20 10/100/1000T + 4 10/100/1000T/SFP Combo SNMP Lite Managed Switch

User Manual

v1.30

Aug 2008

FCC Warning

This Equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CE Mark Warning

This is a Class-A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Content

Chapter 1 Introduction

The 20 10/100/1000T + 4 10/100/1000T/SFP Combo SNMP Lite Managed Switch is a multi-port switch that can be used to build high-performance switched workgroup networks. It provides wire-speed, Fast Ethernet switching function that allows high-performance, low-cost connection. The Switch features a store-and-forward switching and it can auto-learn and store source address on an 8K-entry MAC address table.

The 20 10/100/1000T + 4 10/100/1000T/SFP Combo SNMP Lite Managed Switch has 20 auto-sensing 10/100/1000Base-TX RJ-45 ports and 4 Mini-GBIC ports for higher connection speed.

1.1 Hardware Features

Standards	IEEE802.3 10Base-T Ethernet IEEE802.3u 100Base-TX IEEE802.3ab 1000Base-T IEEE802.3z Gigabit fiber IEEE802.3x Flow Control and Back Pressure IEEE802.3ad Port trunk with LACP IEEE802.1d Spanning Tree/ IEEE802.1w Rapid Spanning Tree IEEE802.1p Class of Service IEEE802.1Q VLAN Tag IEEE802.1x User Authentication (Radius)
Switch architecture	Back-plane (Switching Fabric): 48Gbps Packet throughput ability (Full-Duplex): 71.42Mpps @64bytes

Transfer Rate	14,880pps for Ethernet port 148,800pps for Fast Ethernet port 1,488,000pps for Gigabit Ethernet port
Packet buffer	500Kbytes
Jumbo Packet	9600bytes
MAC Address	8K
Flash ROM	512Kbytes x 2
SRAM	128Kbytes
Connector	1000Base-T: 24 x RJ-45 with auto MDI/MDI-X Gigabit fiber: 4 x MINI-GBIC socket; shared with last 4-port RJ-45
Protocol	CSMA/CD
LED	System Power (Green) Gigabit Copper port: Link/Activity(Green), 100/1000Mbps (Green) Mini GBIC: Link/Activity (Green)
Power Supply	AC 100 ~ 240V, 50/60Hz, 1A (Max)
Power Consumption	17.9 Watts (open issue)
Operating Humidity	10% ~ 90% (Non-condensing)
Operating Temp.	0^{o}C ~ 45^{o}C
Storage Temp.	-40^{o}C ~ 70^{o}C
Case Dimension	440mm (W) x 161mm (D) x 44mm (H)
Ventilation	1 Fan for ventilating
Installation	19” EIA/TIA Rack design

EMI	Compliance with FCC Class A, CE
Safety	Compliance with UL, cUL, CE/EN60950-1

1.2 Software Feature

Management	SNMP v1, Telnet, CLI, Web management
SNMP MIB	RFC 1213 MIBII, RFC 1493 Bridge MIB
VLAN	Port based VLAN IEEE802.1Q Tag VLAN(256 entries)/VLAN ID (VLAN ID can be assigned from 1 to 4094)
Port Trunk	8 Trunk groups
LACP	24 trunk members
Spanning Tree	IEEE802.1d Spanning tree IEEE802.1w Rapid spanning tree
Quality of service	The quality of service determined by port, Tag and IPv4 Type of Service, IPv4 Different Service
Class of Service	Supports IEEE 802.1p class of service, per port provides 4 priority queues
Port Mirror	TX and RX packet
IGMP	Supports IGMP snooping v1, v2 200 multicast groups
IP Security	Supports 1 IP address that has permission to access the switch management and to prevent unauthorized intruder

Login Security	Supports IEEE 802.1x Authentication/RADIUS
Bandwidth Control	The rate control supports all of packet type and the limit rates are 128K~3968Kbps
Flow Control	Supports Flow Control for Full-duplex and Back Pressure for Half-duplex
SNMP Trap	Up to 1 Trap station, Cold start, Port link up, Port link down
DHCP	DHCP Client
Firmware Upgrade	Supports Web interface for firmware upgrade, backup, and restore

1.3 Package Contents

Unpack the contents of the 20 10/100/1000T + 4 10/100/1000T/Mini-GBIC Combo SNMP Lite Managed Switch and verify them against the checklist below.

- 20 10/100/1000T + 4 10/100/1000T/SFP Combo SNMP Lite Managed Switch
- Four Rubber Feet
- Power Cord
- RS-232 cable
- User Manual

Compare the contents of the 20 10/100/1000T + 4 10/100/1000T/SFP Combo SNMP Lite Managed Switch package with the standard checklist above. If any item is missing or damaged, please contact your local dealer for service.

Chapter 2 Hardware Description

This section mainly describes the hardware of the 20 10/100/1000T + 4 10/100/1000T/SPF Combo SNMP Lite Managed Switch.

2.1 Physical Dimension

The physical dimensions of the 20 10/100/1000T + 4 10/100/1000T/SFP Combo SNMP Lite Managed Switch is 440mm(W) x 161mm(D) x 44mm(H)

2.2 Front Panel

The Front Panel of the 20 10/100/1000T + 4 10/100/1000T/SFP Combo SNMP Lite Managed Switch consist of 24 x auto-sensing 10/100/1000Mbps Ethernet RJ-45 ports (automatic MDI/MDIX), 4 Mini GBIC ports, and the LED indicators are also located on the front panel of the switch.

Front Panel of the 20 10/100/1000T + 4 10/100/1000T/Mini-GBIC Combo SNMP Lite Managed Switch

- **RJ-45 Ports (Auto MDI/MDIX):** 24 10/100/1000 auto-sensing for 10Base-T or 100Base-TX or 1000Base-T connections.
  In general, MDI means connecting to another Hub or Switch while MDIX means connecting to a workstation or PC. Therefore, **Auto MDI/MDIX** means that you can connect to another Switch or workstation without changing non-crossover or crossover cabling.

- **4 Mini-GBIC ports:** The appropriate replaceable Mini-GBIC ports are available with

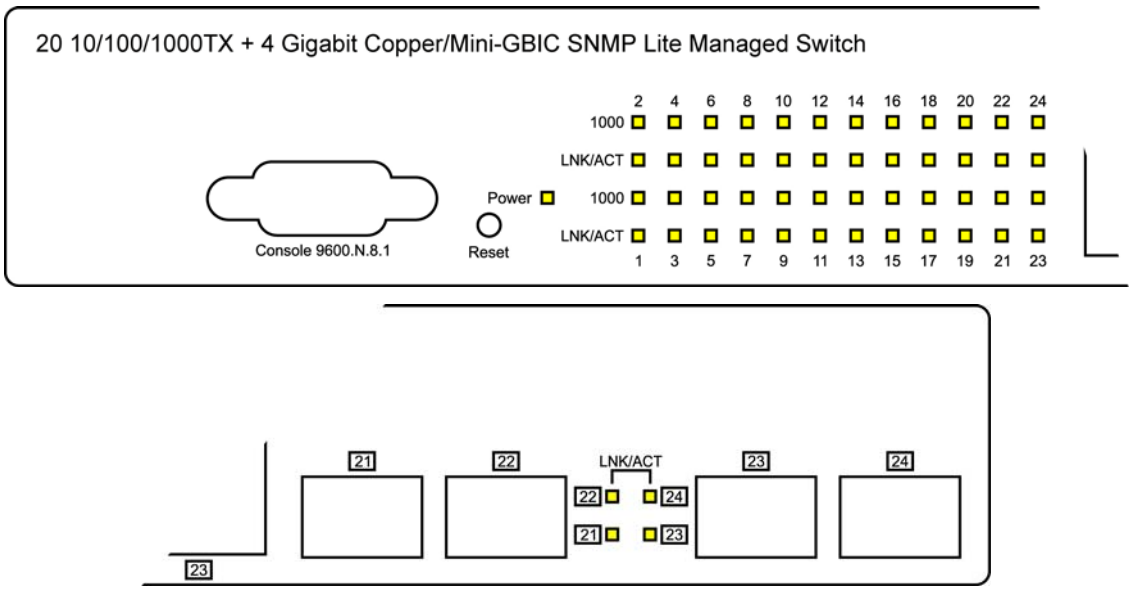
a variety of different transmitter and receiver types, allowing users to select the appropriate transceiver for each link to provide the required optical reach over the available optical fiber type. Ports 21 ~ 24 are the four combo ports which consist of one RJ-45 port and one mini-GBIC port each. Traditional RJ-45 ports can be used for uplinking wide-band paths in short distance (<100m), or the appropriate replaceable mini-GBIC ports can be used for the application of wide-band uplinking and long distance transmissions to fit the flexible field request.

2.3 Rear Panel

The 3-pronged power plug is located at the Rear Panel of 20 10/100/1000T + 4 10/100/1000T/Mini-GBIC Combo SNMP Lite Managed Switch as shown in the figure below. The Switch will work with AC in the range of 100-240V AC, 50-60Hz.

Rear Panel of the 20 10/100/1000T + 4 10/100/1000T/SFP Combo SNMP Lite Managed Switch

2.4 LED Indicators



LED Indicators

The following table provides descriptions of the LED statuses and meaning. They provide a real-time indication of systematic operation status.

LED	Status	Description
Power	Green	Power On
	Off	No power input
1000	Green	The port is operating at the speed of 1000Mbps.
LNK / ACT	Green	The port is successfully connecting with the device.
	Blinks	The port is receiving or transmitting data.
	Off	No device attached.
LNK / ACT (MINI GBIC)	Green	The port is successfully connecting with the device.
	Blinks	The port is receiving or transmitting data.
	Off	No device attached.
	Blinks	Collision packet detection
	Off	No device attached.

Chapter 3 Hardware Installation

3.1 Desktop Installation

Set the switch on a sufficiently large flat space with a power outlet nearby. The surface where you put your Switch should be clean, smooth, level, and sturdy. Make sure there is enough clearance around the Switch to allow attachment of cables, power cord and air circulation.

Attaching Rubber Feet

1. Make sure mounting surface on the bottom of the Switch is grease and dust free.
2. Remove adhesive backing from your Rubber Feet.
3. Apply the Rubber Feet to each corner on the bottom of the Switch. These footpads can prevent the Switch from shock/vibration.

3.2 Rack-mounted Installation

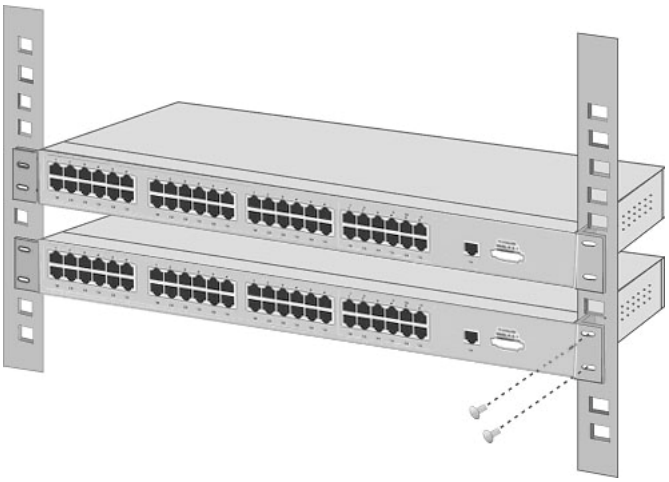
The Switch comes with a rack-mounted kit and can be mounted in an EIA standard size, 19-inch Rack. It can be placed in a wiring closet with other equipment.

Perform the following steps to rack-mount the switch:

A. Position one plate to align with the holes on one side of the hub and secure it with the smaller plate screws. Then, attach the remaining plate to the other side of the Switch.

Attach mounting plates with screws

B. After attaching both mounting plates, position the Switch in the rack by lining up the holes in the plates with the appropriate holes on the rack. Secure the Switch to the rack with a screwdriver and the rack-mounting screws.



Mount the Switch in an EIA standard 19-inch Rack

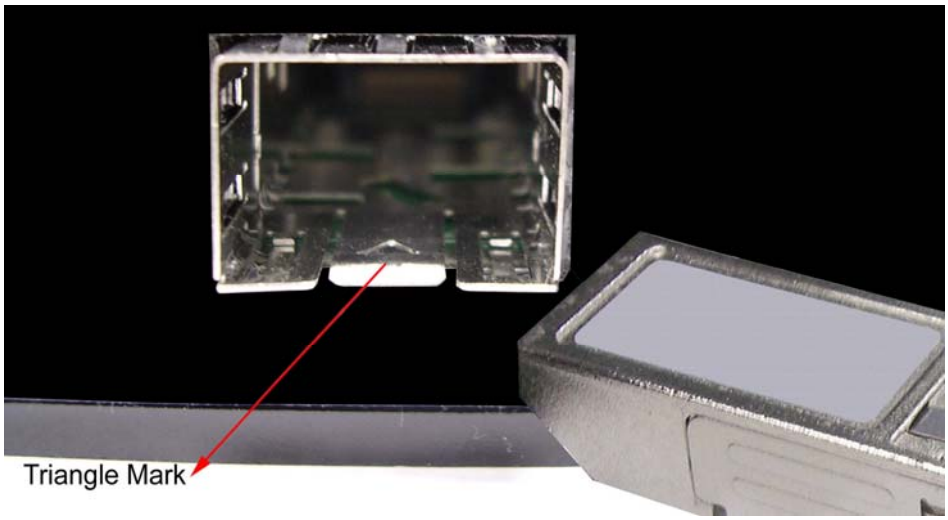
Note: For proper ventilation, allows about at least 4 inches (10 cm) of clearance on the front and 3.4 inches (8 cm) on the back of the Switch. This is especially important for enclosed rack installation.

3.3 Cabling

- Use four twisted-pair, Category 5e or above cabling for RJ-45 port connection. The cable between the switch and the link partner (switch, hub, workstation, etc.) must be less than 100 meters (328 ft.) long.
- Fiber segment using **single-mode** connector can be applied to standard (such as 9/125 µm, 9.5/125 µm, or 10/125 µm) single-mode fiber cable. User can connect two devices in the distance up to **30km**.
- Fiber segment using **multi-mode** connector can be applied to standard (such as 50 or 62.5/125 µm) multi-mode fiber cable. User can connect two devices up to **2km** distances.

To connect the transceiver and LC cable, please follow the steps shown below:

First, insert the transceiver into the SFP module. Notice that the triangle mark is the bottom of the module.



Transceiver to the SFP module

Transceiver Inserted

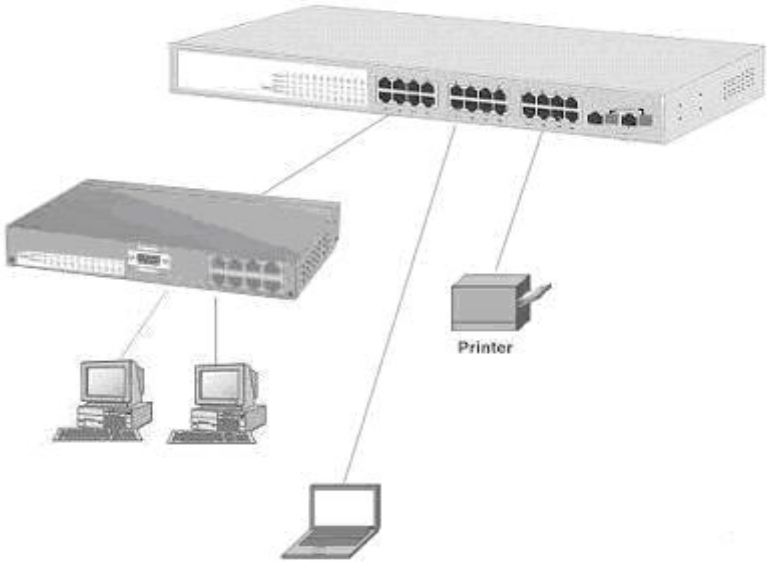
Second, insert the fiber cable of LC connector into the transceiver.

Chapter 4 Network Application

This section provides you a few samples of network topology in which the switch is used. In general, the 20 10/100/1000T + 4 10/100/1000T/SFP Combo SNMP Lite Managed Switch is designed to be used as a desktop or segment switch.

4.1 Desktop Application

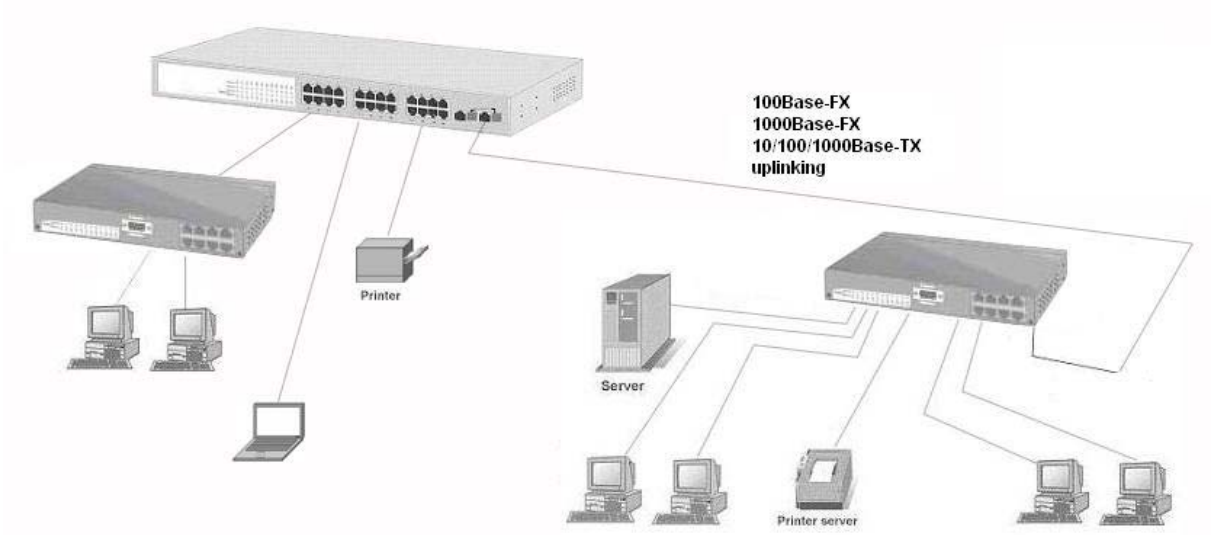
The 20 10/100/1000T + 4 10/100/1000T/SFP Combo SNMP Lite Managed Switch is designed to be a desktop size switch that is an ideal solution for small workgroup. The Switch can be used as a stand-alone switch to which personal computers, server, printer server are directly connected to form small workgroup.



4.2 Segment Application

For enterprise networks where large data broadcast are constantly processed, this switch is suitable for department user to connect to the corporate backbone.

User can connect PCs, workstations, and servers to each other via the 20 10/100/1000T + 4 10/100/1000T/SFP Combo SNMP Lite Managed Switch. All the devices in this network can communicate with each other. Connecting servers to the backbone switch allow other users to access the data of server.

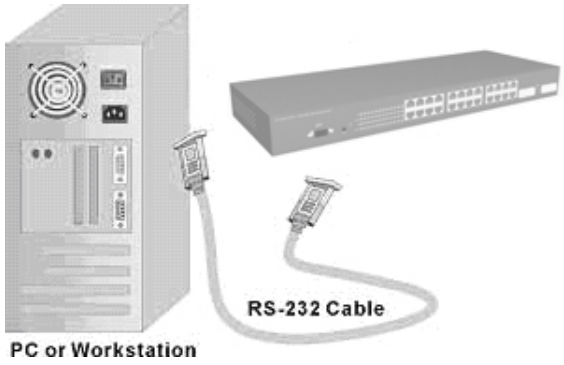


The switch automatically learns node address, which are subsequently used to filter and forward all traffic based on the destination address. User can use any of the RJ-45 port of the 20 10/100/1000T + 4 10/100/1000T/SFP Combo SNMP Lite Managed Switch to connect with another Switch or Hub to interconnect each of user's small-switched workgroups to form a larger switched network.

Chapter 5 Console Management

5.1 Connecting to the Console Port

Use the supplied RS-232 cable to connect a terminal or PC to the console port. The connected terminal or PC must support the terminal emulation program.

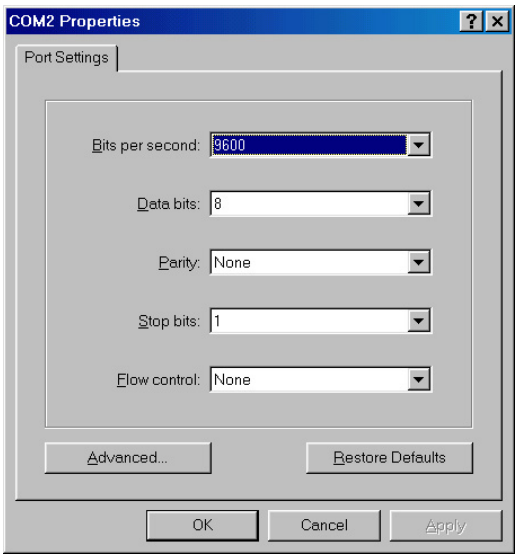


Connecting the switch to a terminal via RS-232 cable

5.2 Login in the Console Interface

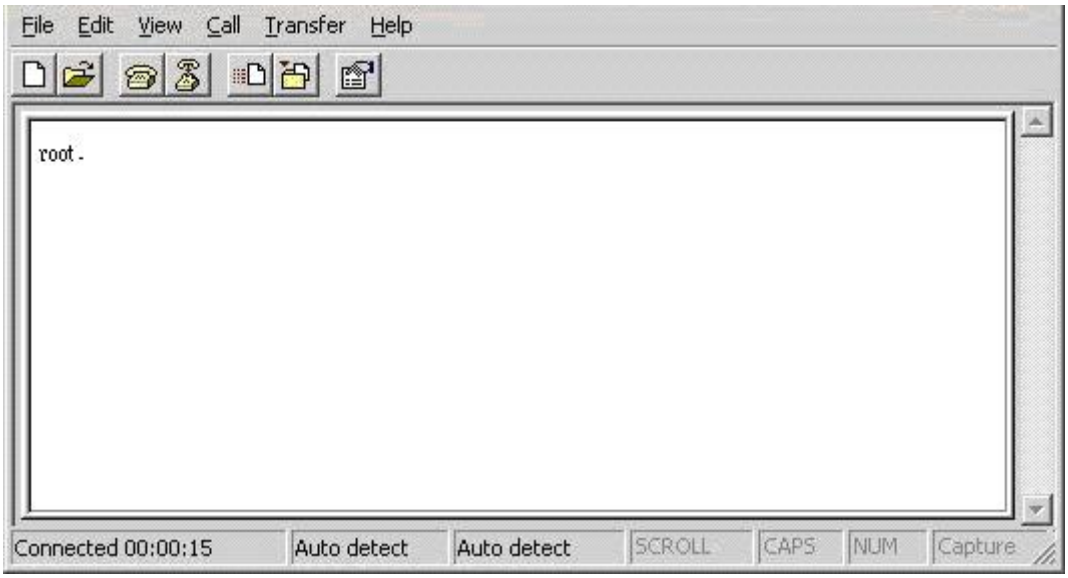
When the connection between Switch and PC is ready, turn on the PC and run a terminal emulation program or Hyper Terminal and configure its communication parameters to match the following default characteristics of the console port:

Baud Rate: 9600 bps
Data Bits: 8
Parity: none
Stop Bit: 1
Flow control: None



The settings of communication parameters

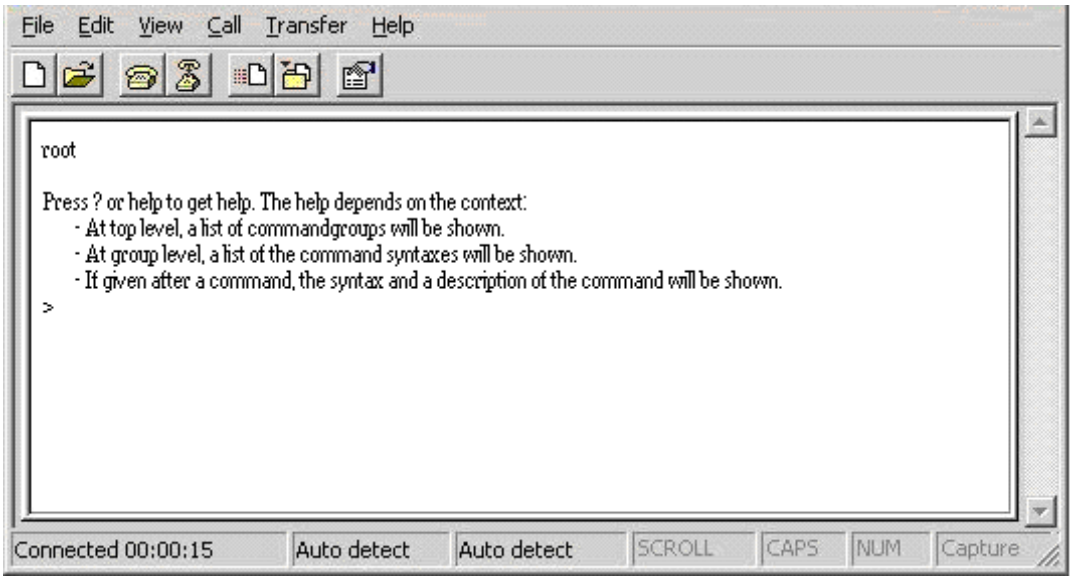
After finishing the parameter settings, click "**OK**". When the blank screen shows up, type in "**root**" then press **enter** button to get into command line mode. Please see below figure for login screen.



CLI command interface

5.3 CLI Management

The system supports console management (CLI command). After you login to the system, you will see a command prompt.



CLI command interface

5.4 Commands Level:

System	- System commands
Console	- Console commands
Port	- Port commands
MAC	- MAC commands
VLAN	- VLAN commands
Aggr	- Aggregation commands
LACP	- IEEE 802.3ad Link Aggregation commands
RSTP	- IEEE 802.1w Rapid Spanning Tree commands
QoS	-QoS commands
Rate Limit	- Rate Limit commands
Mirror	- Mirror commands
IP	- IP commands

Dot1x - Dot1x commands

Filter - Filter commands

IGMP - IGMP Snooping commands

Exit - Logout

Chapter 6 Web-Based Management

This section introduces the configuration and functions of the Web-Based management.

6.1 About Web-based Management

On CPU board of the switch, there is an embedded HTML web site residing in flash memory, which offers advanced management features and allow users to manage the switch from anywhere on the network through a standard browser such as Microsoft Internet Explorer.

The Web-Based Management supports Internet Explorer 6.0 or later version. And, it is applied for Java Applets for reducing network bandwidth consumption, enhance access speed and present an easy viewing screen.

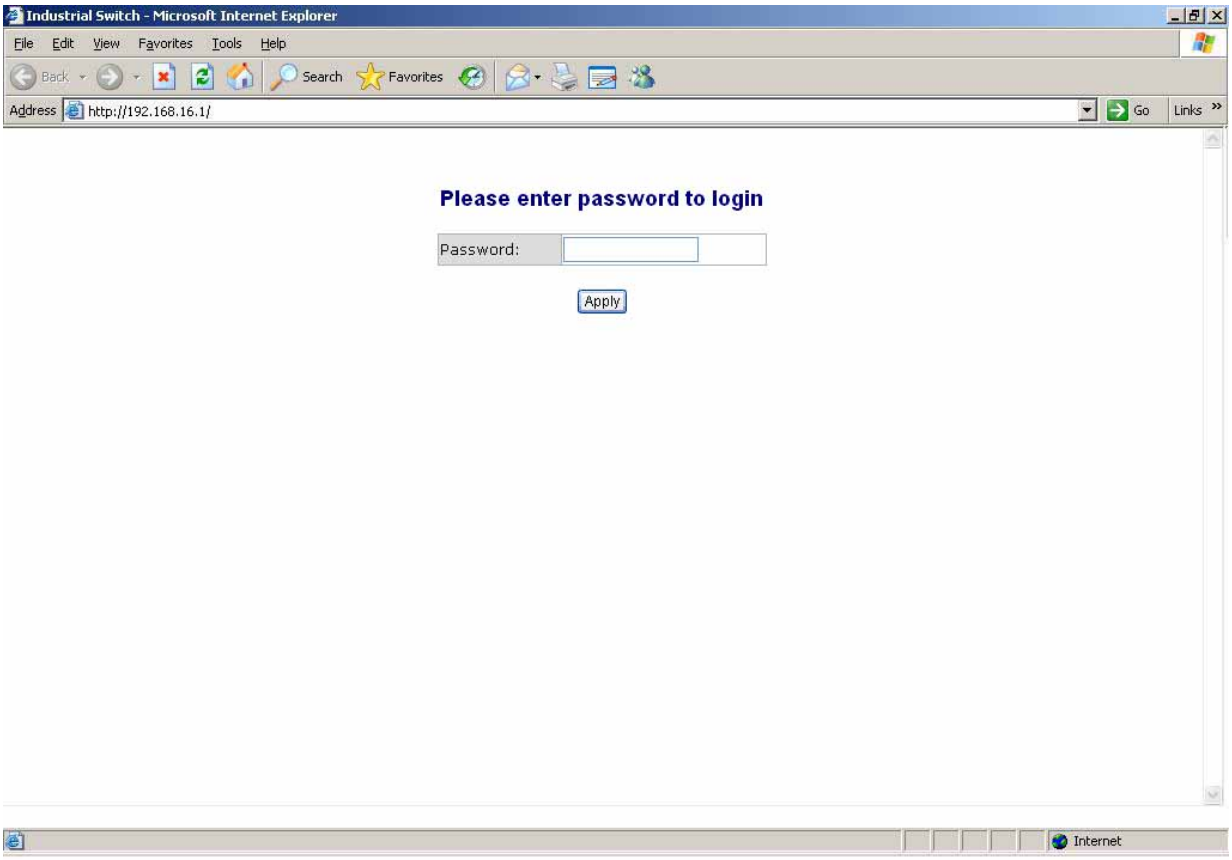
6.2 Preparing for Web Management

Before using web management, install the switch on the network and make sure that any one of the PCs on the network can connect with the switch through the web browser. The switch default value of IP, subnet mask and password are as below:

- IP Address: **192.168.16.1**
- Subnet Mask: **255.255.255.0**
- Default Gateway: **192.168.16.254**
- Password: **root**

6.3 System Login

The default login password is root.



Login Interface

6.4 System Configuration

The system parameters information as shown below displays the system information and allows the user to configure the other parameters as well.

- **MAC Address:** The unique hardware address assigned by manufacturer (default).
- **S/W Version:** Displays the Software Version of Kernel.
- **H/W Version:** Displays the Hardware Version of Switch.
- **Active IP Address:** the current IP Address.
- **Active Subnet Mask:** Displays the current IP Subnet Mask.
- **Active Gateway:** Displays the current Gateway.
- **DHCP Server:** Displays the DHCP Server IP Address.
- **Lease Time Left:** Displays the DHCP lease time. After 50% of the lease time has passed, the client/switch will attempt to renew the lease with the original DHCP server that it obtained the lease from using a DHCPREQUEST message. Any time

the client/switch boots and the lease is 50% or more passed, the client/switch will attempt to renew the lease. At 87.5% of the lease completion, the client/switch will attempt to contact any DHCP server for a new lease.

- **DHCP Enable:** Tick the check box to enable DHCP Client Function.
- **Fallback IP Address:** Assign the switch IP address (The default IP is 192.168.16.1)
- **Fallback Subnet Mask:** Assign the switch IP Subnet Mask.
- **Fallback Gateway:** Assign the switch Gateway (The default value is 192.168.16.254).
- **TFTP Server Enabled:** Tick this check box to enable the TFTP server function.
- **Management VLAN (1 ~ 4094):** Assign a number of VLAN group between 1 and 4094. It is used for Remote Management Security; in fact, it gives the permission to access the switch only when the port of VLAN group ID is equal to the Management VLAN ID
- **Name:** Assign the name of the switch.
- **Password:** Web GUI login password. The default password is **root**.
- **Inactivity Timeout:** Set the timeout period for security in number between 60 and 10000 seconds. It means will not logout when set 0.
- And then, click Apply to have the configuration taken effect.
- Or, click Refresh to reset the configuration before applying.

6.5 Console Info

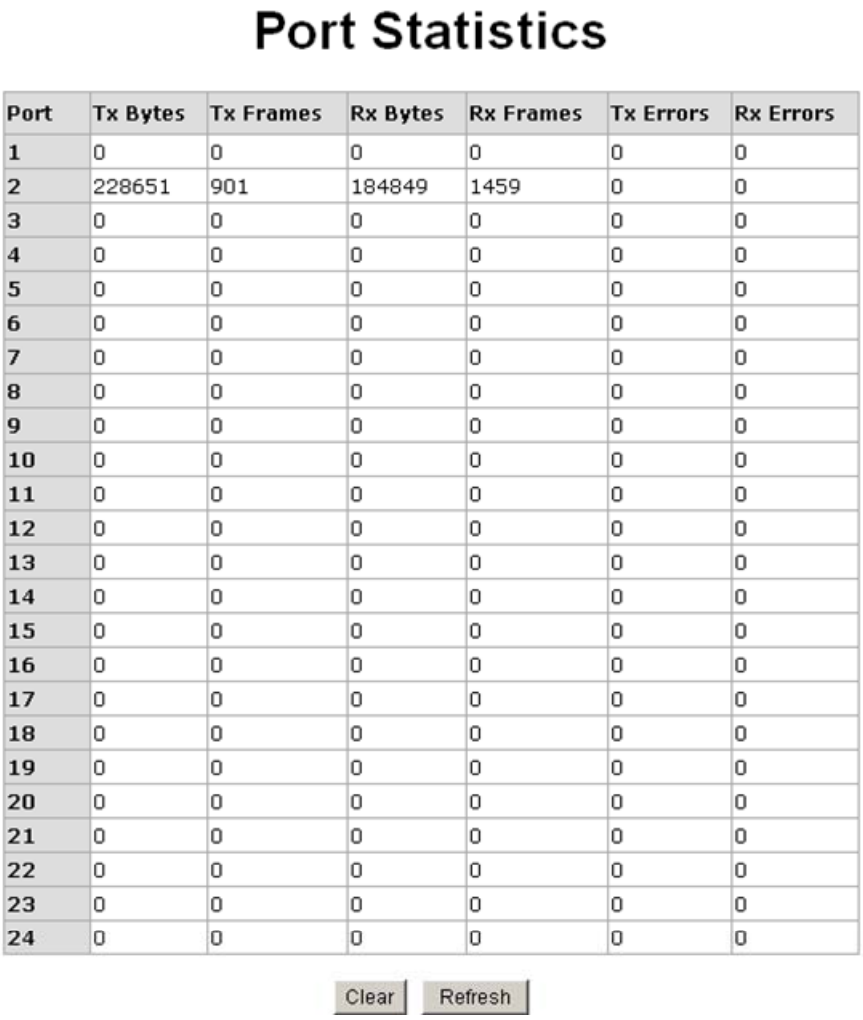
This page displays the related information of the console port settings which you have set in the Console Management segment.

6.6 Port Statistics

The following information provides the current port statistics

- Press Clear button to clean all counts.

- And then, click Refresh to get the new setting information as below:



Port Statistics

Port	Tx Bytes	Tx Frames	Rx Bytes	Rx Frames	Tx Errors	Rx Errors
1	0	0	0	0	0	0
2	228651	901	184849	1459	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	0	0	0	0	0	0
14	0	0	0	0	0	0
15	0	0	0	0	0	0
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	0	0	0	0	0	0
21	0	0	0	0	0	0
22	0	0	0	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0

Clear Refresh

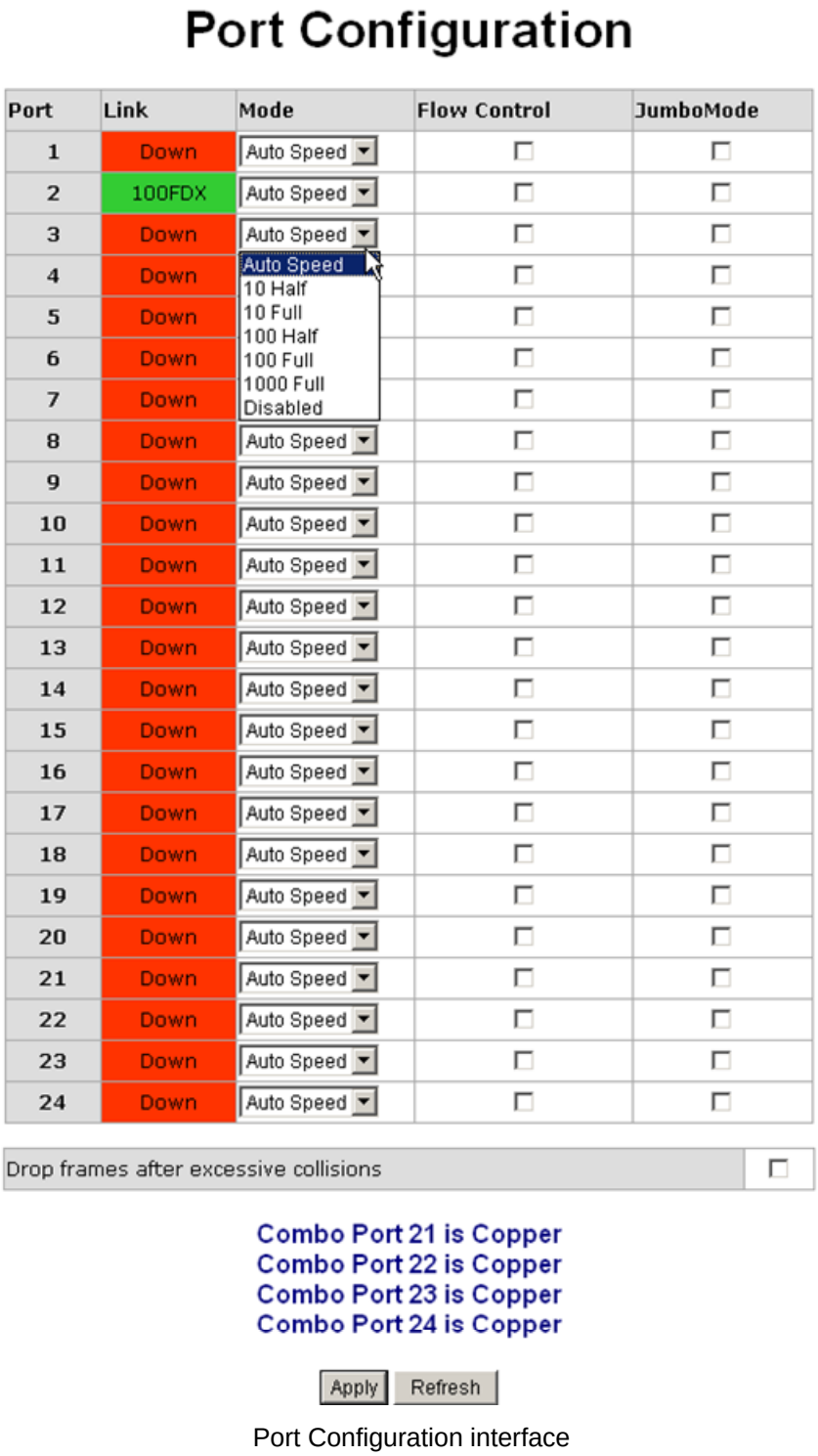
Port Statistics interface

6.7 Port Configuration

This page displays the port status of linking, and allows the user to set negotiation mode, to enable flow control and max frame function.

- **Link:** Displays the current connection speed.
- **Mode:** Pull down the selection item to choose the negotiation mode.
- **Flow Control:** Tick this check box to enable flow control function.
- **Jumbo Mode:** Tick this check box to enable jumbo mode for Maximum Frame Size.
- **Drop frames after excessive collisions**: When this check box is ticked, the switch will drop the frames after excessive collisions.

Refresh to get the newest status.

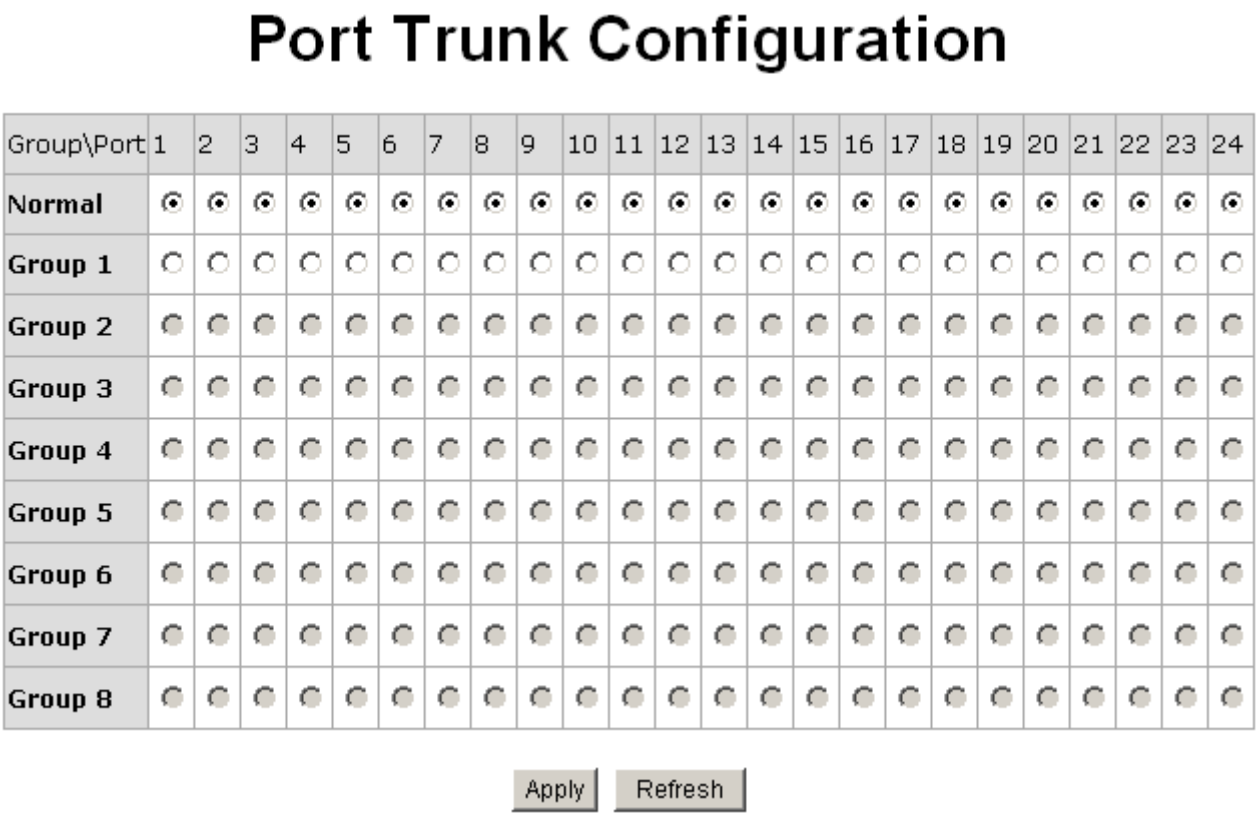


Port Configuration interface

6.8 Port Trunk Configuration

Port trunk allows multiple links to be bundled together and act as a single physical link to increase throughput. It provides load balancing, and redundancy of links in a switched inter-network. Actually, the link does not have an inherent total bandwidth equal to the sum of its component physical links. Traffic in a trunk is distributed across an individual link within the trunk in a deterministic method that called a hash algorithm. Traffic pattern on the network should be considered carefully before you apply it. When a proper hash algorithm is used, traffic is kind of randomly decided to be transmitted across either link within the trunk and load balancing will be seen.

- Grouping the members of Trunk. Normal means the port is not a trunk port.
- And then, click Apply to apply the configuration.
- Or, click Refresh to reset the configuration before applying.

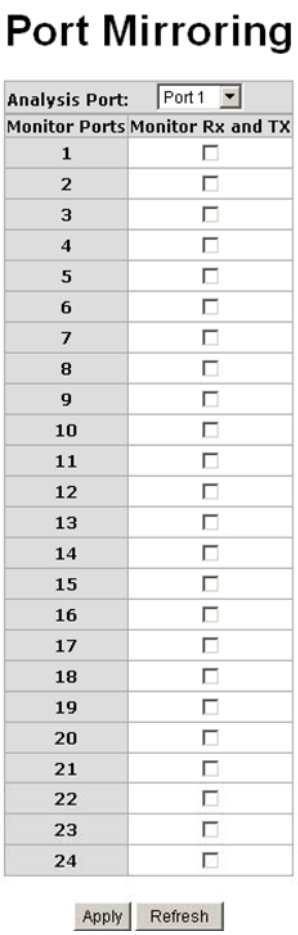


Port Trunk interface

6.9 Port Mirroring

- **Analysis Port:** Select a port for analyzing other ports.

- **Monitor Rx and TX:** Tick the check box for enabling the received/transmitted packets of the port to be monitored.
- And then, click Apply to apply the configuration.
- Or, Click Refesh to reset the configuration before applying.



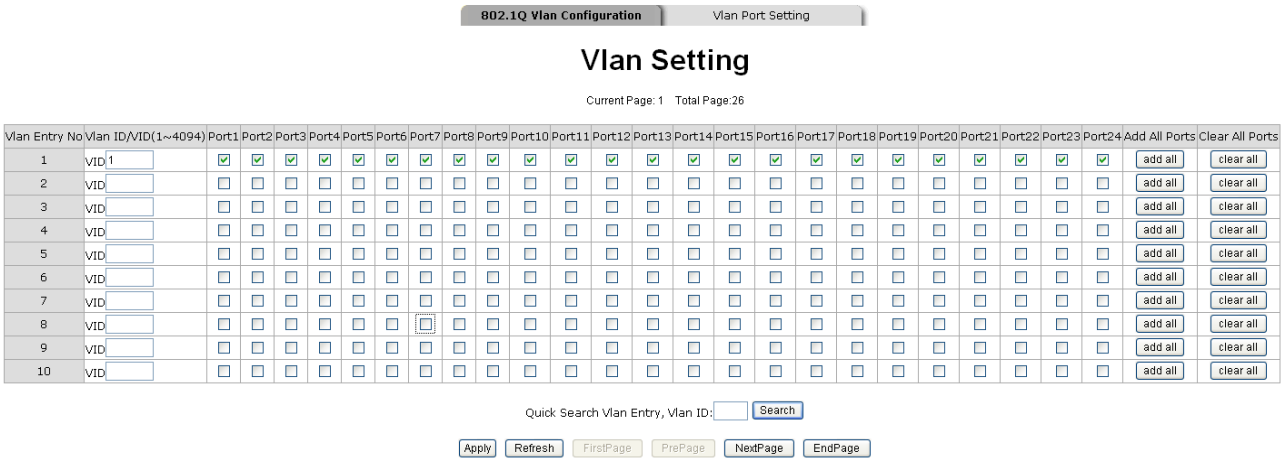
Port Mirroring interface

6.10 VLAN Setting

A Virtual LAN (VLAN) is a logical network grouping that limits the broadcast domain, which would allow user to isolate network traffic, and therefore only the members of the VLAN will receive traffic from the members of the same VLAN. Basically, creating a VLAN from a switch is logically equivalent to reconnecting a group of network devices to another Layer 2 switch. However, all the network devices are still plugged into the same switch physically.

- Assign the VLAN ID in number between 1 and 4094.

- Click add all to tick the 24 check boxes at the same time.
- Click clear all to clear all of the ticks in the 24 check boxes.
- Grouping the members of the VLAN.
- In the filed of “Quick Search Vlan Entry”, please key in the Vlan ID and press Search to find the Vlan Entry.
- And then, click Apply to bring up the configuration interface as below:



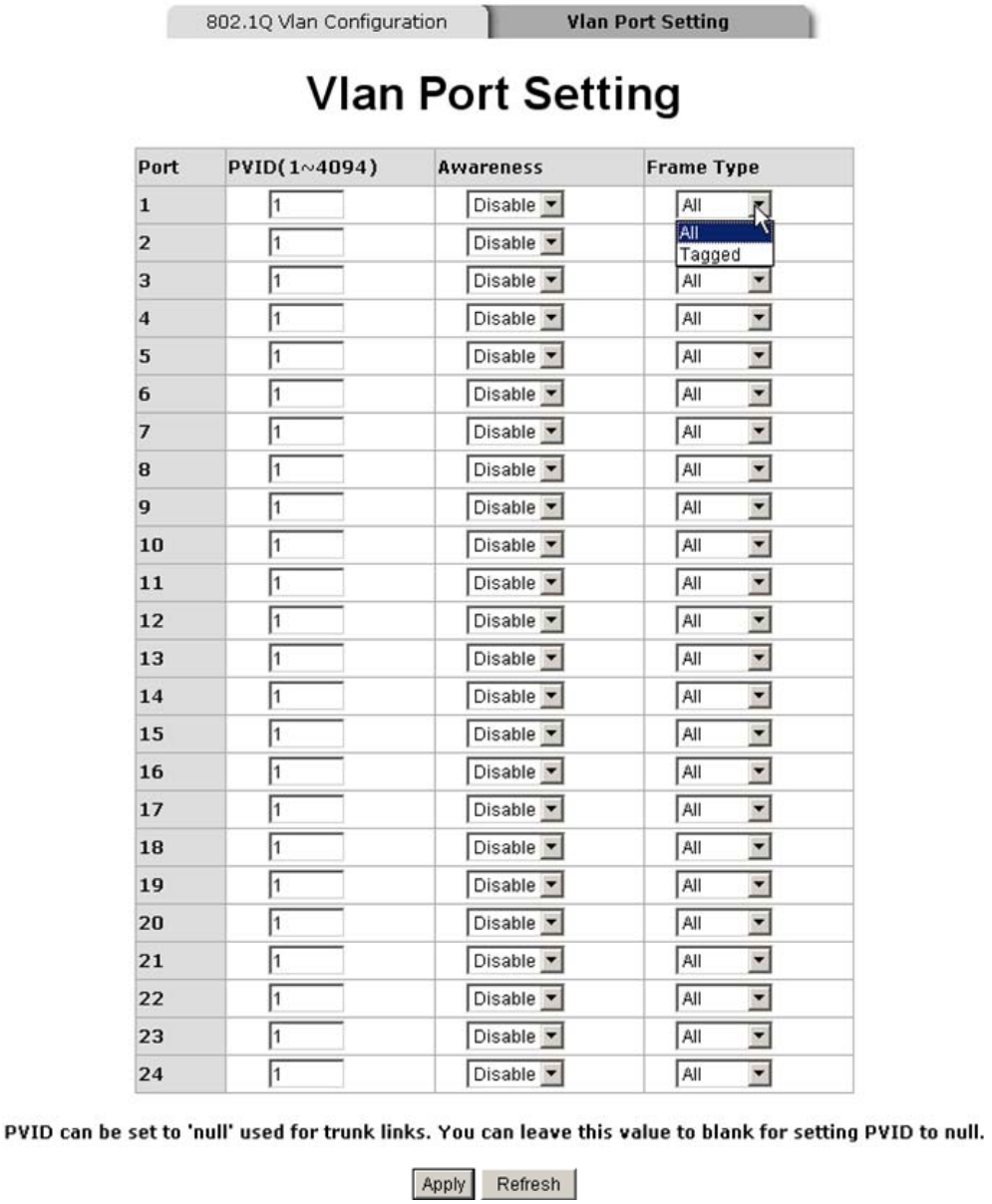
VLAN Setting interface

6.10.1 VLAN Port Setting

Change to “VLAN Port Setting” tab to adjust the VID Setting.

- **PVID:** Enter the Port VLAN ID between 1 and 4094.
- **Awareness:** Enable the awareness that ports will strip the VLAN tag from received frames and insert the tag in the transmitted frames (PVID). Disable the awareness that ports will not strip the tag from received frames or insert the tag in the transmitted frames.
- **Frame Type:** Set the outgoing frames type.
  - **All:** All type of frames.
  - **Tagged:** Outgoing frames with VLAN-Tagged.

- After that, click Apply to have the configuration taken effect.
- Or, click Refresh to reset the configuration before applying.



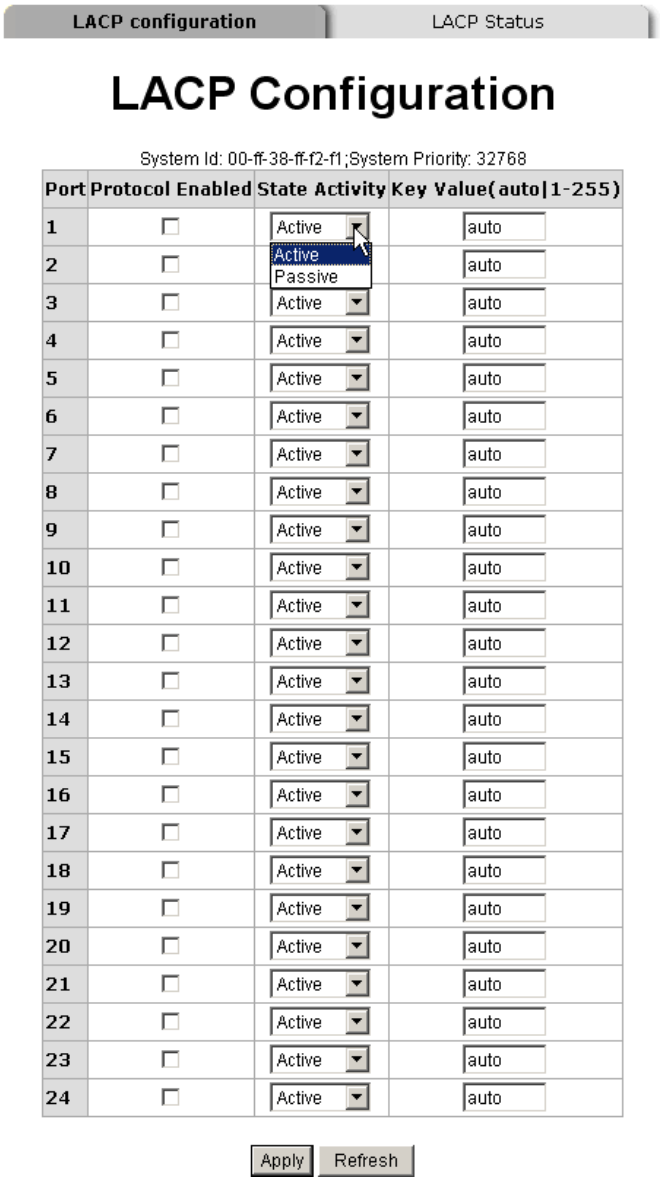
VLAN Port Setting interface

6.11 LACP Setting

The Link Aggregation Control Protocol (LACP) is a computer networking term and is part of IEEE specification 802.3ad that allows bundling several physical ports together to

form a single logical channel. LACP allows a network switch to negotiate an automatic bundle by sending LACP packets to the peer. LACP is a protocol implementation in OSI layer 2 which controls through which physical links the traffic will be routed.

- **Protocol Enabled:** Tick the check box to enable the LACP protocol of the port.
- **State Activity:** Pull down the selection item to set the activity state as active or passive. When the state is set as active, the port sends LACP packets to its peer actively. Otherwise, the port will not send LACP packets out unless it receives an LACPDU from its peer.
- **Key Value (auto | 1 - 255):** The LACP key determines which ports potentially can aggregate together.
- And then, click Apply to have the configuration taken effect.
- Or, click Refresh to reset the configuration before applying.



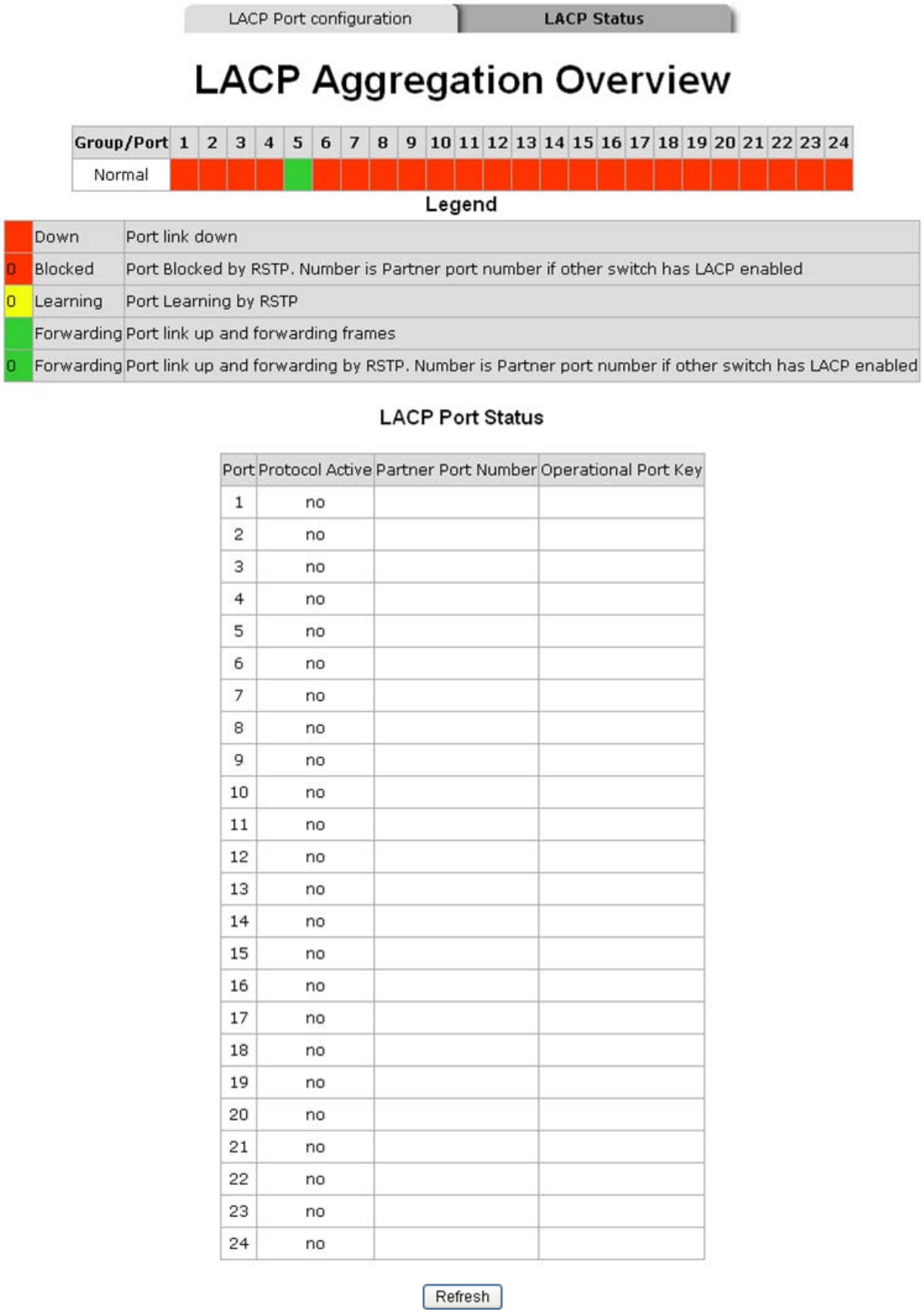
LACP Setting interface

6.11.1 LACP Status

When the LACP aggregator has been set up, the LACP status information will display as below.

- **Protocol Active:** Displays whether the LACP protocol is active.
- **Partner Port Number:** Displays the partner port number which is connecting to this port.
- **Operational Port key:** The LACP key determines which ports potentially can

aggregate together.



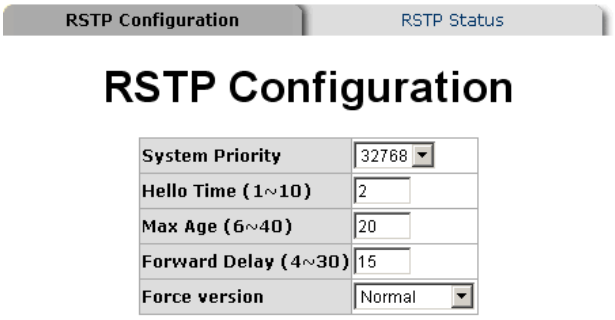
LACP Status interface

6.12 RSTP Configuration

The Rapid Spanning Tree Protocol (RSTP) is an evolution of the Spanning Tree Protocol and provides for faster spanning tree convergence after a topology change. The system also supports STP and the system will automatically detect the connected device that is running STP or RSTP protocol.

6.12.1 RSTP Configuration Tab

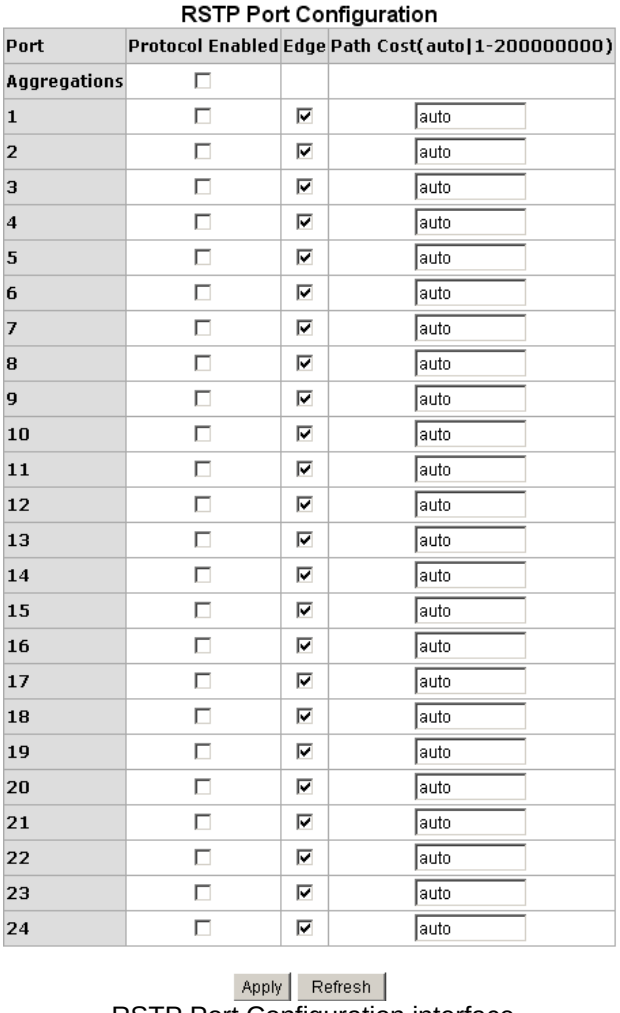
- **System Priority:** A value used to identify the root bridge. The bridge with the lowest value has the highest priority and is selected as the root. If the value has being changed, user has to reboot the switch. The value must be multiple of 4096 according to the protocol standard rule.
- **Hello Time (1-10):** The scale of 1~10 sec will be set as a period of time that how often the switch broadcasts hello messages to other switches.
- **Max Age (6-40):** The number of seconds (from 6~ 40) which determines the amount of time that protocol information received on a port is stored by the switch.
- **Forward Delay Time (4-30):** The number of seconds (from 4 ~ 30) which determines how long each of the listening and learning states will last before the port begins forwarding.
- **Force version:** Select the RSTP default protocol. Normal means RSTP protocol. Compatible means it's compatible with STP protocol.



RSTP Configuration interface

6.12.2 RSTP Port Configuration

- **Protocol Enable:** Enable or disable the RSTP protocol for the port.
- **Edge:** Having set the port as an edge port which directly connected to end stations cannot create bridging loop in the network. To configure the port as an edge port, tick the check box.
- **Path Cost:** The cost of the path to the other bridge from this transmitting bridge at the specified port. Enter a number from 1 through 200,000,000.
- And then, click Apply to apply the configuration.
- Or, click Refresh to reset the configuration before applying.



RSTP Port Configuration interface

6.12.3 RSTP Status Tab

Click Refresh to get the newest configuration information. Also, the RSTP Bridge Overview will display as below.

RSTP Bridge Overview

- **Bridge ID:** Displays the ID produced by the algorithm of MAC address and priority that is used in the STP/RSTP structure.
- **Hello Time:** Displays the period of time in seconds that how often the switch broadcasts hello messages to other switches.
- **Max Age:** Displays the number of seconds which determines the amount of time that protocol information received on a port stored by the switch.
- **Fwd Delay:** Displays the number of seconds which determines how long each of the listening and learning states will last before the port begins forwarding.
- **Topology:** Displays the status of the topology.
- **Root ID:** Displays the ID of the root.

RSTP Port Status

- **Port/Group:** Displays the port number and its group number.
- **Path Cost:** The cost of the path to the other bridge from this transmitting bridge at the specified port.
- **Edge port:** The port directly connected to end stations cannot create bridging loop in the network.
- **P2P Port:** Some of the rapid state transactions that are possible within RSTP are dependent upon whether the port concerned can only be connected to one other bridge exactly (i.e. it is served by a point-to-point LAN segment), or can be connected to two or more bridges (i.e. it is served by a shared medium LAN segment). This function allows the P2P status of the link to be manipulated administratively. True means P2P enabled. False means P2P disabled.
- **Protocol:** Displays the protocol being used.
- **Port State:** Displays whether the port is the STP mathematic calculation or not.
- Click Apply to have the setting taken effect.

RSTP Configuration | RSTP Status

RSTP Bridge Overview

Bridge Id	Hello Time	Max Age	Fwd Delay	Topology	Root Id
32769:00-ff-38-ff-f2-f2	2	20	15	Steady	This switch is Root!

RSTP Port Status

Port/Group	Path Cost	Edge Port	P2p Port	Protocol	Port State
Port 1					Non-STP
Port 2					Non-STP
Port 3					Non-STP
Port 4					Non-STP
Port 5					Non-STP
Port 6					Non-STP
Port 7					Non-STP
Port 8					Non-STP
Port 9					Non-STP
Port 10					Non-STP
Port 11					Non-STP
Port 12					Non-STP
Port 13					Non-STP
Port 14					Non-STP
Port 15					Non-STP
Port 16					Non-STP
Port 17					Non-STP
Port 18					Non-STP
Port 19					Non-STP
Port 20					Non-STP
Port 21					Non-STP
Port 22					Non-STP
Port 23					Non-STP
Port 24					Non-STP

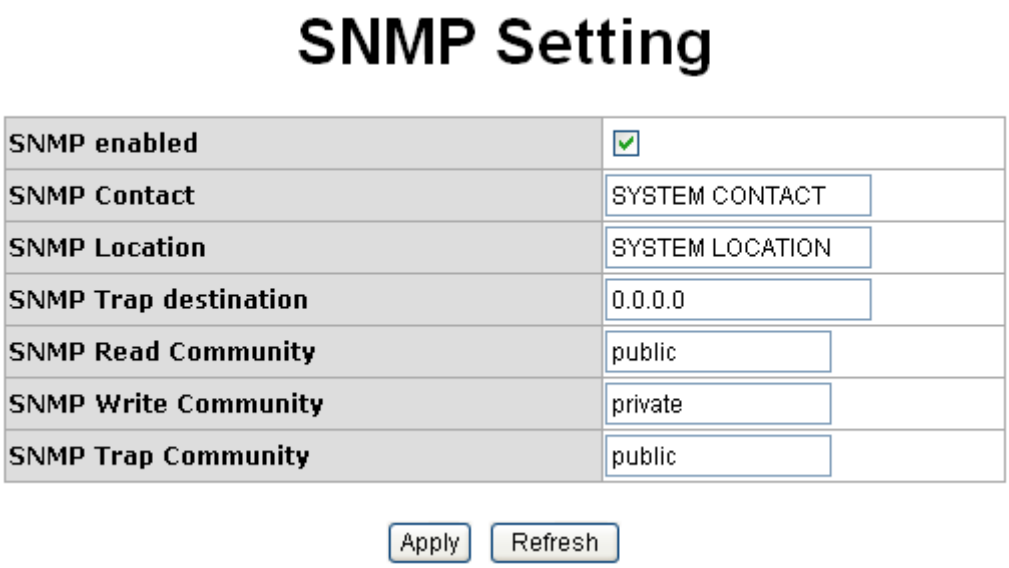
Refresh

RSTP Port Status interface

6.13 SNMP Setting

Simple Network Management Protocol (SNMP) is the protocol developed to manage

nodes (servers, workstations, routers, switches and hubs etc.) on an IP network. SNMP enables network administrators to manage network performance, find and solve network problems, and plan for network growth. Network management systems learn of problems by receiving traps or change notices from network devices implementing SNMP.



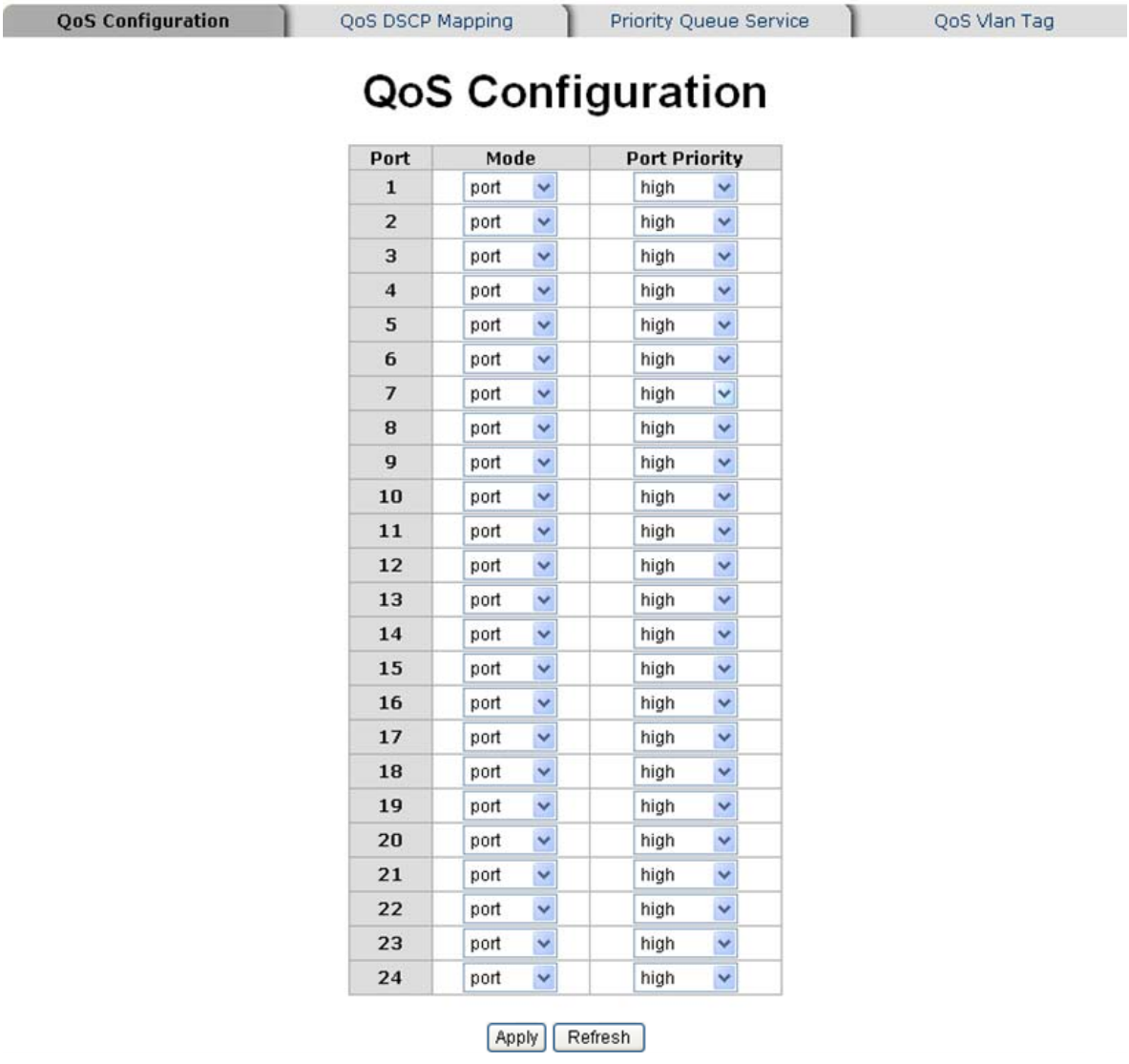
SNMP Setting interface

- **SNMP enabled:** Tick the check box to enable SNMP.
- **SNMP Contact:** Enter the name of a person or organization.
- **SNMP Location:** Enter the location of the switch.
- **SNMP Trap destination:** Assign the IP address of the destination for receiving the SNMP trap.
- **SNMP Read Community:** Read only community string. Enables requests accompanied by this string to display MIB-object information.
- **SNMP Write Community:** Read/Write. Enables requests accompanied by this string to display MIB-object information and to set MIB objects.
- **SNMP Trap Community:** Enables requests accompanied by this string to receive SNMP trap.

6.14 QoS Configuration

In this segment, you can configure QoS policy setting, QoS DSCP setting, priority queue service, and QoS Vlan tag.

- **Mode:** Select the QoS mode—port, DSCP, or vlan tag.
- **Port Priority:** Select the priority level—low, normal, medium, or high.
- And then, click Apply to apply the configuration.
- Or, click Refresh to reset the configuration before applying.



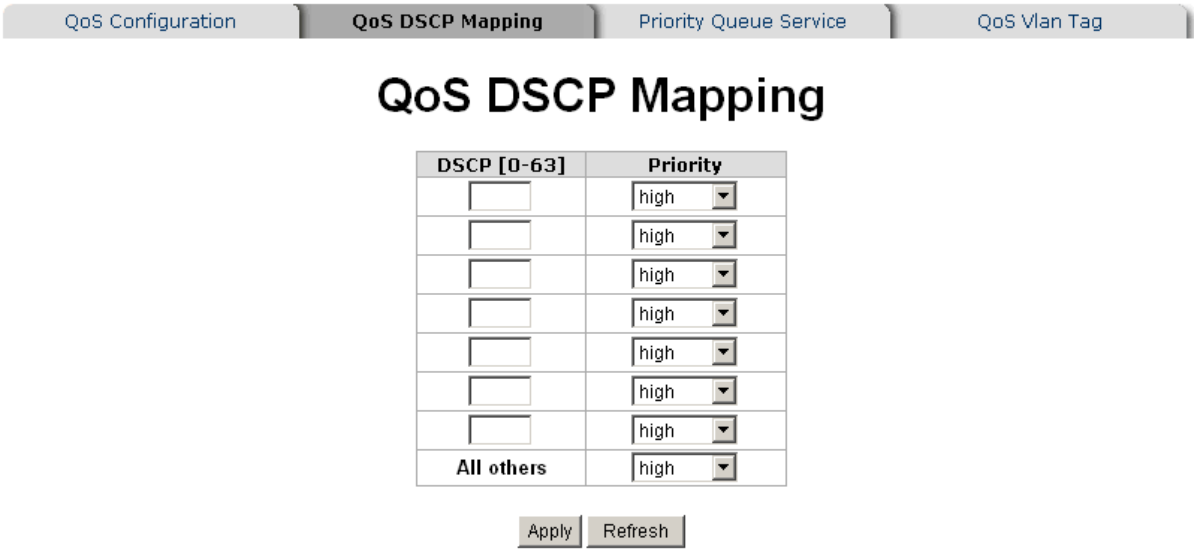
QoS Configuration interface

6.14.1 QoS DSCP Mapping

- Change to Qos DSCP Mapping tab:

  - **DSCP [0- 63]:** The system provides 0~63 TOS priority level. When the IP packet is received, the system will check the TOS level value in the IP packet that has received. For example, user set the TOS level 25 is high. The port 1 is following the TOS priority policy. When the packet received by port 1, the system will check the TOS value of the received IP packet. If the TOS value of received IP packet is 25 (priority = high), and then the packet priority will have highest priority.
  - **Priority:** Select the priority level—high, medium, low, or normal.

- And then, click Apply to apply the configuration.
- Or, Click Refesh to reset the configuration before applying.

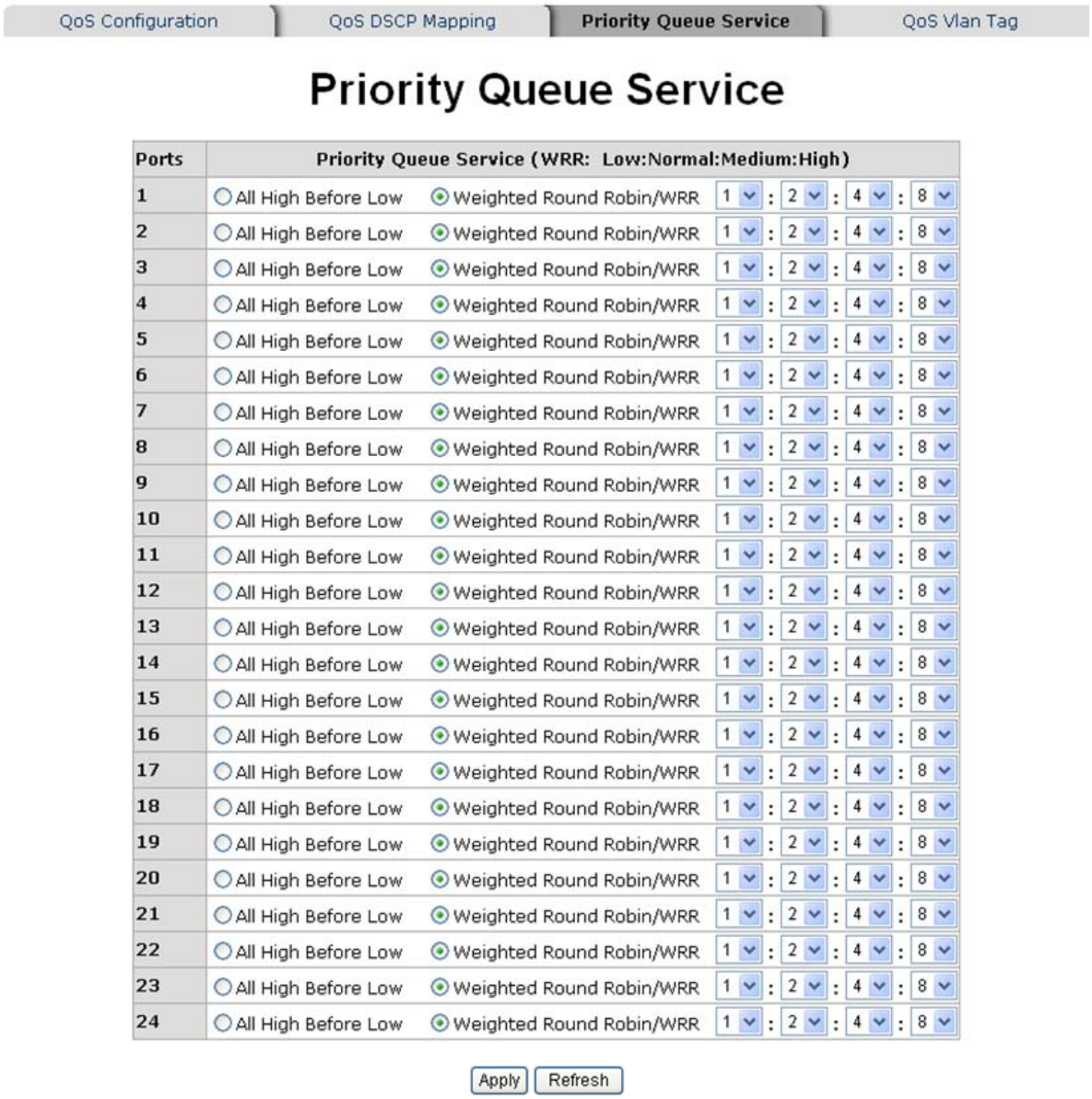


QoS DSCP Mapping interface

6.14.2 Priority Queue Service

Change to Priority Queue Service tab:

You can choose the means for priority queue. There are two radio buttons selection item—‘**All High Before Low’** & ‘**Weighted Round Robin/WRR’—**in each port column. When ‘**All High Before Low’** is selected, the low priority queues will be served before all of the high priority queue services are finished. Or otherwise, you can check the **Weighted Round Robin/WRR** radio button for the queue service to be served in compliance with WRR.

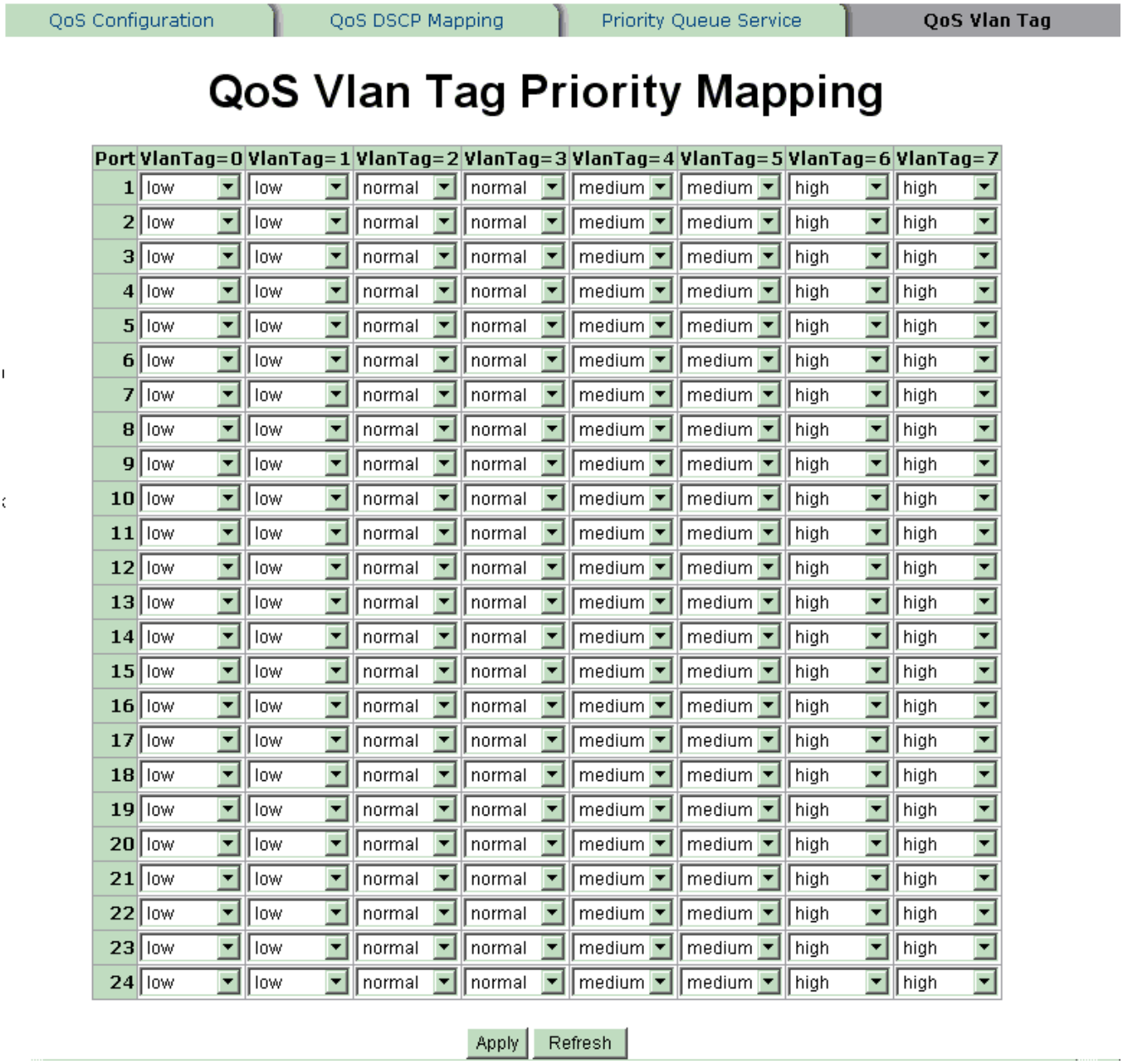


Priority Queue Service interface

- And then, click Apply to apply the configuration.
- Or, Click Refesh to reset the configuration before applying.

6.14.3 QoS Vlan Tag

You can pull down the selection item from Vlan Tag 0 to Vlan Tag 7 of each port to assign the priority. There are 4 priority selections—low, normal, medium and high.

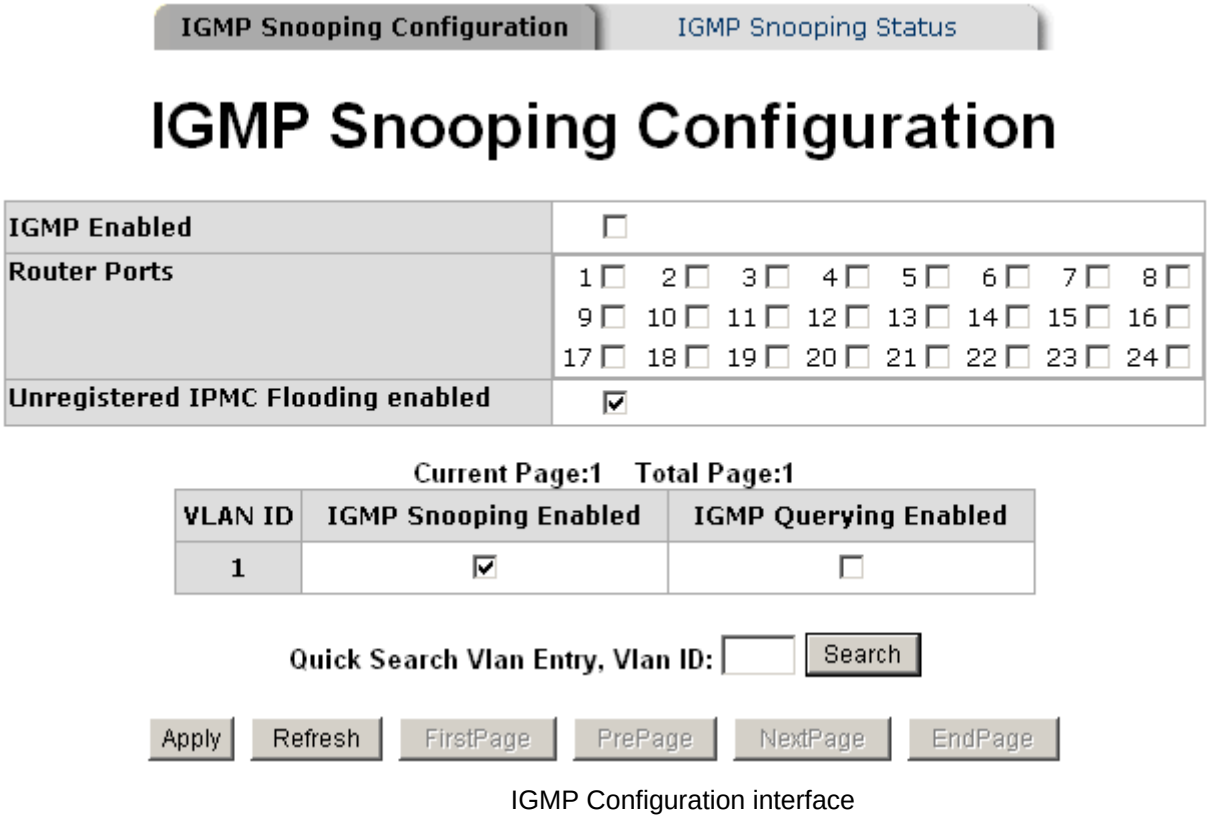


QoS VLAN Tag Priority Mapping interface

6.15 IGMP Configuration

- **IGMP Enabled:** Tick the check box to enable IGMP function.
- **Router Ports:** Tick the check box beside the port number for checking.
- **Unregistered IPMC Flooding enabled:** The default state is checked to enable the unregistered IP Multicast flooding.
- **IGMP Snooping Enabled:** Tick the check box to enable IGMP Snooping function.
- **IGMP Querying Enabled:** Tick the check box to enable IGMP Querying function.

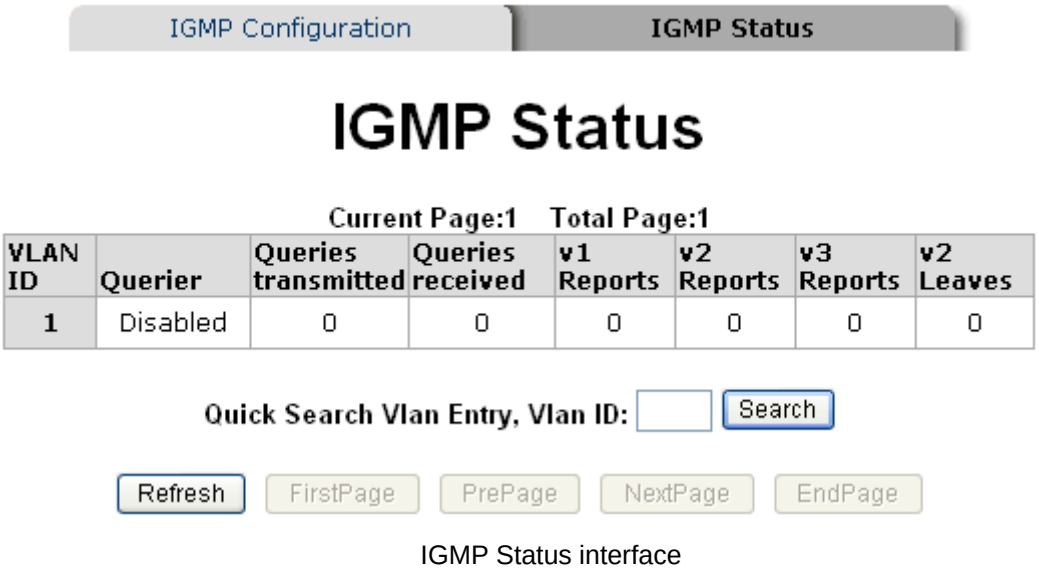
- And then, click Apply to apply the configuration.
- Or, Click Refesh to reset the configuration before applying.



IGMP Configuration interface

6.15.1 IGMP Status

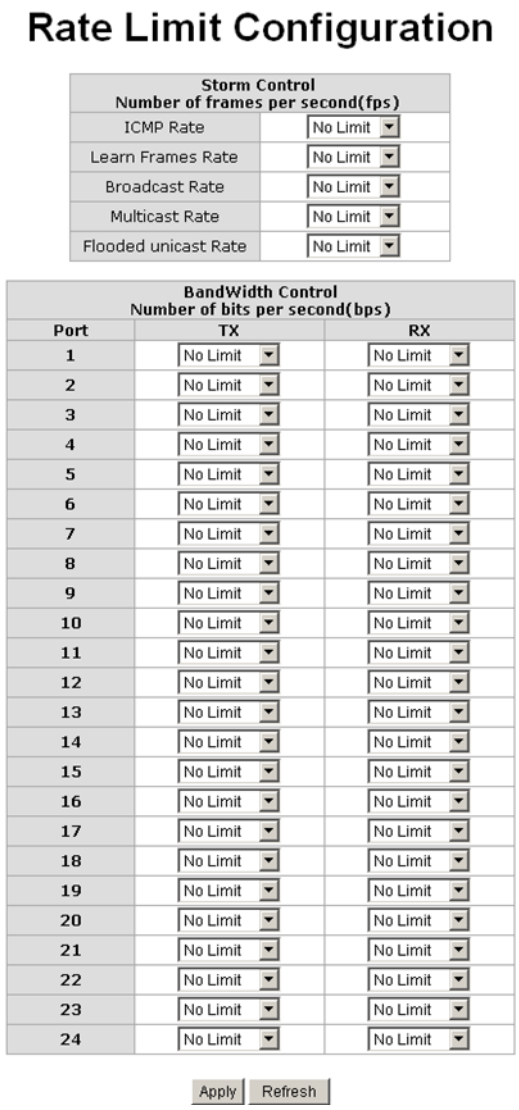
- **Querier:** Displays the status of the querier.
- **Queries transmitted:** Displays the amount of the transmitted queries.
- **Queries received:** Displays the amount of the received queries.
- **v1 ~ v3 Reports:** Displays the amount of IGMP reports issued from the client.
- **v2 Leaves:** Displays the amount of leave message issued from the client.
- Click Refesh to reset the status.



IGMP Status interface

6.16 Rate Limit Configuration

- **Storm Control (Number of frames per second)**
  - **ICMP Rate:** Assign the rate of transmitting packets of ICMP. The rates are in the range of 1K ~ 1024K fps or No limit.
  - **Learn Frames Rate:** Assign the rate of learning frames. The rates are in the range of 1K ~ 1024K fps or No limit.
  - **Broadcast Rate:** Assign the rate of broadcasting packets. The rates are in the range of 1K ~ 1024K fps or No limit.
  - **Multicast Rate:** Assign the rate of multicasting packets. The rates are in the range of 1K ~ 1024K fps or No limit.
  - **Flooded unicast Rate:** Assign the rate of flooded unicasting packets. The rates are in the range of 1K ~ 1024K fps or No limit.
- **Bandwidth Control (Number of bits per second)**
  - **TX:** Select the TX rates in the range of 128K ~ 3968K bps or No limit.
  - **RX:** Select the RX rates in the range of 128K ~ 3968K bps or No limit.
- And then, click Apply to apply the configuration.
- Or, Click Refesh to reset the configuration before applying.

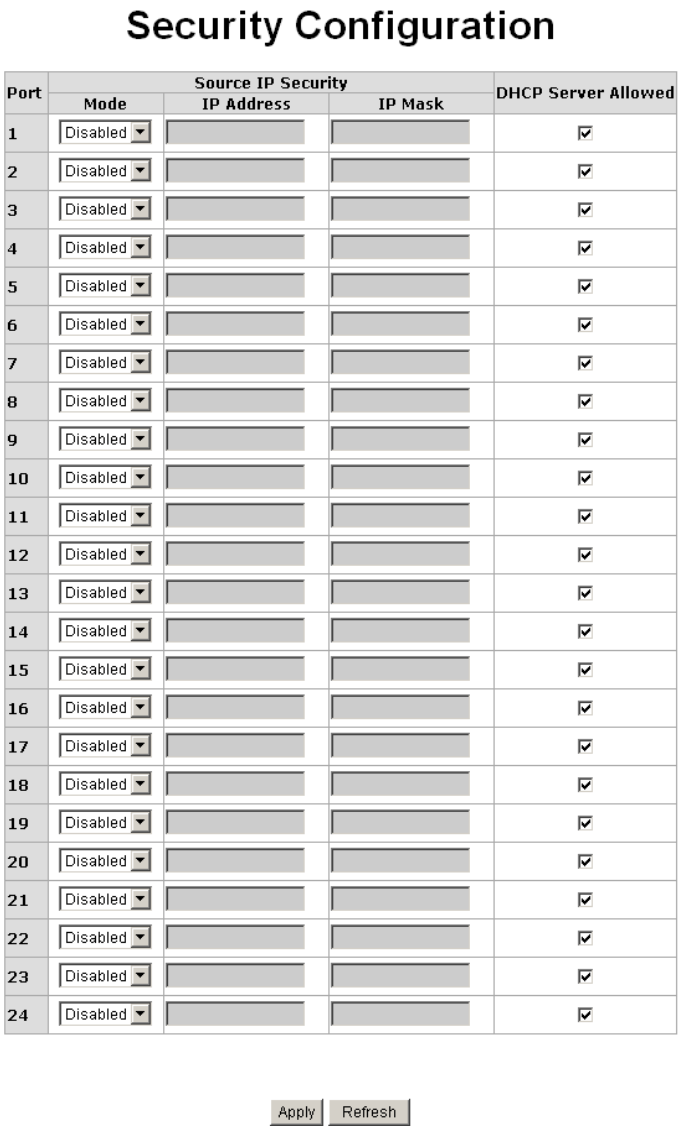


Rate Limit interface

6.17 Security Configuration

- **Source IP Security**
  - **Mode:** Select the source IP mode—Static, DHCP, or Disabled.
  - **IP Address:** When Mode is set in Static mode, the user has to assign an IP address manually.
  - **IP Mask:** When Mode is set in Static mode, the user has to assign the IP mask manually.
- **DHCP Server Allowed:** Tick this check box to allow the devices whose IP address assigned by DHCP server to access this port.

- And then, click Apply to apply the configuration.
- Or, Click Refesh to reset the configuration before applying.



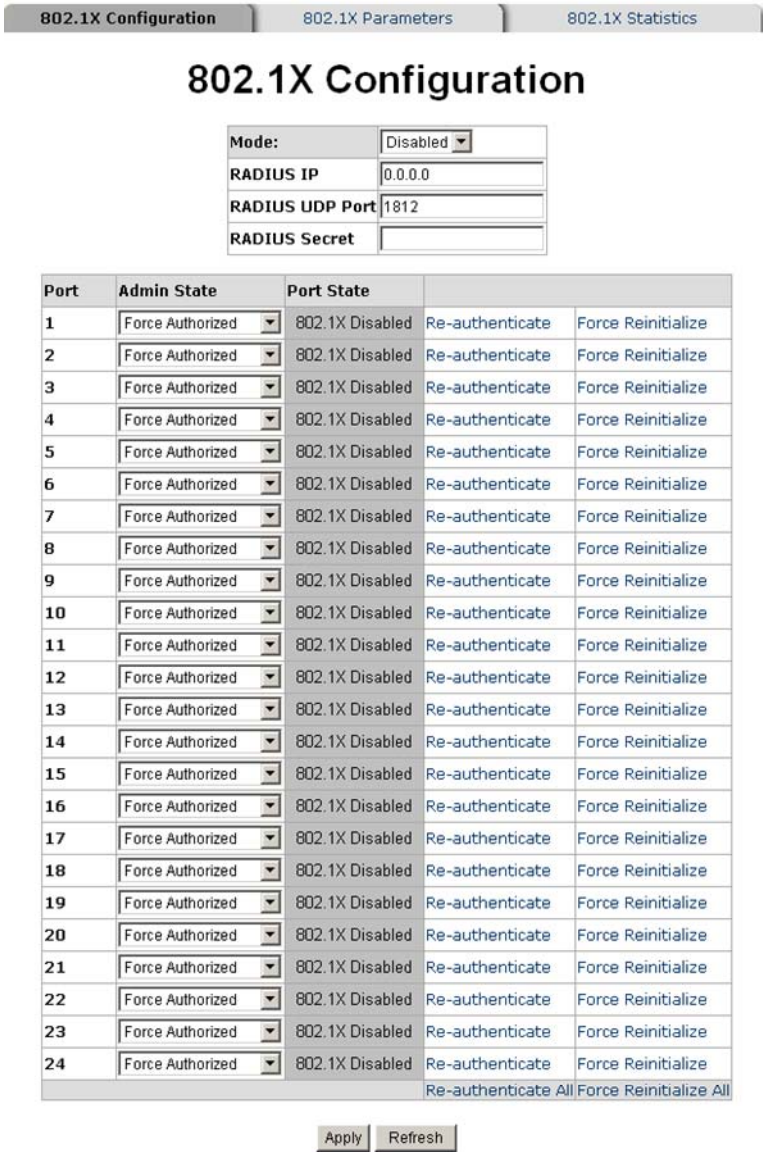
Filter Configuration interface

6.18 802.1X Configuration

IEEE 802.1X is an IEEE standard for port-based Network Access Control; it is part of the IEEE 802 (802.1) group of protocols. It provides authentication to devices attached to a LAN port, establishing a point-to-point connection or preventing access from that port if authentication fails. IEEE 802.1X is available on certain network switches, and can be configured to authenticate hosts which are equipped with supplicant software, denying

unauthorized access to the network at the data link layer.

- **Mode:** Disable or enable IEEE 802.1x authentication.
- **RADIUS IP:** Assign the Radius Server IP address.
- **RADIUS UDP Port:** Assign the UDP destination port for authentication requests to the specified Radius Server.
- **RADIUS Secret:** Assign an encryption key for using during authentication sessions with the specified radius server. This key must match the encryption key used on the Radius Server.
- **Admin State:** Select the state of the port.
  - **Force Authorized:** The specified port is required to be held in the authorized state.
  - **Force Unauthorized:** The specified port is required to be held in the unauthorized state
  - **Auto:** The specified port is set to the authorized or unauthorized state in accordance with the outcome of an authentication exchange between the Supplicant and the authentication server.
- **Re-authenticate:** Restart authentication process for the port.
- **Force Reinitialize:** Restart a complete authentication process for the port.
- **Statistics:** Click to view each port statistic.
- **Re-authenticate All:** Restart a complete authentication process for all of the ports.
- **Force Reinitialize All:** Restart authentication process for all of the ports.
- And then, click Apply to apply the configuration.
- Or, click Refresh to reset the configuration before applying.



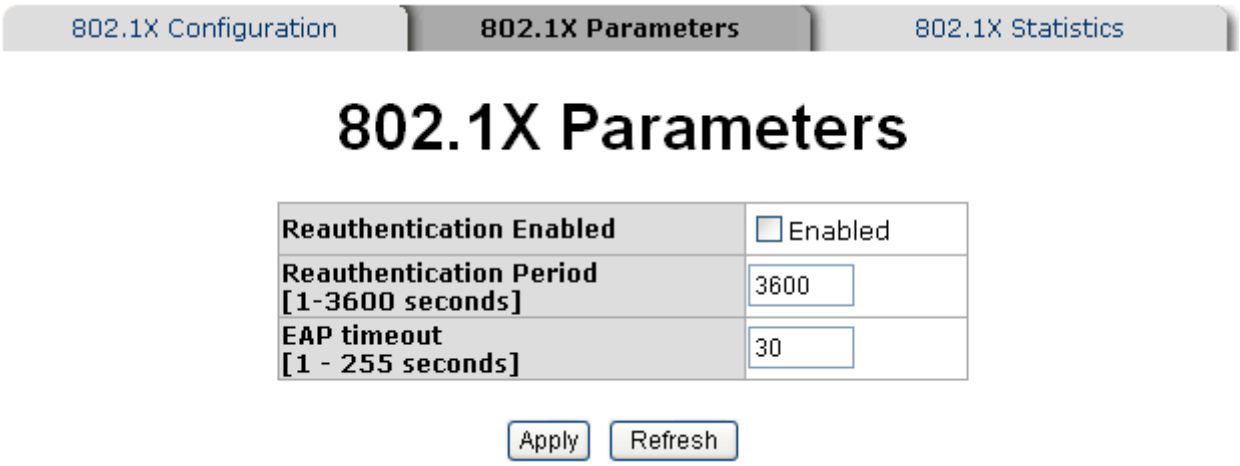
802.1X Configuration interface

6.18.1 802.1X Parameters

Click on the tab of 802.1X Parameters to change to configure the 802.1X Parameters page.

- **Reauthentication Enable:** Enable the re-authentication mode.
- **Reauthentication Period (1~3600 seconds):** Set the period of time after which clients connected must be re-authenticated.
- **EPA Timeout (1~255 seconds):** Set the period of time the switch waits for a supplicant response to an EAP request.

- And then, click Apply to apply the configuration.
- Or, click Refresh to reset the configuration before applying.



802.1X Parameters interface

6.18.2 802.1X Statistics

Click the tab of 802.1X Statistics to change to the 802.1X Statistics page to view the detail information.

- Click Refresh to get the newest statistics.

802.1X Configuration | 802.1X Parameters | **802.1X Statistics**

802.1X Statistics for Port 1

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

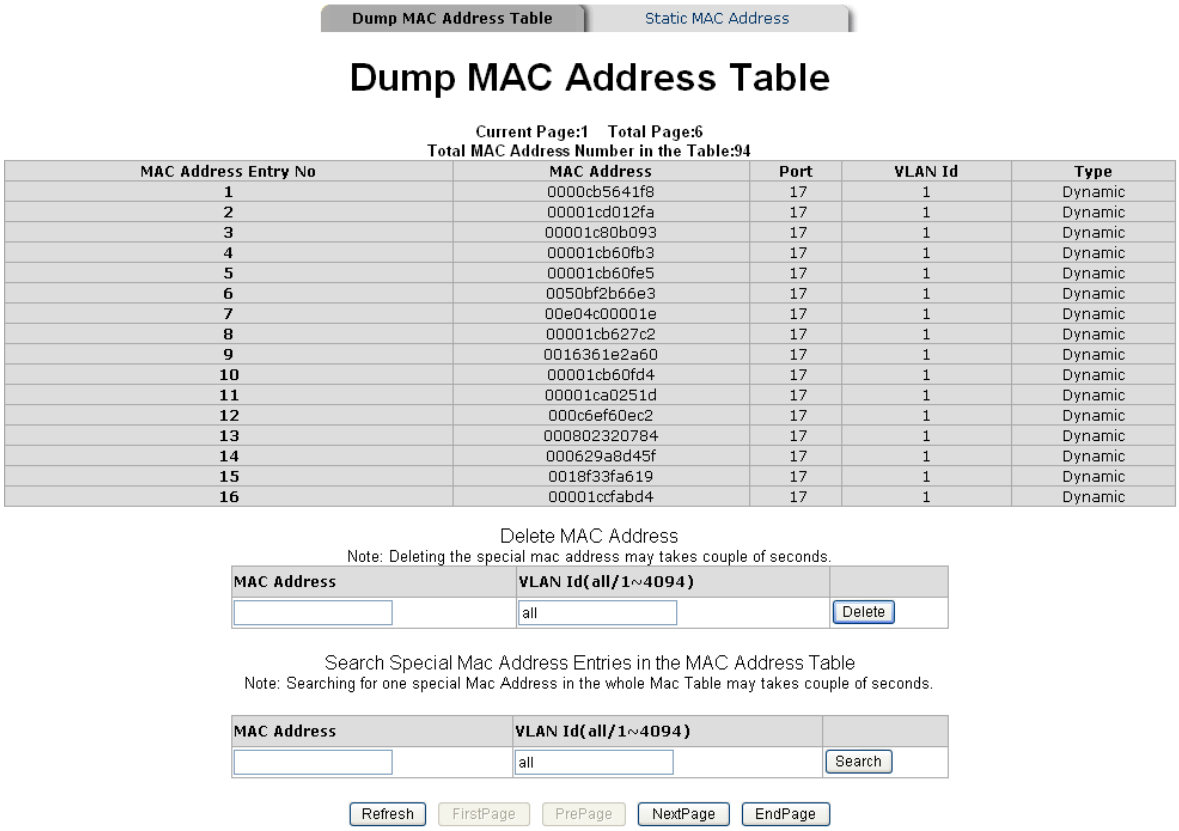
Authenticator counters			
authEntersConnecting	0	authEapLogoffsWhileConnecting	0
authEntersAuthenticating	0	authAuthSuccessesWhileAuthenticating	0
authAuthTimeoutsWhileAuthenticating	0	authAuthFailWhileAuthenticating	0
authAuthEapStartsWhileAuthenticating	0	authAuthEapLogoffWhileAuthenticating	0
authAuthReauthsWhileAuthenticated	0	authAuthEapStartsWhileAuthenticated	0
authAuthEapLogoffWhileAuthenticated	0		
Backend Authenticator counters			
backendResponses	0	backendAccessChallenges	0
backendOtherRequestsToSupplicant	0	backendAuthSuccesses	0
backendAuthFails	0		
dot1x MIB counters			
dot1xAuthEapolFramesRx	0	dot1xAuthEapolFramesTx	0
dot1xAuthEapolStartFramesRx	0	dot1xAuthEapolLogoffFramesRx	0
dot1xAuthEapolRespIdFramesRx	0	dot1xAuthEapolRespFramesRx	0
dot1xAuthEapolReqIdFramesTx	0	dot1xAuthEapolReqFramesTx	0
dot1xAuthInvalidEapolFramesRx	0	dot1xAuthEapLengthErrorFramesRx	0
dot1xAuthLastEapolFrameVersion	0	dot1xAuthLastEapolFrameSource	
Other statistics			
Last Supplicant identity			

Refresh

802.1X Statistics interface

6.19 MAC Address Table Control

- **MAC Address Entry No:** The index of the MAC address table.
- **MAC Address:** The MAC address of the entry.
- **Port:** Displays the port number from which the MAC address was learned.
- **VLAN ID:** Displays the VLAN ID of the port.
- **Type:** Displays the information of the MAC address that was learned automatically by the switch or built by user.
- Click Refesh to reset the status.

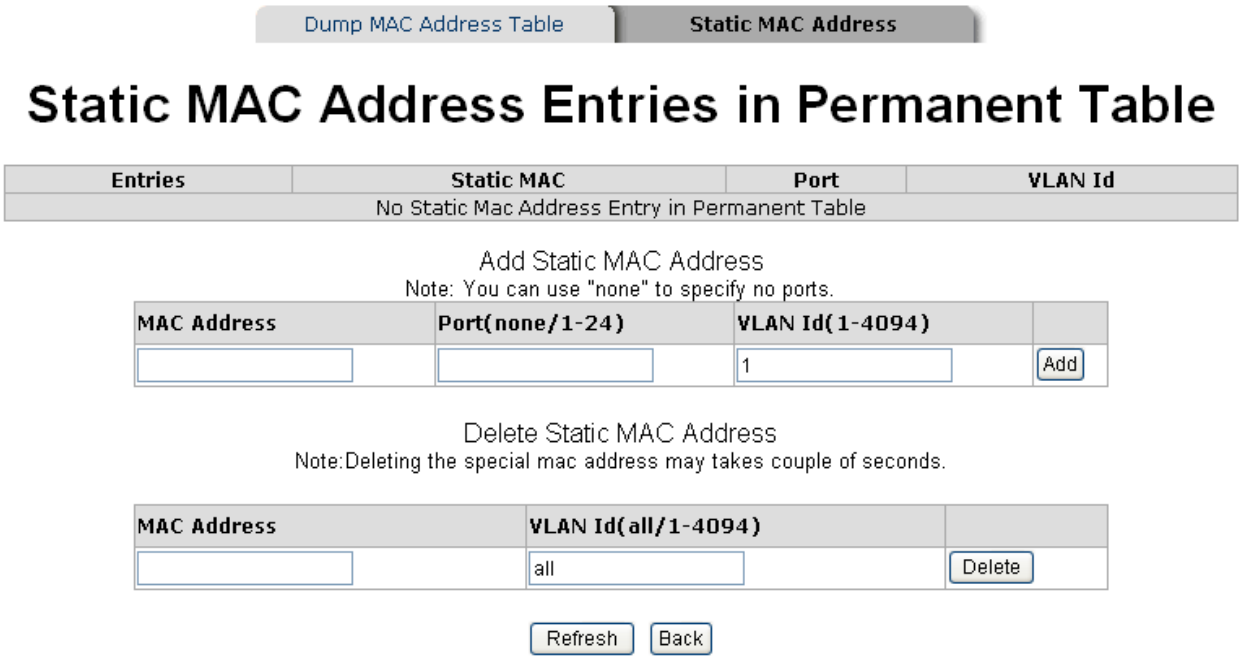


Dump MAC Address Table interface

6.19.1 Static MAC Address Entries in Permanent Table

You can add/delete MAC address entries manually to maintain the MAC address table.

- Click Refesh to get the newest information.

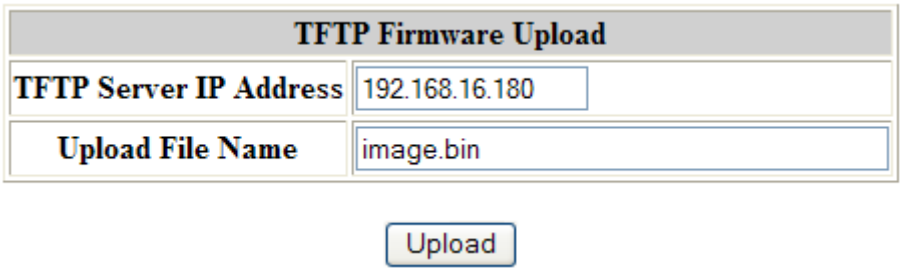


Static MAC Address Entries in Permanent Table interface

6.20 TFTP Firmware Upload

It provides the functions that allow you to upgrade the switch firmware. Before upgrading, make sure the TFTP server is ready and the firmware image is located on the TFTP server. Moreover, the check box beside the item of '**TFTP Server Enabled**' in '**System Configuration**' must be ticked.

- **TFTP Server IP Address:** Type in your TFTP server IP.
- **Firmware File Name:** Type in the name of the firmware image file.
- Click Upload.

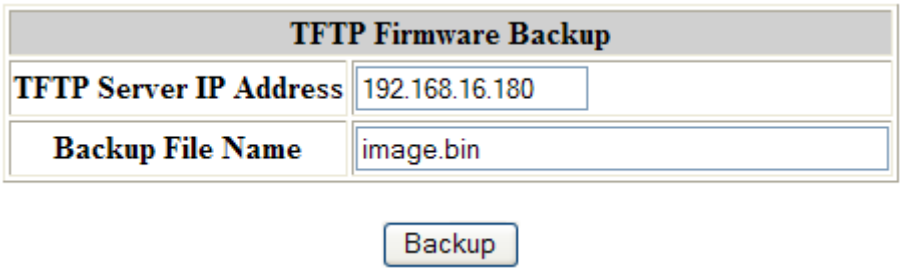


TFTP Firmware Upload interface

6.20.1 TFTP Firmware Backup

It provides the functions that allow user to backup the switch firmware. Before doing that, make sure the TFTP server is ready.

- **TFTP Server IP Address:** Type in your TFTP server IP.
- **Firmware File Name:** Type in the name of the firmware image file.
- Click Backup.

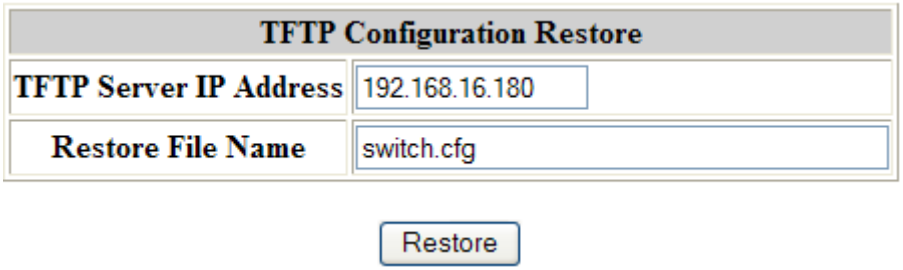


TFTP Firmware Backup interface

6.20.2 TFTP Configuration Restore

It provides the functions that allow you to restore the switch configuration. Before Restoring, make sure the TFTP server is ready and the previous configuration file is located on the TFTP server.

- **TFTP Server IP Address:** Type in your TFTP server IP.
- **Restore File Name:** Type in the name of the configuration file.
- Click Restore.

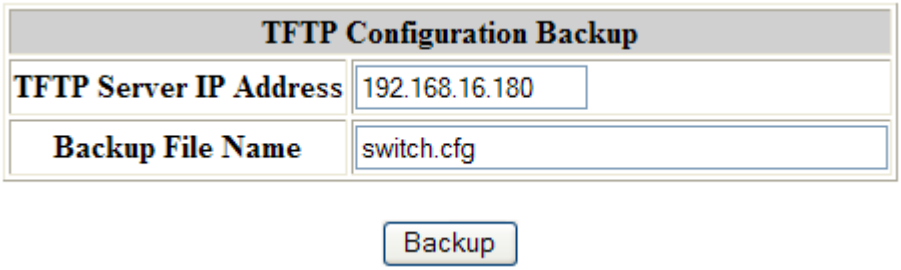


TFTP Configuration Restore interface

6.20.3 TFTP Configuration Backup

It provides the functions that allow user to backup the switch configuration. Before doing that, make sure the TFTP server is ready.

- **TFTP Server IP Address:** Type in your TFTP server IP.
- **Backup File Name:** Type in the name of the backup image file.
- Click Backup.

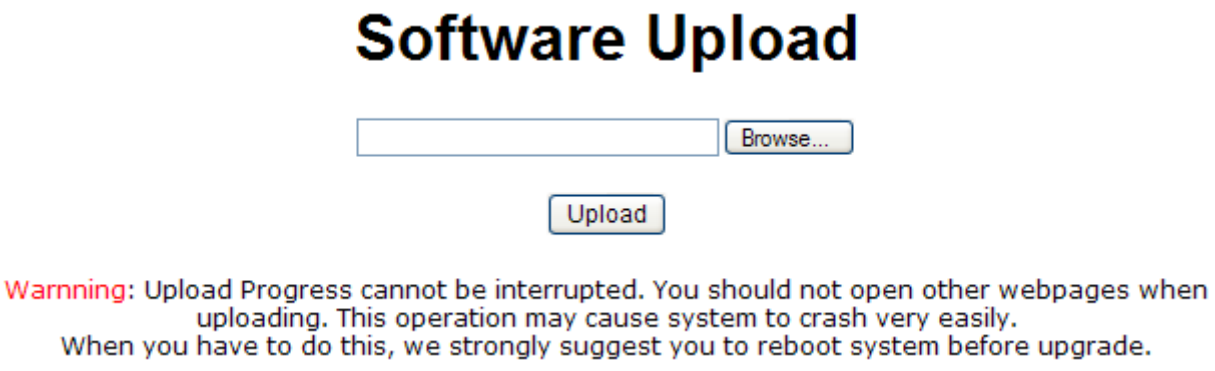


TFTP Configuration Backup interface

6.21 Software Upload

The system provides the Web GUI firmware upgrade function which allows user to upgrade the switch firmware.

- Click Browse... to locate the firmware.
- And then, press Upload to update the firmware.



Software Upload interface

6.21.1 Configuration Upload/Download

The system provides the Web GUI configuration file transfer function which would allow user to backup and restore the switch configuration.

- Click Browse to locate the file.
- And then, press Upload to upload the file.

Configuration Upload interface

- And then, press Yes to update the loaded file.

- For restoring the configuration, press Download to restore the file.

Configuration Download interface

6.22 Factory Default

Reset the switch to default configuration.

- Click Yes to reset all of the configurations to the default value.
- Or click KeepIP to reset all of the configurations to the default value except IP address.

Factory Default interface

6.23 Warm Restart

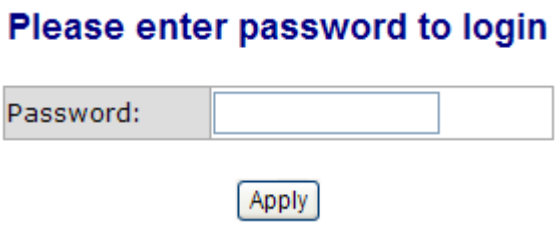
Reboot the switch in software reset to have the configurations taken effect.

- Click Yes to restart the system.

Warm Restart interface

6.24 Logout

To log out the system, just click the "**Logout**" item in the tree menu on the left side, and the system will display the login interface as below.



Logout interface

Troubleshooting

This section is intended to help user solve the most common problems on the 20 10/100/1000TX plus 4 10/100/1000T/Mini-GBIC Combo SNMP Lite Managed Switch.

Incorrect connections

The switch port can automatically detect straight or crossover cable when user link switch with other Ethernet device. As for the RJ-45 connector, it should use correct UTP or STP cable; 10/100TX port use 2-pairs twisted cable, while Gigabit 1000T port use 4 pairs twisted cable. If the RJ-45 connector is not correctly pinned on right position, then the link will fail. As for fiber connector, please notice the fiber cable mode and fiber module should match.

Faulty or loose cables

Look for loose or obviously faulty connections. If they appear to be OK, make sure the connections are snug. If that does not correct the problem, try a different cable.

Non-standard cables

Non-standard and miss-wired cables may cause numerous network collisions and other network problem, and can seriously impair network performance. A cable tester is a recommended tool for network installation.

RJ-45 ports: Use unshielded twisted-pair (UTP) or shield twisted-pair (STP) cable for RJ-45 connections: 100Ω Category 3, 4 or 5 cable for 10Mbps connections, 100Ω Category 5 cable for 100Mbps connections, or 100Ω Category 5e/above cable for 1000Mbps connections. Also be sure that the length of any twisted-pair connection does not exceed 100 meters (328 feet).

Improper Network Topologies

It is important to make sure that you have a valid network topology. Common topology faults include excessive cable length and too many repeaters (hubs) between end nodes. In addition, you should make sure that your network topology contains no data path loops. Between any two end nodes, there should be only one active cabling path at any time. Data path loops will cause broadcast storms that will severely impact your network performance.

Diagnosing LED Indicators

To assist in identifying problems, the Switch can be easily monitored through panel indicators, which describe common problems the user may encounter and where the user can find possible solutions.

If the power indicator does not light on when the power cord is plugged in, you may have a problem with power outlet, or power cord. However, if the switch powers off after running for a while check for loose power connections, power losses or surges at power outlet. If you still cannot resolve the problem, contact your local dealer for assistance.

Appendix A- Command Sets

System Commands

Commands	Description	Example
configuration [all]	Show system name, software version, hardware version and management MAC address. Optionally show the full configuration	system>**configuration** or system>**configuration all**
restore default [keepip]	Restore factory default configuration. or Restore to default without changing the current IP	system>**restore default** or system>**restore default keepip**
name [<name>]	Set or show the system name (String of up to 16 characters).	system>**system name** or system>**system name 123**
reboot	Reboot the switch.	system>**reboot**
xmodem	Start XMODEM receiver on this switch. Now send firmware image or configuration file over this serial line where the switch will save it in flash. This implementation of XMODEM uses CRC16 checksum and 128bytes buffer.	system>**xmodem**
SNMP [enable|disable]	Activate or deactivate the SNMP. [enable|disable]: Enable/disable	system>**snmp** or system>**snmp enable**

	SNMP (default: Show SNMP mode).	
Trap [<IP Address>]	Set or show SNMP traps destination. <IP Address>: IP address to send traps to. (default: Show trap configuration)	system>**trap** or system>**trap 192.168.16.66**
readcommunity [<community string>]	Set or show SNMP read community string. [<community string>]: New community string. (default: Show current value).	system>**readcommunity** or system>**readcommunity aaa**
writecommunity [<community string>]	Set or show SNMP write community string. [<community string>]: New community string. (default: Show current value).	system>**writecommunity** or system>**writecommunity bbb**
trapcommunity [<community string>]	Set or show SNMP trap community string. [<community string>]: New community string. (default: Show current value).	system>**trapcommunity** or system>**trapcommunity ccc**

Console Commands

Commands	Description	Example
configuration	Show configured console password and timeout.	console>**configuration**
password	Set or show the console password.	console>**password**

[<password>]	The empty string ("") disables the password check. [<password>]: Password string of up to 16 characters.	or console>**password aaa**
timeout [<timeout>]	Set or show the console inactivity timeout in seconds. The value zero disables timeout. [<timeout>]: Timeout value in seconds, 0,60-10000.	console>**timeout** or console>**timeout 100**
prompt [<prompt_string>]	Set or show the console prompt string. [<prompt_string>]: Command prompt string of up to 10 characters.	console>**prompt** or console>**prompt $**

Port Commands

Commands	Description	Example
configuration [<portlist>]	Show the configured and current speed, duplex mode, flow control mode and state for the port. [<portlist>]: Port list (Default: All ports).	port>**configuration** or port>**configuration 3**
mode [<portlist>] [<mode>]	Set or show the speed and duplex mode for the port. [<portlist>]: Port list (Default: All ports). [<mode>]: Port speed and duplex	port>**mode** or port>**mode 1000fdx** or port>**mode 1 1000fdx** or

	mode (Default: Show configured and current mode). 10hdx: 10 Mbit/s, half duplex. 10fdx: 10 Mbit/s, full duplex. 100hdx: 100 Mbit/s, half duplex. 100fdx: 100 Mbit/s, full duplex. 1000fdx: 1 Gbit/s, full duplex. auto: Auto negotiation of speed and duplex.	port>**1-20 1000fdx**
flow control [<portlist>] [enable|disable]	Set or show flow control mode for the port. [<portlist>]: Port list (default: All ports). [enable|disable]: Enable/disable flow control (default: Show flow control mode).	port>**flow control** or port>**flow control enable** or port>**flow control disable** or port>**flow control 3 enable** or port>**flow control 3 disable**
state [<portlist>] [enable/disable]	Set or show the state for the port. [<portlist>]: Port list (default: All ports). [enable|disable]: Enable or disable port state (default: Show state).	port>**state** or port>**state enable** or port>**state disable** or port>**state 2 enable** or port>**state 2 disable**
jumbomode [<portlist>] [enable/disable]	Set or show the jumbomode for frames received on the port. [<portlist>]: Port list (default: All ports).	port>**jumbomode** or port>**jumbomode 1 enable**
statistics [<portlist>] [clear]	Show or clear statistics for the port.	port>**statistics** or

	[<portlist>]: Port list (default: All ports). [clear]: Clear port statistics (default: Show statistics).	port>**statistics 2** or port>**statistics clear**
excessive collisions drop [enable|disable]	Description: Enable or disable drop of frames when excessive collisions occur in half duplex mode. [enable|disable]: Enable/disable frame drop (default: Show Excessive Collisions Drop mode).	port>**excessive collisions drop** or port> **excessive collisions drop enable** or port> **excessive collisions drop disable**

MAC Commands

Commands	Description	Example
configuration	Show the permanently stored MAC table and the MAC aging timer.	mac>**configuration**
add <macaddress> <portlist>|none [<vid>]	Add permanent MAC address and VLAN ID on ports. <macaddress>: MAC address, 12 digit hex string, optionally separated with dashes or colons (e.g. 010203ABCDEF or 01-02-03-AB-CD-EF or 01:02:03:AB:CD:EF). <portlist>: Port list. Use "none" to specify no ports. [<vid>]: VLAN ID, 1-4095 (default: 1).	mac>**add 000000000001 2**
delete <macaddress>	Delete MAC address and VLAN	mac>**delete 000000000001 2**

[<vid>]	ID. <macaddress>: MAC address, 12 digit hex string, optionally separated with dashes or colons (e.g. 010203ABCDEF or 01-02-03-AB-CD-EF or 01:02:03:AB:CD:EF). [<vid>]: VLAN ID (default: All).	
lookup <macaddress> [<vid>]	Lookup MAC address and VLAN ID. <macaddress>: MAC address, 12 digit hex string, optionally separated with dashes or colons (e.g. 010203ABCDEF or 01-02-03-AB-CD-EF or 01:02:03:AB:CD:EF). [<vid>]: VLAN ID, 1-4095 (default: 1).	mac>**lookup 000000000001 2**
table <vidlist>	Show the MAC address table for VLAN ID list. <vidlist>: VLAN ID list.	mac>**table 1**
flush	Removes non-locked entries from the switch MAC table.	mac>**flush**
agetime [<agetime>]	Set or show the MAC age timer in seconds. The value zero disables ageing. [<agetime>]: Age timer in seconds, 0 or 10-65535 (default: Show timer).	mac>**agetime** or mac>**agetime 100**

VLAN Commands

Commands	Description	Example
configuration [<portlist>]	Show the VLAN aware mode, port VLAN ID and accepted frame type for the port and the permanently stored VLAN table.	vlan>**configuration** or vlan>**configuration 2**
add <vidlist> [<portlist>]	Add VLAN entry and include ports in member set. <vidlist>: VLAN ID list. [<portlist>]: Port list (default: All ports).	vlan>**add 2 1** or vlan>**add 2 2-4** or vlan>**add 2 2-4,6** or vlan>**add 2 all**
delete <vidlist>	Delete VLAN entry (all ports excluded from member set). <vidlist> : VLAN ID list.	vlan>**delete 2**
lookup <vidlist>	Lookup VLAN entry and show port list. <vidlist> : VLAN ID list.	vlan>**lookup 2**
aware [<portlist>] [enable|disable]	Set or show the VLAN awareness mode for the port. VLAN aware ports will strip the VLAN tag from received frames and insert the tag in transmitted frames (except PVID). VLAN unaware ports will not strip the tag from received frames or insert the tag in transmitted frames. [<portlist>]: Port list (default: All ports).	vlan>**aware 1 enable** or vlan>**aware all enable**

	[enable|disable]: Enable/disable VLAN awareness (default: Show awareness).	
pvid [<portlist>] [<vid>|none]	Set or show the port VLAN ID. Untagged frames received on the port will be classified to this VLAN ID. Frames classified to this VLAN ID will be sent untagged on the port. [<portlist>]: Port list (default: All ports). [<vid>|none]: Port VLAN ID, 1-4095 (default: Show PVID). The 'none' option can be used for trunk links.	vlan>**pvid 1 2** or vlan>**pvid all 2**
frame type [<portlist>] [all|tagged]	Set or show the accepted frame type for the port. [<portlist>]: Port list (default: All ports). [all|tagged]: Accept all or only tagged (default: Show frame type).	vlan>**frame type 1 tagged** or vlan>**frame type all tagged** or vlan>**frame type 1 all** or vlan>**frame type all all**
ingress filtering [<portlist>] [enable|disable]	Set or show VLAN ingress filtering for the port. [<portlist>]: Port list (default: All ports). [enable|disable]: Enable or disable VLAN ingress filtering (default: Show current setting).	vlan>**ingress filtering 1** or vlan>**ingress filtering 1 enable**

Aggr Commands

Commands	Description	Example
configuration	Shows the aggregation groups and the aggregation mode.	aggr>**configuration**
add <portlist>	Add link aggregation group including ports. <portlist>: Aggregation port list.	aggr>**add 1-4**
delete <portlist>	Delete link aggregation group. <portlist>: Port list. Aggregations including any of the ports will be deleted.	aggr>**delete 1-4**
lookup <portlist>	Lookup and display link aggregation group. <portlist>: Port list. Aggregations including any of the ports will be shown.	aggr>**lookup 1-4**
mode [smac|dmac|xor]	Set or show link aggregation traffic distribution mode. [smac|dmac|xor]: Aggregation mode, SMAC, DMAC or XOR (default: Show mode).	aggr>**mode smac** or aggr>**mode dmac** or aggr>**xor**

LACP Commands

Commands	Description	Example
configuration [<portlist>]	Show LACP configuration. [<portlist>]: Port list (Default: All	lacp>**configuration** or lacp>**configuration 2**

	ports).	
mode [<portlist>] [enable|disable]	Enable or disable the LACP protocol on ports <portlist>. [<portlist>]: Port list (Default: All ports). [enable|disable]: Enable or disable.	lacp>**mode 3 enable** or lacp>**mode 1-4 enable** or lacp>**mode 1-4 disable**
key [<portlist>] [<key>|auto]	Set the LACP key on ports <portlist>. [<portlist>]: Port list (Default: All ports). [<key>]: Number between 1 - 255. Auto means autogenerated key.	lacp>**key 1 200** or lacp>**key 1-4 200** or lacp>**key auto**
status activity	Show the port of LCAP group states.	lacp>**status activity**
status	Show LACP group and port states.	lacp>**status**
statistics	Show LACP protocol port statistics.	lacp>**statistics**

RSTP Commands

Commands	Description	Example
configuration [<portlist>]	Show RSTP configuration. [<portlist>]: Port list (Default: All ports).	rstp>**configuration** or rstp>**configuration 2**
sysprio [<sysprio>]	Set or show the RSTP System Priority. [<sysprio>]: Number between 0 - 61440 in increments of 4096	rstp>**sysprio** or rstp>**sysprio 4096**

	This provides for 16 distinct values: 0, 4096, 8192, 12288, 16384, 20480, 24576, 28672, 32768, 36864, 40960, 45056, 49152, 53248, 57344 and 61440.	
hellotime [<secs>]	Set or show the RSTP System Hello time. [<secs>]: Number between 1 - 10 (default is 2)	rstp>**hellotime** or rstp>**hellotime 1**
maxage [<hops>]	Set or show the RSTP System Max Age. [<hops>]: Number between 6 - 40 (default is 20)	rstp>**maxage** or rstp>**maxage 6**
fwddelay [<secs>]	Set or show the RSTP System Forward delay. [<secs>]: Number between 4 - 30 (default is 15)	rstp>**fwddelay** or rstp>**fwddelay 4**
version [normal|compat]	Set or show the RSTP protocol version to use. [<version>]: normal - use RSTP, compat - compatible with old STP	rstp>**version** or rstp>**version compat** or rstp>**version normal**
mode [<portlist>] [enable|disable]	Enable or disable the RSTP protocol on ports <portlist>. [<portlist>]: Port list (Default: All ports). [enable|disable]: Enable or disable.	rstp>**1 enable** or rstp> **all enable** or rstp>**all disable**
aggr [enable|disable]	Enable or disable the RSTP	rstp>**aggr enable**

	protocol on aggregated links. [enable|disable]: Enable or disable.	
edge [enable|disable]	Expect the port to be an edge port (an end station) or a link to another STP device. [enable|disable]: End-station or bridge.	rstp>**edge 1 disable** or rstp>**edge 1 enable** or rstp>**edge all enable**
pathcost [<portlist>] [<pathcost>|auto]	Set the RSTP pathcost on ports <portlist>. [<portlist>]: Port list (Default: All ports). [<pathcost>]: Number between 1 - 200000000. Auto means autogenerated pathcost	rstp>**pathcost 1 1000** or rstp>**pathcost all 1000** or rstp>**pathcost all all**
mcheck <portlist>	Force a recheck of the RSTP protocol on the ports in <portlist>. <portlist>: List of ports.	rstp>**mcheck 1** or rstp>**mcheck all**
status	Show RSTP bridge instances and port states.	rstp>**status**
statistics	Show RSTP bridge instance and port statistics.	rstp>**statistics**

QoS Commands

Commands	Description	Example
configuration [<portlist>]	Show the configured QoS mode, VLAN user priority mapping, default class, default VLAN user	qos>**configuration 1** or qos>**configuration**

	priority and DSCP mapping for the port. [<portlist>]: Port list (default: All ports).	
mode [<portlist>] [tag|port|diffserv]	Set or show the QoS mode for the port. [<portlist>]: Port list (default: All ports). [tag|port|diffserv]: Enable tag, port or IP differentiated services class of service for the port (default: Show mode).	qos>**mode** or qos>**mode 1-4** or qos>**mode 1 tag** or qos>**mode all tag** or qos>**mode all port** or qos>**mode all diffserv**
tagprio [<portlist>] [<tagpriolist>] [<class>]	Set or show the VLAN user priority mapping. [<portlist>]: Port list (default: All ports). [<tagpriolist>]: VLAN user priority list, 0-7 (default: All user priorities). [<class>]: Internal class of service (default: Show class).	qos>**tagprio** or qos>**tagprio 1-4** or qos>**tagprio 1-24 0-1 high** or qos>**tagprio 1-24 2-3 midium** or qos>**tagprio 1-24 4-5 normal** or qos>**tagprio 1-24 6-7 low**
diffserv [<dscpno>] [<class>]	Set or show the IP Differentiated Services mapping. [<dscpno>]: IP DSCP number, 0-63 (default: All DSCP values). [<class>]: Internal class of service	qos>**diffserv** or qos>**diffserv 0 high** or qos>**diffserv 1 midium** or

	(default: Show class).	qos>**diffserv 2 normal** or qos>**diffserv 3 low**
priority queue service [<portlist>] [all high before low|<low wrr:normal wrr :medium wrr:high wrr>]	Set or show weighted rate ratio [<portlist>]: Port list (default: All ports) . [<all high before low>|<low:normal:medium:high>]: wrr 1,2,4,8 (default: show wrr setting).	qos>**priority queue service 1-4** or qos>**priority queue service 1-4 all high before low** or qos>**priority queue service 1-4 1:2:4:8**

Mirror Commands

Commands	Description	Example
configuration	Show the mirror destination port and mirror mode for source ports.	mirror>**configuration**
port [<port>]	Set or show the mirror destination port. [<port>]: Mirror destination port (default: Show mirror port).	mirror>**mirror port 12** or mirror>**mirror port**
source [<portlist>] [enable|disable]	Set or show the source port mirror mode. [<portlist>]: Source port list (default: All ports). [enable|disable]: Enable/disable mirroring of frames received on port (default: Show mirror mode).	mirror>**source 1 enable** or mirror>**source** or mirror>**source 1-10** or mirror>**source 1 disable**

IP Commands

Commands	Description	Example
configuration	Show IP configured IP address, mask, gateway, VLAN ID and mode.	ip>**configuration**
status	Show current IP status.	ip>**status**
setup [<ipaddress> [<ipmask> [<ipgateway>]]] [<vid>]	Setup or show IP configuration. [<ipaddress>]: IP address. (default: Show IP configuration) [<ipmask>]: IP subnet mask (default: Subnet mask for address class). [<ipgateway>]: Default IP gateway, (default: 0.0.0.0). [<vid>]: VLAN ID, 1-4095 (default: 1).	ip>**setup 192.168.16.3 255.255.255.0 192.168.16.10 1**
mode [enable|disable]	Activate or deactivate the IP configuration. [enable|disable]: Enable/disable IP (default: Show IP mode).	ip>**mode enable**
ping [-n <count>][-w <timeout>] <ipaddress>	Ping the specified IP address. [-n <count>]: Number of echo requests to send (default: 1). [-w <timeout>]: Timeout in seconds to wait for each reply (default: 2).	ip>**ping 192.168.16.77**
arp	Show the content of the ARP table.	ip>**arp**
dhcp [enable|disable]	Activate or deactivate the DHCP protocol. [enable|disable]: Enable/disable	ip>**dhcp enable**

	DHCP (default: Show DHCP mode).	
tftp [enable|disable]	Activate or deactivate the TFTP protocol. [enable|disable]: Enable/disable TFTP (default: Show TFTP mode).	ip>**tftp enable**
tftpget server-ip filename	Fetch file from server-ip via the TFTP protocol and store in flash. The content of the file will determine if it is a runtime image or a configuration file. server-ip: IP address of TFTP-server filename: Name of source file on TFTP-server	ip>**tftpget 192.168.16.66 3.wrp**
tftpput config|image|backup server-ip filename	Send configuration, image or backup file to server-ip via the TFTP protocol. config|image|backup: File contains configuration, runtime image or backup image server-ip: IP address of TFTP-server filename: Name of destination file on TFTP-server	ip>**tftpput config 192.168.16.66 3.wrp** or ip>**tftpput image 192.168.16.66 3.wrp** or ip>**tftpput backup 192.168.16.66 3.wrp**

802.1x Commands

Commands	Description	Example
configuration	Show current 802.1X configuration.	dot1x>**configuration**

mode [enable|disable]	Enable or disable 802.1X process for the switch. [enable|disable]: new mode (default: Show current configuration).	dot1x>**mode enable**
state [<portlist>] [Auto|ForceAuthorized|ForceUnauthorized]	Set or show the 802.1X state for the port. [<portlist>]: Port list (default: All ports). [Auto|ForceAuthorized|ForceUnauthorized]: Set 802.1X state for the ports. (default: Show mode).	dot1x>**state 1 auto** or dot1x>**state 1 forceauthorized** or dot1x>**state 1 forced unauthorized** dot1x>**state 1**
server [<IP Address>]	Set or show RADIUS server IP address. [<IP Address>]: IP address of external RADIUS server. (default: Show current configuration)	dot1x>**server 192.168.16.254**
udp port [<value>]	Set up UDP Port for the external RADIUS server. [<value>]: The UDP port the RADIUS server listens to (default: Show current configuration).	dot1x>**udp port 1812**
secret [<Shared Secret>]	Set or show the secret shared with the RADIUS server. [<Shared Secret>]: Shared secret shared with external RADIUS server. (default: Show current	dot1x>**secret 1813**

	configuration)	
statistics [<portlist>]	Show 802.1X statistics for the port. [<portlist>]: Port list (default: All ports).	dot1x>**statistics** or dot1x>**statistics 1**
reauthenticate [<portlist>] [now]	Refresh (restart) 802.1X authentication process for the port by setting reAuthenticate TRUE. [<portlist>]: Port list (default: All ports). [now]: if specified, force re-authentication immediately.	dot1x>**reauthenticate 1 now** or dot1x>**reauthenticate 1**
parameters [<parameter>] [<value>]	Set up advanced 802.1X parameters. [<parameter>]: Parameter to change. [<value>]: New value for the given parameter	dot1x>**parameters reauthentication enable** or dot1x>**parameters reauth-eriod 20** or dot1x>**parameters eap-timeout 10** or dot1x>**parameters reauthentication disable**

Filter Commands

Commands	Description	Example
configuration [<portlist>]	Show the configured valid IP address and DHCP server filter for the port. [<portlist>]: Port list (Default: All	filter>**configuration** or filter>**configuration 1**

	ports).	
source ip [<portlist>] [all|dhcp|<ipaddress> [<ipmask>]]	Set or show the valid source IP address for the port. [<portlist>] : Port list (default: All ports). [all|dhcp|<ipaddress> [<ipmask>]]: Allow all IP addresses, the IP address from DHCP or static IP address configuration (default: Show Filter source IP).	filter>**source IP 192.168.16.11 255.255.255.0** or filter>**source ip dhcp** or filter>**source ip all**
state [<portlist>] [enable|disable]	Set or show the Source IP filter state for the port. [<portlist>] : Port list (default: All ports). [enable|disable]: New state for Source IP filter (default: Show current configuration).	filter>**state 1 enable** or filter>**state all enable**
dhcp server [<portlist>] [allow|deny]	Set or show the DHCP server port. [<portlist>]: Port list (default: All ports). [allow|deny]: Enable or disable accepting DHCP reply frame on port (default: Show Filter DHCP Server).	filter>**dhcp server 1 deny** or filter>**dhcp server 1 allow** or filter>**dhcp server all allow**

IGMP Commands

Commands	Description	Example
configuration	Show the IGMP configuration.	igmp>**configuration**
status	Show the IGMP operational status	igmp>**status**

	and statistics.	
groups <vidlist>	Show IGMP groups for given VLANs.	igmp>**group 1**
mode [enable|disable]	Set or show global IGMP mode. (default: Show current mode)	igmp>**mode enable**
state <vidlist> [enable|disable]	Set or Show IGMP state per VLAN. (default: Show IGMP state)	igmp>**state 1 enable**
querier <vidlist> [enable|disable]	Set or Show IGMP querier state per VLAN. (default: Show IGMP querier state)	igmp>**querier 1 enable**
router ports [<portlist>] [enable|disable]	Set or show IGMP administrative router ports. (default: Show current router ports)	igmp>**router ports1 enable**
Unregistered Flood [enable|disable]	Set or show forwarding mode for unregistered (not-joined) IP multicast traffic. Will flood when enabled, and forward to router-ports only when disabled. (default: Show current mode)	igmp>**unregistered flood enable**