

Managed Express Switches

LB9032A



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

# Preface

This manual describes how to install and use the Manageable 8-Port 10/100BASE-TX Compact Switch. This switch introduced here provides eight 10/100 RJ-45 ports or seven 10/100 RJ-45 ports plus one fiber port in a compact size box, and integrates full wire speed switching technology with SNMP/RMON web-based management functions. 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... Specifications

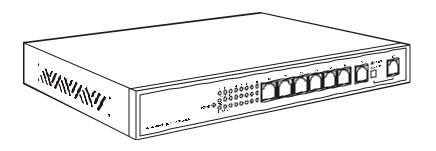
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# **Product Overview**

## Manageable 8-Port 10/100TX Compact 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 Management Switch
- User's Manual

AC power cord (eight 10/100 RJ-45 ports and seven 10/100 RJ-45 ports plus one fiber port)

External power adapter (seven 10/100 RJ-45 ports plus one fiber port)

### **Product Highlights**

### **Basic Features**

Provides eight 10/100 RJ-45 ports or seven 10/100 RJ-45 ports plus one fiber port Multi-mode fiber using SC, ST, VF-45, or MT-RJ connector up to 2km; single-mode fiber using SC connector up to 75km Auto-negotiation for speed and duplexity on all ports Full wire-speed forwarding rate Store-and-forward mechanism Back-pressure and IEEE 802.3x compliant flow control Supports 12K MAC addresses Provides 2 Mbytes memory buffer Front panel port status LEDs ? ? Wall-mountable compact size

### **Management Support**

VLAN

802.1Q tagged VLAN (up to 64 VLANs)

#### 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-MIRRORING

Port-mirroring provided through dedicated port, Port 1

### INTERNETWORKING PROTOCOLS

Bridging: 802.1D Spanning Tree 802.1P/Q – GARP/GVRP 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 TFTP software-upgrade capability

### **Front Panel Display**

ヹよひ



🔊 POWER

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

Sector Port Status LEDs

The LEDs are located at the left side of each section, displaying status for each respective port. Please refer to Table 1 for more details.

LED	State	Indication
LNK/ACT	Steady	A valid network connection established. LNK stands for LINK.
	Flashing	Transmitting or receiving data. ACT stands for ACTIVITY.
100	Steady	A valid 100Mbps network connection established. 100 stands for 100Mbps.
100	Off	A valid 10Mbps network connection established. 10 stands for 10Mbps.
	Steady	Connection in full duplex mode.
551/001	Sleady	FDX stands for FULL-DUPLEX.
FDX/COL	Flooping	Collision occurred.
	Flashing	COL stands for COLLISION.
	Off	Connection in half-duplex mode.

Solution (for eight 10/100 RJ-45 ports)

The uplink button is located at the left side of port 8X on the switch. Connect port 8X to another switch or hub, and depress the button for the uplink function.

### PHYSICAL PORTS

This switch provides eight 10/100 RJ-45 ports or seven 10/100 RJ-45 ports plus one fiber port:

### CONNECTIVITY

- RJ-45 connectors
- One MDIX port for uplink (for eight 10/100 RJ-45 ports)
- ST, SC, MT-RJ, or VF-45 connector on fiber port.

<Note> Refer to the table on page 14 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
- 100BASE-FX full-duplex mode
- 100BASE-FX half-duplex mode
- Auto-sensing mode

<Note>

- Half-duplex mode uses back pressure flow control to prevent the receiving buffer from being overrun by data from a source node. Full-duplex mode uses 802.3x flow control standard to prevent fast data traffic from overrunning slow data traffic. i i
- ii.
- Auto-sensing mode is in use after auto-negotiating with the other end of the link.

### **Basic Functions**

In general, the switch 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

### FORWARDING

#### AGING

FILTERING

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

### **UNICAST SWITCHING**

### VLAN CLASSIFICATION

When the 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 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 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.

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

### FORWARDING

The 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 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 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 64 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 sw itches 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 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 switch supports intra-VLAN communication through hardware, as described in "Basic Functions" section.

### Inter-VLAN Communication

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

### 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  $\mathbb{P}$  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 switch provides an onboard serial port, which allows the switch to be configured via a directly connected terminal or a Telnet session.

### WEB-BASED BROWSER INTERFACE

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

### EXTERNAL SNMP-BASED NETWORK MANAGEMENT APPLICATION

The switch can also be configured via SNMP.

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

# Installation

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

### Selecting a Site for the Switch

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

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

### **Connecting to Power**

Internal power (eight 10/100 RJ-45 ports or seven 10/100 RJ-45 ports plus one fiber port):

- 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: Turn on the switch by flipping the ON/OFF switch on the rear of the unit to I (ON) position.
- Step 3: The O position is OFF.

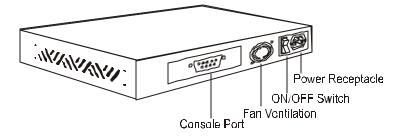


Figure 3-1: Rear view

External power (seven 10/100 RJ-45 ports plus one fiber port): Step 1: Connect the supplied AC to DC pow er adapter to the receptacle at the back of the switch.

Step 2: Attach the plug into a standard AC outlet with the appropriate AC voltage.



Figure 3-2: Rear view

### Power-on Self test (POST)

The Switch performs its Power-On Self Test (POST) when the pow er 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 PORTO

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.

Table 3: Cable Specifications

Speed	Connector	Port Speed Half/Full Duplex	Cable	Max. Distance
10BASE-T	RJ-45	10/20 M b p s	2-pair UTP /ST P Cat. 3, 4, 5	100 m
100BASE-TX	RJ-45	100/200 M b p s	2-pair UTP /ST P Cat. 5	100 m
100BASE-FX	ST, SC, MT- RJ, VF-45	100/200 M b p s	MMF (50 or 62.5 μm)	2 km
100BASE-FX	SC	100/200 M b p s	SMF (9 or 10µ m)	15, 40, or 75 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 Table 3 in previous section 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

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• Standards, Protocols, and Related Reading

## Management Access Overview

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

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

<ul> <li>Administration console via RS-232 serial port</li> </ul>	Advantages
<ul> <li>No IP address or subnet needed</li> <li>Text-based</li> <li>Telnet functionality and HyperTerminal built into Windows 95/98/NT/2000 operating systems</li> </ul>	Disadvantages
<ul> <li>Must be near switch or use dial-up connection</li> <li>Inconvenient for remote users</li> <li>Modem connection may prove to be unreliable or slow</li> </ul>	Disauvainages
Web-based browser interface	Advantages
<ul> <li>Ideal for configuring the switch remotely</li> <li>Compatible with all popular browsers</li> <li>Can be accessed from any location</li> <li>Most visually appealing</li> </ul>	Disadvantages
<ul> <li>Security can be compromised (hackers need only know the IP address and subnet mask)</li> <li>May encounter lag times on poor connections</li> </ul>	Disauvainages
External SNMP-based network management application	Advantages
<ul> <li>Communicates with switch functions at the MIB level</li> <li>Based on open standards</li> </ul>	5
<ul> <li>Requires SNMP manager software</li> <li>Least visually appealing of all three methods</li> <li>Some settings require calculations</li> <li>Security can be compromised (hackers need only know the community name)</li> </ul>	Disadvantages

### Administration Console

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

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

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

### **Direct Access**

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

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

# [DEFAULT PARAMETERS]

115,200BPS 8 DATA BITS NO PARITY 1 STOP BIT

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

### Modem Access

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

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

### Web Management

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

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

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

### 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 Network Management Station to use the same community string. This management method, in fact, uses two community strings: the get community string and the set community string. If the SNMP Network management station only knows the set community string, it can read and write to the MIBs. However, if it only knows the get community string, it can only read MIBs. The default get and set community strings for the switch are public.

### Protocols

The switch supports the following protocols:

### VIRTUAL TERMINAL PROTOCOLS, SUCH AS TELNET

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

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

### SIMPLE NETWORK MANAGEMENT PROTOCOL (SNMP)

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

### **Management Architecture**

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

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

# Menu-Driven Console Management

The switch provides a menu-driven console interface for configuration purposes. The switch can be configured either locally through its RS-232 port or remotely via a Telnet session.

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

### Logging on to the switch

At the screen prompt

Switch Console 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.

	ę	Switch Mana	igement Screei	n
Renor - 1973 1983 1975 Renor Hander - Attinger - 1979 1979 Ether Hander - Hanagement Swit System Hander - Hanagement Swit				
kogin: admin Password: ∎				
· · · · · · · · · · · · · · · · · · ·	1 <u>2</u> )			
EtherWAN 1888CF1   /Switch Hanagement		HanagementSwitch   admin		
-	Switch Humagement			
(Uperrow) (Downerrow) Have	(Inter)Select	(ESE)Provinsi		

### BASIC MANAGEMENT

Refer to page 20 for performing basic management activities.

### ADVANCED MANAGEMENT

Refer to page 25 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	То
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.

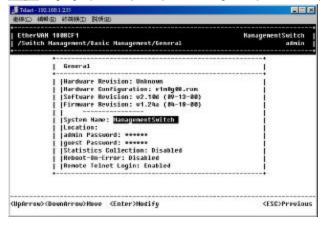
### To Perform Basic Management Activities:

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

Telvet-19216(1233 第時回) 新時回 昭朝時回 記明回	EU .	
EtherWAN 1848CF1   /Switch Nanagement/Basi	c Nanagement	NanagementSwitch   admin
	Basic Honagement	
(UpArrow) (DownArrow) Nove	<pre><enter>Select</enter></pre>	<esc>Previous</esc>

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>.



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

System Name

Step 3: Move to highlight Location and press <enter> if you want to change it.</enter>	Location
Step 4: Move to highlight <b>admin Password</b> and press <enter> if you want to change it.</enter>	admin Password
Step 5: Move to highlight guest Password and press <enter> if you want to change it.</enter>	guest Password
Stat Step 6: Move to highlight Statistics Collection and press <enter> if you want to change it, Disabled or Enabled</enter>	tistics Collection d.
R Step 7: Move to highlight Reboot-On-Error and press <enter> if you want to change it, Disabled or Enabled.</enter>	Reboot-On-Error
Rem Step 8: Move to highlight Remote Telnet Login and press <enter> if you want to change it, Disabled or Enable</enter>	note Telnet Login ed.
Step 9: Press <esc> to return to [Basic Management] screen when completed.</esc>	sic Management

### LAN PORT CONFIGURATIONS

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

· · · · · · · · · · · · · · · · · · ·	£	<u>. 18</u>
1888CF1   /Switch Nanagement/Basi 	c Namagement/LAH Port Configurations	admin
	LAN Port Configurations [Speed & Flow Control [Physical Address	
(Updaricou) (Downfarrou) House	(Enter>Select	CESC>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 Ports and press <Enter> to configure at one time. Or move to highlight each port and press <Enter> to configure individually.

Line 5	opend & Flow	Control	********			!
	erts: Speed-A		FC-0a			1
	1 (18/108H) 2 (19/108H)		FC-0a	(B000) (B000)		- 12
		: Speed-Auto	FC-On	(102H/FD	2	
		: Speed-Auto	FC-0a	(Down)		- 8
		: Speed-Auto		(Down)		- 40
	6 (18/1984)		FC-00	(Down)		- 1
		: Speed-Auto	FC-0a	(Down)		- 42
			FC-0a	(Down)		- 6
		: Speed-Auto : Speed-Auto				

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

1	Line	spe	ed & Flow Ca	owtrol		Port Settin	a Options	
I			s: speed-aut					
L	Port		(18/1084):		FC-0e	Speed & Fla		
I.	Port		(10/108H):		FC-0n	Admin. Cont	rol	
I.	Port		(10/100H):		FC-On+			
Ł	Port	- 4	(10/100H):	Speed-Auto	FC-0m	(100H/FD	>	1
Ł	Port		(10/1004):		FC-0m			1
L	Port		(10/1001):		FC-Ba	(Down)		1
Í.	Port	7	(10/1000):	Speed-Auto	FC-0n	(Down)		1
i.	Port		(10/1000):	Speed-Auto	FC-0m	(Down)		Î.
_								

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

Line Speed

Line	Spo	ed & Flow C	ontrol			Flow Cet1	+
IA11 I IPort		s: Speed-Au	to FC-Om Speed-Auto	ECEU		eed: Auto	-perm
Port			Speed-Auto			atrol: 0a	
Port			Speed-Auto	FC-0			
Port		(10/1001):	Speed-Auto	FC-0m	(000	m)	1
Port	5	(10/1000):	Speed-Auto	FC-0m	(D+-		
Port	6	{10/1000):	Speed-Auto	f'C-Dm	(0)	Speed Opti	0011
Port	7	(14/1000):	Speed-Aute	FC-0n	(D+-		
Port		(10/1804):	Speed-Auto	FC-0m	(0)	<i>muto</i>	
						10H/HD	_
					1	1100/FD	
						1108H/HD	

<Note> In the Speed Options, HD denotes half-duplex and FD denotes full-duplex.

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

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

Flow Control

Admin. Control

	mager	ent	ZLAN Port C	Senfiguration	s/Line Sp	eed 6. F	1em Cou	tre1	aß
1			ed & Flow (		i	Speed	6 F108	Catl 0	ption
	Port Port Port	1 2 3	(10/1004); (10/1004); (10/1004);	ito FC-On Speed-Auto Speed-Auto Speed-Auto	FC-0		Speed: ( Control		
	Pert			Speed-Auto Speed-Auto	FC-0n FC-0n	11	een/FD	)	1
	Port			: Speed-Auto : Speed-Auto	FD-0n FD-0n	1	Flow	atl Up	tions
11	Pert	8		: Speed-Auto	FC-On	(	Auto		
							off		

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

Step 9: Highlight All Ports and press <Enter> to configure at one time. Or 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.

Line	Spe	ed & Flow G	ontrel		Admin Status	Options	
		s: Speed-Mul					
Port		[10/1000]:			1ab		
Port		(10/1000):			Down		
Port		[10/100H]:					
Port		(19/1208):			*	2	чĿ.
Port		(10/1888):					
Port		(19/1220):					- X.
Port	4	[10/1000]:					
Port		(14/10en):	Speed-feet	o FC-On	(Down)		

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.

Po						
		s: Speed-Aut		50.00	(Dates)	- E
C	1			FC-On	(Down)	- 1
-						- 8
						- 1
						- 1
	<u>.</u>					- E
t	8	(10/1000):	Speed-Auto	FC-On	(Down)	
	ttttt	t 2 t 3 t 4 t 5 t 7	t 2 (10/1000): t 3 (10/1000): t 4 (10/1000): t 5 (10/1000): t 6 (10/1000): t 7 (10/1000):	t 2 (10/1000): Speed-Auto t 3 (10/1000): Speed-Auto t 4 (10/1000): Speed-Auto t 5 (10/1000): Speed-Auto t 6 (10/1000): Speed-Auto t 7 (10/1000): Speed-Auto	t 2 (10/1000): Speed-Auto FC-On t 3 (10/1000): Speed-Auto FC-On t 4 (10/1000): Speed-Auto FC-On t 5 (10/1000): Speed-Auto FC-On t 6 (10/1000): Speed-Auto FC-On t 7 (10/1000): Speed-Auto FC-On	t 2 (10/1000): Speed-Auto FC-Dn (Down) t 3 (10/1000): Speed-Auto FC-Dn (1000/FD ) t 4 (10/1000): Speed-Auto FC-Dn (Admin. Down) t 6 (10/1000): Speed-Auto FC-Dn (Down) t 6 (10/1000): Speed-Auto FC-Dn (Down) t 7 (10/1000): Speed-Auto FC-Dn (Down)

<Note> The other ports are set Admin Up: only Port 3 is linked at 100Mbps/Full-duplex; no link on rest ports (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.

/Resis Hemogeneol/Donsole Part Conf mt Configurations (15220) Wir Disabled mai: Disabled mai: Disabled g String: ATAF E0 L1 6C1 S0-1 6D2 whed	igurations admin		
: [15226] vl: Disabled trol: Disabled g String: AT&F ED L1 6C1 SD-1 6D2 wied			
: [15226] vl: Disabled trol: Disabled g String: AT&F ED L1 6C1 SD-1 6D2 wied			
vl: Disabled rol: Disabled g String: AT&F ED L1 &C1 SD-1 &D2 wiled			
φ String: AT&F E0 L1 &C1 S0-1 &D2 mled			
aled			
t Mask:	i		
Nove (Enter)Nadify	(ESC)Provinus		
	DNeve (Enter)Nedify	ONeve (Enter>Nedify (ESC)Provines	DHeee <enter>Hadlfy <esc>Provinus</esc></enter>

Flow Control e 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. Default Setup String configures the modem to auto answer. It works for all Hayes compatible modems. <Note> SLIP Step 6: Move to highlight SLIP and press <Enter> if you want to change it, Disabled or Enabled. If you enable SLIP, a message tells you that the console port becomes accessible only through the SLIP protocol after you <Note> 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

**Baud Rate** 

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.

### To Perform Advanced Management Activities:

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



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

### L2 SWITCHING DATABASE

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

### **IP NETWORKING**

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

### BRIDGING

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

### STATIC FILTERING

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

#### SPANNING TREE

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

#### SNMP

View and change the SNMP configuration.

#### **OTHER PROTOCOLS**

View and change GVRP and IGMP settings.

#### PORT TRUNKING

Assign a range of ports to trunking groups.

### PORT MIRRORING

Mirror one port to Port 1.

#### FILE TRANSFER

Send files using the TFTP or Kermit protocol.

### L2 SWITCHING DATABASE



#### **VLAN Perspective**

Step 1: Highlight [L2 Switching DataBase] from [Advanced Management] screen and press <Enter>.

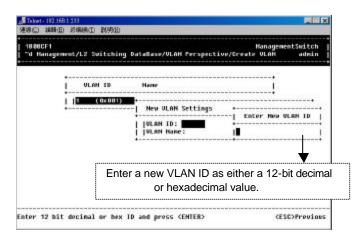
Step 2: The VLAN Perspective is highlighted. Press <Enter> to view VLAN info of the default VLAN or if you want to obtain a VLAN perspective instead of the default VLAN.

<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.

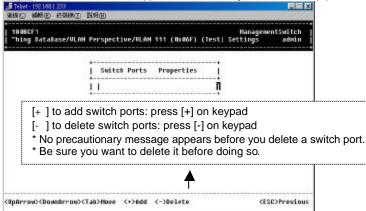
	ANG 把课程D 影响图
Beecf	1 Hanagement/L2 Switching DataBase/VLBK Perspective admin
	BLRH ID Name
	1 (0x001) Bofault
	The VLAN ID appears as both decimal and hexadecir
	values side by side in the VLAN Perspectiv screen.
	, , , , , , , , , , , , , , , , , , , ,

Step 3: Press [+] on keypad to enter **New VLAN Settings**. Enter new VLAN ID and VLAN name. Create VLAN



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

### Add New Switch Ports



Step 4: Press < Esc> and appears the following screen. Press [+] to add new switch ports to the newly created VLAN.

Step 5: Move to highlight a suitable option from **Port Options** and press <Enter>, e.g. Untagged Ports.

1868CF1 "e/ULAN Perspective/Dr	eate VLAN/VLAN 111 (OxOGF) (Test)	HanagementSwiitoh Settings admin
-	Suitch Ports Properties	Port Options 

Step 6: 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 5.

Switch Ports Properties	Select Untagged Ports
<u>L</u>	013 Furts   011 Secess Ports   Port 1   Port 2   Port 3   Port 3   Port 5   Port 5   Port 7   Port 7   Port 8

<Note> If you added untagged ports and want to now add tagged ports or forbidden ports, or vice versa, repeat Step 5 and Step 6.

Step 7: Press < Esc> to a previous screen as shown in Step 2.

Step 8: Delete VLAN: highlight a VLAN ID and press [-] to delete it. Note that you cannot delete the default VLAN.

NNE FANC ROB	
F1 /Mdvanced Hanagement/L2 Switching	HanagementSwitch   BataBase/VLAN Perspective admin
ULAN ID Name	
<mark>1 (0x001) Default</mark>	
	Default ULBH Cannot Be Deleted
	age appears before you delete
	age appears before you delete d the VLAN before doing so.
w key to continue	(ESC)Previou

Step 9: Press <Esc> to a previous screen as shown in Step 2 when completed with deleting a VLAN.

Step 10:Highlight an existing VLAN and press <Enter> to view VLAN information.

Telort-192.168.1.233 3839 (2) 4941 (2) 455	and rate		
1808CF1 "ment/Advanced	Nanagement/	"L2 Switching Data	NanagementSwitch Base/ULAH Porspective admin
1	WLAN ID	Nane	
1 10	(8x881)	Befault	ULAH Info
			MLAN Activities   GLAN Settings
Iphrow> <doundr< td=""><td>rou&gt;Hove <e< td=""><td>inter&gt;Select</td><td><pre><cst>Previous</cst></pre></td></e<></td></doundr<>	rou>Hove <e< td=""><td>inter&gt;Select</td><td><pre><cst>Previous</cst></pre></td></e<>	inter>Select	<pre><cst>Previous</cst></pre>

Step 11: Move to highlight VLAN Activities and press <Enter> to view or search activity information.

Delete VLAN

VLAN Info

1888CF1 "magement/L2 Suit	tching DataBase/	LAN Perspective/VLAN Activ	NanagementSwitch ities admin	
Pert	1 (OxOO1) Defau Count: 1 NGC Address Cour			
20008   20008   20008   20008   20108   20108	NOTESSES 1402532 14551403 19905403 19905423 1545304 1545354 1554355 1555395 15540758	VLAH Domain    Port 3		

Step 12:Return to Step 6. Move to highlight VLAN Settings and press <Enter>. The screen appears as shown in Step 4 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 26, and press <Enter>.

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

### MAC Address Perspective

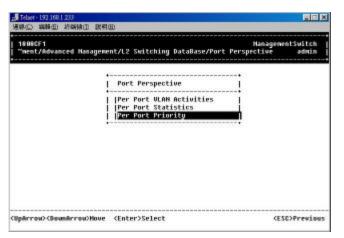
Step 1: Move to highlight [MAC Address Perspective] from [L2 Switching DataBase] screen on page 26, and press <Enter>.

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 26, and press <Enter>.

You can view VLAN activities and RMON statistics here.



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

Per Port VLAN Activities

- Telest-192.1681.233 第88 (① \$68 (④ #268 (① ]]2 (考明)	
1808CF1   Nan "12 Switching DataBase/Port Perspective/Per Port VLAN Activit	agementSwitch ies admin
Per Port ULAN Activities	
WorkPortPortPortPortPortPortPortPortPortPort	
COpArrow>COsumArrow>Hove <enter>View</enter>	(ESC)Previous

Step 3:Move to highlight a port and press <Enter>.E.g. select Port 1 to view corresponding VLAN Activities.

「「「「「「」」」 「「「」」」 「「」」 「「」」 「「」」 「「」」 「	
1808CF1 "hing bataBase/Port Perspective/Per	NanagementSwitch Port VLAN Activities/Port 1 admin
Port 1   VLAH Count: 0   Total MAC Addres	s Count: 0
IMPC         ###C         ###C <th< th=""><th>ULAN Henbership</th></th<>	ULAN Henbership

- Step 4: View or search by MAC address individually.
- Step 5: Press < Esc> to return to a previous screen as shown in Step 1.
- Step 6: Move to highlight **Per Port Statistics** and press <Enter>.

▲Teltet-1921681233 建築② 編集② 結婚後① 配用④	
1808CF1   "ment/L2 Switching DataBase/Port Perspe	NanagementSwitch   ctive/Per Port Statistics admin
Per Port Stati  Port 2  Port 3  Port 4  Port 5  Port 6  Port 6  Port 8	sties
<enter> to vie [R] to reset co</enter>	ew by port ounters for all ports
<pre>CUpArrow&gt;<downarrow>Hove <enter>Wiew <r>R</r></enter></downarrow></pre>	eset Counters <esc>Previous</esc>

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.

**Per Port Statistics** 

	1808CF		NanagementSwitch ataBase/Port Perspective/Per Port Statistics/Port 1 admin	
-	Port	1 Sta	tisties	
1	Total	No. 0	f Bytes Received: 🗃	
			f Packets Becelved: 0	
	Total	No. 0	f Broadcast Packets Received: 0	
	[Total	No. 0	f CRC/Alignment Errors Received: 0	
	Total	No. 0	f Undersize Packets Received: 0	
	Total	No. 0	f Oversize Packets Received: 0	
	Total	Ho. 0	f Collisions: 0	
	Total	Ho. 0	f 64-byte Packets Received: 0	
	Total	No. 0	f 65 to 127-byte Packets Received: 0	
	Total	No. 0	f 128 to 255-byte Packets Received: 0	
	Total	Ho. 0	f 256 to 511-byte Packets Received: 0	
	Total	Ho. 0	f 512 to 1023-byte Packets Received: 0	
	Total	No. 0	F 1.0 to 1.5-kbyte Packets Received: 0	
w	Total.	No. 0	f Bytes Transmitted: 0	

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

 Totact-1921031233
 Image: State 1

 1906051
 1908051

 "genent/L2 Switching DataBase/Port Perspective/Per Port Priority admin

 I Per Port Priority

 I Port 1 : 0

 I Port 2 : 0

 I Port 3 : 0

 I Port 5 : 0

 I Port 7 : 0

 I Port 8 : 0

Step 9:Move to highlight a port and press <Enter>.E.g. select Port 1 to view corresponding priority level.

909CF1 gement/L2 Switc	hing BataBase/Port Perspective/Per Port Priority	admin
	Per Pert Priority     Pert 1 : E     Pert 2 : 0     Pert 3 : 0   Priority     Pert 4 : 0       Pert 5 : 0     0       Pert 6 : 0     1     Pert 7 : 0   2   Pert 8 : 0     4     5   6	

Per Port Priority

#### **IP NETWORKING**

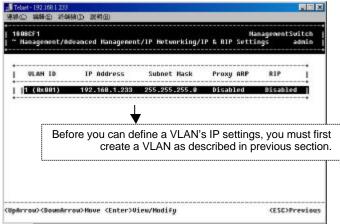
Step 1: Move to highlight [IP Networking] from [Advanced Management] screen and press <Enter>.

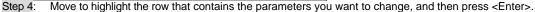
### **IP & RIP Settings**

Step 2: Highlight [IP & RIP Settings] from [IP Networking] and press <Enter>.

連線(2) 編載(2) 結構幾(1)	原料田	1541577
1888CF1 /Switch Nanagement/	/Advanced Hanagement/IP Networking	NanagementSwitch admin
	IP Notworking    IP & AIP Sottings    ARP Table    Routing Table    Routing Table   UHCP Gateway Sottings    Ping	
Uphrrou) (Doumkrrou))	Nove (Enter>Select	(ESC)Previous

Step 3: The screen shows a list of VLAN IDs, IP addresses, subnet masks, proxy ARPs, and RIPs currently defined.



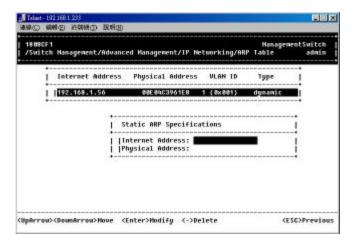




ARP Table Setting Step 1: Move to highlight [ARP Table] from [IP Networking] and press <Enter>. The screen shows the ARP table entries that have been defined or learned.

i	Internet	Address	Physical	Address	WLAN	ID TU	pe 1	ŝ.
1	192.168.		ODEONE		1 (0:88		anic	
0.7								

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



Add/Delete Static ARP Table Entries

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.

Telest 1921(811233 連邦(二) 編輯(二) 新編(和) 武将	۱œ		
•   1808CF1   /Switch Hanagement/Adv	anced Namagement/IP Networking/ARP	Hanagener Table	tSwitch admin
Internet Addres	ss Physical Address WLAN ID	Type dunamic	1
1 1921 1061 1930		ujiani	
	Search Options		
	Internot Address  Physical Address		
(Upikrrow) (DownArrow) Hove	<enter>Select</enter>	<esi< td=""><td>&gt;Previous</td></esi<>	>Previous

 Routing Table

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

	Network	Mask	Gateway	Metric	VLAN	Туре	Protoco
Ī	0.0.0.0	255.0.0.0	0.0.0.0	16		Martian	Local
	127.0.8.8	255.0.0.0	0.0.0.0	16	1	Martian	Local
	192.168.1.8	255.255.255.8	192.168.1.233	1	8x881	Direct	Local.
	192.168.1.8	255.255.255.255	192.168.1.255	1	8x881	Martian	Local.
	192.168.1.233	255.255.255.255	192.168.1.233	1	8x 881	Myself	Local
	192.168.1.255	255.255.255.255	192.168.1.255	1	8x881	Bcast	Local
	224.0.0.0	224.0.0.0	0.0.0.0	16		Martian	Local
	224.0.0.0	248.8.8.8	0.0.0.0	16		Heast	Local
	224.8.8.9	255.255.255.255	0.0.0.0	16		Heast	Local
	255.255.255.255	255.255.255.255	255,255,255,25	5 16		Bcast	Local

**Routing Table Columns** 

Column		Description
Network	The IP subnet	work address to which the switch can route ets.
Mask		subnetwork mask to which the switch can packets.
Gateway	The IP addres	s of the router at the next hop.
Metric		f hops needed between the switch and the nation network.
VLAN	The VLAN wit	hin which the gateway or destination resides.
Туре		/pe for the IP subnetwork. There are six IP 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.

Hetwork	Nask		Gateway	Netric	VLAH	туре і	Protece
0.0.0.0	255.0.0.0		0.0.0.0	16		Martian	Local
127.0.0.0	255.0.0.0	100 - N	0.0.0.0	16	10000	Martian	Local
192.168.1.8	255.255.25	5.8 1	92.168.1.233	1 1	8x881	Direct	Local
192.168.1.0	255.255.25	5.255	92.168.1.255	1	8×881	Martian	Local
192.168.1.233	255.255.+-			+ 1	8×881	Hyself	Local
192.168.1.255	255.255.1	Route	Options	1.1	8x881	Bcast	Local
224.0.0.0	224.8.8.+-			+ 16		Martian	Local
224.0.0.0	240.0.0.1	Defaul	t Gateway	16		Hcast	Local
224.0.0.9	255.255.	Static	Route	1 16		Heast	Local
255.255.255.255				+5 16		Beast	Local

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

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

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>.

VLAN	ID	IP	Address	DHCP	Cateway	Nax	Hops	Delay	Servers	Relay
1 (0.	(881)	192.	168.1.23	3 01:	the lotter					
1. 1. 1. 1.										

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

r1 Hent/Advanced Hanagement/IP Hetworking/DHCP Ga	teway Settings ad
+	······
DHCP Gateway Settings	1
VLAH ID: 1 (0x001)    IP Address: 192.168.1.233	1
DHCP Catoway: Disebled  Haximum Hops: 0  Delay (sec): 0	
Preferred Server:   Preferred Server:	
Preferred Server:	

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. Press [-] on keypad to delete a relay IP.

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

Step 4: Move to highlight **DHCP Gateway** and press <Enter>. Decide to have it Disabled or Enabled.

御線() 私料() お田林() 私用) 18880F1 Tagenent/Advanced Hanagement/IP Networking	-/NWCP Category Softings ada	
DMCP Cateway Settings	promotor extension section in the section of the se	
ULAH ID: 1 (4x401)   P #ddress: 102.168.1.233    BMCP Extense: 0  Belay (sec): 0  Preferred Server:  Preferred Server:  Preferred Server:  Preferred Server:	DHCP Gateway Options    Jiseblod   Enablod	
UpArrow> <doumarrow>Howe <enter>Select</enter></doumarrow>	<esc>Previ</esc>	

Step 5: Move to highlight Maximum Hops and press <Enter> Step 6: Enter decimal number (1-16) to configure the maximum number of hops. Step 7: Move to highlight Delay (sec) and press < Enter>. Step 8: Enter decimal number (0-65535) configure the delay in seconds. 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.

**DHCP Gateway Options** 

Maximum Hops

Delay (sec)

Preferred Server

38

## **Ping Settings**

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

Telset - 192.108.1.233 連邦(2) 編制(2) 約時除(2) 原料(2)	Đ	
1808CF1 /Switch Nanagement/Adva	nced Hanagement/IP Hetworking/Ping	admin
	Ping  Host:  Count: 1  Size (bytes): 6%  Timeout (sec): 1	
Uphrrow) (Dounitrrow) Hove	<enter>Hodify</enter>	(ESC)Previous

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

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

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>.

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

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

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

Step 1: Move to highlight [Bridging] from [Advanced Management] screen, and press <Enter>.

■ Teles-192108.1.233 単体() 編集員 ビ網条() N(特徴)	
1808CF1 /Suith Hanagement/Advanced Hanagement/Bridging Parameters	admin
Bridging Parameters	
Aging Time (seconds): 2000    Flood Limit For All ports (pkt/s): 468	

Host

Count

Size (bytes)

Timeout (sec)

## **Aging Time**

Move to highlight [Aging Time] and press <Enter>. Step 2: Enter a decimal number as bridge aging period in seconds. Or, enter 0 for no aging.

#### **Flood Limit for All ports**

Step 3: Move to highlight [Flood Limit for All ports] and press <Enter>. Enter a decimal number as flood limit in packets per second. Or, enter 0 for no limit.

**STATIC FILTERING** Step 1: Move to highlight [Static Filtering] from [Advanced Management] screen, and press <Enter>.

Teleft-1921081233 連線企) 編版ED 終時	100 N930	
1808CF1 /Switch Hanager	ment/Advanced Hanagement/Static Filtering	admin
	Static Filtering       <mark>Source Wile Address Out-Filters</mark>    Destination HMC Address Out-Filters	
Upikrrov> <downarr< td=""><td>row&gt;Nove <enter>View/Nodify</enter></td><td><esc>Previous</esc></td></downarr<>	row>Nove <enter>View/Nodify</enter>	<esc>Previous</esc>

## Source/Destination MAC Address Out-Filters

Step 2: Move to highlight source MAC addresses or destination MAC addresses for static filtering, and press <Enter>.

and and read and	
188671 "agement/blowsced Management/Static Filtering/SRC HML But-Filter	admin
i SHE HAG Dut-Filter i i N	
【 Nave (2018)23) 「相思○」 相思う」 記録(2) 2002) 「1920(71) 「Syment22005naverd Hasagement/Static Filtering/857 HWG Out-Filt	er atsia
OST MBE But-filter	
dresses, the SRC MAC Out-Filter appears. C addresses, the DST MAC Out-Filter appears	
Cliphersono Chausadersono Hause (+>Helatar CloSevarch	(ESC)Prestaux

## Add/Delete/Search

Step 3: 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

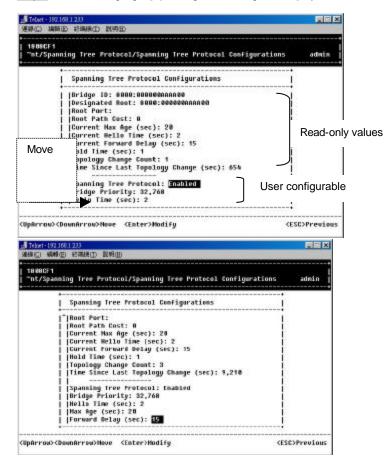
## SPANNING TREE FUNCTIONS

* No precautionary message appears before you delete a specific MAC address	and press <enter>.</enter>
from being filtered.	
* Be sure you want to delete it before doing so.	

·····································	構成 <b>製物</b> 類	
,   1808CF1   /Switch Manager	went/Advanced Hanagement/Spanning Tree Protocol.	ədmin
	Spanning Tree Protocol	
<pre>CUpArrow&gt;<downarr <="" pre=""></downarr></pre>	row>Nowe <enter>Select</enter>	<esc>Previous</esc>

## **Spanning Tree Configurations**

Step 2: Move to highlight [Spanning Tree Configurations] if you want to change Spanning Tree Protocol Configurations.



- Step 3: Press <Enter> to enter Spanning Tree Options. Decide to have it Disabled or Enabled.
  Step 4: Move to highlight Bridge Priority and press <Enter>. Type a decimal number for the bridge priority and press <Enter>.
- Step 5: Move to highlight **Hello Time** and press <Enter>.

Spanning Tree Protocol

**Bridge Priority** 

Hello Time (sec)

Type a decimal number for the hello time and press <Enter>.

Step 6: Move to highlight Max Age and press <Enter>.

Type a decimal number for the max age

Step 7: 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>.

Spanning Tree Port States	
***************************************	
Port 1: Disabled (Link Down)	
Port 2: Disabled (Link Down)      Port 3: Forwarding	
Port 4: Disabled (Link Down)	
Port 5: Disabled (Link Down)	
Port 6: Disabled (Link Down)	
Port 7: Disabled (Link Down)	
Port 8: Disabled (Link Down)	

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:
 Move to highlight [Spanning Tree Path Costs] if you want to change the path cost, and press <Enter>.

888CF1 Switch Hanagement	/Advanced Nanagement/Spanning Tree Protocol	admin
	Spanning Tree Path Costs	
	[#11 Ports: 19	
	Port 1: 19	
	Port 3: 19 (Port 4: 19	
	Port 5: 19	
	Pert 6: 19      Pert 7: 19	
	Port 8: 19	
	•	

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: Move to highlight [Spanning Tree Port Priorities] if you want to change the priority level per port, and press <Enter>.

Max Age (sec)

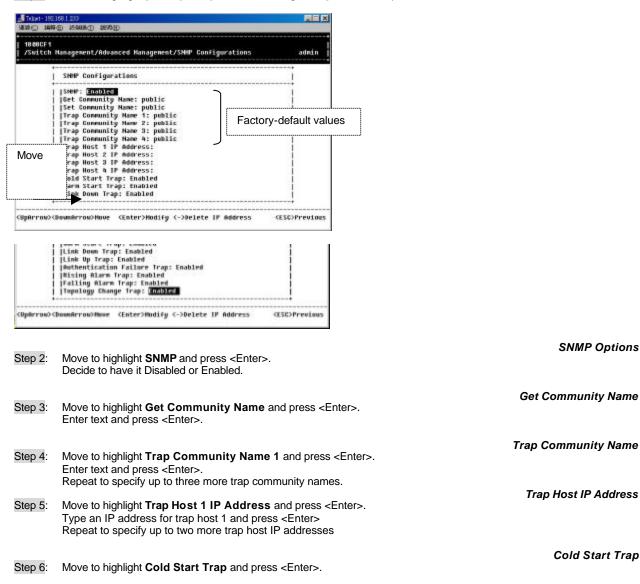
Forward Delay (sec)

Spanning Tree Path Priorities	
All Ports: 128	
Port 1: 128	
Port 2: 128	
Port 4: 128	
Port 5: 125	
Port 6: 128	
Port 7: 120	
Port N: 126	

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**

Step 1: Move to highlight [SNMP] from [Advanced Management] screen, and press <Enter>.



Step 7:	Move to highlight <b>Warm Start Trap</b> and press <enter>. Decide to have it Disabled or Enabled.</enter>	Warm Start Trap
Step 8:	Move to highlight <b>Link Down Trap</b> and press <enter>. Decide to have it Disabled or Enabled.</enter>	Link Down Trap
Step 9:	Move to highlight <b>Link Up Trap</b> and press <enter>. Decide to have it Disabled or Enabled.</enter>	Link Up Trap
Step 10	Move to highlight <b>Authentication Failure Trap</b> and press <enter>. Decide to have it Disabled or Enabled.</enter>	Authentication Failure Trap
Step 11	Move to highlight <b>Rising Alarm Trap</b> and press <enter>. Decide to have it Disabled or Enabled.</enter>	Rising Alarm Trap
Step 12	Move to highlight <b>Falling Alarm Trap</b> and press <enter>. Decide to have it Disabled or Enabled.</enter>	Falling Alarm Trap
Step 13	Move to highlight <b>Topology Change Trap</b> and press <enter>. Decide to have it Disabled or Enabled.</enter>	Topology Change Trap

OTHER PROTOCOLS Step 1: Move to highlight [Other Protocols] from [Advanced Management] screen, and press <Enter>.

Other Protocol Settings	
CURP: Disabled	
•••••••	

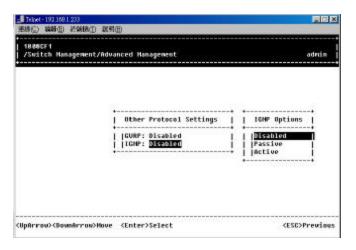
Step 2: Move to highlight **GVRP** and press <Enter>. Decide to have it Disabled or Enabled.

GVRP

18486F1   /Switch Management/Adv.	anced Hanagement		edmin
	Other Protocol Settings  CORP: Disebled  IGMP: Disebled	GMMP Options   GMMP Options   [Gisebled	
CEphrrow-ClownArrow/Hove	(Enter)Select	<est>Pr</est>	vvious

IGMP

Step 3: Move to highlight **IGMP** and press <Enter>. Decide to have it Disabled or set in either Passive or Active mode.



#### PORT TRUNKING

Step 1: Move to highlight [Port Trunking] from [Advanced Management] screen, and press <Enter>.



Step 2: Move to highlight a trunk group to which you want to assign ports, and press <Enter> to enter Select Range.

1888CF1	臣 紀朝秋臣 記明臣 Anagement/Advanced Hanagement,	∕Pert Trunking	adein
	Trunk Group 1    Trunk Group 2   Trunk Group 3   Trunk Group 3   Trunk Group 4	Perts	Select Range
(Updrrow) (	Down#rrow>Nove <enter>Modify</enter>		<esc>Previous</esc>

Step 3: Press <Enter> to select each trunk port.

Trunk Group     Ports     Select Trunk Ports       Irunk Group 1     2       Trunk Group 3     1 3       Trunk Group 4     5       Irunk Group 4     6	1808CF1 /Switch	lanagement/Advanced Nanagemen	 admin
Trunk Group 2   3   Trunk Group 3   4			 Select Trunk Ports
		Trunk Group 2 Trunk Group 3	234556
			7

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

PORT MIRRORING Step 1: Move to highlight [Port Mirroring] from [Advanced Management] screen, and press <Enter>. You can mirror one port to Port 1.

1888CF1 /Switch Hanage	ment/Advanced Nanagement/Part Hirroring	sdnin
	Hirror To Hirror From Hode       <mark>Port 3</mark>	
(Upferrow)-(DownAr	row>Hove <enter>Select</enter>	(ESC)Previous

Step 2: Press <Enter> to enter Port Mirroring Options.

- Teller - 152 (093) 233 連邦公 編纂(正) 乾燥(秋江) 数約(記)		
18882F1 /Suitch Hanagement/Advanced Hanagement/Po	rt Hirroring	admin
Hirrer Te Hirror Fr    2015 1	Port Mirroring Options on   Mirror From:   Mirror Mode:	
		Previous

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

**Mirror From** 

		i	Hirro	r Fron	Options
Mirror    Perk 1	la Mirror Fran	Port Hirr Hirror Fr Hirror Ho	Port Port Port Port Port Port	2 3 4 5 6 7 8	

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

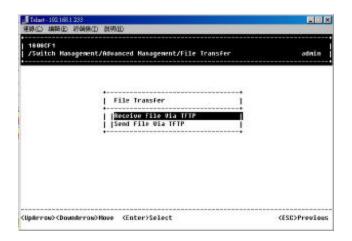
Step 5: Move to select Mirror Mode. From Mode Options, decide whether the port to be mirrored from will be receiving or transmitting.

Step 6: Press <Esc> when completed

## SENDING AND RECEIVING FILES

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



Receive File Via TFTP

Step 2	Move to highlight <b>Receive File Via TFTP</b> and press <enter>.</enter>
Olop Z.	

IQC)编辑图 检秘密D 脱钙图	
1808CF1 "agement/Hdvanced Hanagement/File Transfer/Receive File U	ila TFTP admin
Receive File Via TFTP	
File Hame:	
•	

- Step 3: If the default **File Name** is not the one you intend to receive, press <Enter>. Type the name of the file you intend to receive and press <Enter>.
- Step 4: Move to highlight **IP Address** and press <Enter>. Type the IP address from where the file will be obtained.
- Step 5: Press < Esc> when completed.
- Step 6: A dialog box appears to ask if you want to transfer file now.

   Highlight [Yes] and press <Enter> to start file transfer.

   Or move to highlight [No] and press <Enter> to deny it.

   Or press <Esc> to exit.

Send File Via TFTP

Step 7: Move to highlight Send File Via TFTP and press <Enter>.

■ Telast - 1921(68:1:23) - 通路(1): 統約(2): 任法(第11): 記(約32)	
1806€F1   ^Hamagement/Advanced Hamagement/File Transfer/Send File ⊎La TFT	P admin
Send File Wia TFTP      File Name: <mark>SVU BonSig. File</mark>      P Address:	
<ul><li>(UpArrow)<downarrow>Howe</downarrow></li></ul>	<pre><esc>Confirm</esc></pre>

Step 8: 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>.

1808CF1 "Nanagement/Advanced Nanagement/File Trans	fer/Send File Via TFTP	admin
Send File Via TFTP   [File Name: <mark>S/V Config. Fil</mark>   IP Address:	Select File Type SAV Config. File HAV Config. File Debuger Monitor File Runtime File Web Browser File	
pArrow)(DoumArrow)Hove (Enter)Hodify		C>Confirm

Step 9: Repeat Step 4-6.

## 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.

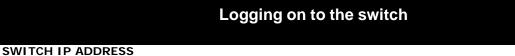
## Reboot

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.



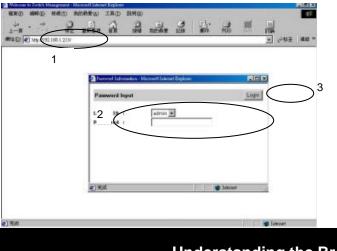
In your web browser, specify the IP address of the switch.

## LOGIN ID

Enter the factory default login ID: admin.

## PASSWORD

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



## **Understanding the Browser Interface**

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

In addition, you can click the RJ-45 connectors 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.

Point	
click	
	ŝ

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	8 8 4 8 8 8 8		45 с
			<u> </u>
	dosnosed		)
Basic Satup General		Update Setting	
Bardwarn Devision Hardwarn Configuration motivare Nevision Firmwarn Devision	Enknown wim6000.rnm wi.ing (09-10-00) wi.ing (09-10-00) wi.igio.004-10-00)	1	
Swrtes Name Location		-	
Statistic Collection Reboot-On-Error Remote Telmet Login	Drabie - Drabie - Erable -		
		2	
1		100	

## 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.

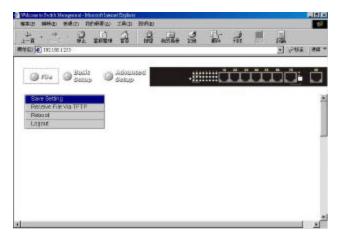
### ADVANCED SETUP

Perform MAC address management / IP networking / per port statistics / static MAC filters / SNMP / port trunking / port mirroring...tasks.

## **Performing File Activities**

## To perform File Activities:

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**

Reboot

Logout

## 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! .

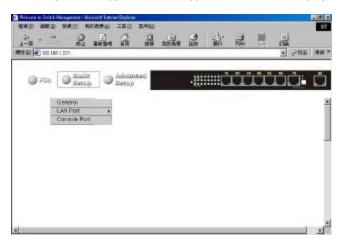
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- Step 1: Click Reboot on the [File] display.
- Step 2: When you click it, a message asks "Are you sure you want to save setting? ", click OK to save it or Cancel to abort it.
- Step 1: Click Logout on the [File] display.
- Step 2: When you click it, 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**

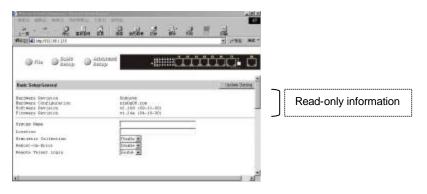
## To perform Basic Setup Activities:

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 49 when you first access the switch browser interface.



Step 2:	Click in System Name text bo>	on the field of Basic Setup/General.	System Name
Step 3: System		k, or replace the current system name with a new one ManagementSwitch	9.
Step 4:	Click in <b>Location</b> text box on th	e field of Basic Setup/General.	Location
Step 5: Locatio		nk, or replace the current location name with a new or EtherWAN Taiwan	ne.
Step 6:	To enable or disable statistics c menu.	ollection at the switch, click the appropriate option from	Statistic Collection m Statistic Collection drop-down
Stop 7	To allow as provent the ewitch f	rem repeating when a fatal array is datasted, aligh the	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.

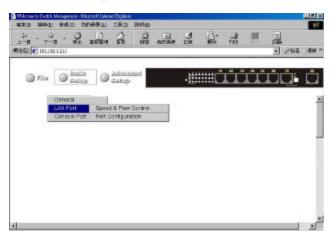
Remote Telnet Login Enable .

Step 9: Click Update Setting. A confirmation window appears as show below.



#### LAN Port Configuration

Step 1: To access the LAN configuration parameters, click **Basic Setup** button first and then point to **LAN Port** and click a suitable option.



Step 2: Click Speed & Flow Control to view the line speed and flow control for all ports.

Speed & Flow Control

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	*
ct Speed Type Link Status Speed Status Puples Status Flow Control Status SUDB hps	
30.08 bps 3own 30.4 30.4 30.4	
- 2008 tips 2008 8/A 8/A 8/A - 5008 bps 2008 30/A 20/A 30/A	

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

## Port Configuration

Step 3: Click Port Configuration to access the configuration information for all ports.

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2	3008 hpp 3008 hpp	Enoble				
		Enoble Enoble	Anto	Anto	Enable	

Step 4: In the **Port** column, click the port you want to configure. E.g. click Port 1.

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Options Play Control Options	Admin Settin		Flow Control Options
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#### Step 5: 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.
- Step 6: Click the drop-down menu under Speed/Duplex Options if you want to change the line speed and duplex settings.
- <Note> Auto: allows the switch to automatically ascertain the line speed and duplex mode. All the other selections force the port to use a specific line speed and duplex mode. 'HD' denotes half-duplex mode; FD denotes full-duplex mode.
- Step 7: Click the drop-down menu under Flow Control Options if you want to configure 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 8: Click Update Setting when completed. A confirmation window appears.

<Note> For your convenience, click the LEDs on the image of the switch and view its current speed, duplex, and link activity.

## **Console Port Configuration**

Step 1: To access the console port configuration parameters, click Basic Setup button first and then click Console Port.

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SLIP Address	2.3.5							
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**Baud Rate** Step 2: Click an appropriate speed from Baud Rate drop-down menu on the field of Basic Setup/Console Port Configuration. Auto: allows the switch to autobaud between 9600bps and 115,200bps <Note> All the other selections force a specific console baud rate. Flow Control Step 3: Click a flow control method from Flow Control drop-down menu. Modem Control Step 4: 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 If you enabled a modem connection to the console port, click in Modem Setup String Flag drop-down menu to decide Step 5: whether you want to use a Default\_Setup\_String or Custom\_Setup\_String. Modem Setup String Step 6: If you select Custom\_Setup\_String, enter the string in the **Modem setup String** text box. The default modem setup string configures the modem to auto answer. It works for all Hayes-compatible modems. <Note> SLIP Step 7: Click an appropriate option from SLIP drop-down menu to disable or enable SLIP. SLIP Address Step 8: If you enable SLIP, type a SLIP address in SLIP Address text box. SLIP Subnet Mask Step 9: If you enable SLIP, type a SLIP subnet mask in SLIP Subnet Mask text box. Step 10:Click Update Setting when completed. A confirmation window appears. If you enable SLIP, a message tells you that the console port becomes accessible only through the SLIP protocol after you click <Note> 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**

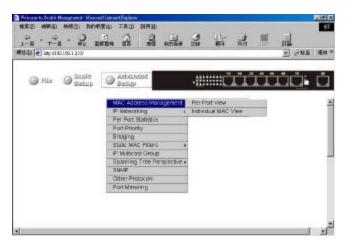
## To perform Advanced Setup Activities:

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

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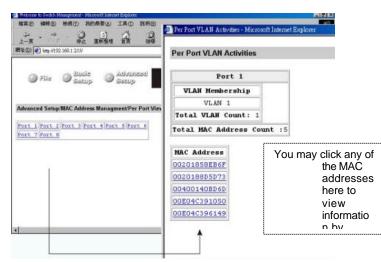
### **MAC Address Management**

Step 1: From the Advanced Setup menu, point to MAC Address Management to view VLANs and their associated MAC addresses.



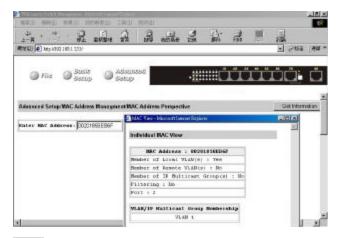
Per Port View

Step 2: Click **Per Port View** first and click on the port that you want to view. Close the **Per Port VLAN Activities** window when finished viewing.



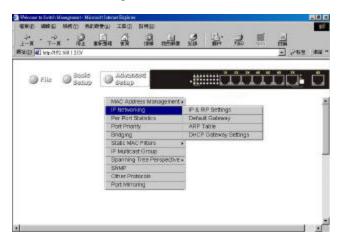
Individual MAC View

- Step 3: From the Advanced Setup menu as shown in Step 1, point to MAC Address Management. Click Individual MAC View then.
- Step 4: Click in the Enter MAC Address text box and type the MAC address that you want to view. Then click on the Get Information button.



Step 5: 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.

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

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RIP Setting	Direct le 🖮		
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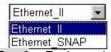
Step 3: To change the IP Address, click in the text box and type a new address. Alternatively, you can use the Delete IP button to delete the IP address.

IP Address	192.168.1.233	Delete IP
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Step 4. To change the 1	SUDITET WASK, CIICK III THE TEXT D	wx.ano.type.a.new. <sup>i</sup> address

IP Subnet Mask

255.255.255.0

Step 5: To change the Frame Type, click a value from the drop-down list.



Step 6: To change the **BOOTP** selection, click a value from the drop-down list.



Step 7: To change the Proxy ARP selection, click a value from the drop-down list.



Step 8: To change the **RIP Setting**, click a value from the drop-down list.



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



Step 10:Specify whether you want to advertise routes.



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



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



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



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



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



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



Step 17:When you finished with these selections, click Update Setting. A confirmation window appears. Click to close the confirmation window.

Step 1: Click the Advanced Setup button, and point to IP Networking from the selection menu. Click Default Gateway to access gateway settings.

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- Step 2: For Default Gateway, click in the text box and type the IP address of the router at the next hop.
- Step 3: For Metric, click in the text box and type the number of hops needed between the switch and the destination network.

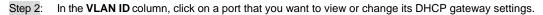
  ARP Table
- Step 1: Click the Advanced Setup button, and point to IP Networking from the selection menu. Click ARP Table to view ARP table settings. The information here is read-only.

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DHCP Gateway Settings

Step 1: Click the Advanced Setup button, and point to IP Networking from the selection menu. Click DHCP Gateway Settings to view and/or change settings.

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Step 3: For DHCP Gateway, click the drop-down list and decide to have it Disabled or Enabled.

Step 4: For Maximum Hops, click in the text box and type a decimal number to configure the maximum number of hops.

- Step 5: For **Delay**, click in the text box and type a decimal number to configure the delay in seconds.
- Step 6: For **Preferred Server**, 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.

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## **Port Priority**

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

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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

Step 1: To access bridging parameters, click the Advanced Setup button, and then click Bridging from the selection menu.

Step 2:	Click the drop-down list for <b>Disabled (No</b>
Step 3:	Click the text box and type a decimal num
Step 4:	Click the drop-down list for No Flooding, C
Static M To acces point to S	Click the text box and type a decimal num AC Filter is the static MAC filter parameters, click the Static MAC Filter in the selection menu.
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Step 1:	Click Source MAC Address.

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

Source MAC Address

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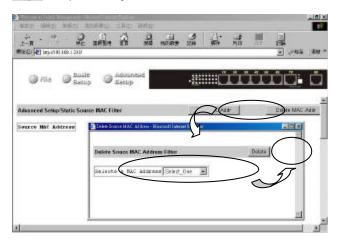
Aging Options	Click the drop-down list for <b>Disabled (No Aging)</b> or <b>Set Aging Time</b> .	ep 2:
Aging Time	Click the text box and type a decimal number as bridge aging period in seconds.	ep 3:
Flood Limit	Click the drop-down list for No Flooding, Controlled Flooding, Unlimited Flooding.	ep 4:
Flood Limit for All Ports	Click the text box and type a decimal number as flood limit in packets per second. <b>IAC Filter</b>	ep 5: I <b>tic M</b>

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		Other Protocols		
		Port Mirroring		

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- 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. Then click the Add button.
- Step 4: A confirmation window appears. Close the confirmation window.
- Step 5: If you no longer need a source MAC address, click Delete MAC Addr button to delete it in Step 2.



- Step 6: 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. Then click the Delete button.
- Step 7: A confirmation window appears. Close the confirmation window.
- 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 2-4 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 5~7 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.

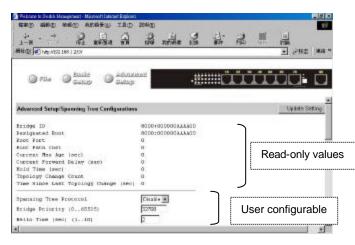
#### **Spanning Tree Perspective**

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

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Configurations

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



Step 2: For Spanning Tree Protocol, specify whether you want to have it Disabled or Enabled by clicking the drop-down list.

Step 3: For Bridge Priority, click in the text box and type a decimal number between 0 and 65535.

Step 4: For Hello Time, click in the text box and type a decimal number between 0 and 10.

Step 5: For Max Age, click in the text box and type a decimal number between 6 and 40.

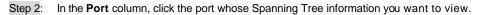
Step 6: For Forward Delay, click in the text box and type a decimal number between 4 and 30.

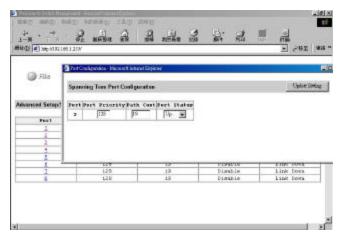
Step 7: Click Update Setting. A confirmation window appears. Close the confirmation window.

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.

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- Step 3: For **Port Priority**, 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.
- Step 4: For **Path Cost**, click in the text box and type a decimal number as a new path cost value.
- 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. 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.

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Trap Community Masse 1	public					
Trap community Name 4	public	-				
Trap Root 1 17 Address						
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Step 1:	For <b>SNMP</b> , specify whether it is Disabled or Enabled by clicking the drop-down list.	SNMP
Step 2:	For Get Community Name, click in the text box and type a get community name.	Get Community Name
Step 3:	For <b>Set Community Name</b> , click in the text box and type a set community name.	Set Community Name
Step 4:	<i>Tr</i> For each <b>Trap Community Name</b> , click in the text box and type a trap community name.	ap Community Name
Step 5:	For each <b>Trap Host IP Address</b> , click in the text box and type a IP address for trap host 1~4.	Trap Host IP Address
Step 6:	For <b>Cold Start Trap</b> , specify whether it is Disabled or Enabled by clicking the drop-down list.	Cold Start Trap
Step 7:	For Warm Start Trap, specify whether it is Disabled or Enabled by clicking the drop-down list.	Warm Start Trap
Step 8:	For Link Down Trap, specify whether it is Disabled or Enabled by clicking the drop-down list.	Link Down Trap
Step 9:	For Link Up Trap, specify whether it is Disabled or Enabled by clicking the drop-down list.	Link Up Trap
Step 10:	Authen For Authentication Failure Trap, specify whether it is Disabled or Enabled by clicking the drop:	ntication Failure Trap down list.
Step 11:	For <b>Rising Alarm Trap</b> , specify whether it is Disabled or Enabled by clicking the drop-down list.	Rising Alarm Trap
Step 12:	For Falling Alarm Trap, specify whether it is Disabled or Enabled by clicking the drop-down list.	Falling Alarm Trap
Step 13:	:For <b>Topology Alarm Trap</b> , specify whether it is Disabled or Enabled by clicking the drop-down I	<b>Topology Alarm Trap</b> ist.
	Click Update Setting when completed. A confirmation window appears. Close the confirmation	Update Setting

#### **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.

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 Step 1:
 For GVRP, specify whether it is Disabled or Enabled by clicking the drop-down list.
 GVRP

 Step 2:
 For IGMP, specify whether it is Disabled or Passive or Active by clicking the drop-down list.
 IGMP

Update Setting Step 3: Click Update Setting when completed. A confirmation window appears. Close the confirmation window.

#### Port Mirroring

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

Click Port 1 in the Mirror To column.

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Mirror From

Step 1: 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 2: In the **Mirror Mode** column, specify whether the "mirrored from" port will be receiving or transmitting data by clicking the drop-down list.

Update Setting

Step 3: Click **Update Setting** when completed. A confirmation window appears. 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-2 defines a set of manageable objects in various layers of the TCP/IP protocol suites. MIB-2 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-2.

## 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):

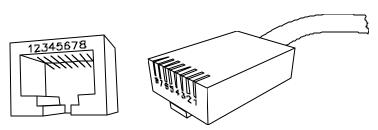
- The dot1dBase Group a mandatory group that contains the objects applicable to all types of bridges.
- The dot1dStp Group contains objects that denote the bridge's state with respect to the Spanning Tree Protocol. If a node does
  not implement the Spanning Tree Protocol, this group will not be implemented. 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**

Compost Managashia	Fight 10/100PASE T/TV outo pagatisting
Compact Manageable	Eight 10/100BASE-T/TX auto-negotiating
8-Port Switch	ports with RJ-45 connectors or
	Seven 10/100BASE-T/TX auto-
	negotiating ports with RJ-45
	connectors plus one fiber port
Applicable Standards	IEEE 802.3 10BASE-T
	IEEE 802.3u 100BASE-TX/FX
Switching Method	Store-and-Forward
Forwarding Rate	
10BASE-T:	10 / 20Mbps half / full-duplex
100BASE-TX:	100 / 200Mbps half / full-duplex
	440.00 ( 400.00
Performance	148,80pps for 10Mbps
	148,800pps for 100Mbps
CABLE	
10BASE-T:	2-pair UTP/STP Cat. 3, 4, 5
100BASE-TX:	2-pair UTP/STP Cat. 5
	Both up to 100m (328ft)
100BASE-FX:	MMF (50 or 62.5µm), SMF (9 or10µm)
LED Indicators	Per unit – Power status
	Per port – LNK (Link) /ACT (Activity)
	100(Mbps)
	FDX/COL
	FDAGOL
Dimensions	
Dimensions	W254 mm × D135 mm × H35mm
Net Weight	1.6kg (3.5lb) approx.
5	
AC Input	100~260VAC, 47~63Hz universal
	power supply
	External power adapter 12V DC; 1A
Input Fuse	2A
•	
Power Consumption	11W max.
l'ower consumption	i i w max.
Operating Temperature	0°C to 40° C (32°F to 104°F)
Operating remperature	0 C 10 40 C (32 F 10 104 F)
Storage Temperature	-25°C to 70°C (-13°F to 158°F)
<u> </u>	· · ·
	10% 00% non condensing
Humidity	10%-90% non-condensing
Emissions	FCC part 15 Class B,
2.110010110	CE Mark Class B, VCCI Class B

# 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