FEP-0840

8-Port Web Smart PoE Switch

Quick Guide

&

User Manual

V1.0

Digital Data Communications Asia Co., Ltd.

http://www.level1.com

Quick Guide

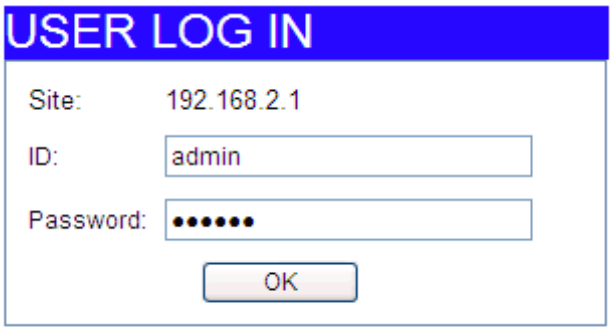
Step1. Connect POE SWITCH with AC power cord to 100~240VAC.

Step2. Connect the PoE AP device to LAN port 1, and your PC to LAN port 8 as the following connection.

Step3. Turn on the power switch, it will light on the PWR LED, and perform self-diagnostic test. It takes about 10 seconds to complete the process.

Step4. Set your PC IP address to **192.168.2.100** (same subnet **192.168.2.x** as the web management).

Step5. Enter "**192.168.2.1**" (default IP address of Web management) from PC web browser. The web management will display the following login page

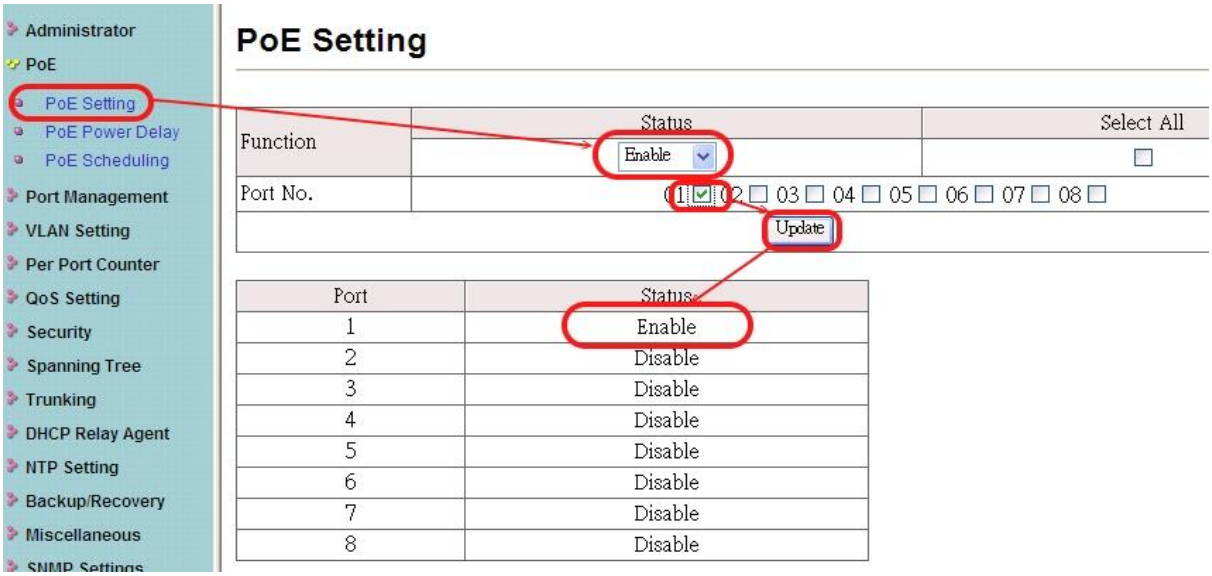


Enter "**admin**" for user ID, "**system**" for password, and click the **OK** button to login to the Web management.

Note: the user ID and password fields are case-sensitive.

Step6. Click the icon "**PoE**", and then select "**PoE Setting**".

Step7. Select "**Enable**" and click on Port No.**1** and **Update** to power on the connected PoE AP device for Port 1. You may also click "**PoE Scheduling**" to select time schedule for Power on/off scheduling control.



Step8. Refer to Chapter 4 for further networking configurations.

**** Note:**
Problems in setting up the web smart PoE switch?
Please refer to the last chapter for troubleshooting.

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1 Introduction

The **POE SWITCH** is an 8-Port Web-Smart Midspan PoE Switch with power on/off scheduling control. The web smart features are designed to deliver high levels of performance that are commensurate with Fast Ethernet networking, and to provide simple and easy installation in an environment where the power over Ethernet (PoE) are required for remote PoE devices.

The web smart switch provide 10/100Mbps Fast Ethernet connections with many networking capabilities per port basis including Security, QoS service, Bandwidth Control, Spanning Tree Protocol, VLAN, SNMP settings, and PoE functions.

The power over the Ethernet ports are all turned off initially, and can be turned on per port basis through the web management to power on the corresponding remote PoE device. The powered PoE device can be any equipment of IEEE 802.3af and 802.3at PoE device, such as WiFi AP, IP camera, IP Phone, etc.

Each port can deliver up to 15 Watt (or optional 30Watt) to the corresponding remote PoE device. Request of more power from remote PoE device may result in a power failure due to activation of Over-Current-Protection (OCP) circuit.

The POE SWITCH can be installed in a rack mount chassis where space is limited. The optional rack mount kit can be purchased separately from you local dealer for rack mount installation.

The rest of this user manual will help you to uncover most of the web smart features with step-by-step instructions illustrated on web pages.

2 Features

The POE SWITCH web smart PoE switch is equipped with an 8-port RJ45 connector for Fast Ethernet, and the corresponding LED indicators for each port. In addition, a built-in push button is provided for default reset, which is useful to reset back to the default IP address, user ID, and password. The features are as the following

- RJ45 x 8 for WAN and LAN ports with PoE capability
- Max. 15Watt (optional 30Watt) per port basis
- Passive power compatible with IEEE802.3af and 802.3at PoE devices
- Networking configurations by Web Management
- 16+1 LED Indicators: LAN, PoE (for 8 ports) + PWR (for system power)
- Built-in push button for default reset
- AC power on/off switch
- OVP, OCP, OTP protections

2.1 Power on Switch

The POE SWITCH is equipped with an internal power supply to operate with 100~240 VAC, 50 ~ 60 Hz. The AC power cord connector is at the rear panel next to the power on/off switch. Turning on the power switch, it will first perform "**self-diagnostic**" test, and take about 10 seconds to complete the process.

2.2 LED Indicators

LED Status Table

LED	Status	Descriptions
PoE	ON	The PoE function is enabled.
	OFF	The PoE function is disabled.
Power	ON	System power is on.
	OFF	System power is off.
10/100M	ON	LAN Port is in connection.
	OFF	No Ethernet connection.
	Flashing	Data is transmitting or receiving

3 Switch Installations

This chapter lists the package contents, and describes the hardware and detailed procedures for installation of the web management switch. For a quick setup, please refer to the quick guide at the beginning of this manual.

3.1 Package Contents

Make sure that you have all the necessary accessories that come with your package, before you start the installation of the web management switch.

After unpacking and taking out the entire package contents, please check whether you have got the following items:

- ✓ POE SWITCH Unit
- ✓ One AC Power Cord
- ✓ One CD-ROM for Quick Guide & User's Manual

If any of these above items is missing or damaged, please contact your local dealer for replacement.

3.2 Hardware Overview

Front Panel

The 8 ports of RJ-45 connector are on the front panel of the web smart switch with the corresponding LED indicators. The built-in push button for default reset is next to the PWR LED indicator, and can be easily accessed by a pencil or a ball pen.

LED Indicators:

LED indicators display the network connection and PoE status of the switch.

100BASE-TX Fast Ethernet with PoE Ports (Port 1~8):

These ports are with passive PoE capabilities, and will supply power to the connected PoE device under the control of the web management. This feature allows users to freely and safely mix legacy and PoE compatible devices on their network.

All the 8 ports support network speeds of either 10Mbps or 100Mbps, and can operate in half- and full- duplex transfer modes. These ports also support the automatic MDI/MDIX crossover detection function to provide "**plug and play**" capability.

Reset Button

The Reset button is used to reset all the setting back to the factory default values. Make sure that all the settings of the switch are taken down, or all the previous settings will be erased after pressing the "**Reset**" button.

The Rear Panel

The 3-pronged power plug is placed at the rear panel of the switch shown as below.

3.3 Preparations for Site Installation

You can mount POE SWITCH either on desktop or on a 19-inch rack. If you plan to mount the switch on desktop, please choose a steady, level surface in a well-ventilated area that is free from excessive dust. In any case, the installation site chosen for your switch has to comply with the following requirements:

- The surface where you want to mount the switch must be able to sustain at least 1.5kg.
- Do not place heavy objects (more than 3kg) on top of the switch.
- The location must preferably be free from excessive dust, away from heat vent, hot-air exhaust and direct sunlight.
- The switch should not be placed near large electric motors or other strong electromagnetic sources. As a reference, the strength of the electromagnetic field on site should not exceed the (RFC) standards for IEC 801-3, Level 2(3V/M) field strength.
- The air temperature in the location should be within a range of 0 to 60℃.
- The relative humidity in the location should not exceed 90% non-condensing humidity.
- The distance between the RJ-45 port and the standard network interface should not exceed 100 meters.
- Adequate space should be allowed in front of all the ports, so that each port is easily accessible for cable connections.
- Leave at least 10cm (4 inch) of space around the switch to allow heating dissipation

Rack Mounting

The POE SWITCH can be mounted on a standard size 19-inch rack, and placed in a wiring closet with other equipments.

Before you can mount the switch on the rack, first you must attach the mounting brackets on both sides of the switch with screws, and then mount it as a unit on the rack.

3.4 Desktop Installation

The POE SWITCH has four rubber pads attached on each corner of its underside. These pads serve as cushioning against vibration and prevent the switch from sliding off its position.

They also allow adequate ventilation space when you place the switch on top of another device.

The location you choose to install your switch and the way you configure your network may greatly affect its performance.
Do not place more than 1.5kg (6.6lbs) of weight on the top of the switch.
Leave at least 10cm of space around the switch to allow proper heating dissipation.

3.5 Cabling Requirements

For 100BASE-TX ports

The 8 RJ-45 station ports require standard Cat.5 twisted-pair UTP/STP cable for connection. When configuring within the 10/100 BASE-T cabling architecture, the cable distance should be within 100m. The cable requirement for 10/100BASE-TX connection is listed in table as follows:

10BASE-T	100 ohm Category 3, 4, 5 UTP/STP cable
100BASE-TX	100 ohm Category 5 UTP/STP cable

Auto MDI/MDI-X function

The POE SWITCH is equipped with Auto-MDI/MDI-X function, which allows you to use straight-thru cable to connect another switch/hub. Simply use the straight-through cable for all types of 10/100BASE-TX connections to either a PC or other switch.

Connection / **Spec.**	**10 /100Base-TX**
Interface	RJ-45
Cable to Use	Standard Cat.5
To an end station	Straight-through twisted-pair cable
To a hub/switch	Straight-through twisted-pair cable
Maximum Distance	100 meters

3.6 Power Connection

The POE SWITCH is equipped with an internal power supply unit, which allows a power connection to a wide range of input voltages from 100 to 240 VAC with 50 ~ 60Hz.

To establish its power connection, simply plug the female end of the power cord into the power connector on the rear of the switch and the male end of the power cord into a suitable power outlet. Once you have correctly plugged in the power, you can then turn on the Power Switch to activate the switch.

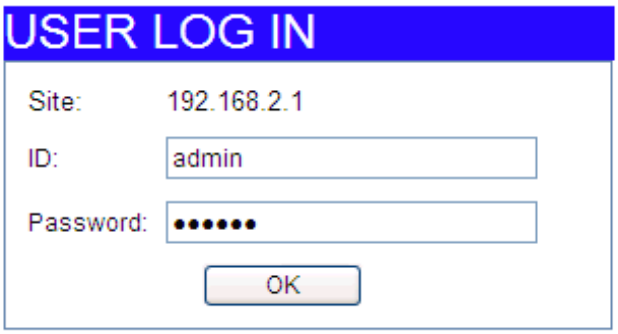
3.7 Installation Steps

This section describes the step-by-step procedures for PoE setup.

Step1. Connect the PoE AP device to LAN port **1**, and your PC to LAN port **8** of the POE SWITCH as the above connection.

Step2. Set your PC IP address to **192.168.2.100**
(This PC IP address must be in the same subnet **192.168.2.x** as the web management. Should you have problem in setting PC IP address, please refer to Section 4.1 for setting up your PC IP address.)

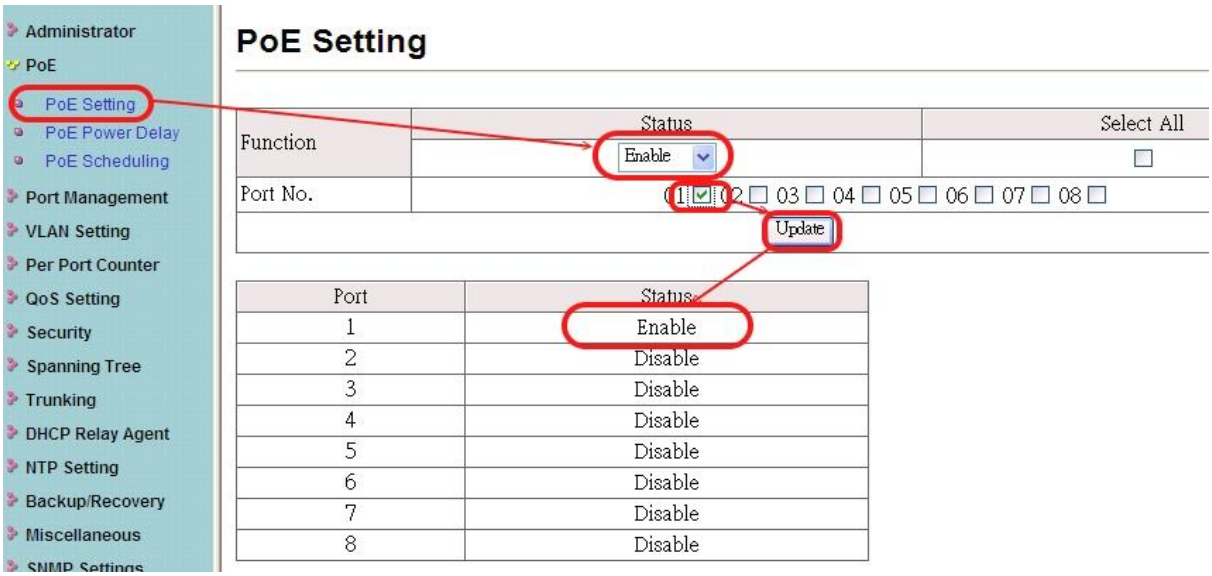
Step3. Enter "**192.168.2.1**" from PC web browser to connect to web management page as the following;



Step4. Enter "**admin**" for username and "**system**" for password.

Step5. Go to "**PoE**", and then select "**PoE Setting**".

Step6. Click on Port No.**1** and **Update** to power on the connected PoE AP device for Port 1.



Step7. Install the rack mount kit on the 19" rack if needed.

Step8. Refer to Chapter 4 for further networking configurations.

3.8 Reset to Default

When forgot the web management IP address, user ID, or password, you may use the reset button for the factory default settings. Please follow the steps to reset the Web Smart Switch back to the original default values;

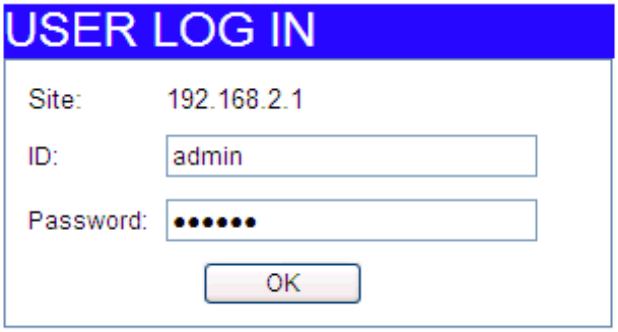
Step1. Turn on the web smart switch.

Step2. Press and hold the reset button continuously for 10 seconds and release the reset button.

Step3. The switch will reboot for 5 seconds and the configuration of switch will reset back to the default setting.

Step4. Set your PC IP address to **192.168.2.100**

Step5. Enter "**192.168.2.1**" from PC web browser to connect to web management.



Step6. Enter "**admin**" for username and "**system**" for password, and click OK button to login to web management.

4 Web Management

The POE SWITCH can be configured on web page, including administrator, bandwidth management, VLAN setting, per port counter, trunk setting, QoS setting, security filter configuration, backup/recovery, miscellaneous, logout, etc. The web browsers, such as IE 6.0~7.0, Firefox 2.0~3.0, can be used to configure the web smart switch. All the web management functions will be illustrated in this chapter.

4.1 Setup your computer for Web management

The Concept of Subnet

Under the TCP/IP environment, network devices must be on the same subnet in order to connect to each other. This means that your computer must set to the same subnet and subnet mask as the switch in order to configure the switch through PC web browser.

To find out the IP address information for your computer, please run Command Line window in WinNT/2000/XP, and enter "**ipconfig**". (or enter "**winipcfg**" in Win9x).

For example, if one IP address is 192.168.2.1, and the other IP address must be 192.168.2.x (x can be any number between 2 and 254) for same Class C subnet.

For the same subnet mask, usually 255.255.255.0 is used for all Class C subnet.

Configure you computer's IP address

Before accessing the switch through web browser, please follow the instruction below to configure your computer's IP to the same subnet as the switch. If the web smart switch IP address has not been changed, it should have the following factory default value:

Default IP Address:

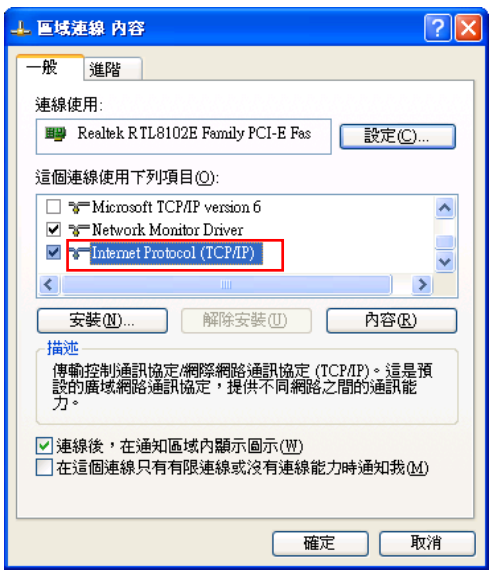
IP Address: 192.168.2.1

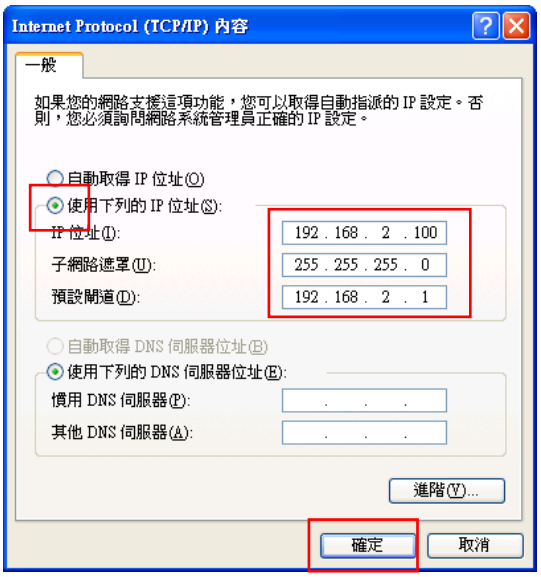
Subnet Mask: 255.255.255.0

To set your computer IP address in the same subnet as the switch, please follow the steps to change the computer IP address:

Step 1. Double click on the network connection status icon on the task bar. This should bring up a window showing the status of the current network connection. If there is no network status icon on the task bar, please go to the "**Start** -> **Settings** -> **Network** -> **Local Area Connection**" of the Window task bar's Start menu.

Step 2. Click on the "**property**" icon.





Step 3. Double click on the "**Internet Protocol (TCP/IP)**" icon.

Step 4. Click on "**Use the following IP address**" button and enter the computer's IP address manually. This IP address must be on the same subnet as the switch but different from the switch's IP. Please make sure the IP is not used by other network device. If the switch's IP address is with factory's default value, please enter the following for computer's IP:

IP Address: 192.168.2.100

Subnet Mask: 255.255.255.0

Gateway: 192.168.2.1

Click "**Ok**" after finish entering the IP.

***Note1:** An alternative configuration is to change the switch IP address into the same subnet as the computer. This can be done in the Section 4.3 Admistrator for setting new switch IP address.

***Note2:** The POE SWITCH has DHCP client ability. This allows DHCP server (or router) to assign IP automatically. However, we do not recommend turning on the DHCP client because the DHCP server assign the IP randomly. The DHCP client should be used only when connecting directly to Cable Modem (for remote management) whose service provider uses DHCP for IP assignment.

Now, you will be able to access the switch by entering the switch's IP address on the web browser.

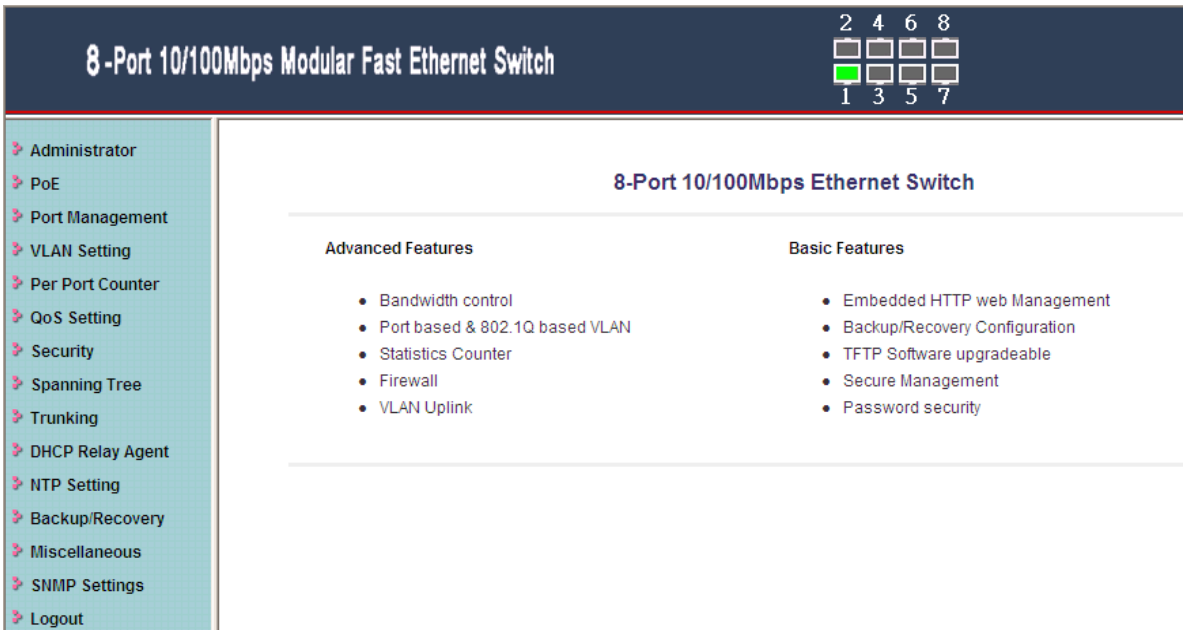
4.2 Web management

After you have properly configured the computer and switch's IP, you can get into the web management by the following steps:

Step 1. Run the Internet Explorer

Step 2. Enter "**192.168.2.1**" for the web management IP address.

Step 3. Enter "**admin**" for ID and "**system**" for password, and click the OK button to login to the web management page as follows.



Menu Bar

The Menu bar is on the left side of the screen where you may click to configure management functions. Most configurations for administration services are under the "**Administrator**" menu.

Port Connection Status

The on/off status on the top of the screen gives the quick overview of the port connection status. When a port is plugged in, the switch's image will show a "**plug**" on the corresponding port. Click on a port will show the quick port status.

4.3 Administrator

The Administrator section includes the management functions as the following:

Authentication Configuration

System IP Configuration

System Status

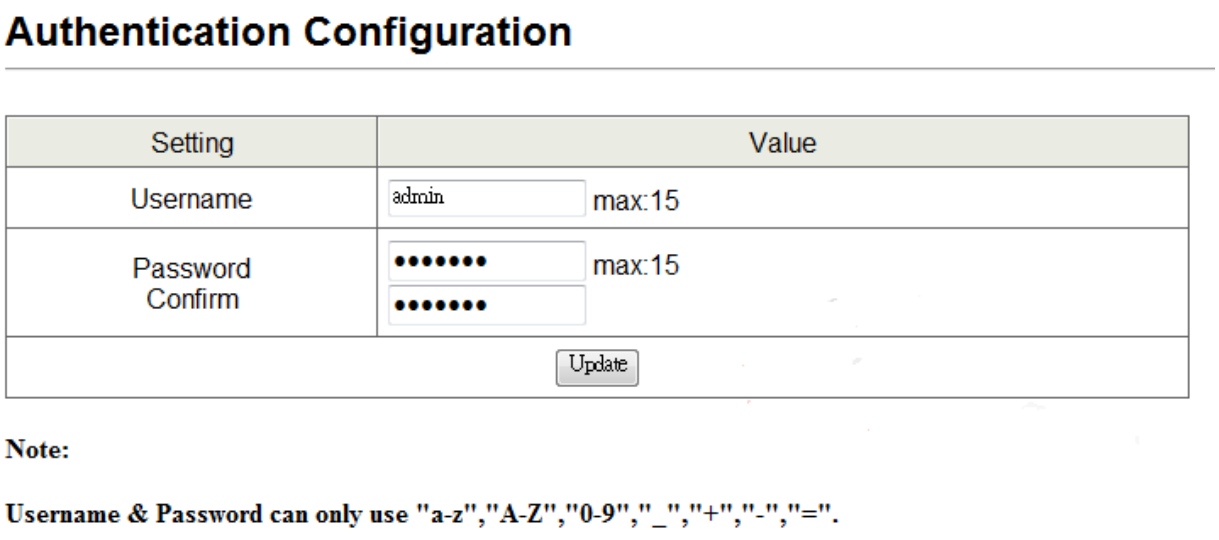
Load Default Setting

Firmware Update

Reboot Device

4.3.1 Authentication Configuration

This page shows the information for authentication configuration. User can set new Username and Password in this page.

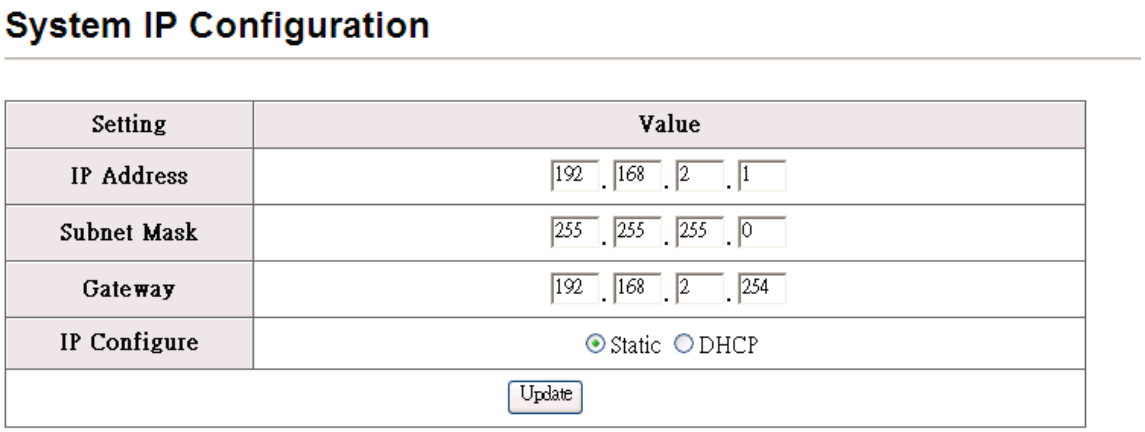


Note:

Username & Password can only use "a-z","A-Z","0-9","_","+","-","=".

4.3.2 System IP Configuration

This page shows system configuration including the current IP address, Subnet mask, and Gateway.



User can configure the IP settings, Subnet Mask, Gateway as below:

IP address: The default IP is 192.168.2.1

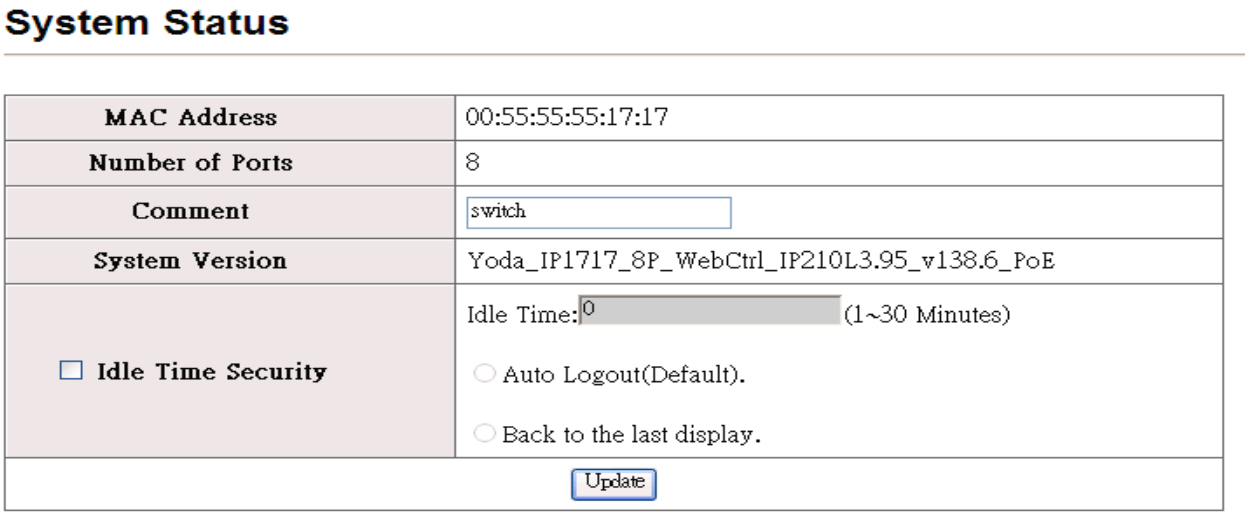
Subnet Mask: The default is 255.255.255.0.

Gateway: Assign the network gateway for the web smart switch.

If you change the IP address of this switch and then press Update. It will show "**update successfully**" then press Reboot button. It will enter user login screen automatically.

4.3.3 System Status

This page shows the status of switch, including MAC address and software version. The comment field allows the network administrator to input an easy-to-remember nickname for this switch.



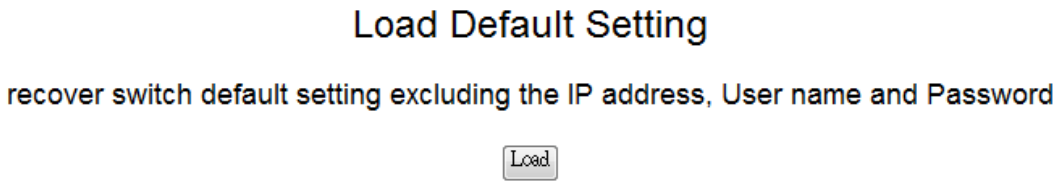
Number of Ports: Displays number of ports in the switch.

Comment: Comment note for the switch.
System Version: Displays the switch's firmware version.
Click **Update** button for exit.

4.3.4 Load Default Setting

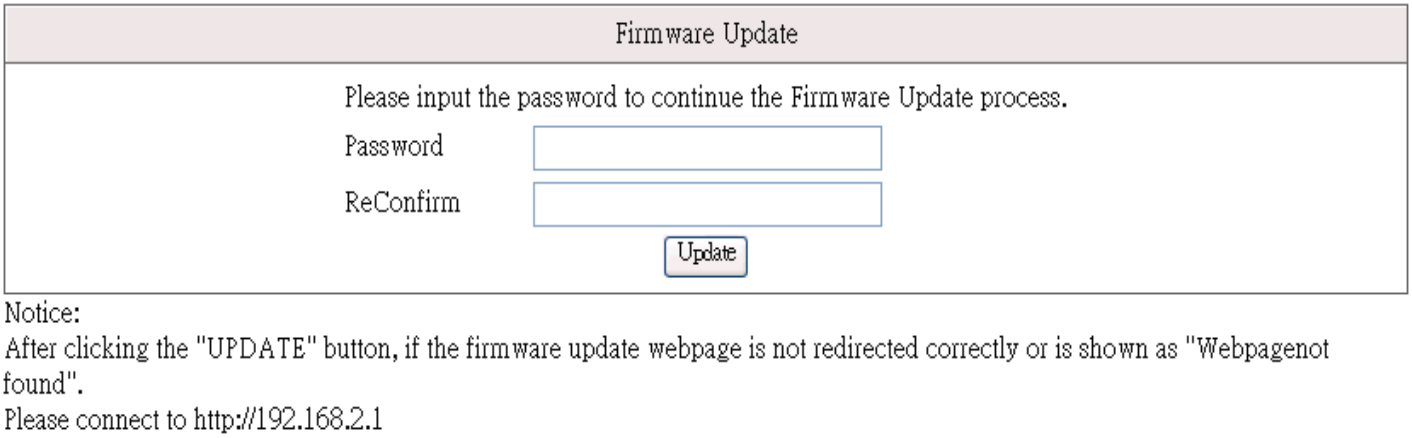
The switch can be set to the default values by clicking the "**Load**" button.

***Note:** This will NOT change the user ID, password, and IP configurations. It only restore all default settings related to switch behavior.



4.3.5 Firmware Update

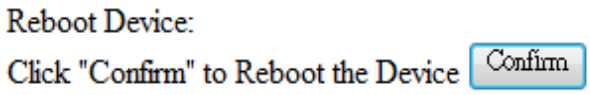
User need to enter the password twice and press **Update** button to update the firmware. The smart switch will erase the flash memory. There is a self-protection mechanism in the boot loader, so the boot loader will keep intact. The boot loader will restore the code to firmware update page, even though the power is turned off or the cable link fails during the firmware update procedure.



After pressing Update button, the old web code will be erased. Then you can select the new image file and press "**Update**" button to update the firmware you need.

4.3.6 Reboot Device

Click **“Confirm**" button to reboot the device.

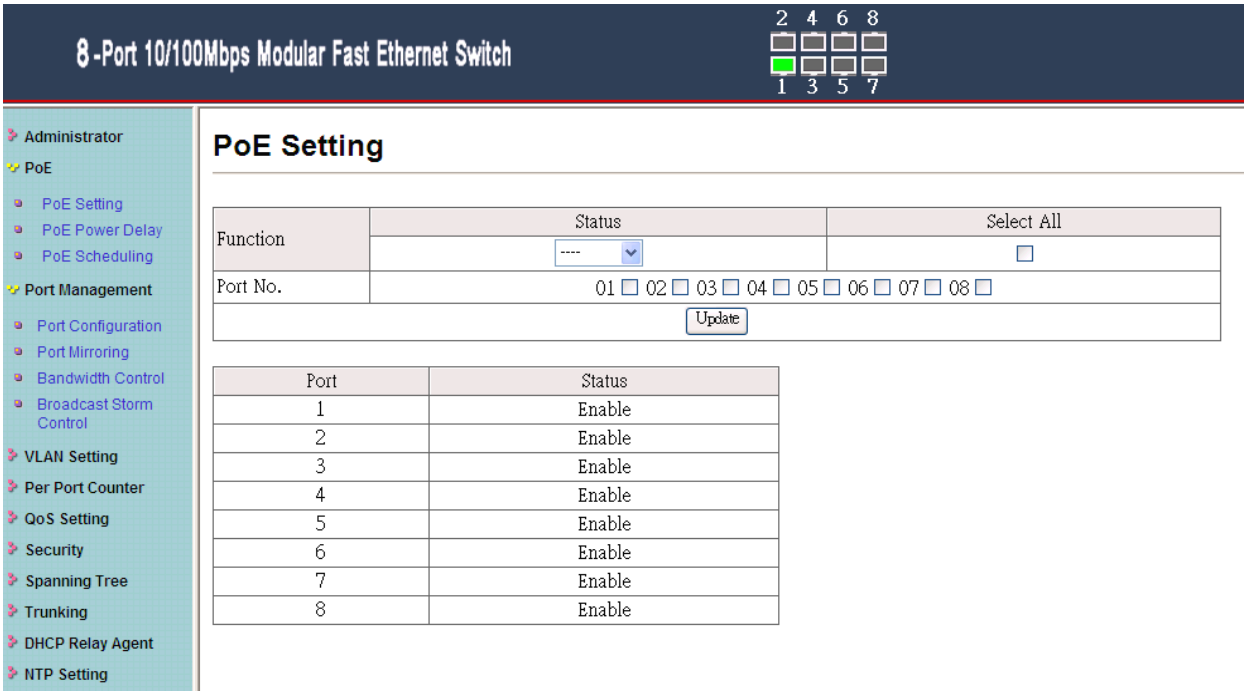


***Note:** The reboot is for software base instead of hardware base

4.4 PoE

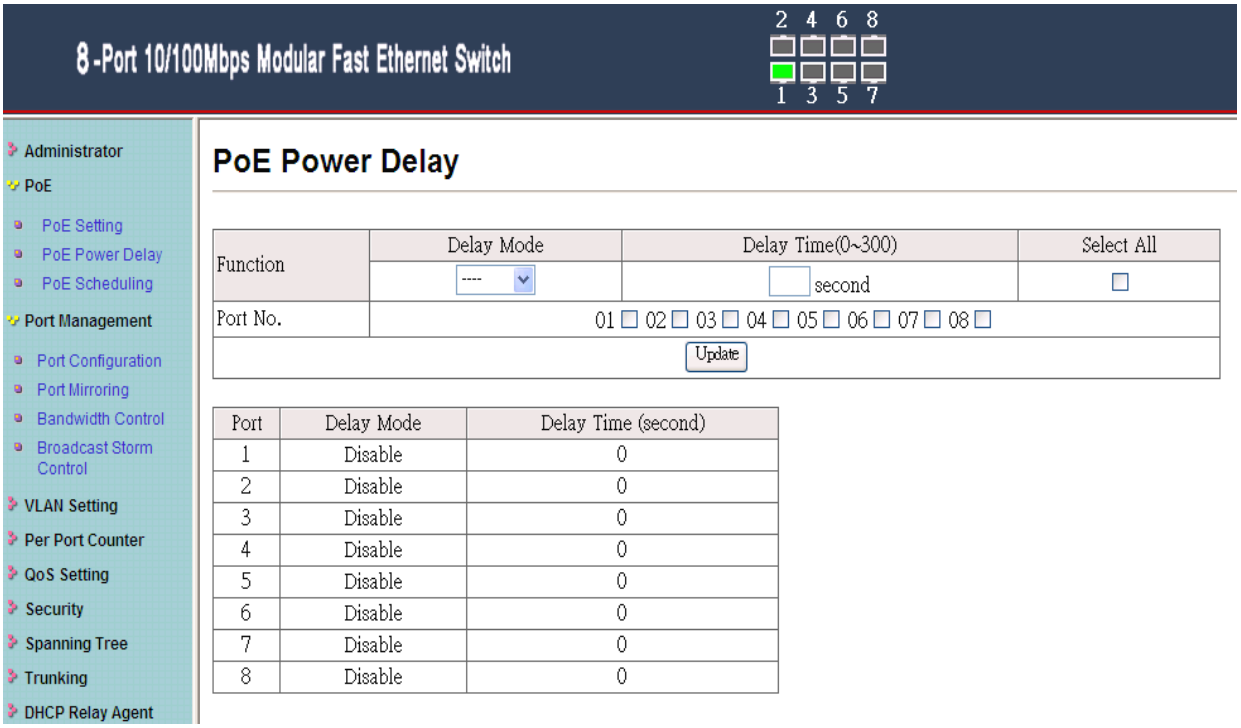
This PoE section describes the PoE functions, and display the power on/off status of each port.

4.4.1 PoE Setting



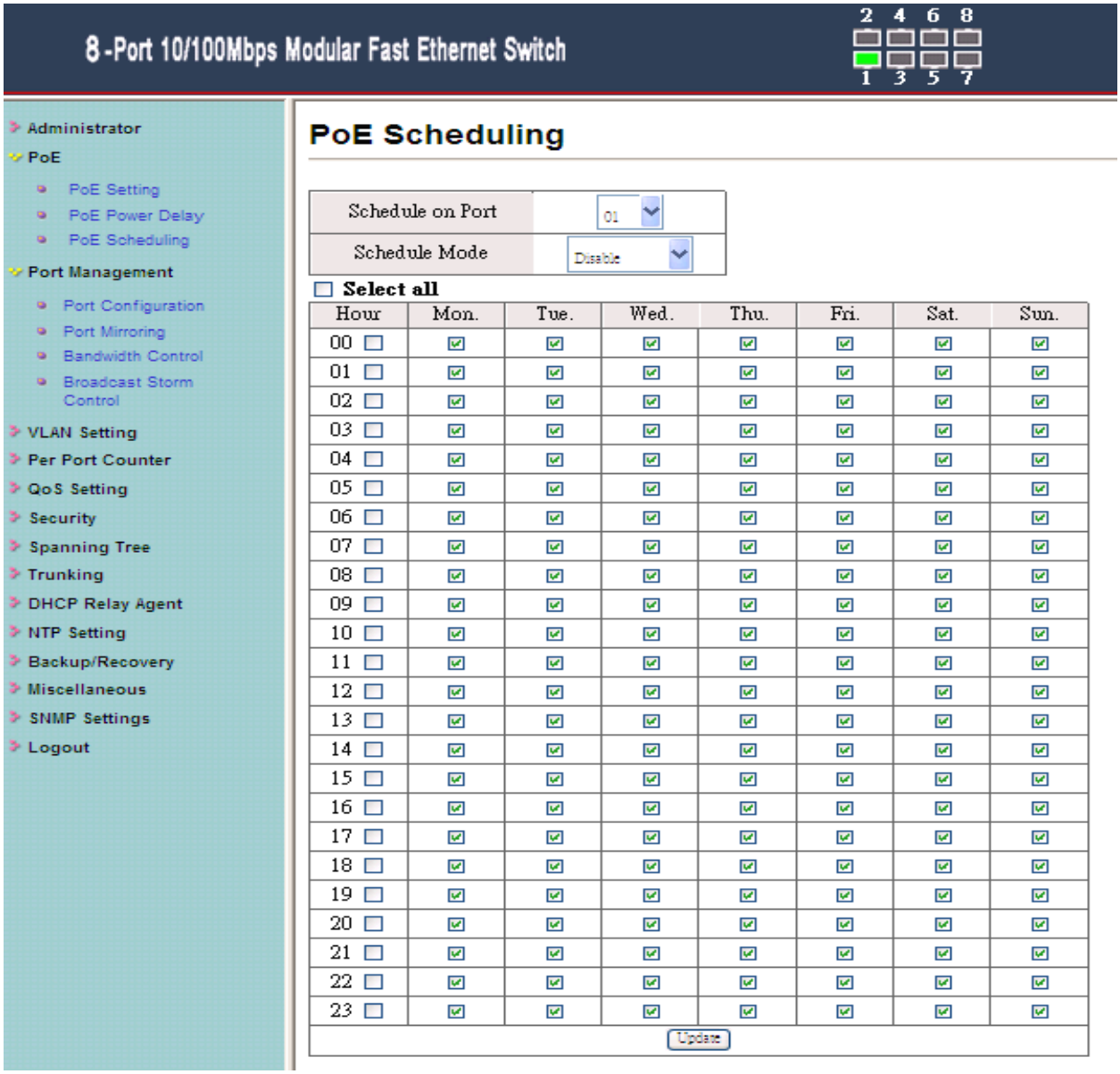
4.4.2 PoE Power Delay

This PoE power on/off will be delayed in accord with the delay mode.



4.4.3 PoE Scheduling

The PoE on/off control will be scheduling in accord with the schedule mode.

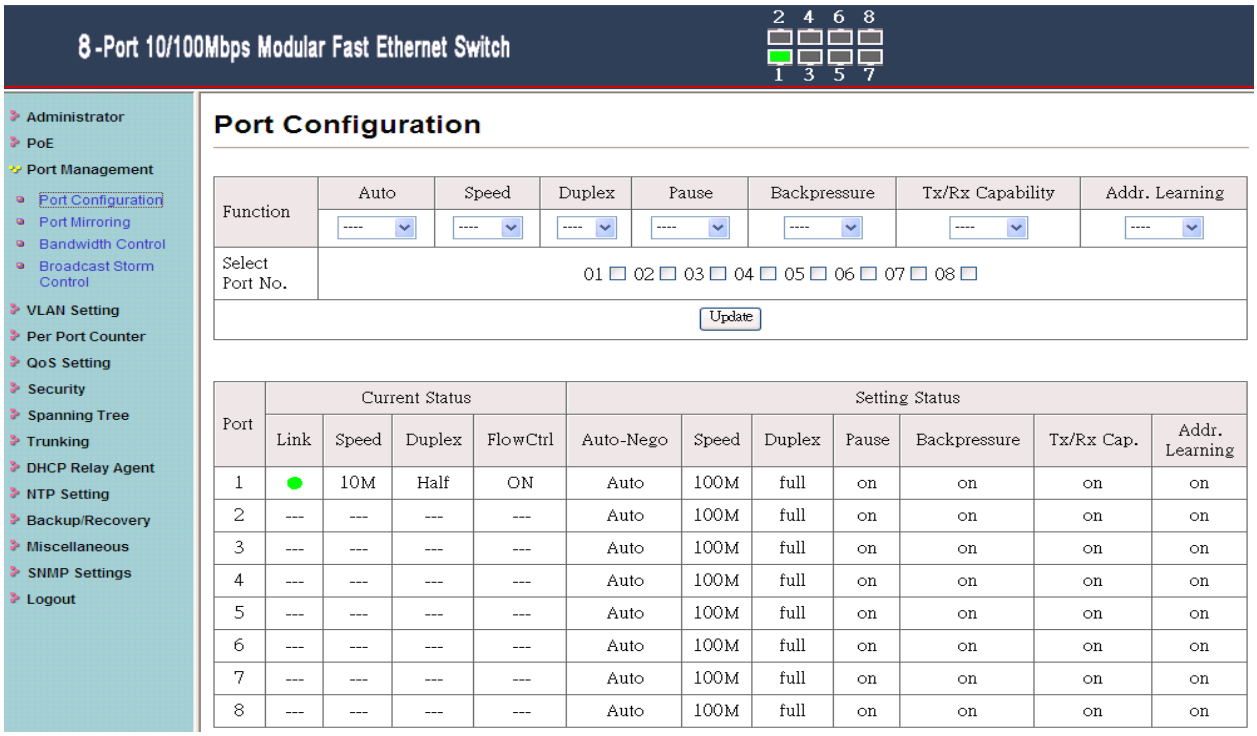


4.5 Port Management

The Port Management section includes the management functions as the following: Port Configuration, Port Mirroring, Bandwidth Control, Broadcast Storm Control, POE.

4.5.1 Port Configuration

In Port Configuration, you can set and view the operation mode for each port.



Auto: Enable and Disable.
For '**Enable'**, the Speed, Duplex mode, Pause, Backpressure, TX Capability, and Address Learning are negotiated automatically.
For '**Disable'**, you have to assign those items manually.

Speed: When the Auto-Negotiation column is set as Disable, users have to set the connection speed to the ports ticked.

Duplex: When the Auto-Negotiation column is set as Disable, users have to set the connection mode in Half/Full to the ports ticked.

Pause: Flow Control for connection at speed of 10/100Mbps in Full-duplex mode.

Backpressure: Flow Control for connection at speed of 10/100Mbps in Half-duplex mode.

TX Capability: When the Auto-Negotiation column is set as Disable, users have to set this column as Enable or Disable.

Address Learning: When the Auto-Negotiation column is set as Disable, users have to set this column as Enable or Disable.

Select Port No.: Tick the check boxes beside the port numbers being set.

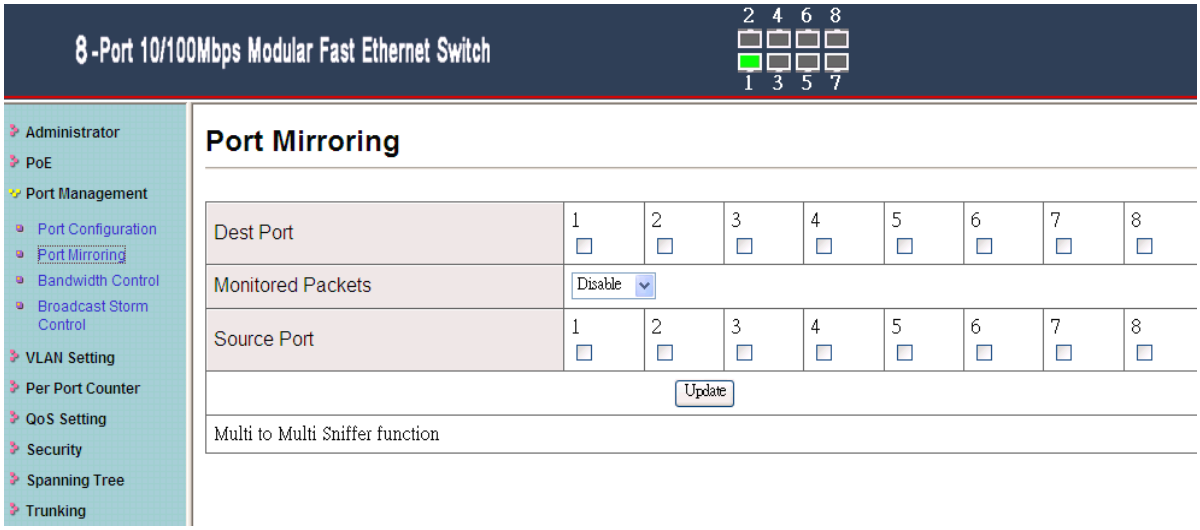
Click "**Update**" to make the configuration effective.

Current Status: Displays current port status.
Setting Status: Displays current status.

Click "**Update**" to make the configuration effective

4.5.2 Port Mirroring

The port mirroring function is accomplished by setting the following items.



Destination port: The port mirroring function will lower the network throughput, and it's recommended to set "**only one**" destination port in a network.

Monitored packets:

(1) **Disable:** means this function is disabled.

(2) **RX:** means copy the incoming packets of the selected source port to the selected destination port.

(3) **TX:** means copy the outgoing packets of the selected source port to the selected destination port.

(4) **RX & TX:** means the combination of Rx and Tx.

Source port: the traffic source that will be copied to the destination port.

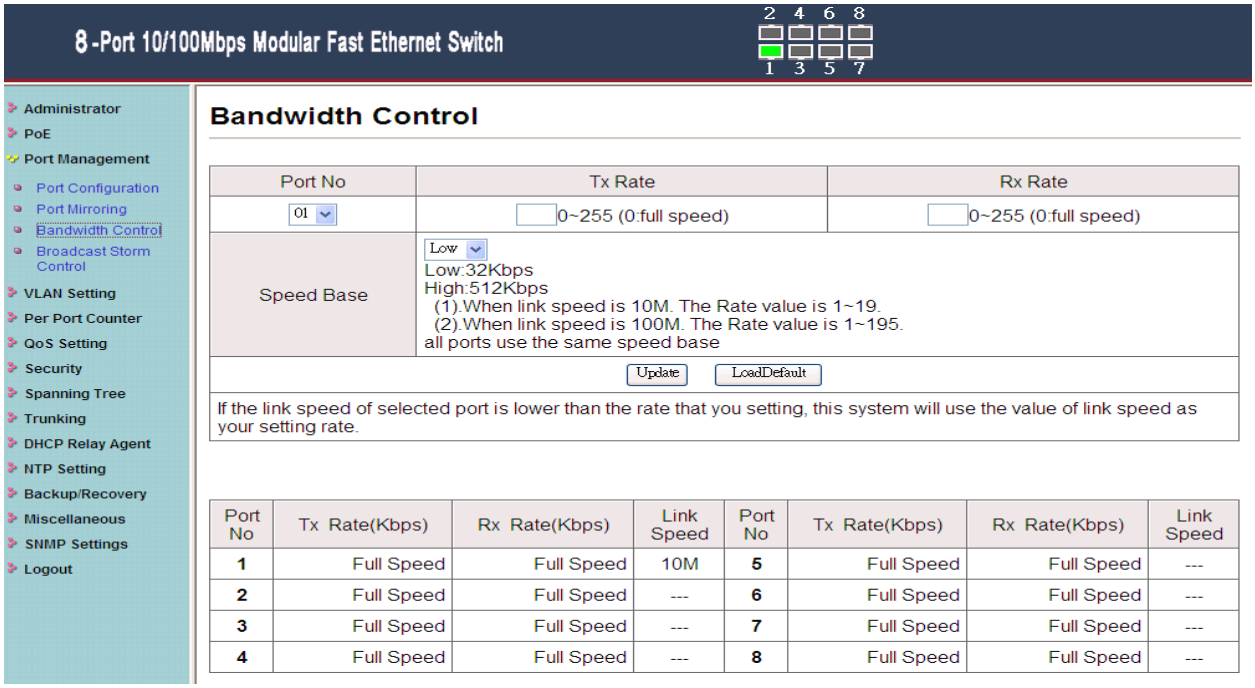
Example:

(a) **Source port:** Port 1 ~ Port 4.
(b) **Destination Port:** Port 5 ~Port 8.
(c) **Mirrored packet:** Rx.

This means all packets received at port 1 ~ port 4 will be copied to port 5, port 6, port 7 and port 8. Note that the more source ports and destination ports is set, the lower network throughput is available for normal traffic.

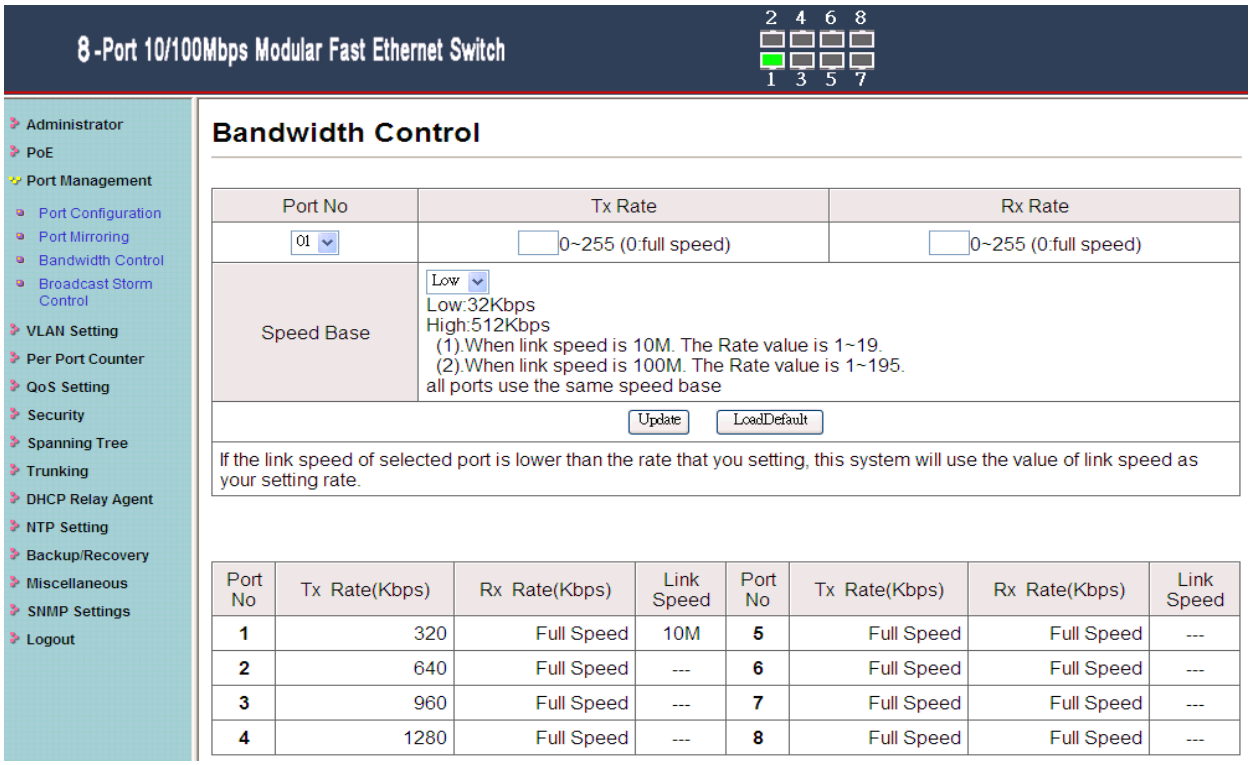
4.5.3 Bandwidth Control

This page allows the bandwidth setting for each port. The TX rate and Rx rate can be filled with the number ranging from 1 to 255. This number should be multiplied by the selected bandwidth resolution to get the actual bandwidth.



Port No	Tx Rate(Kbps)	Rx Rate(Kbps)	Link Speed	Port No	Tx Rate(Kbps)	Rx Rate(Kbps)	Link Speed
1	Full Speed	Full Speed	10M	5	Full Speed	Full Speed	---
2	Full Speed	Full Speed	---	6	Full Speed	Full Speed	---
3	Full Speed	Full Speed	---	7	Full Speed	Full Speed	---
4	Full Speed	Full Speed	---	8	Full Speed	Full Speed	---

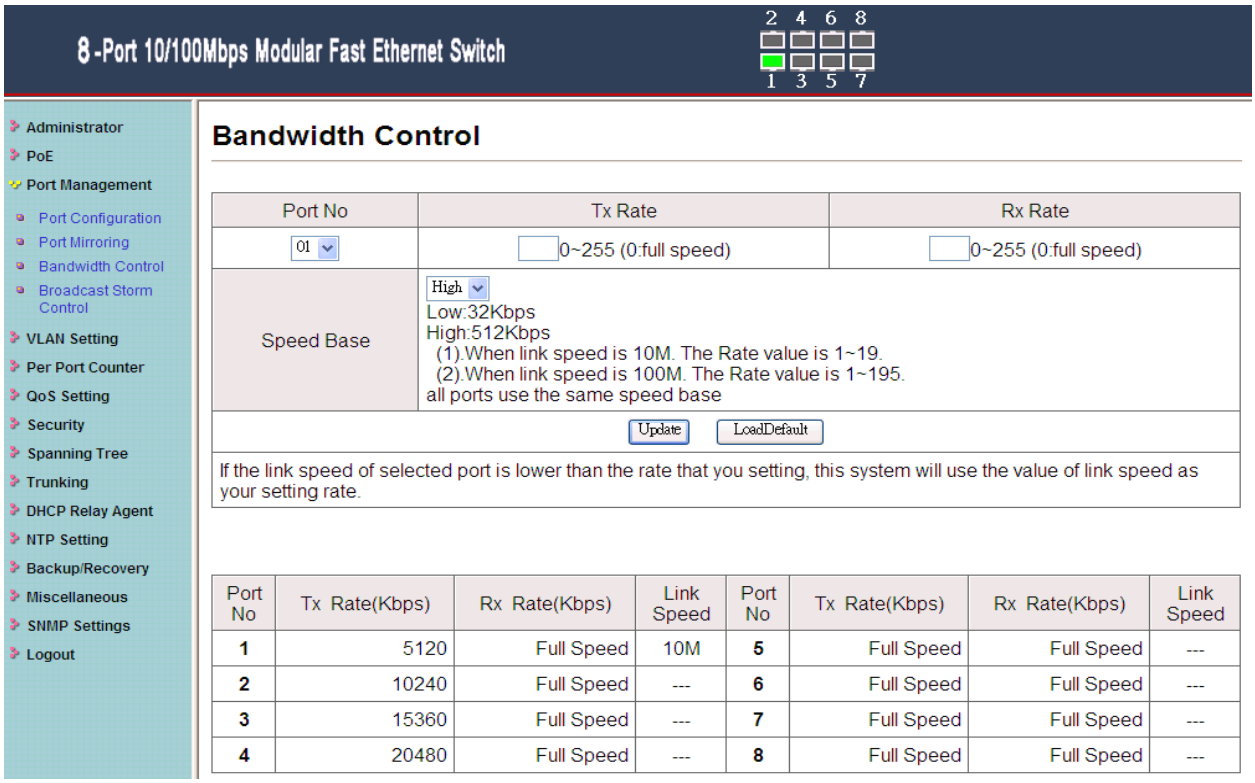
(a) Low bandwidth for TX



Example 1:

The TX number of the port1~4 is set to 10, 20, 30, 40 respectively, and Speed base is set to "**low**". The real bandwidth comes from the formula of 32Kbps*10, 32Kbps*20, 32Kbps*30 and 32Kbps*40 respectively. After the "update" button is executed, the real bandwidth will show up in TX fields.

(b) High bandwidth for TX

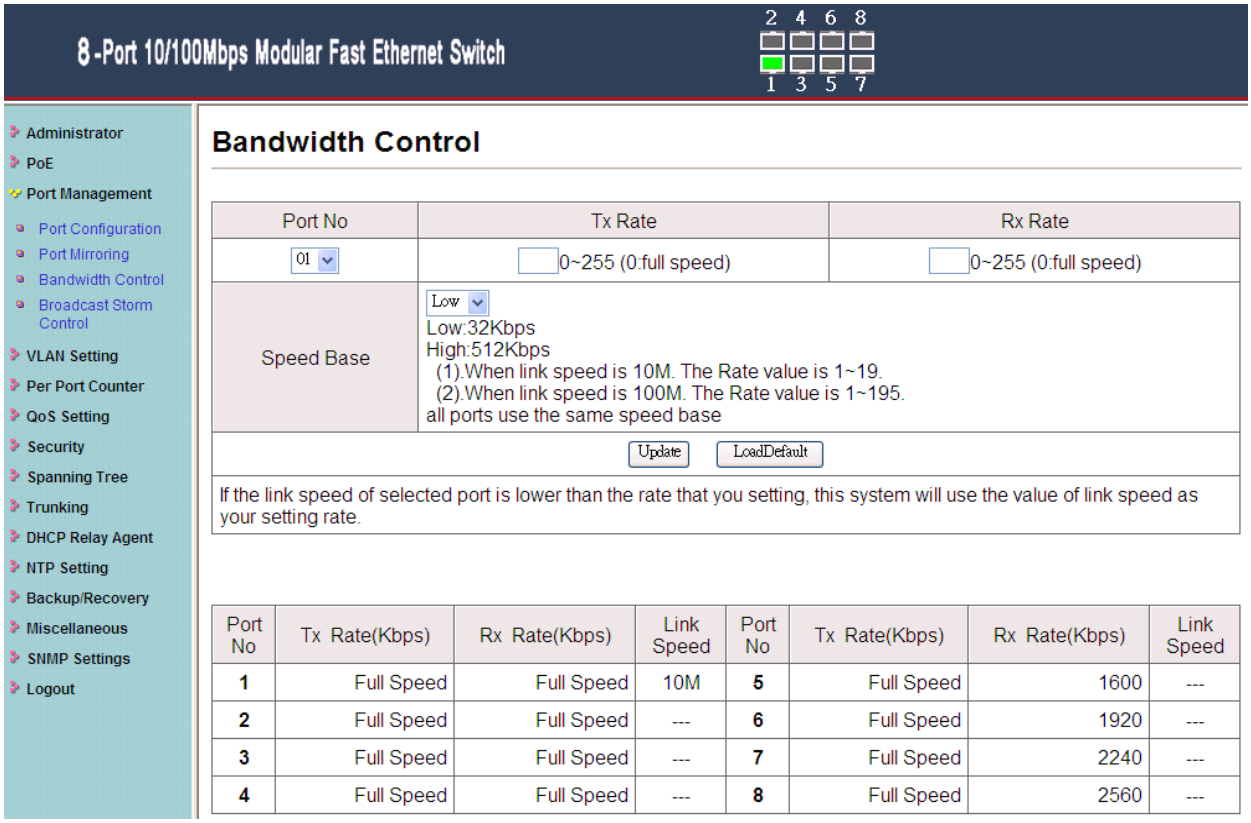


Port No	Tx Rate(Kbps)	Rx Rate(Kbps)	Link Speed	Port No	Tx Rate(Kbps)	Rx Rate(Kbps)	Link Speed
1	5120	Full Speed	10M	5	Full Speed	Full Speed	---
2	10240	Full Speed	---	6	Full Speed	Full Speed	---
3	15360	Full Speed	---	7	Full Speed	Full Speed	---
4	20480	Full Speed	---	8	Full Speed	Full Speed	---

Example 2:

The TX number of the port1~4 is set to 10, 20, 30, 40 respectively, and Speed base is set to "**High**". The real bandwidth comes from the formula of 512Kbps*10, 512Kbps*20, 512Kbps*30, and 512Kbps*40 respectively. After the "**update**" button is executed, the real bandwidth will show up in TX fields.

(c) Low bandwidth for RX

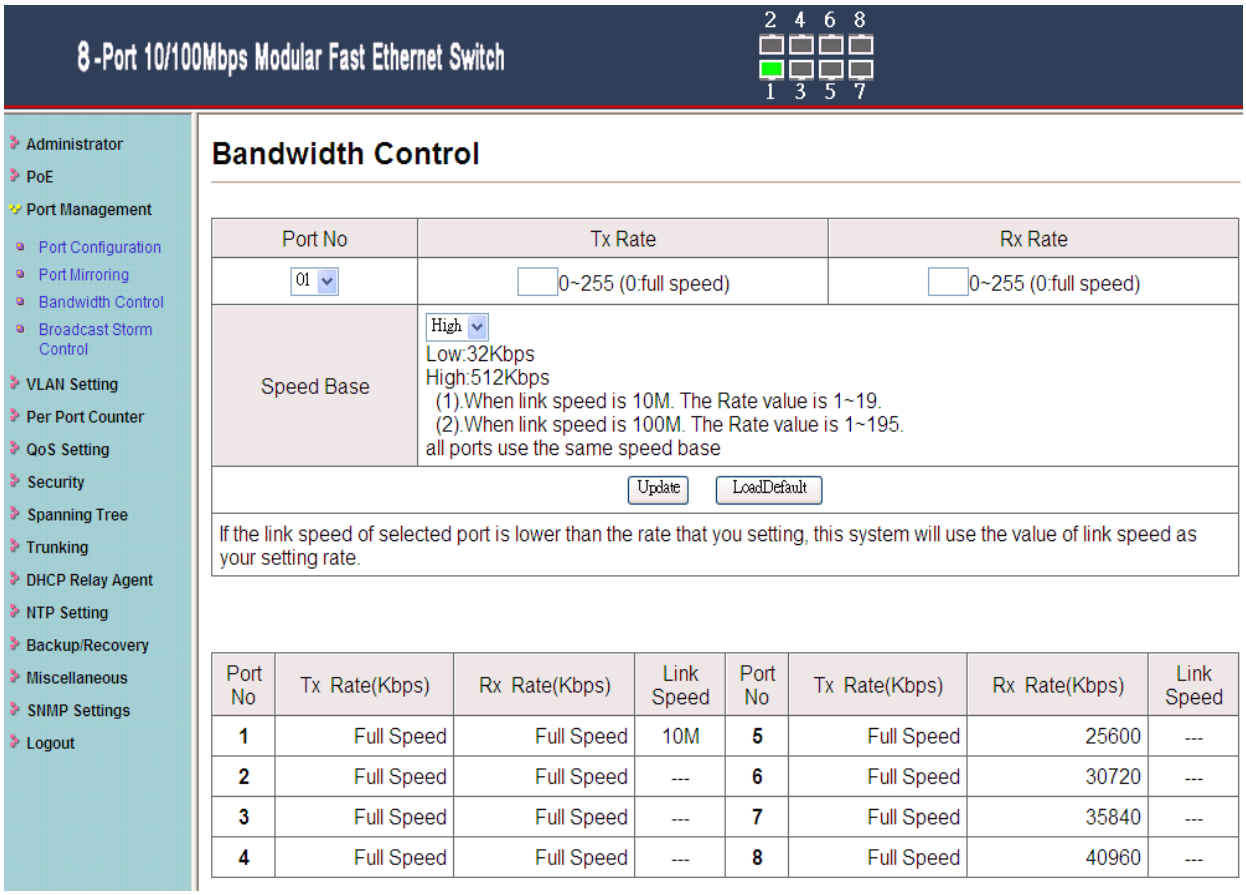


Port No	Tx Rate(Kbps)	Rx Rate(Kbps)	Link Speed	Port No	Tx Rate(Kbps)	Rx Rate(Kbps)	Link Speed
1	Full Speed	Full Speed	10M	5	Full Speed	1600	---
2	Full Speed	Full Speed	---	6	Full Speed	1920	---
3	Full Speed	Full Speed	---	7	Full Speed	2240	---
4	Full Speed	Full Speed	---	8	Full Speed	2560	---

Example 3:

The RX bandwidth number of the port 5~ port 8 is set to 50, 60, 70, 80 respectively, and Speed base is set to "**low**". The real bandwidth comes from the formula of 32Kbps*50, 32Kbps*60, 32Kbps*70, and 32Kbps*80 respectively after the "**update**" button is executed, the real bandwidth will show up in RX fields.

(d) High bandwidth for RX



Example 4:

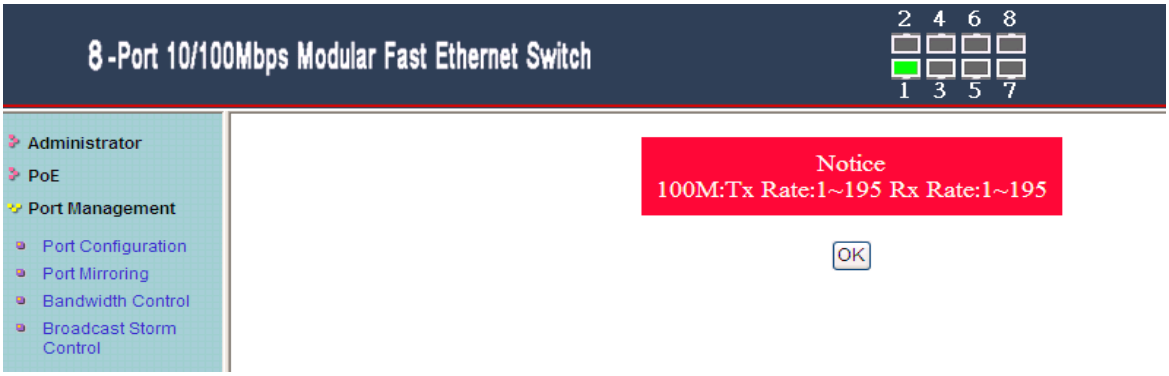
The RX bandwidth number of the port 5~ port 8 is set to 50, 60, 70, 80 respectively, and Speed base is set to “high”. The real bandwidth comes from the formula of 512Kbps*50, 512Kbps*60, 512Kbps*70 and 512Kbps*80 respectively. After the “**update**” button is executed, the real bandwidth will show up in RX fields.

Limitation of the bandwidth control

The actual bandwidth should be less than the cable link speed.

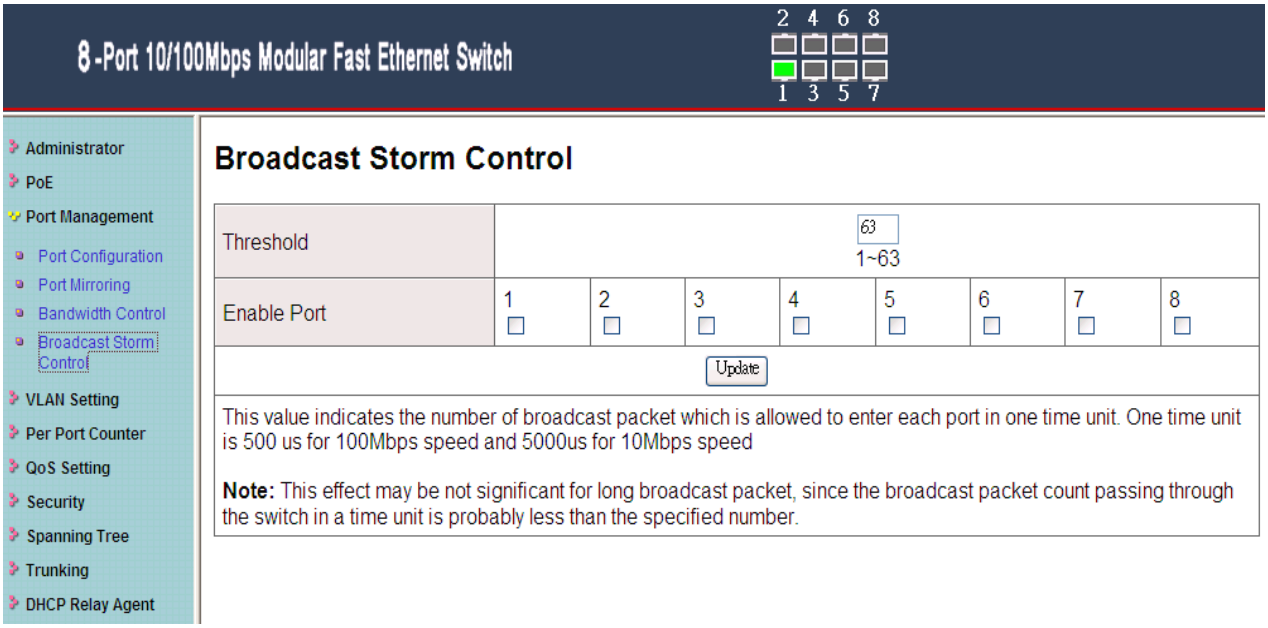
For 100Mbps link speed, the bandwidth setting should be less than 196 if the bandwidth is set to "**high**".
For 10Mbps link speed, the bandwidth setting should be less than 20 if the bandwidth base is set to "**high**".

Setting the bandwidth to "0" will make the switch running at the full speed.
The warning message will show up if bandwidth setting is higher than maximum rate (100Mbps).



4.5.4 Broadcast Storm Control

The switch implements a broadcast storm control mechanism. Tick the check boxes to have them beginning to drop incoming broadcast packets if the received broadcast packet counts reach the threshold defined. Each port's broadcast storm protection function can be enabled individually by ticking the check boxes.



The broadcast packet is only checked at the selected port and the number of broadcast packets is counted in every time unit. One time unit is 500 us for 10Mbps speed and 5ms for 100Mbps. The excessive broadcast packet will be discarded. For those broadcast packets incoming from the un-selected port, the switch treats it as the normal traffic.

Threshold: Type in the threshold in the range between 1 and 63 to limit the maximum byte counts, which a port can send or receive in a period of time.

Enable Port: Having ticked the boxes, the port will stop transmitting or receiving data when their sending byte counts or receiving byte counts reach the defined threshold.

Click **Update** to make the configuration effective.

4.6 VLAN Setting

A Virtual LAN (VLAN) is a logical network grouping that limits the broadcast domain, which would allow you to isolate network traffic, so only the members of the same VLAN will receive traffic from the ones of the same VLAN.

Basically, creating a VLAN from a switch is logically equivalent of reconnecting a group of network devices to another Layer 2 switch. However, all the network devices are still plugged into the same switch physically.

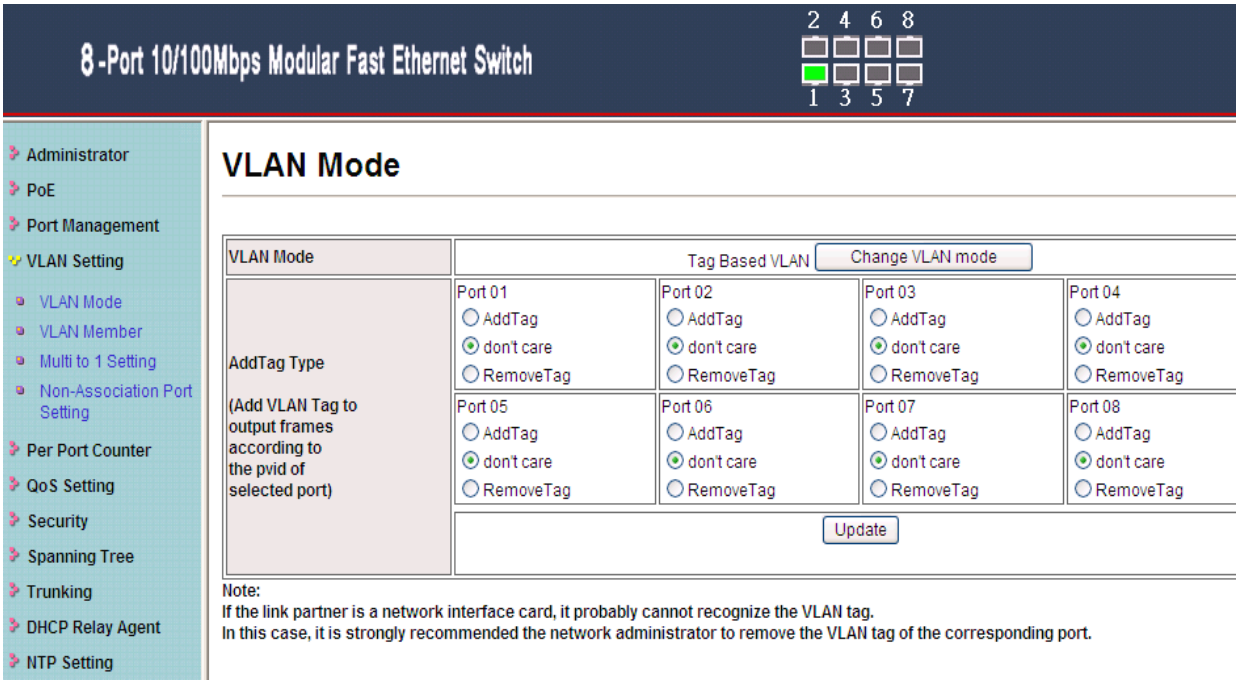
The VLAN Setting section includes the management functions as the following: VLAN Mode, VLAN Member, Multi to 1 Setting.

4.6.1 VLAN Mode

Two VLAN modes; tag based and port based are supported. Only one VLAN mode can be enabled at one time. Port Based VLAN is the default mode.

The Port-based VLAN is for separating traffic only in this web smart switch, and there is no handover of network traffic within VLAN groups to other switches. Tag Based VLAN is used for the handover to other switches.

After switched to Tag Based VLAN Mode, the screen will change. On this screen you can now define and configure your Uplink/Downlink ports. These are important due that the handover between the switches of your network takes place.



VLAN Mode: Port based/Tag based VLAN mode can be switched back and forth.

Add tag means the outgoing packet of the selected port will be inserted a 802.1Q tag. Use this setting for your Uplink/Downlink Ports in your VLAN Tagged Network.

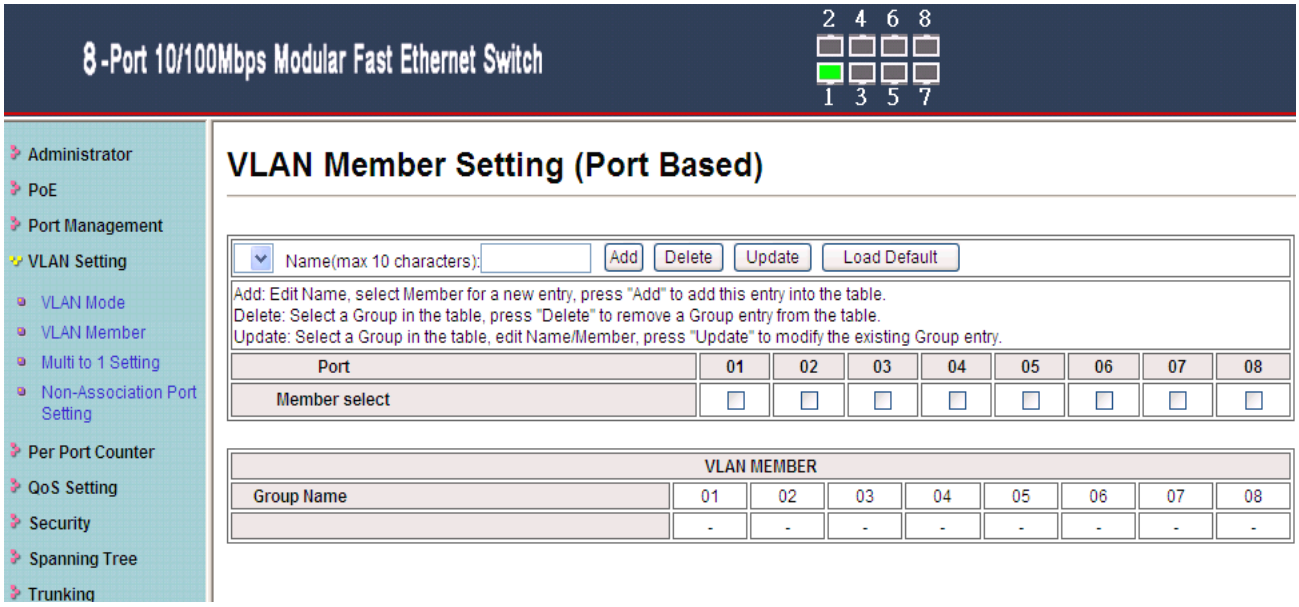
Original means the outgoing packet of the selected port keep the original packet received at the source port. This is the default setting when starting VLAN configuration. You should change to either Add or Remove Tag.

Remove tag means the 802.1Q tag of the outgoing packet of the selected port will not be sent. Use this setting for your Network Connections to PCs. The packet will send to the Port of VLAN Group member only.

4.6.2 VLAN Member

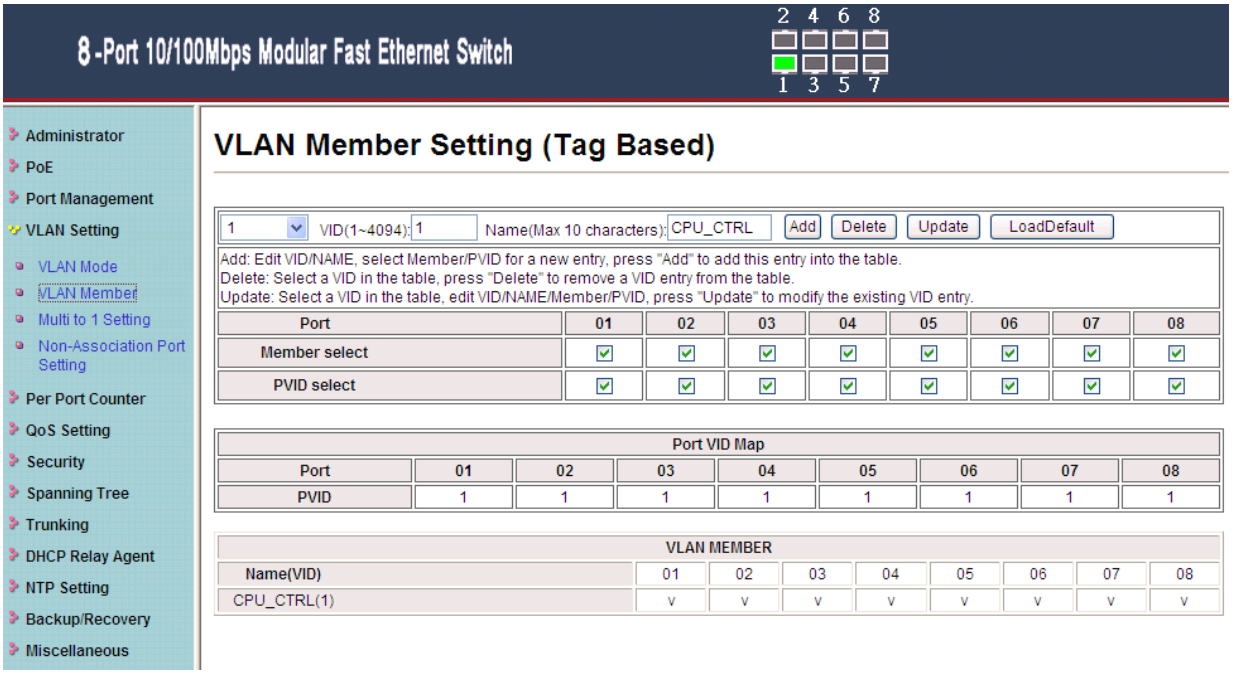
The ports need to be set as a member of your VLAN groups. This is for Tag Based and Port Based VLAN Mode. The screen of Tag Based Mode is different from that of Port Based Mode.

VLAN Member in Port Based Mode



In Port Based Mode there is a matrix of 8 Ports. Simply select the port on the top screen you want to configure, click on **Read**, and then select or deselect the ports that are on the same VLAN group. In this configuration mode you do not need to worry about defining VLAN groups and VLAN IDs.

VLAN Member in Tag Based Mode



In Tag Based Mode you need to define and configure your VLAN groups. Since you want the handover to other switches take place smoothly, the VLAN IDs (Numbers) need to be alike on the rest of your network. On other switches you may have the chance to configure names for your reference, but only the numbers are meaningful.

Firstly, you need to add VLAN Groups (identified throughout your network by unique and constant numbers). Start with IDs from 100 and up. Keep in mind that some switches use "**1**" as the default, while others use "**4095**" or "**4096**" as default. Starting with 100 gives you enough free room and less compatibility issues.

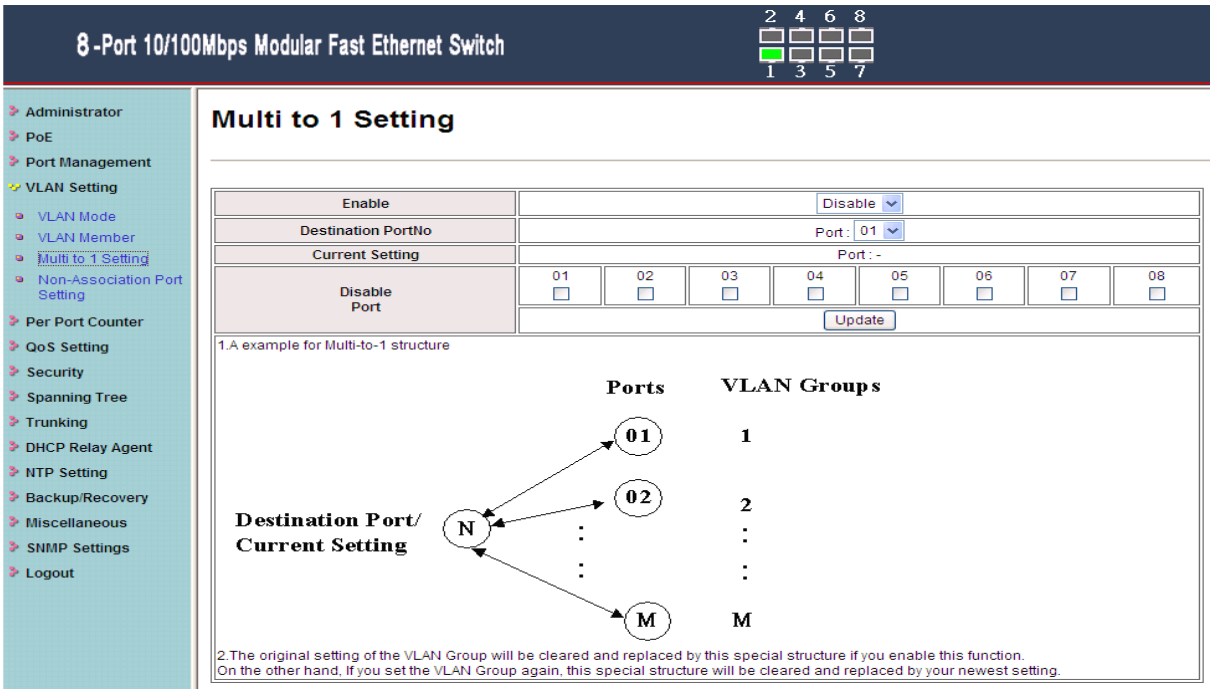
Enter "100" in the field right of VID Setting, and select or deselect which ports are member of that group. Set your uplink/downlink ports as a member of every existing group. Then click on **Add**. The group with new setting will be displayed at the bottom of the screen.

For the PVID Setting, you define VLAN group to which incoming traffic belongs. For example, Port 1 is a member of Group 100 and 101. With PVID, you may define if the data sending out from port 1 are for Group 100 or 101.

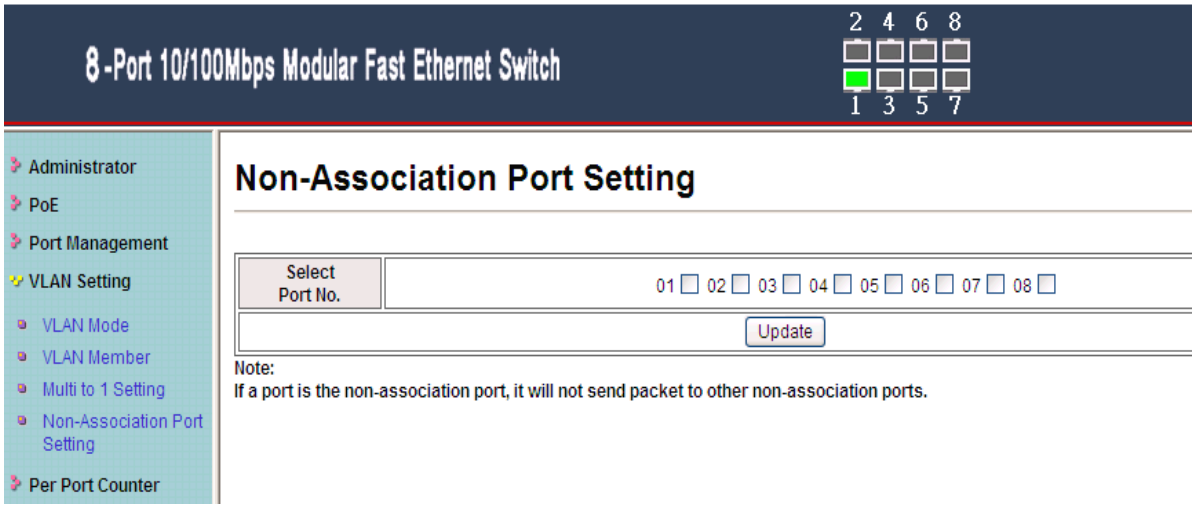
4.6.3 Multi to 1 Setting

Multi-to-1 VLAN is used in CPE side of Ethernet-to-the-Home and is exclusive from **VLAN member setting** for VLAN setting. When VLAN member setting is updated, multi-to-1 setting will be void and vice versa. The "**Disable port**" means the port will be excluded in this setting. All the ports excluded in this setting are treated as the same VLAN group.

The port 5~port 7 of switch only forward packets to port 8. The port 8 is set to home. The VLAN and port 5~ port 8 are the member of the VLAN group for multi-to-2 setting.

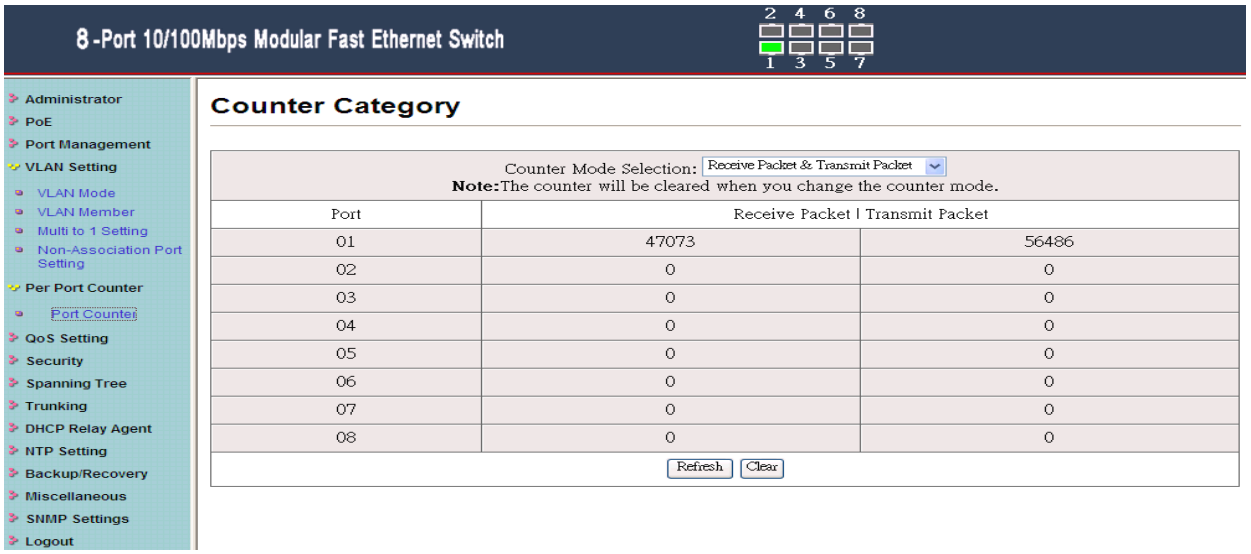


Non-Association Port Setting



4.7 Per Port Counter

This page provides port counter for each port. There are 4 groups of statistics in total. These 4 categories cannot work simultaneously. Once you change the counter category, the counter will be cleared automatically.



Transmit packet& collision: This category shows the packets outgoing from the switch and the count of collision.

Receive packet& Transmit packet: This category shows both the received packet count (excluding the incorrect packet) and the transmitted packet count.

Receive packet & Drop packet: This category shows the number of received valid packet and the number of dropped packet.

Receive packet & CRC packet: This category shows the received correct packet and received CRC error.

Refresh: Press the button will aggregate the number of the counter for all ports.

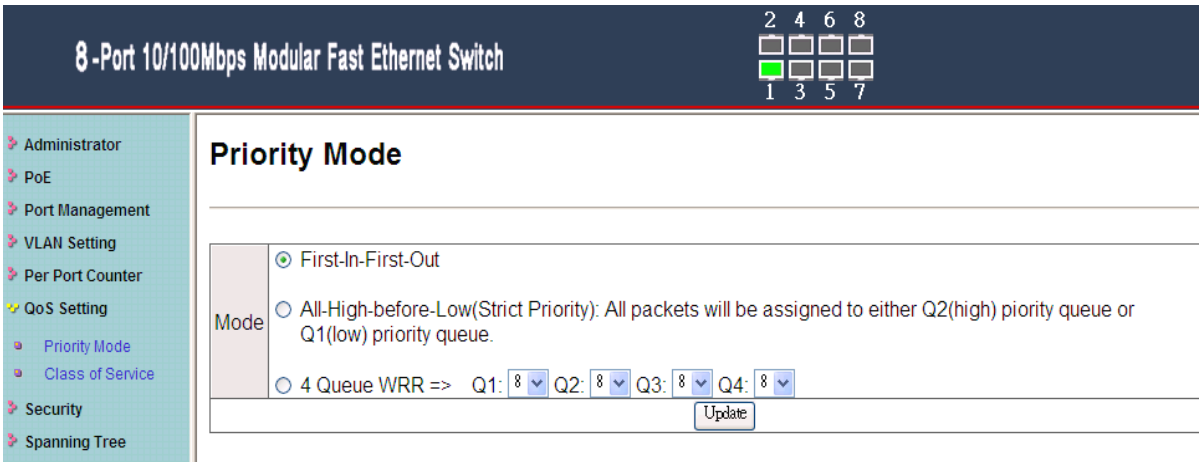
Clear: Press this button will clear all counters.

4.8 QoS Setting

The Quality of Service(QoS) Setting includes Priority Mode and Class of Service (CoS) Configuration. QoS refers to mechanisms in the network software that make the actual determination of which packets have priority. CoS refers to feature sets, or groups of services, that are assigned to users based on company policy. If a feature set includes priority transmission, then CoS is implemented in QoS functions within the routers and switches in the network. In an enterprise network, class of service (CoS) differentiates high-priority traffic from lower-priority traffic. Tags may be added to the packets to identify such classes, but without delivery guarantee like the quality of service (QoS) functions, which are implemented in the network devices.

4.8.1 Priority Mode

There are three priority modes available to specify the priority of packets being serviced. These include First-In-First-Out, All-High-Before-Low, and Weight-Round-Robin.



First-In-First-Out: Packets are placed into the queue and serviced in the order they were received.

All-high-before-Low(Strict priority)：All packets will be assigned to either high priority queue (Queue 2) or low priority queue (Queue 1). The packet on the low priority queue will not be forwarded until the high priority queue is empty.

WRR mode: There are 4 priority queues for Weighted-and-round-robin (WRR) mode. When this mode is selected, the traffic will be forwarded according to the number set in each queue.

4.8.2 Class of Service Configuration

There are 4 types of CoS for this setting; TCP/UDP port, TOS/DS, 802.1p, and physical port. The user can select more than one item for each port.

Note that if more than one type of CoS is selected, the switch will arrange the packet to the assigned queue according the following priority: TCP/UDP port the first, ToS/DS the second, 802.1p the third, and physical port the last.

Class of Service

The switch treats TCP/UDP, IP TOS/DS, 802.1p and physical port CoS scheme in the following priority.
TCP/UDP > IP TOS/DS > 802/1p > Physical port.
This means TCP/UDP CoS will override all other settings.

(1) TCP/UDP port

Protocol	**Note:** (1) Q1 ~ Q4 options are effective for the selected physical port only. (2) "Drop" option is the global setting for all physical ports.
FTP	Q1
SSH	Q1
TELNET	Q1
SMTP	Q1
DNS	Q1
TFTP	Q1
HTTP	Q1
POP3	Q1
NEWS	Q1
SNTP	Q1
NetBIOS	Q1
IMAP	Q1
SNMP	Q1
HTTPS	Q1
MSN	Q1
XRD_RDP	Q1
QQ	Q1
ICQ	Q1
Yahoo	Q1
BOOTP/ DHCP	Q1
User-defined A TCP/UDP	Q1
User-defined B TCP/UDP	Q1
User-defined C TCP/UDP	Q1

Note: These user-defined TCP/UDP port are the same as that used in TCP/UDP filter

User-defined Port range (65535~1)	User-defined A Port: ~ Port:	User-defined B Port: ~ Port:	User-defined C Port: ~ Port:

The TCP/UDP port will be checked on the following physical port

01	02	03	04	05	06	07	08
☐	☐	☐	☐	☐	☐	☐	☐

TCP/UDP port number QoS function Disable

Update

The Class of Service for TCP/UDP port number allows the network administrator to assign the specific application to a priority queue.

(2) IP TOS/DS

IP TOS/DS Priority Setting	6'b001010: Q1 6'b010010: Q1 6'b011010: Q1 6'b100010: Q1 6'b101110: Q1 6'b110000: Q1 6'b111000: Q1 Other Values: Q1							
IP TOS/DS Port Setting	01 ☐	02 ☐	03 ☐	04 ☐	05 ☐	06 ☐	07 ☐	08 ☐

Update

(3) 802.1p

For 802.1p priority field, the switch utilizes the following priority mapping table.
6 and 7 are mapped to the "Q4" priority queue.
4 and 5 are mapped to the "Q3" priority queue.
0 and 3 are mapped to the "Q2" priority queue.
1 and 2 are mapped to the "Q1" priority queue.

Port No.	1	2	3	4
Mode:802.1p	☐	☐	☐	☐
Port No.	5	6	7	8
Mode:802.1p	☐	☐	☐	☐

Update

(4) Physical port

Port 1	Port 2	Port 3	Port 4
Q1	Q1	Q1	Q1
Port 5	Port 6	Port 7	Port 8
Q1	Q1	Q1	Q1

Update

4.9 Security

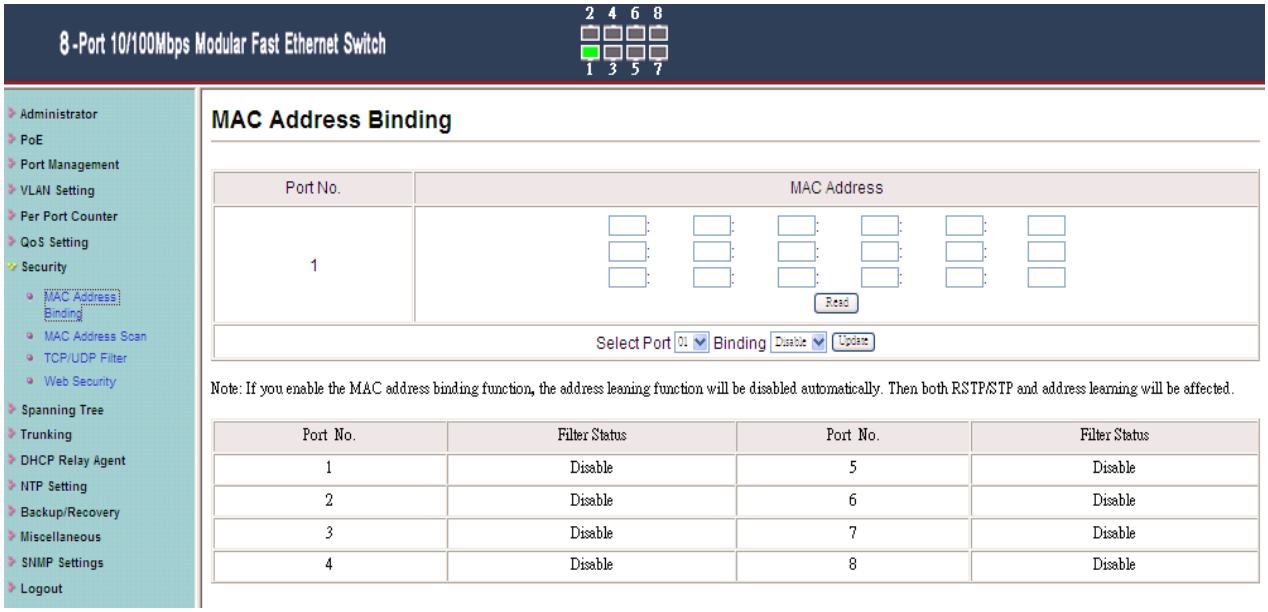
The Security section describes the functions of MAC Address Binding, MAC Address Scan, TCP/UDP Filter, and Web Security.

4.9.1 MAC Address Binding

This function specifies the relationship between the physical port and the MAC address. Only the packet with specified source MAC address can be forwarded.

By assigning the MAC address to each port, the network administrator can prevent the unauthorized user from accessing the switch. Each port can be assigned up to 3 MAC addresses.

To activate the port binding function, you may enter the assigned MAC address, select the port number, and set the port binding to “enable” and then press “update”.



Port No: Displays the port number being assigned the MAC addresses.

MAC Address: Users can assign up to 3 MAC addresses to the port.

Read: Pull down the selection bar to choose a port number and click the read button to show the MAC addresses bound with the port or modify the MAC addresses.

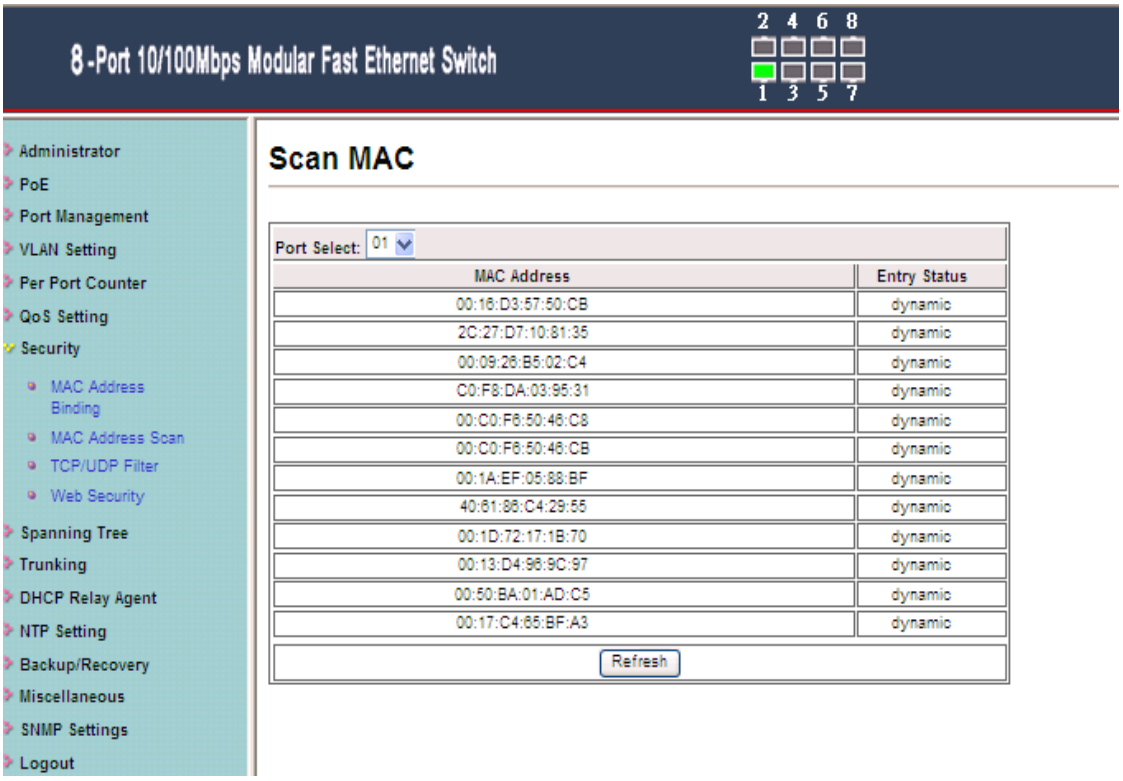
Select Port: Pull down the selection menu bar to choose a port number to be set.

Binding: Enable or disable the binding function. Click Update to have the configuration take effect.

Note: Setting the multicast address to these fields is not allowed. A warning message will show up if you do so.

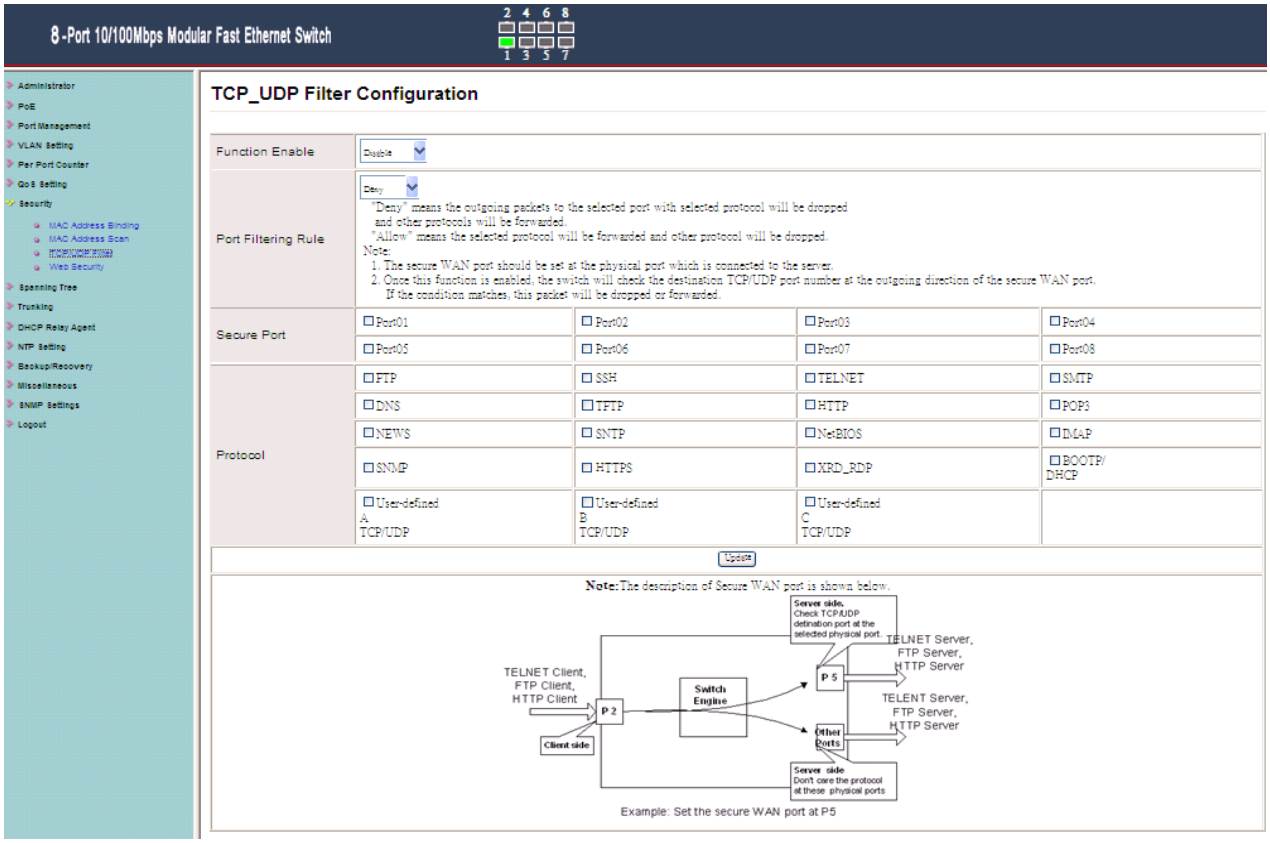
4.9.2 MAC Address Scan

This shows the MAC addresses for packets through the selected port.

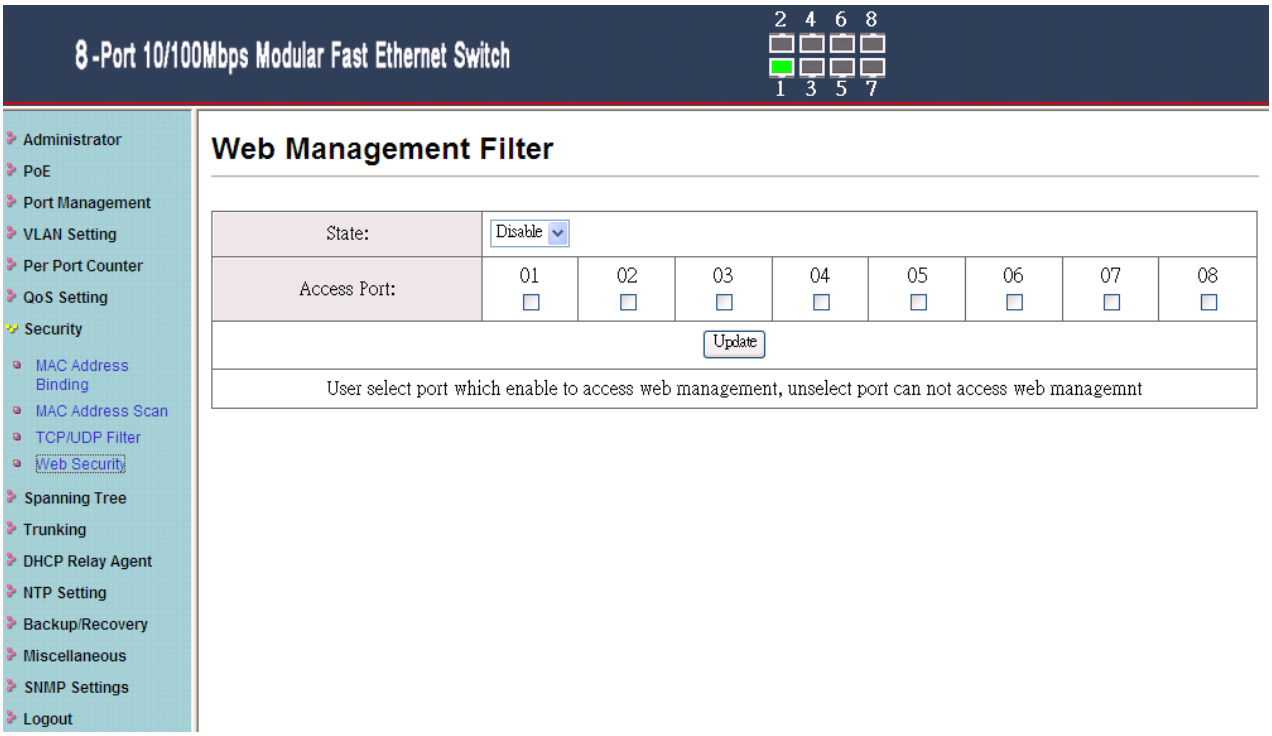


4.9.3 TCP/UDP Filter

By selecting the TCP/UDP port, the network administrator can optionally block some specific functions. There are two kinds of protocol filter functions. The **Forward** function forwards packets of the selected protocol and drops other protocols. The **Deny** function drops the selected protocol and forward other protocols. The protocol is checked at the selected secure WAN port. And it should be set at the server side.

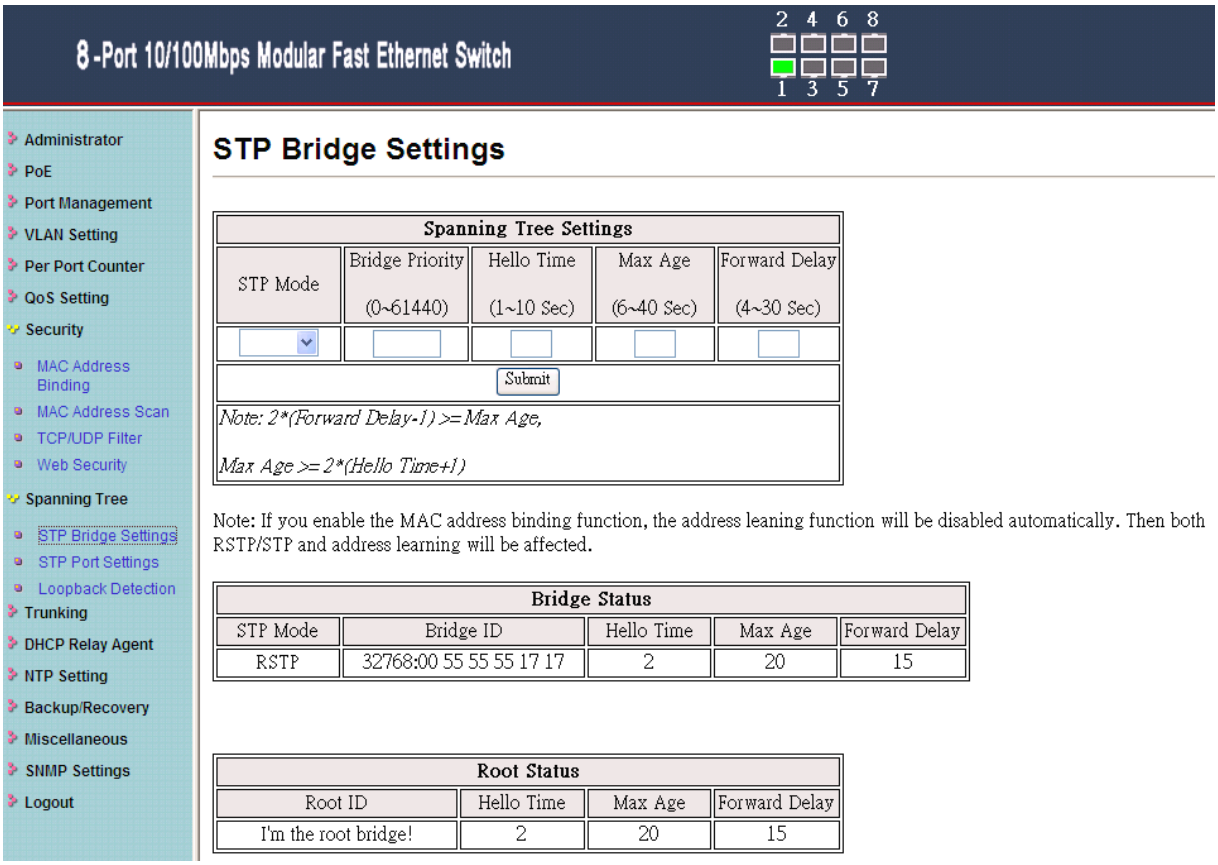


4.9.4 Web Management Filter

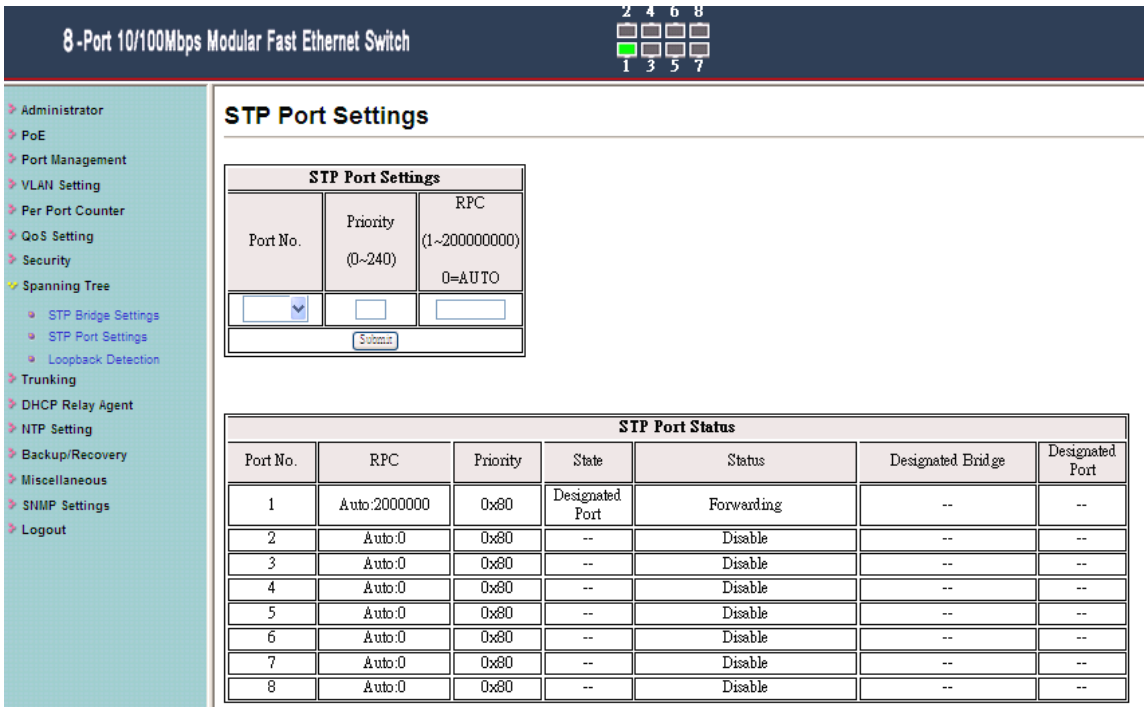


4.10 Spanning Tree

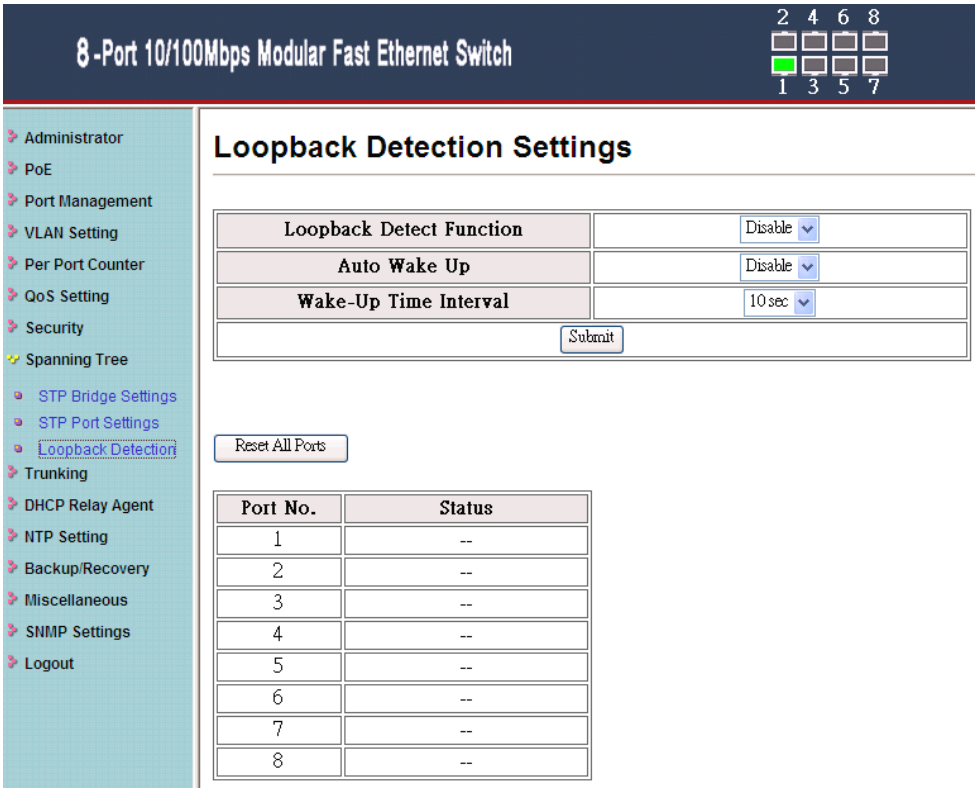
4.10.1 STP Bridge Settings



4.10.2 STP Port Settings

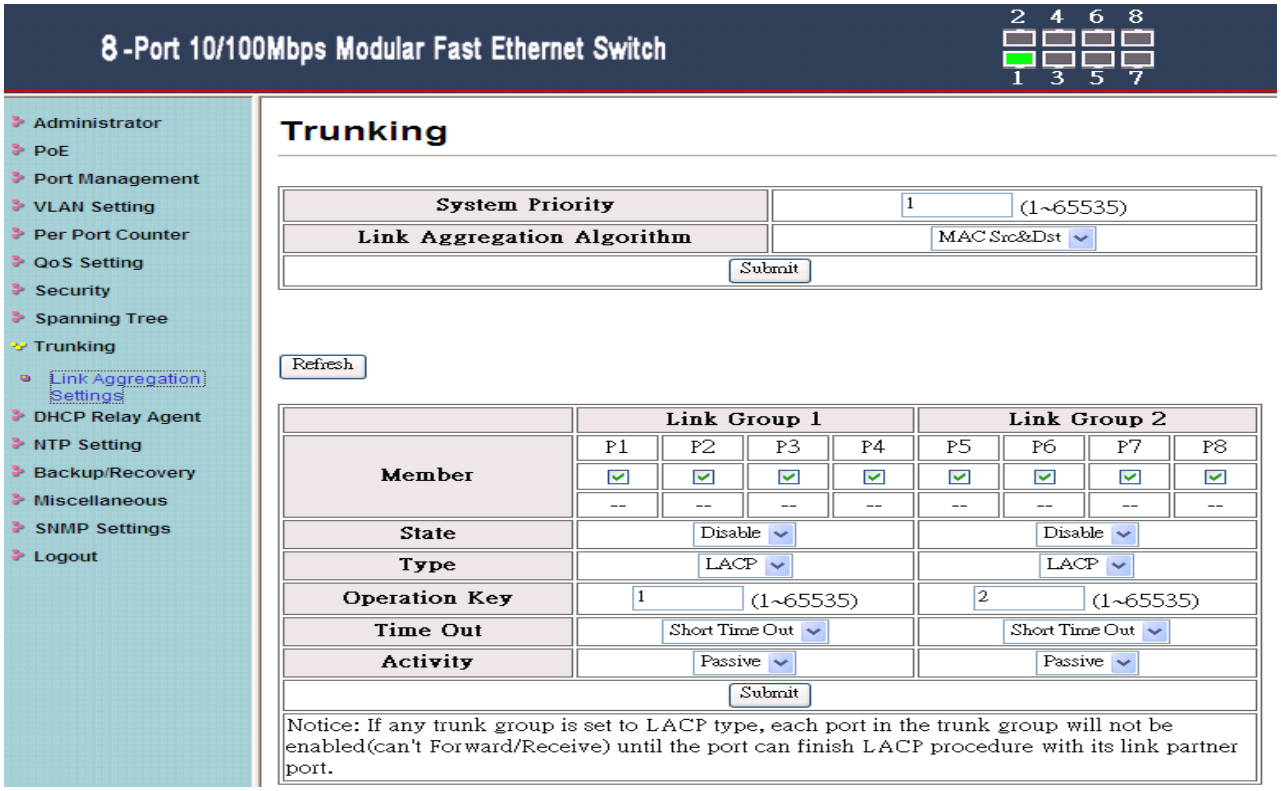


4.10.3 Loopback Detection Settings


8-Port 10/100Mbps Modular Fast Ethernet Switch
2 4 6 8
1 3 5 7
Administrator
PoE
Port Management
VLAN Setting
Per Port Counter
QoS Setting
Security
Spanning Tree
STP Bridge Settings
STP Port Settings
Loopback Detection
Trunking
DHCP Relay Agent
NTP Setting
Backup/Recovery
Miscellaneous
SNMP Settings
Logout
Loopback Detection Settings
Loopback Detect Function
Disable
Auto Wake Up
Disable
Wake-Up Time Interval
10 sec
Submit
Reset All Ports
Port No.
Status
1 --
2 --
3 --
4 --
5 --
6 --
7 --
8 --

4.11 Trunk Setting

Trunk setting is used to set trunk group for load balance and auto-backup. The switch supports two trunk group, and each trunk consists of 2~4 ports. Trunk hash algorithm can be selected according to 4 different options.



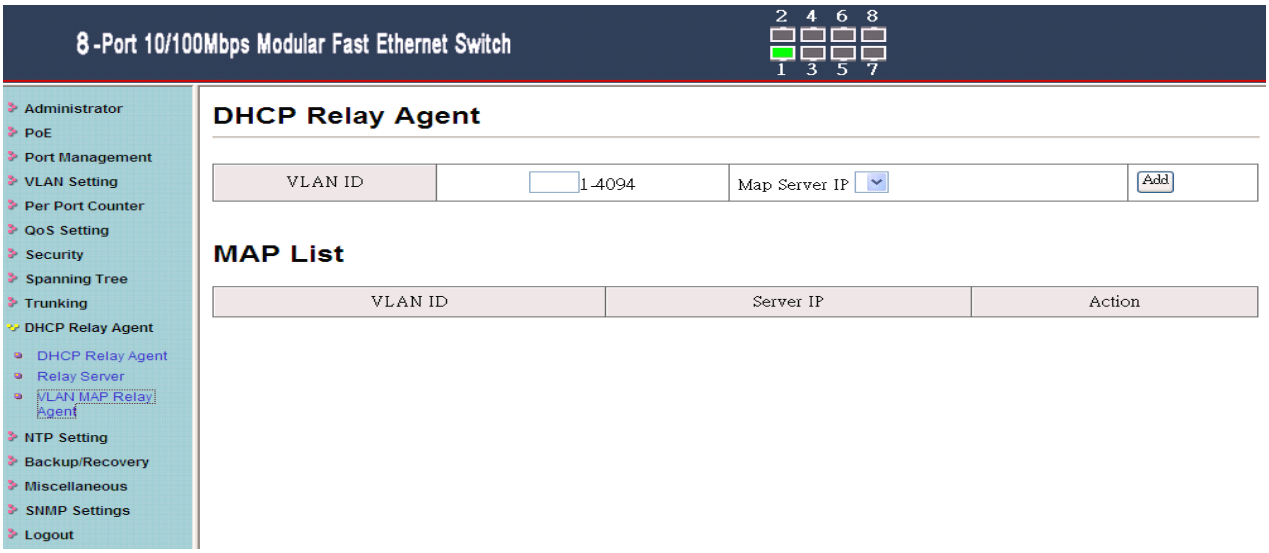
Port ID: Among the trunk member ports, the packet will be distributed based on the port ID.

SA: Among the trunk member ports, the packet will be distributed based on the source MAC address.

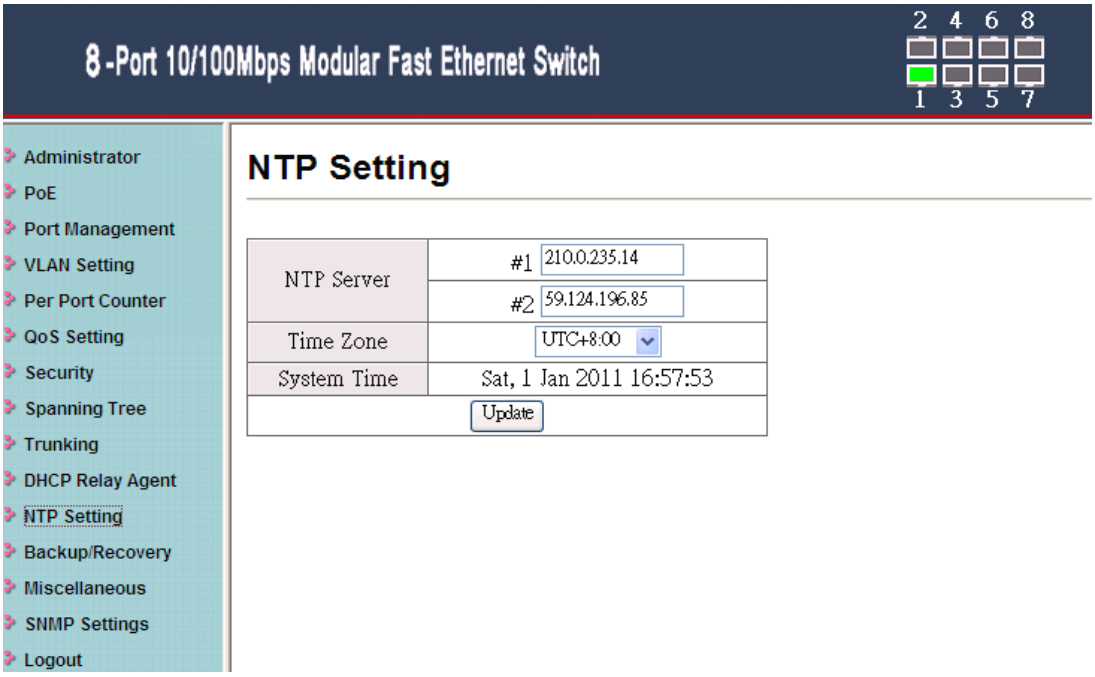
DA: Among the trunk member ports, the packet will be distributed based on the destination MAC address.

DA&SA: Among the trunk member ports, the packet will be distributed based on the XOR result of the source MAC address and the destination MAC address.

4.12 DHCP Relay Agent

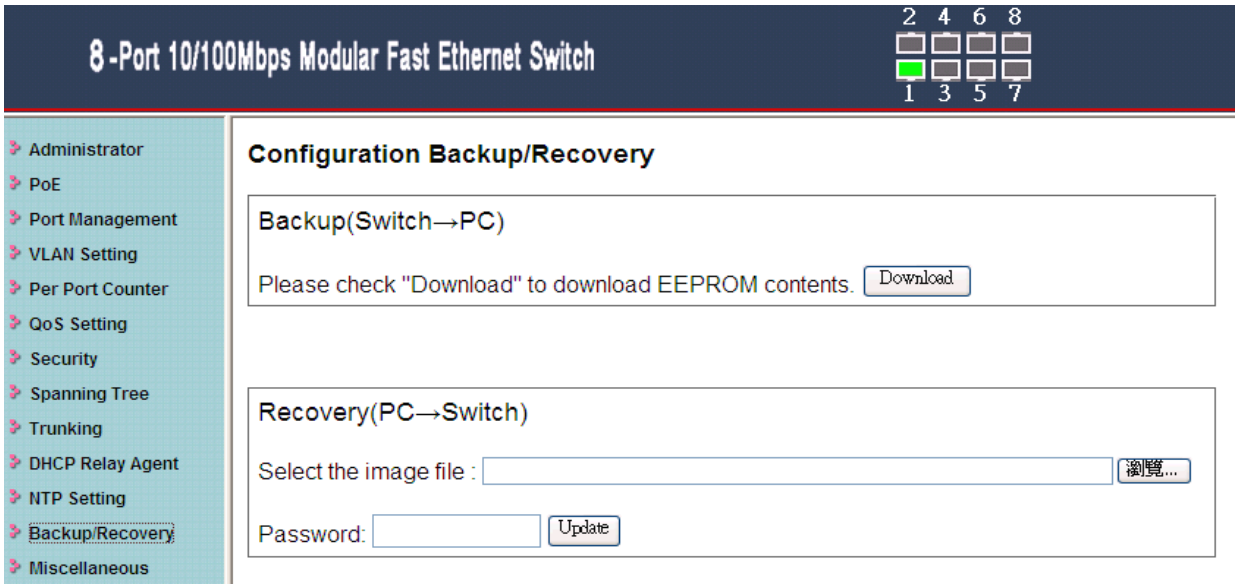


4.13 NTP Setting



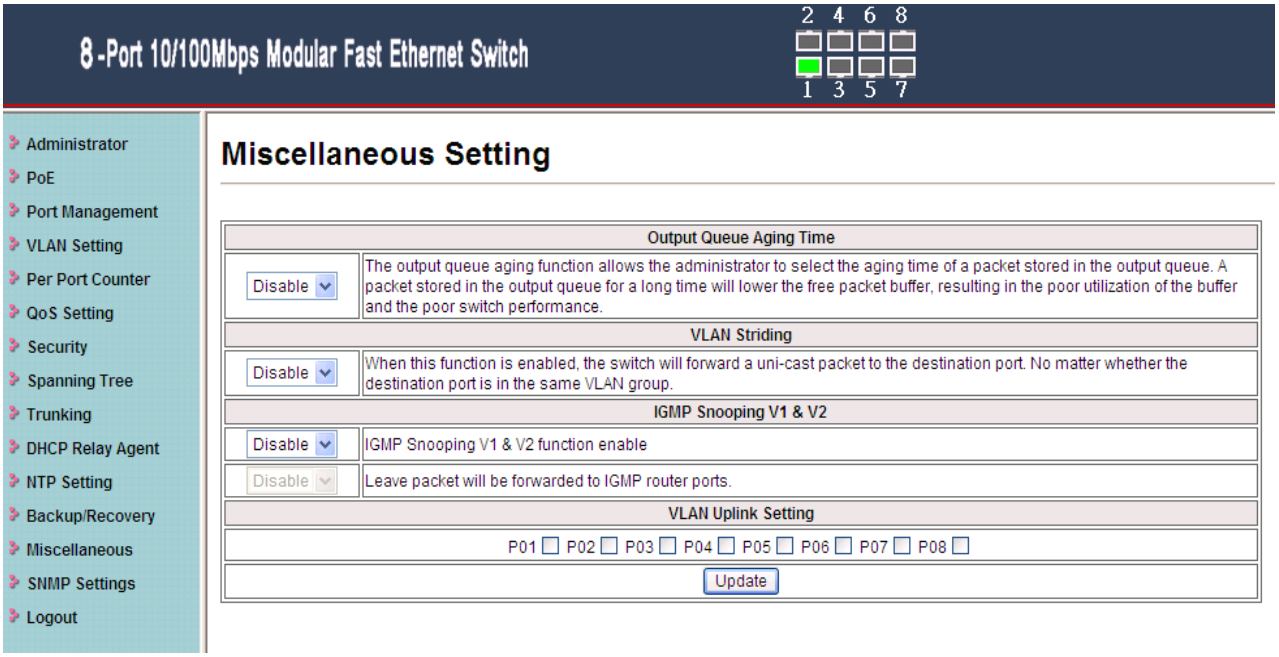
4.14 Backup/Recovery

This function is used to backup/recovery the switch configuration. The user can save the configuration file to a specified file name. If the user wants to recover the original configuration, which is saved at the specified path, just enter the password and then press the "**Update**" button. The original configuration of the switch will be recovered.



4.15 Miscellaneous

Miscellaneous setting is used to configure output queue aging time, VLAN stride and IGMP snooping.



Output queue aging: This function is used to avoid the poor utilization of the switch. When a packet is stored in a switch for a long time, it will expire from the allowable time defined by the protocol and become a useless packet. To prevent these packets from wasting the bandwidth, this switch provide an option for the administrator to enable the queue aging function.

VLAN Striding: By selecting this function, the switch will forward uni-cast packets to the destination port, no matter whether destination port is in the same VLAN.

IGMP Snooping: When this function is enabled, the switch will execute IGMP snooping version 1 and version 2 without the intervention of CPU. The IGMP report and leave packets are automatically handled by the switch.

4.16 Logout

The administrator has accessed for all parameters governing the onboard agent. User should therefore re-assign a new administrator password as soon as possible, and store it in a safe place.

Appendix A: Product Specifications

IEEE Standards	IEEE 802.3 10BaseT IEEE 802.3u 100BaseTX IEEE 802.3x Flow Control
Hardware	Interface: 8 port x 10/100BaseT(X) Switch with PoE Control MAC Address: 1K Buffer Memory: 512K bits
Transmission Packet	Store and Forward
Transmission Media	10BaseT Cat. 3, 4, 5 UTP/STP 100BaseTX Cat. 5 UTP/STP
Filtering Forwarding Rates	100Mbps port - 148,800pps 10Mbps port - 14,880pps
LED Indicators	Per Port: LAN, PoE Per Unit: PWR
Power Input	100~240V/AC, 50~60Hz
Web Management Features	VLAN Settings, Bandwidth Control QoS Setting, Network Security, Packet Filtering Spanning Tree Protocol, Network Timing Protocol, Trunk Setting, DHCP Relay, SNMP, IGMP Snooping Version 1 & 2.
Power Output	48VDC Output Per Port Max 15Watts (optional 30Watts) Per Port Power Pin: 4, 5, 7, 8 Data Pin: 1, 2, 3, 6
Power Consumptions	Max 130Watts (optional 250Watts)

Dimensions	266 × 160 × 44 mm (L x W x H)
Humidity	10 to 90% RH (non-condensing)
Weight	1.6 kg
Temperature	Operating: 0 to 60℃ Storage: -20 to 90℃

Appendix B: Troubleshooting

This appendix is to help identify and solve the problems. If the web smart switch is not working correctly with your network, check the items as the following;

- ✓ Make sure the Power is ON (Check the Power LED).
- ✓ Make sure the cable is connected properly on both ends.
- ✓ Make sure that the standard CAT.5 cable is used.
- ✓ Verify that the cable length does not exceed 100 meters.
- ✓ Check the LED indicators are working properly.
- ✓ Check the status of the cable attachment, or try a different cable.
- ✓ Try another port on the Switch.
- ✓ Turn off the power, and on again after a while and check if it resumes normally.

Contact your local dealer for technical support, if you find no way out.

B.1 Can NOT Access Web Page?

Web Browser is a useful tool to configure the web smart PoE switch. When you have problems in accessing the default IP address **http://192.168.2.1** of web page, one of the most possibility is that the PC might have different subnet IP settings from **192.168.2.x**. In this case, you must change PC IP address to the same subnet as the web page.

Please refer to Section 4.1 to configure your PC address to the same subnet as the web management.

B.2 Forget IP Address, User ID, and Password?

The default reset button can be used when the user forgot the IP address, user ID, and password, and can NOT login to the web page.

Please follow the steps to reset the Web Smart Switch back to the default values.

Step 1. Turn on the PoE Switch.

Step 2. Press and hold the reset button continuously for 5 seconds and release the reset button.

Step 3. The switch will reboot for 20 seconds and the configuration of switch will back to the default setting.