Enable	Auto	Auto

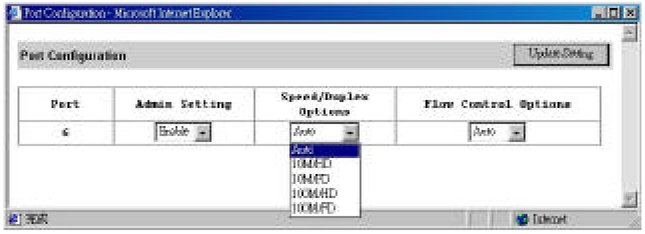
Admin Setting

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 switches to and from the port
Enable: places the port in UP state. In this state, packets can be switched to and from the port.

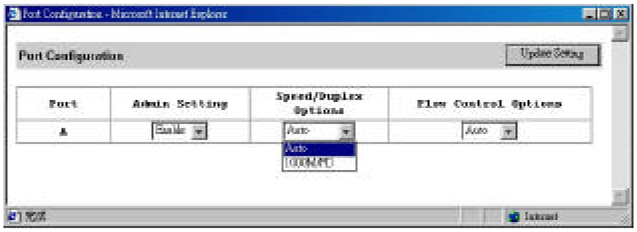
Speed/Duplex Options

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



Port Configuration

Port	Admin Setting	Speed/Duplex Options	Flow Control Options
6	Enable	Auto	Auto



Port Configuration

Port	Admin Setting	Speed/Duplex Options	Flow Control Options
A	Enable	Auto	Auto

<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.

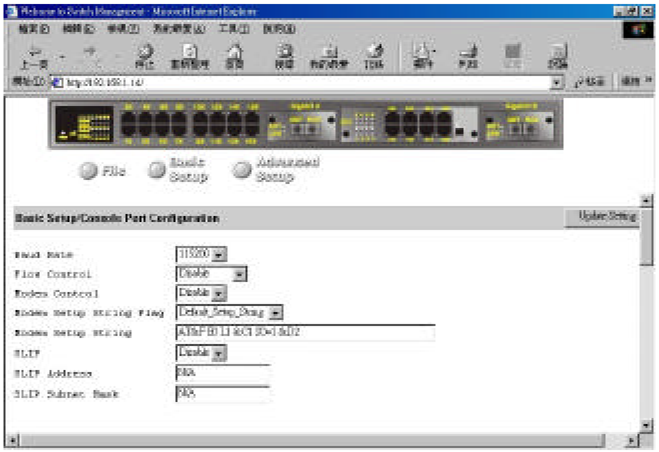
<Note> Auto: allows the switch to automatically ascertain whether or not to use flow control.
Disable: turns off flow control at all times.
Enable: turns on flow control at all times.

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**.



Basic Setup/Console Port Configuration

Baud Rate	115200
Flow Control	Disable
Modem Control	Disable
Modem Setup String Flag	Default_Setup_String
Modem Setup String	AT&F E0 L1 &C1 S0=1 &D2
SLIP	Disable
SLIP Address	N/A
SLIP Subnet Mask	N/A

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.

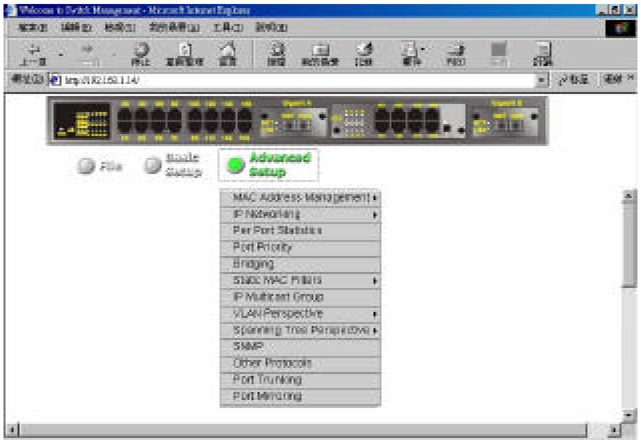
<Note> If you enable SLIP, a message tells you that the console port becomes accessible only through the SLIP protocol after you click Update Setting.

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

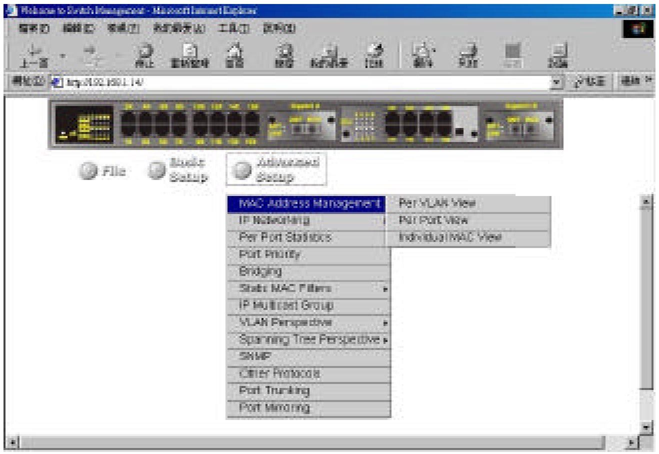
Start with Selection Menu

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



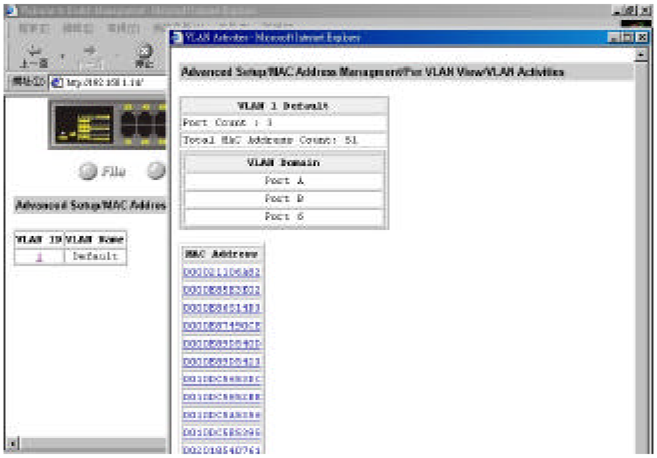
MAC Address Management

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.



VLAN Activities - Microsoft Internet Explorer

Advanced Setup/MAC Address Management/Per VLAN View/VLAN Activities

VLAN 1 Default
Port Count : 3
Total MAC Address Count: 51

VLAN Domain
Port A
Port B
Port 6

MAC Address
000021106A82
0000E8583B02
0000E8451483
0000E874590CE
0000E858D840D
0000E858D8413
[illegible]
[illegible]
[illegible]
0010DC585296
0020185A0761

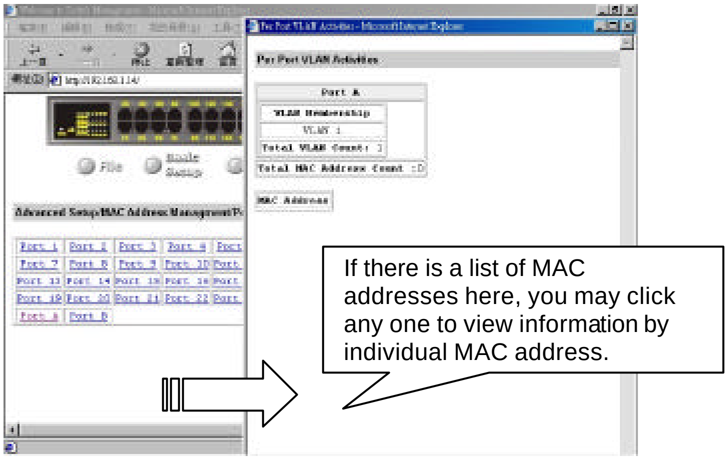
Advanced Setup/MAC Address

VLAN ID	VLAN Name
1	Default

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.



Per Port VLAN Activities

Port A

VLAN Membership

VLAN 1

Total VLAN Count: 1

Total MAC Address Count :0

MAC Address

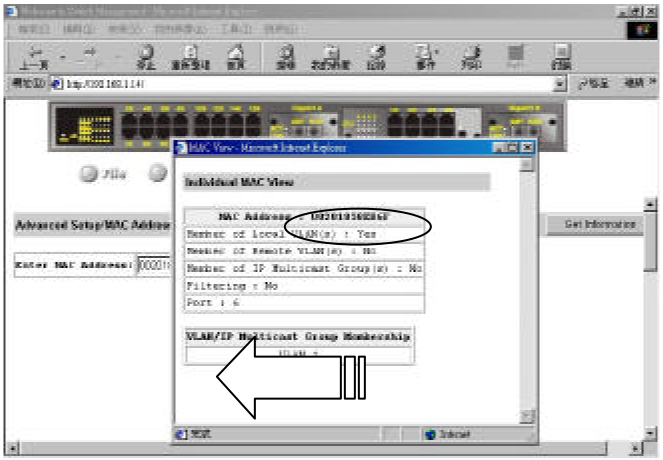
If there is a list of MAC addresses here, you may click any one to view information by individual MAC address.

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.



Individual MAC View

MAC Address : [illegible]

Member of Local VLAN(s) : Yes

Member of Remote VLAN(s) : No

Member of IP Multicast Group(s) : No

Filtering : No

Port : 6

VLAN/IP Multicast Group Membership

VLAN 1

Advanced Setup/MAC Address

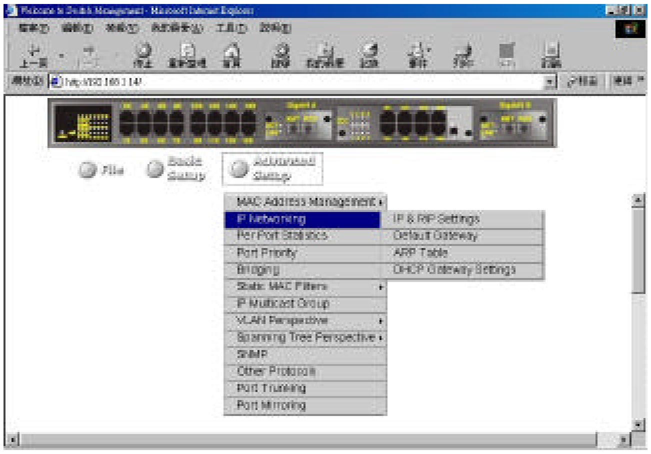
Enter MAC Address: 00201

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

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

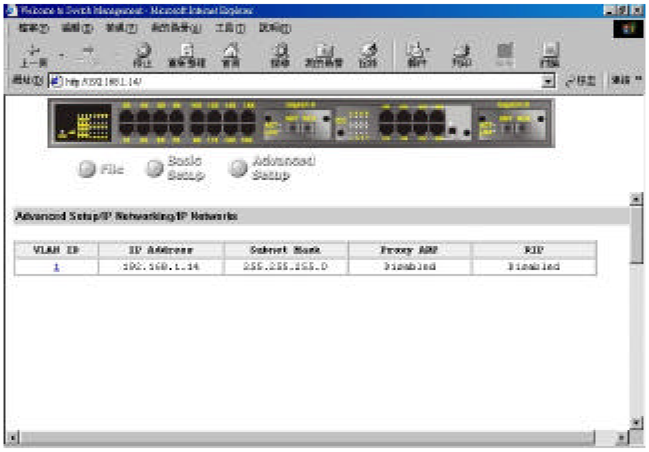
IP Networking

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.

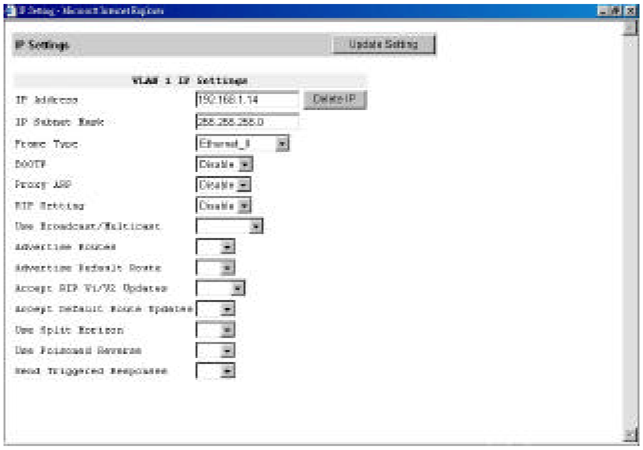


Welcome to Switch Management - Microsoft Internet Explorer

Advanced Setup/IP Networking/IP Networks

VLAN ID	IP Address	Subnet Mask	Proxy ARP	RIP
1	192.168.1.14	255.255.255.0	Disabled	Disabled

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



IP Setting - Microsoft Internet Explorer

IP Settings

VLAN 1 IP Settings

IP Address	192.168.1.14
IP Subnet Mask	255.255.255.0
Frame Type	Ethernet_II
BOOTP	Disable
Proxy ARP	Disable
RIP Setting	Disable
Use Broadcast/Multicast	
Advertise Routes	
Advertise Default Route	
Accept RIP V1/V2 Updates	
Accept Default Route Updates	
Use Split Horizon	
Use Poisoned Reverse	
Send Triggered Responses	

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.

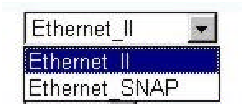
* No precautionary message appears before you delete the IP address.
* Be sure you want to delete it before doing so.
* The IP address is not deleted until you click **Update Setting**.

IP Subnet Mask

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

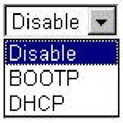
Frame Type

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



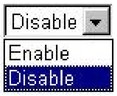
BOOTP

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



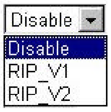
Proxy ARP

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



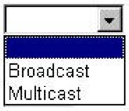
RIP Setting

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



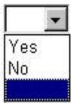
Use Broadcast/Multicast

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



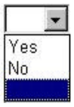
Advertise Routes

Step 10: Specify whether you want to advertise routes.



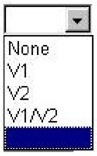
Advertise Default Route

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



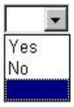
Accept RIP V1/V2 Updates

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



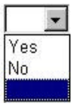
Accept Default Route Updates

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



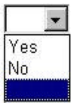
Use Split Horizon

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



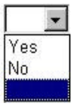
Use Poisoned Reverse

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



Send Triggered Responses

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

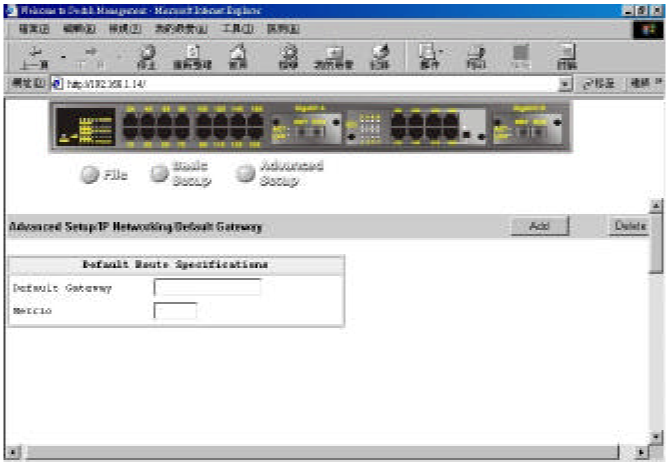


Step 17: When you finished with these selections, click **Update Setting**.

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.


Welcome to Switch Management - Microsoft Internet Explorer
http://192.168.1.14/
File
Basic Setup
Advanced Setup
Advanced Setup/IP Networking/Default Gateway
Add
Delete
Default Route Specifications
Default Gateway
Metric

Default Gateway

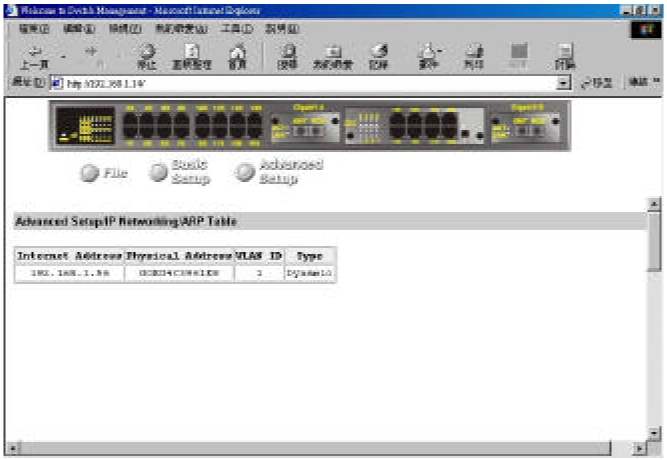
Step 2: For **Default Gateway**, click in the text box and type the IP address of the router at the next hop.

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.

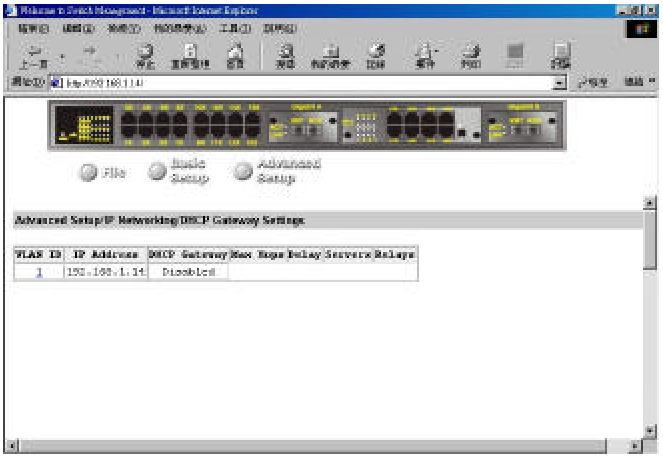


Advanced Setup/IP Networking/ARP Table

Internet Address	Physical Address	VLAN ID	Type
192.168.1.56	00E04C3961E8	1	Dynamic

DHCP GATEWAY SETTINGS

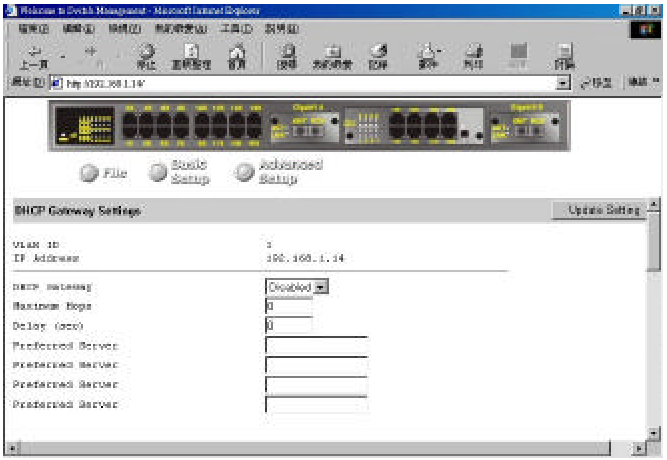
Step 1: Click Advanced Setup ↴ IP Networking ↴ DHCP Gateway Settings to view and/or change settings.



Advanced Setup/IP Networking/DHCP Gateway Settings

VLAN ID	IP Address	DHCP Gateway	Max Hops	Delay	Servers	Relays
1	192.168.1.14	Disabled				

Step 2: In the **VLAN ID** column, click on a VLAN ID that you want to view or change its DHCP gateway settings.



DHCP Gateway Settings

VLAN ID	1
IP Address	192.168.1.14
DHCP Gateway	Disabled
Maximum Hops	0
Delay (sec)	0
Preferred Server	
Preferred Server	
Preferred Server	
Preferred Server	

DHCP Gateway

Step 3: Click the drop-down list and decide to have it Disabled or Enabled.

Maximum Hops

Step 4: Click in the text box and type a decimal number to configure the maximum number of hops.

Delay

Step 5: Click in the text box and type a decimal number to configure the delay in seconds.

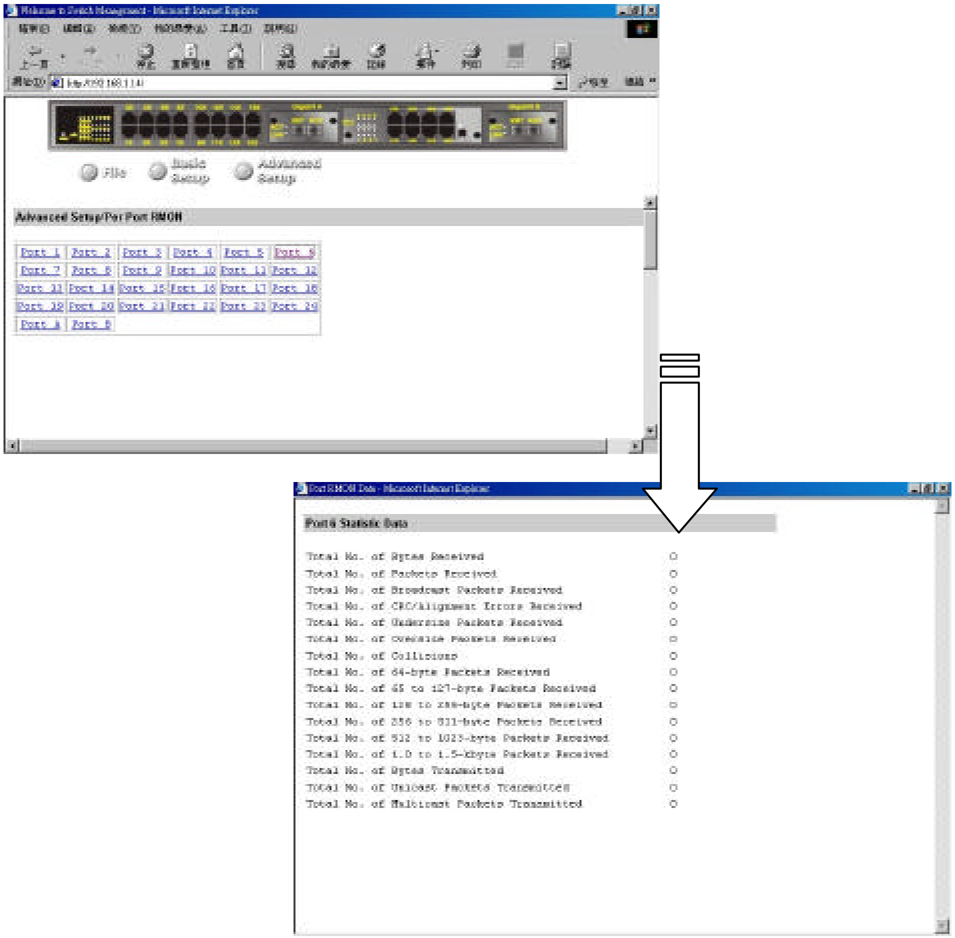
Preferred Server

Step 6: Click in the text box and type an IP address for it.
Repeat to specify up to three more Preferred Servers.

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.



Advanced Setup/Per Port RMON

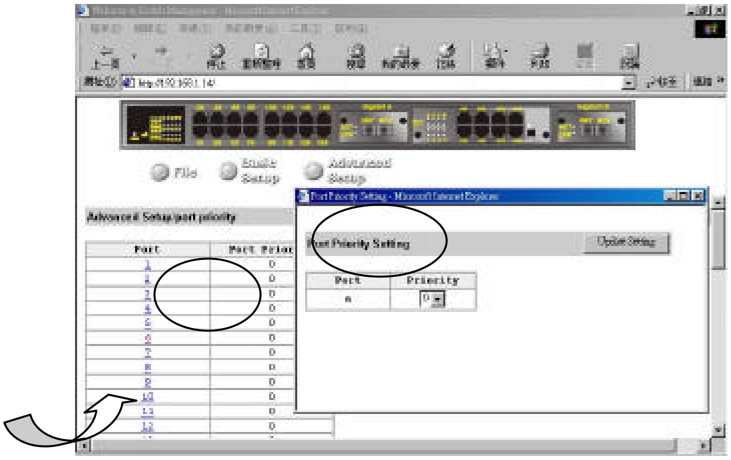
Port 1	Port 2	Port 3	Port 4	Port 5	Port 6
Port 7	Port 8	Port 9	Port 10	Port 11	Port 12
Port 13	Port 14	Port 15	Port 16	Port 17	Port 18
Port 19	Port 20	Port 21	Port 22	Port 23	Port 24
Port A	Port B				

Port 6 Statistic Data

```
Total No. of Bytes Received                              0
Total No. of Packets Received                            0
Total No. of Broadcast Packets Received                  0
Total No. of CRC/Alignment Errors Received               0
Total No. of Undersize Packets Received                  0
Total No. of Oversize Packets Received                   0
Total No. of Collisions                                  0
Total No. of 64-byte Packets Received                    0
Total No. of 65 to 127-byte Packets Received             0
Total No. of 128 to 255-byte Packets Received            0
Total No. of 256 to 511-byte Packets Received            0
Total No. of 512 to 1023-byte Packets Received           0
Total No. of 1.0 to 1.5-Kbyte Packets Received           0
Total No. of Bytes Transmitted                           0
Total No. of Unicast Packets Transmitted                 0
Total No. of Multicast Packets Transmitted               0
```

Port Priority

Step 1: To access port priority, click the **Advanced Setup** button, and then click **Port Priority** from the selection menu.



Advanced Setup/port priority

Port	Port Prior
1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0

Port Priority Setting - Microsoft Internet Explorer

Port Priority Setting

Port	Priority
6	0

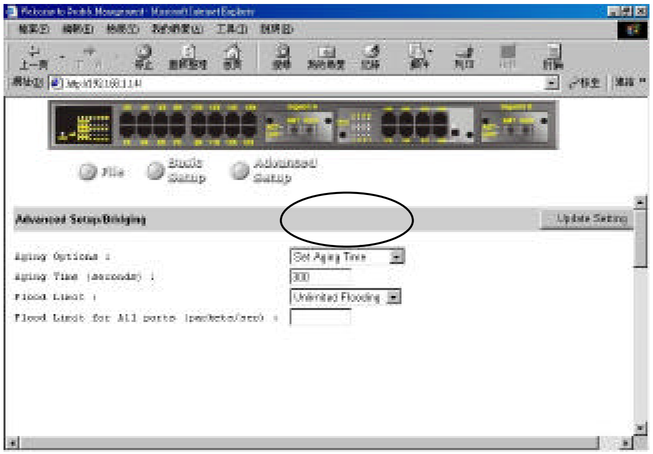
Step 2: Click a port to change the priority level.

Step 3: Click the drop-down list for setting a proper priority level.

Step 4: Click **Update Setting** when completed.

Bridging

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



Advanced Setup/Bridging

Aging Options : Set Aging Time

Aging Time (seconds) : 300

Flood Limit : Unlimited Flooding

Flood Limit for All ports (packets/sec) :

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.

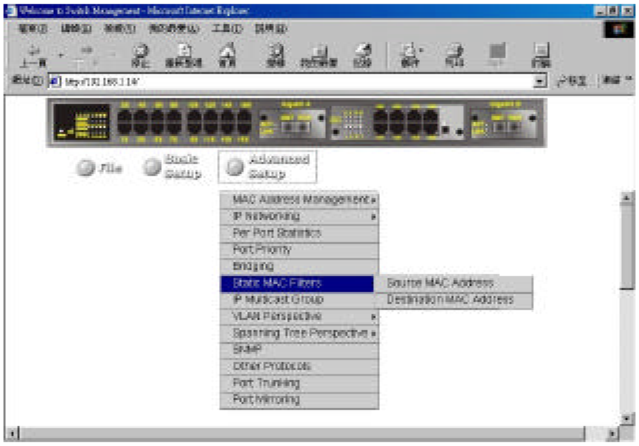
Flood Limit for All Ports

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.

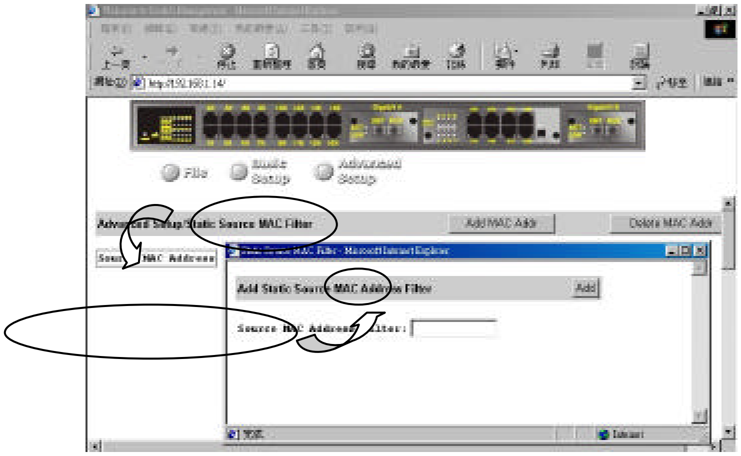


SOURCE MAC ADDRESS

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.


File
Static Setup
Advanced Setup
Advanced Setup/Static Source MAC Filter
Add MAC Addr
Delete MAC Addr
Source MAC Address
Add Static Source MAC Address Filter
Add
Source MAC Address Filter:

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

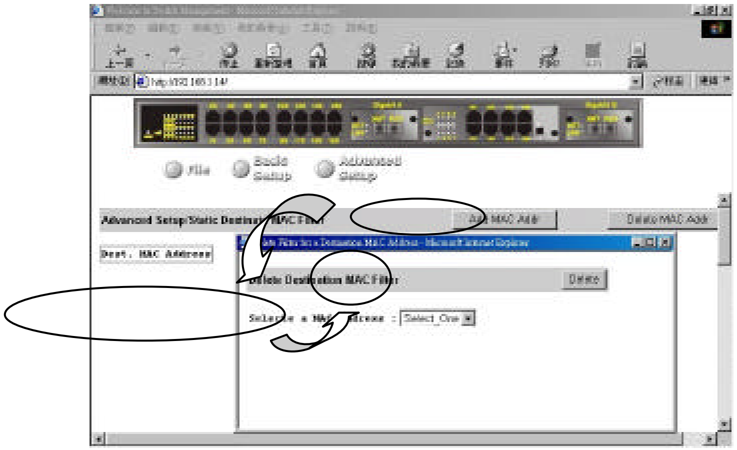
Click in the **Source MAC Address Filter** text box and type a unique MAC source address you want to add.

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.

Step 9: A confirmation window appears. Close the confirmation window.

* 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**.

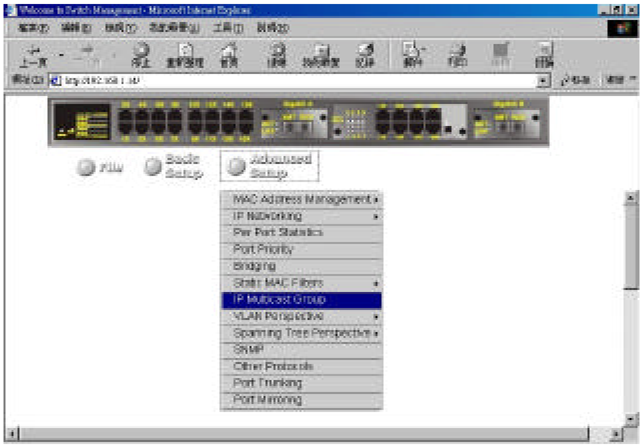
Step 2: Click **Add MAC Addr** button to add a destination MAC address for static filtering. Refer to Step 2~5 in **Source MAC Address** section for similar procedure.

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

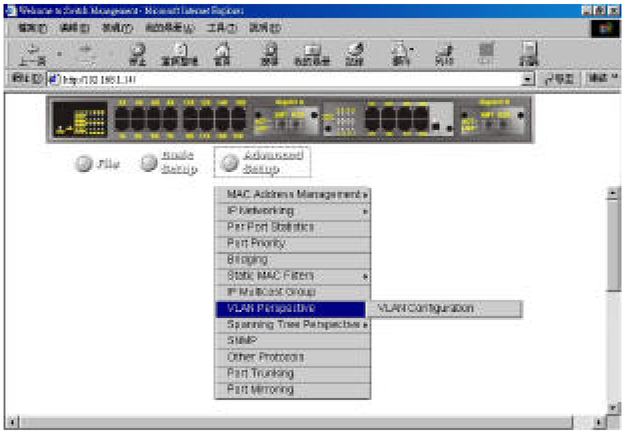
To view the IP multicast group addresses, click the **Advanced Setup** button, and click **IP Multicast Group** in the selection menu.

The information is read-only.



VLAN Perspective

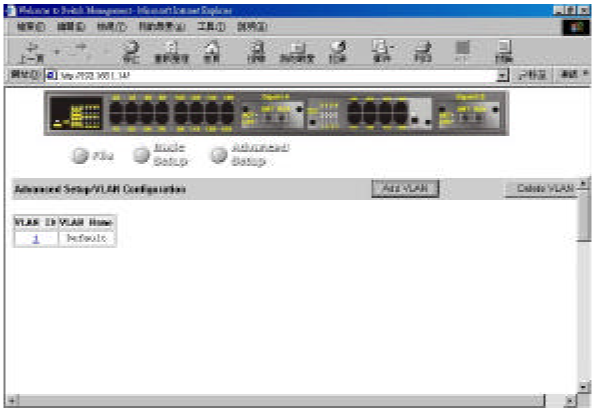
To view the VLAN configuration information, click the **Advanced Setup** button, and point to **VLAN Perspective** in the selection menu.



VLAN CONFIGURATION

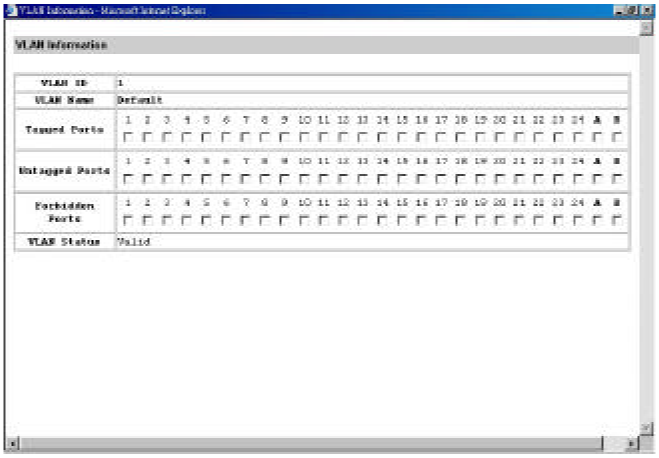
Step 1: Click VLAN Configuration.

Step 2: Click on a VLAN ID whose VLAN configuration you want to change.
E.g. click VLAN ID 1.


Welcome to Switch Management - Microsoft Internet Explorer
File
Basic Setup
Advanced Setup
Advanced Setup/VLAN Configuration
Add VLAN
Delete VLAN

VLAN ID	VLAN Name
1	Default

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**.



VLAN Information

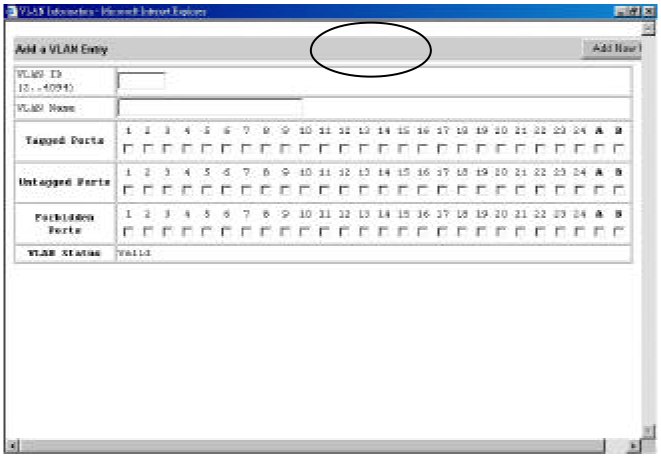
VLAN ID	1																									
VLAN Name	Default																									
Tagged Ports	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	A	B
	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□
Untagged Ports	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	A	B
	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□
Forbidden Ports	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	A	B
	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□
VLAN Status	Valid																									

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.



VLAN ID (2..4094)	
VLAN Name	
Tagged Ports	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 A B □
Untagged Ports	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 A B □
Forbidden Ports	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 A B □
VLAN Status	Valid

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.

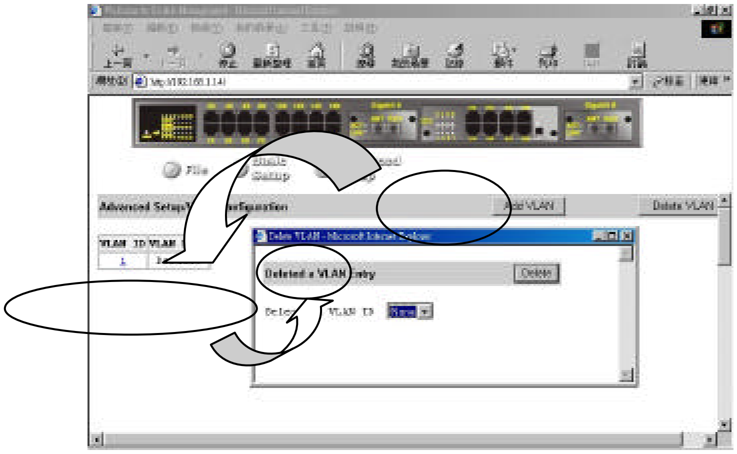
Delete a VLAN Entry

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.

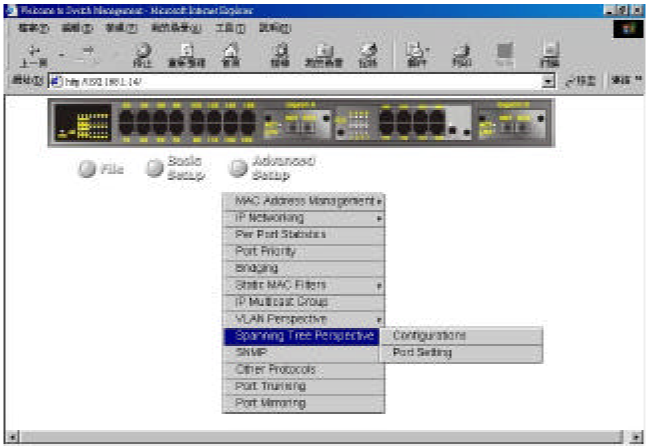
Step 14: Click the **Delete** button.



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

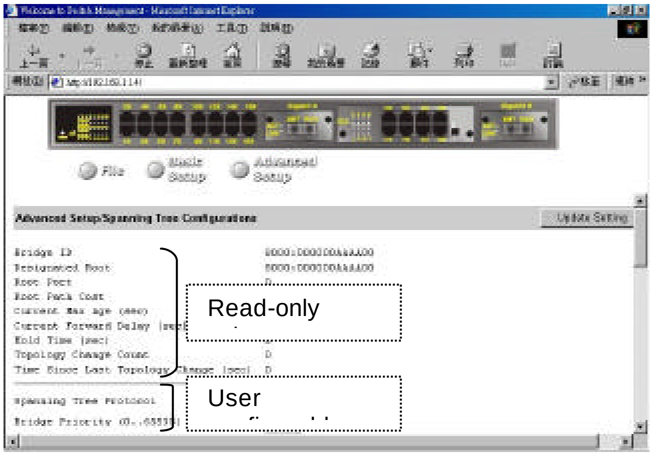
Spanning Tree Perspective

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.



Advanced Setup/Spanning Tree Configurations

```
Bridge ID                              8000:0000DDAAAA00
Designated Root                        8000:0000DDAAAA00
Root Port                              0
Root Path Cost
Current Max Age (sec)
Current Forward Delay (sec)
Hold Time (sec)
Topology Change Count                  0
Time Since Last Topology Change (sec)  0
Spanning Tree Protocol
Bridge Priority (0..65535)
```

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.

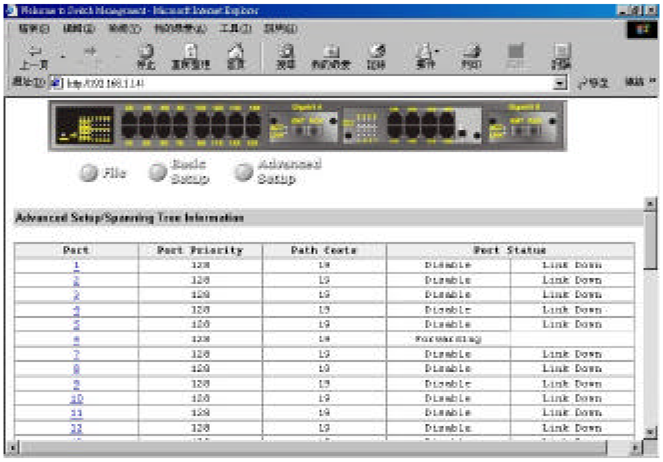
Forward Delay

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 SETTING

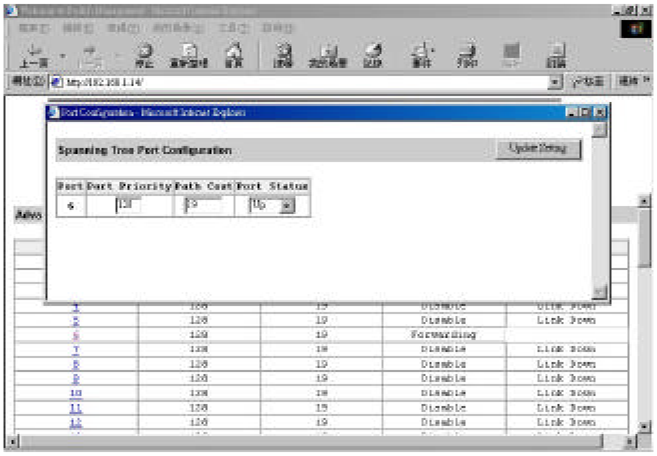
Step 1: To view and/or change the Spanning Tree configurations by port, click the **Advanced Setup** button, point to **Spanning Tree Perspective** in the selection menu, and click **Port Setting**.



Advanced Setup/Spanning Tree Information

Port	Port Priority	Path Costs	Port Status	
1	128	19	Disable	Link Down
2	128	19	Disable	Link Down
3	128	19	Disable	Link Down
4	128	19	Disable	Link Down
5	128	19	Disable	Link Down
6	128	19	Forwarding	
7	128	19	Disable	Link Down
8	128	19	Disable	Link Down
9	128	19	Disable	Link Down
10	128	19	Disable	Link Down
11	128	19	Disable	Link Down
12	128	19	Disable	Link Down

Step 2: In the **Port** column, click the port whose Spanning Tree information you want to view. E.g. click Port 6.



http://192.168.1.14/

Port Configuration - Microsoft Internet Explorer

Spanning Tree Port Configuration

Port	Port Priority	Path Cost	Port Status
6	128	19	Up

5	128	19	Disable	Link Down
6	128	19	Forwarding	
7	128	19	Disable	Link Down
8	128	19	Disable	Link Down
9	128	19	Disable	Link Down
10	128	19	Disable	Link Down
11	128	19	Disable	Link Down
12	128	19	Disable	Link Down

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

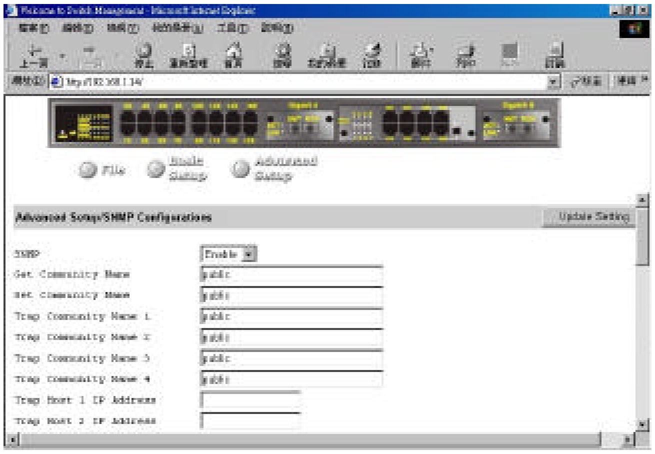
Step 5: For **Port Status**, specify whether the port is up or down by clicking the drop-down list.

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**.



Advanced Setup/SNMP Configurations

SNMP	Enable
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 Host 1 IP Address	
Trap Host 2 IP Address	

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.

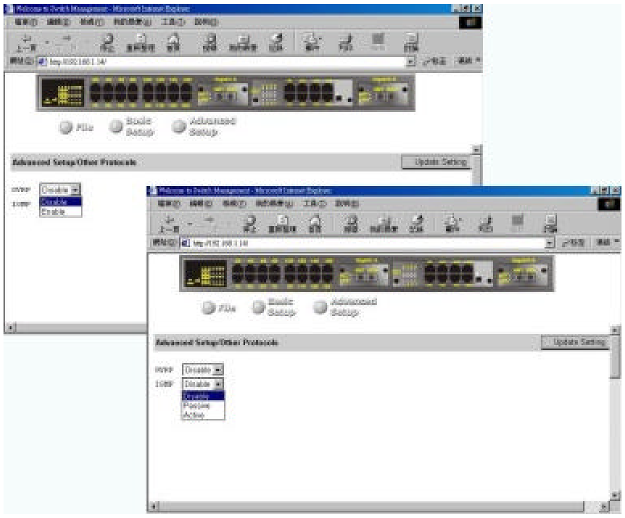
Falling Alarm Trap
Step 12: Specify whether it is Disabled or Enabled by clicking the drop-down list.

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.



Advanced Setup/Other Protocols

GVRP Disable
IGMP
Disable
Enable

Advanced Setup/Other Protocols

GVRP Disable
IGMP Disable
Disable
Passive
Active

GVRP

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

IGMP

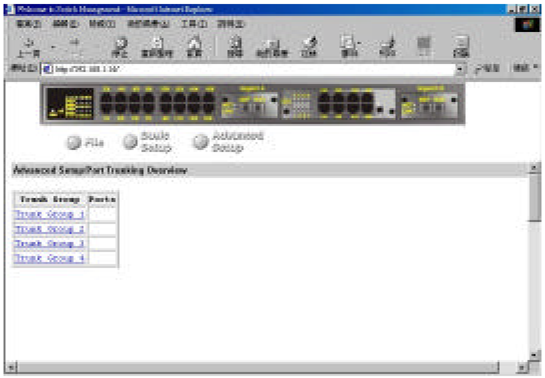
Step 2: Specify whether it is Disabled or Passive or Active by clicking the drop-down list.

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

Port Trunking

To use the switch's trunking capability to gain more bandwidth, click the **Advanced Setup** button, and click **Port Trunking** in the selection menu.

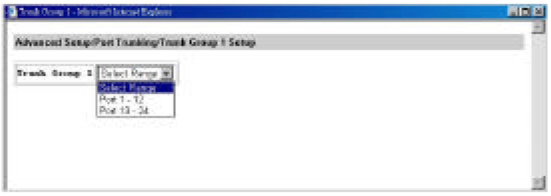
Step 1: The **Port Trunking Overview** window appears.
E.g. Click **Trunk Group 1** in the **Trunk Group** column.



Advanced Setup/Port Trunking Overview

Trunk Group	Ports
Trunk Group 1	
Trunk Group 2	
Trunk Group 3	
Trunk Group 4	

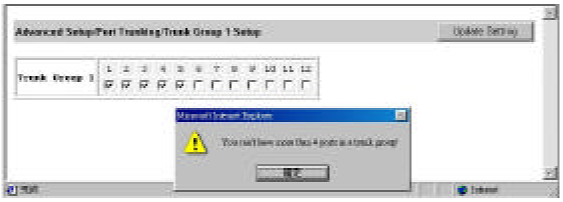
Step 2: The **Trunk Group 1 Setup** window appears.
Click the drop-down menu to select a desired range.
E.g. click **Port 1~12**.



Advanced Setup/Port Trunking/Trunk Group 1 Setup

Trunk Group 1 Select Range

Step 3: Click to assign a maximum of four ports to the trunk group.



Advanced Setup/Port Trunking/Trunk Group 1 Setup

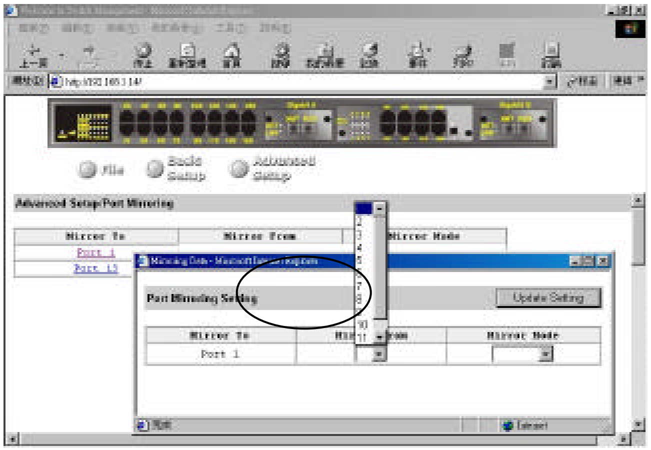
	1	2	3	4	5	6	7	8	9	10	11	12
Trunk Group 1	☑	☑	☑	☑	☑	□	□	□	□	□	□	□

Microsoft Internet Explorer

You can't have more than 4 ports in a trunk group!

Port Mirroring

To use the switch’s mirroring capability to mirror one port to Port 1 or Port 13, click the **Advanced Setup** button, and click **Port Mirroring** in the selection menu.



Step 1:   E.g. Click **Port 1** 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. Data traffic from this port will mirror to **Port 1**.

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.

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.

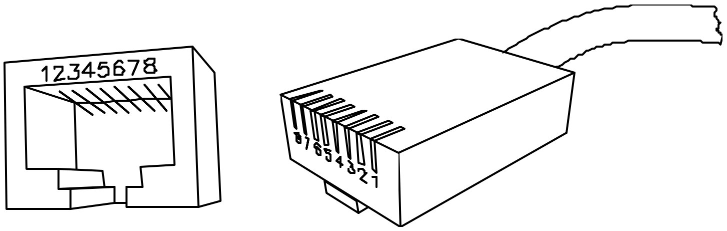
Specifications

Manageable 24 + 2 Gigabit Switch	1) Two 1000BASE-SX/LX ports with SC connectors (*modules optional) 2) Twenty-four 10/100BASE-T/TX auto-negotiating ports with RJ-45 connectors
Applicable Standards	IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX IEEE 802.3z 1000BASE-SX/LX
Switching Method	Store-and-Forward
Forwarding Rate	
10BASE-T:	10 / 20Mbps half / full-duplex
100BASE-TX:	100 / 200Mbps half / full-duplex
1000BASE-SX/LX:	1000 / 2000Mbps half / full-duplex
Performance	148,80pps for 10Mbps 148,800pps for 100Mbps 1,488,000pps for 1000Mbps
CABLE	
10BASE-T:	2-pair UTP/STP Cat. 3, 4, 5
100BASE-TX:	2-pair UTP/STP Cat. 5 Both up to 100m (328ft)
1000BASE-SX:	62.5/125µm multi-mode fiber (850nm) Up to 220m 50/125µm multi-mode fiber (850nm) Up to 550m
1000BASE-LX:	62.5/125µm multi-mode fiber (1300nm) Up to 550m 10/125µm single-mode fiber (1300nm) Up to 20km
LED Indicators	Per unit – Power status Per port – LNK (Link) /ACT (Activity) FDX/COL Per Gigabit port – ACT, LNK

Dimensions	W440 mm × D235 mm × H45mm
Net Weight	3.4kg (7.5lb) approx.
AC Input	100~260VAC, 47~63Hz internal universal power supply
Input Fuse	2A
Power Consumption	35W max.
Operating Temperature	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, VCCI Class A

Appendix A – Connector Pinouts

Pin arrangement of RJ-45 connectors:



RJ-45 Connector and Cable Pins

The following table lists the pinout of 10/100BASE-T/TX ports.

Pin	Regular Ports	Uplink port
1	Input Receive Data +	Output Transmit Data +
2	Input Receive Data -	Output Transmit Data -
3	Output Transmit Data +	Input Receive Data +
4	NC	NC
5	NC	NC
6	Output Transmit Data -	Input Receive Data -
7	NC	NC
8	NC	NC