PLANET
Networking & Communication

User's Manual

24-Port 10/100Mbps + 2Gigabit TP/SFP Combo Web Samrt Switch

► FGSW-2620CS

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Trademarks

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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 when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the Instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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.

Energy Saving Note of the Device

This power required device does not support Standby mode operation.
For energy saving, please remove the power cable to disconnect the device from the power circuit.
Without removing power cable, the device will still consume power from the power source. In view of Saving the Energy and reducing the unnecessary power consumption, it is strongly suggested to remove the power connection for the device if this device is not intended to be active.

WEEE Warning

To avoid the potential effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment, end users of electrical and electronic equipment should understand the meaning of the crossed-out wheeled bin symbol. Do not dispose of WEEE as unsorted municipal waste and have to collect such WEEE separately.

Revision

PLANET 24-Port 10/100Mbps with 2 Gigabit TP / SFP Combo Web Smart Switch User's Manual
FOR MODELS: FGSW-2620CS(V3)
REVISION: 3.0 (October, 2013)
Part No.: 2080-A81160-001

TABLE OF CONTENTS

1. INTRODUCTION

1.1 Checklist

Check the contents of your package for the following parts:

- FGSW-2620CS x 1
- Quick Installation Guide x 1
- User's Manual CD x 1
- Power Cord x 1
- Rubber Feet x 4
- Two Rack-mount Brackets with Attachment Screws x 1

If any of these pieces are missing or damaged, please contact your dealer immediately; if possible, retain the carton including the original packing material, and use them again to repack the product in case there is a need to return it to us for repair.

In the following section, the term **"Web Smart Switch"** means the FGSW-2620CS whereas the term **"switch"** can be any third switches.

1.2 About the Switch

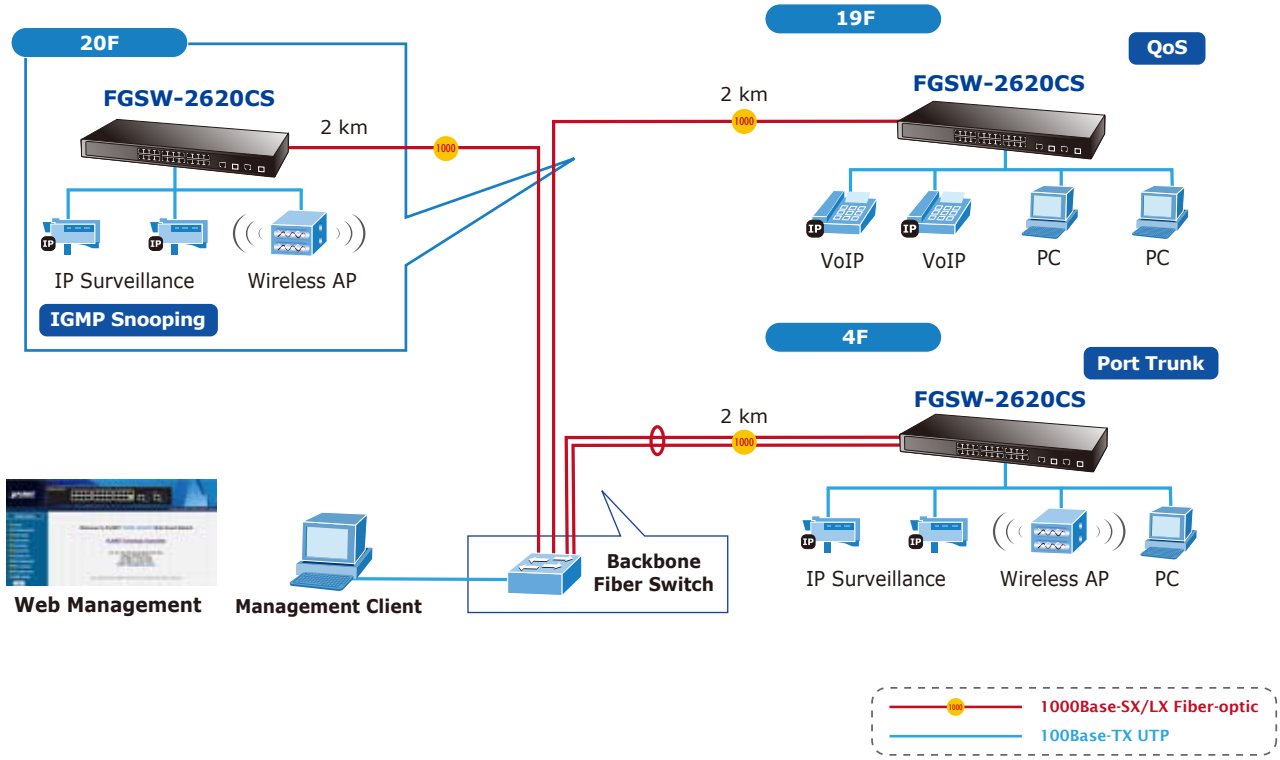
The FGSW-2620CS provides 24 10/100Mbps Fast Ethernet ports and two Gigabit Ethernet ports, either TP or SFP per port. The two Gigabit ports either can be 1000Base-T for 10/100/1000Mbps or 1000Base-SX/LX through SFP (Small Factor Pluggable) interfaces. The distance can be extended from 100 meters (TP), and 550 meters (Multi-mode fiber), up to above 10/20/30/40/50/70/120 kilometers (Single-mode fiber).

The FGSW-2620CS is equipped with non-blocking 8.8Gbps backplane, greatly simplifies the tasks of upgrading your LAN for catering to increasing bandwidth demands.

For efficient management, the FGSW-2620CS 24-Port 10/100Mbps + 2 Gigabit TP / SFP Combo Web Smart Switch is equipped with remote Web interface. The FGSW-2620CS can be programmed for advanced switch management functions such as port configuration, port-based / IEEE 802.1Q / MTU VLAN, port mirroring, port trunk, QoS, bandwidth control, broadcast storm control, STP, RSTP, configuration backup/recovery, MAC address / TCP & UDP filter and IGMP Snooping v1/v2.

The FGSW-2620CS provides port-based / IEEE 802.1Q / MTU VLAN (port based / IEEE 802.1Q VLAN including overlapping). The VLAN groups allowed on the FGSW-2620CS, will be maximally up to 26 for port-based / 32 for IEEE 802.1Q VLAN groups. Also the MTU VLAN divides port 1 to port 24 as separate LAN group and only can access the public port 25,26 or port 26. Via supporting port trunking, the FGSW-2620CS allows the operation of a high-speed trunk combining multiple ports. The FGSW-2620CS also provides two groups of up to 4-ports 10/ 100Base-TX trunk support, up to 800Mbps bandwidth per trunk and 1 group of 2-Port 10/100/1000Mbps trunk support, up to 2000Mbps bandwidth per trunk, and it supports fail-over as well.

With its Auto-Negotiation capability, all the RJ-45/UTP ports of Web Smart Switch can be configured to speeds of 10/20Mbps / 100/200Mbps (Fast Ethernet) and 1000/2000Mbps (Gigabit Ethernet) automatically. In addition, the products are equipped with the MDI/MDI-X auto detection for easily plug and play connection, regardless of cabling types -- straight-through or crossover.



1.3 Features

- Complies with the IEEE 802.3, IEEE 802.3u, IEEE 802.3ab, IEEE 802.3z Gigabit Ethernet standard
- 24 10/100Mbps Fast Ethernet ports
- 2 10/100/1000Mbps ports share with 2 SFP ports
- Each Switching port supports auto-negotiation with 10/20, 100/200Mbps (Fast Ethernet) , 1000/2000Mbps (Gigabit Ethernet) supported
- Auto-MDI/MDI-X detection on each RJ-45 port
- Prevents packet loss with back pressure (half-duplex) and IEEE 802.3x pause frame flow control (full-duplex)
- High performance Store and Forward architecture, broadcast storm control, runt/CRC filtering eliminates erroneous packets to optimize the network bandwidth
- 4K MAC address table, automatic source address learning and ageing
- 2.75Mb embedded memory for packet buffers
- Remote Web interface for Switch management and setup
- Broadcast Storm Control support
- Supports up to 26 port-based VLAN groups / 32 IEEE 802.1Q VLAN groups / MTU VLAN
- Supports up to 2 Trunk groups, each trunk for up to maximum 4 port with 800Mbps bandwidth
- Supports IEEE 802.1D Spanning Tree / IEEE 802.1w Rapid Spanning Tree protocol
- Supports QoS , bandwidth control and MAC address filter / TCP & UDP filter on each port
- Supports SNMP v1, port mirroring function and IGMP Snooping v1 / v2
- Supports DHCP Option82 and DHCP Relay
- Firmware upgrade through Web interface
- Configuration upload / download through Web interface
- Password setting, IP setting and device description setting through Planet Smart discovery utility

- 19-inch rack mount size
- Internal full-ranging power supply suitable for worldwide use
- EMI standards complies with FCC, CE class A

1.4 Specifications

Model	**FGSW-2620CS**
Hardware Specifications	
Ports	24 10/100Base-TX RJ-45 Auto-MDI/MDI-X interfaces
Gigabit Ports	2 10/100/1000Mbps ports share with 2 SFP interfaces
Switch Processing Scheme	Store-and-Forward
Throughput (packet per second)	6.54Mpps@64Bytes
Switch Fabric	8.8Gbps
Address Table	4K entries
Share Data Buffer	2.75Mb embedded memory for packet buffers
Flow Control	Back pressure for half duplex, IEEE 802.3x pause frame for full duplex
Dimensions	440 x 120 x 44 mm (1U height)
Weight	1.61 kg
Power Requirements	100~240V AC, 50-60 Hz, 0.5A
Power Consumption / Dissipation	19.6 watts / 66.9BTU
Smart Functions	
System Configuration	Web interface, SNMP v1
Port Configuration	Port speed duplex mode selection. Flow control disable / enable. Port disable / enable. Port description on each port
Bandwidth Control	Yes, 1 / 2 / 4 / 8 / 16 / 32 / 64Mbps
Broadcast Storm Control	Yes, 5% / 10% / 25% / 50% / disable
Port Statistics	Display each port's detailed Ethernet traffic counter information
VLAN	26 port-based VLAN groups / 32 IEEE 802.1Q VLAN groups / MTU VLAN
Spanning Tree Protocol	STP, IEEE 802.1d (Spanning Tree Protocol) RSTP, IEEE 802.1w (Rapid Spanning Tree Protocol)
Port Trunking	Supports 2 groups of 4-port 10/ 100Base-TX trunk support, up to 800Mbps bandwidth per trunk Supports 1 group of 2-port 10/100/1000Mbps trunk support, up to 2000Mbps bandwidth per trunk
Port Mirroring	Port mirroring allows monitoring of the traffic across any port in real time
QoS	Allows to assign low / high priority on each port. First-In-First-Out, All-High-before-Low, Weight-Round-Robin QoS policy.
MAC Address / TCP & UDP Filter	Yes

IGMP Snooping v1 / v2	Allows to disable or enable.
Standards Conformance	
Regulation Compliance	FCC Part 15 Class A, CE
Standards Compliance	IEEE 802.3 (Ethernet) IEEE 802.3u (Fast Ethernet) IEEE 802.3ab (Gigabit Ethernet) IEEE 802.3z (Gigabit Ethernet) IEEE 802.3x (Full-duplex flow control) IEEE 802.1Q VLAN IEEE 802.1p QoS IEEE 802.1D (Spanning Tree Protocol) IEEE 802.1w (Rapid Spanning Tree Protocol)
Environment	
Temperature	Operating: 0~50 degrees C Storage: -10~70 degrees C
Operating Humidity	5% to 90%, Storage: 5% to 90% (non-condensing)

2. HARDWARE DESCRIPTION

This product provides three different running speeds – 10Mbps, 100Mbps and 1000Mbps in the same Web Smart Switch and automatically distinguishes the speed of incoming connection.

This section describes the hardware features of Web Smart Switch. For easier management and control of the Web Smart Switch, familiarize yourself with its display indicators, and ports. Front panel illustrations in this chapter display the unit LED indicators. Before connecting any network device to the Web Smart Switch, read this chapter carefully.

2.1 Front Panel

The front panel of the Web Smart Ethernet Switch consists of 24x auto-sensing 10/100Mbps Ethernet RJ-45 ports and 2 Gigabit TP/SFP combo ports, which can either be 1000Base-T for 10/100/1000Mbps or 1000Base-SX/LX through SFP (Small Factor Pluggable) interface.

The LED Indicators are also located on the front panel of the Web Smart Switch.

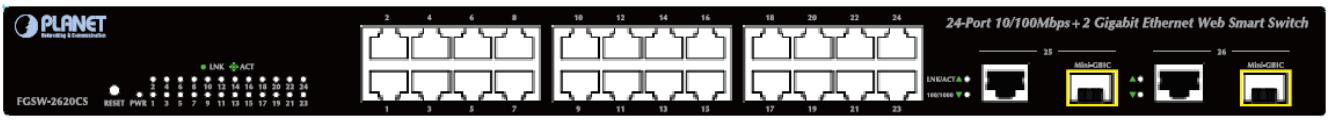


Figure 2-1: FGSW-2620CS Switch Front Panel

2.1.1 LED Indicators

System

LED	Color	Function
PWR	Green	Lights to indicate that the Switch has power.

Per 10/100Mbps port

LED	Color	Function
LNK/ACT	Green	Lights to indicate the link through that port is established at 10/100Mbps full duplex mode. Blinks slowly to indicate the link through that port is established at 10/100Mbps half duplex mode. Blinks fast to indicate that the switch is actively sending or receiving data over that port.

Per 10/100/1000Base-T port / SFP interfaces

LED	Color	Function
LNK/ACT	Green	Lights to indicate the link through that port is established at 10/100/1000Mbps full duplex mode. Blinks slowly to indicate the link through that port is established at 10/100Mbps half duplex mode. Blinks fast to indicate that the switch is actively sending or receiving data over that port.
100/1000	Green	Steadily Lights to indicate the port is run at 1000Mbps. Blinks Slowly to indicate the port is run at 100Mbps Off: indicates that the port is operating at 10Mbps.

Note

1. Press the RESET button once and the Web Smart Switch will reboot automatically.
2. Press the RESET button for 5 seconds and the Web Smart Switch will return to the factory default mode; the entire configuration will be erased.

2.2 Rear Panel

The rear panel of the Web Smart Switch indicates an AC inlet power socket, which accepts input power from 100 to 240VAC, 50-60Hz, 0.5A.

Figure 2-2: FGSW-2620CS Switch Rear Panel

Power Notice:

1. The device is a power-required device, meaning it will not work till it is powered. If your networks should be active all the time, please consider using UPS (Uninterrupted Power Supply) for your device. It will prevent you from network data loss or network downtime.

2. In some area, installing a surge suppression device may also help to protect your Web Smart Switch from being damaged by unregulated surge or current to the Web Smart Switch.

2.3 Hardware Installation

This part describes how to install your Web Smart Switch and make connections to the Switch. Please read the following topics and perform the procedures accordingly. To install your Web Smart Switch on a desktop or shelf, simply complete the following steps.

2.3.1 Desktop Installation

To install Web Smart Switch on a desktop or shelf, simply complete the following steps:

Step 1: Attach the rubber feet to the recessed areas on the bottom of the Web Smart Switch.

Step 2: Place the Web Smart Switch on a desktop or shelf near an AC power source.

Step 3: Keep enough ventilation space between the Web Smart Switch and the surrounding objects.

Note

When choosing a location, please keep in mind the environmental restrictions discussed in Chapter 1, Section 4 under Specifications.

Step 4: Connect your Switch to network devices.

A. Connect one end of a standard network cable to the 10/100 RJ-45 ports on the front of the Web Smart Switch.

B. Connect the other end of the cable to the network devices such as printer servers, workstations or routers.

Note

Connection to the Web Smart Switch requires UTP Category 5 network cabling with RJ-45 tips. For more information, please see the Cabling Specifications in **Appendix A**.

Step 5: Supply power to the Web Smart Switch.

A. Connect one end of the power cable to the Web Smart Switch.

B. Connect the power plug of the power cable to a standard wall outlet and then power on the Web Smart Switch.

When the Web Smart Switch receives power, the Power LED should remain solid Green.

2.3.2 Rack Mounting

To install the Web Smart Switch in a **19-inch** standard rack, follow the instructions described below.

Step 1: Place your Web Smart Switch on a hard flat surface, with the front panel positioned towards your front side.

Step 2: Attach a rack-mount bracket to each side of the Web Smart Switch with supplied screws attached to the package. Figure 2-3 shows how to attach brackets to one side of the Web Smart Switch.

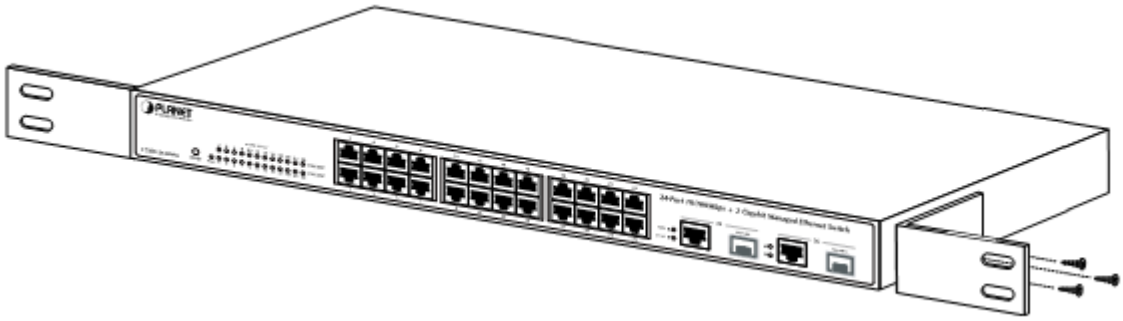


Figure 2-3 Attaching the brackets to the Web Smart Switch

You must use the screws supplied with the mounting brackets. Damage caused to the parts by using incorrect screws would invalidate your warranty.

Step 3: Secure the brackets tightly.

Step 4: Follow the same steps to attach the second bracket to the opposite side.

Step 5: After the brackets are attached to the Web Smart Switch, use suitable screws to securely attach the brackets to the rack, as shown in Figure 2-4.

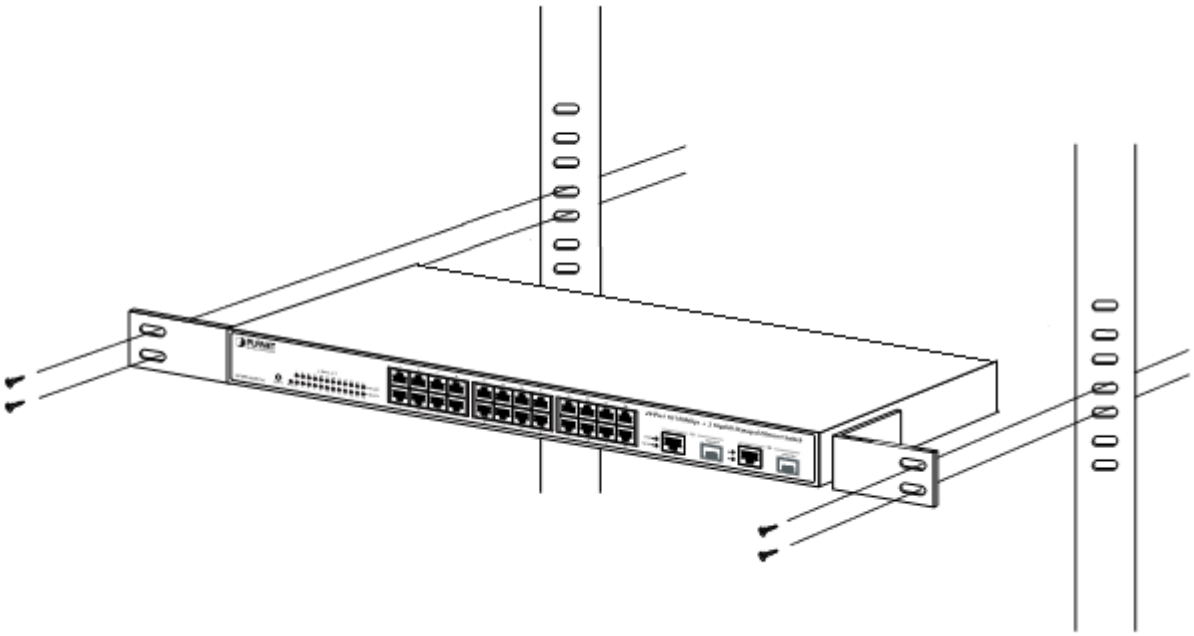


Figure 2-4 Mounting the Web Smart Switch in a Rack

Step 6: Proceed with Steps 4 and 5 under Section **2.3.1 Desktop Installation** to connect the network cabling and supply power to your Web Smart Switch.

2.3.3 Installing the SFP transceiver

The sections describe how to insert an SFP transceiver into an SFP slot.

The SFP transceivers are hot-pluggable and hot-swappable. You can plug in and out the transceiver to/from any SFP port without having to power down the Web Smart Switch as the Figure 2-5 appears.

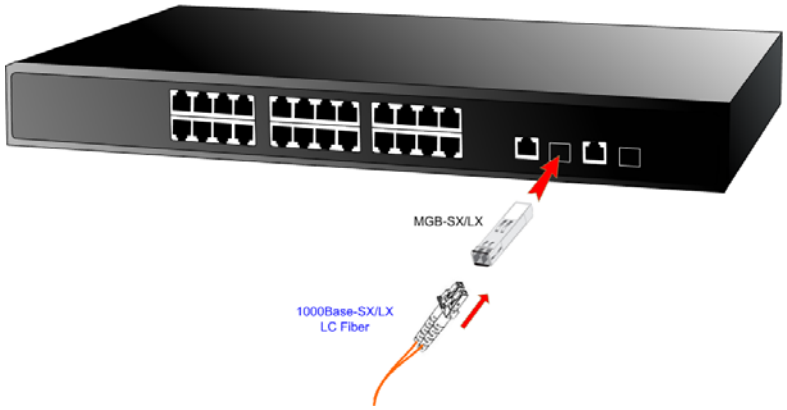


Figure 2-5 Inserting the SFP transceiver

Approved PLANET SFP Transceivers

PLANET Web Smart Switch supports both single mode and multi mode SFP transceivers. The following list of approved PLANET SFP transceivers is correct at the time of publication:

■MGB-SX SFP (1000Base-SX SFP transceiver)

■MGB-LX SFP (1000Base-LX SFP transceiver)

It is recommended to use PLANET SFP transceiver on the Web Smart Switch. If you insert an SFP transceiver that is not supported, the Web Smart Switch will not recognize it.

Before connecting the other switches, workstation or Media Converter.

1. Make sure both sides of the SFP transceiver are with the same media type, for example: 1000Base-SX to 1000Base-SX, 1000Base-LX to 1000Base-LX.
2. Check the fiber-optic cable type that matches the SFP transceiver model.
   - To connect to **1000Base-SX** SFP transceiver, use the **multi-mode** fiber cable- with one side being male duplex LC connector type.
   - To connect to **1000Base-LX** SFP transceiver, use the **single-mode** fiber cable-with one side being male duplex LC connector type.

Connect the fiber cable

1. Insert the duplex LC connector on the network cable into the SFP transceiver.
2. Connect the other end of the cable to a device – switches with SFP installed, fiber NIC on a workstation or a Media Converter..
3. Check the LNK/ACT LED of the SFP slot on the front of the Web Smart Switch. Ensure that the SFP transceiver is operating correctly.
4. Check the Link mode of the SFP port if the link fails. Functioning with some fiber-NICs or Media Converters and setting the Link mode to **"1000 Force"** are needed.

Remove the transceiver module

1. Make sure there is no network activity by consulting or checking with the network administrator. Or through the management interface of the switch/converter (if available) to disable the port in advance.
2. Remove the Fiber Optic Cable gently.
3. Turn the handle of the MGB module to a horizontal position.
4. Pull out the module gently through the lever..

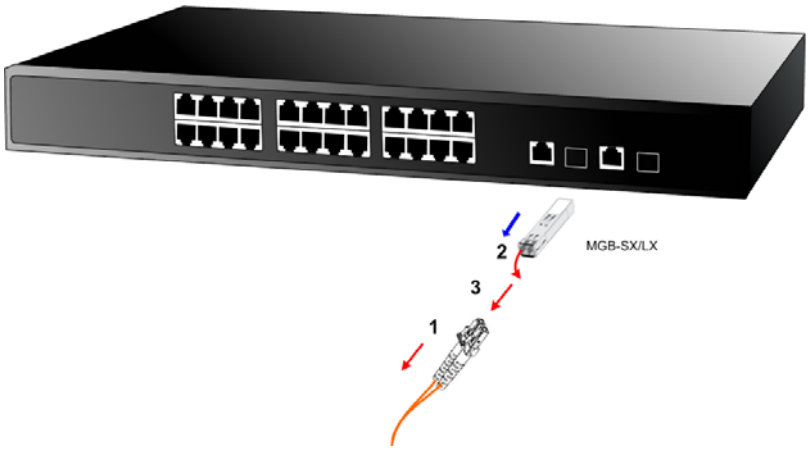


Figure 2-6 Removing the SFP transceiver

Note

Never pull out the module without pulling the lever or the push bolt of the module. Directly pulling out the module with force could damage the module and SFP module slot of the Web Smart Switch.

3. SWITCH MANAGEMENT

This chapter describes how to manage the Web Smart Switch. Topics include:

- Overview
- Management Method
- Logging on to the Web Smart Switch

3.1 Overview

The Web Smart Switch provides a user-friendly, Web interface. With this interface, you can perform various switch configuration and management activities, including:

Please refer to the following Chapter 4 for the details.

3.2 Management Method

User can manage the Web Smart Switch by Web Management via a network connection.

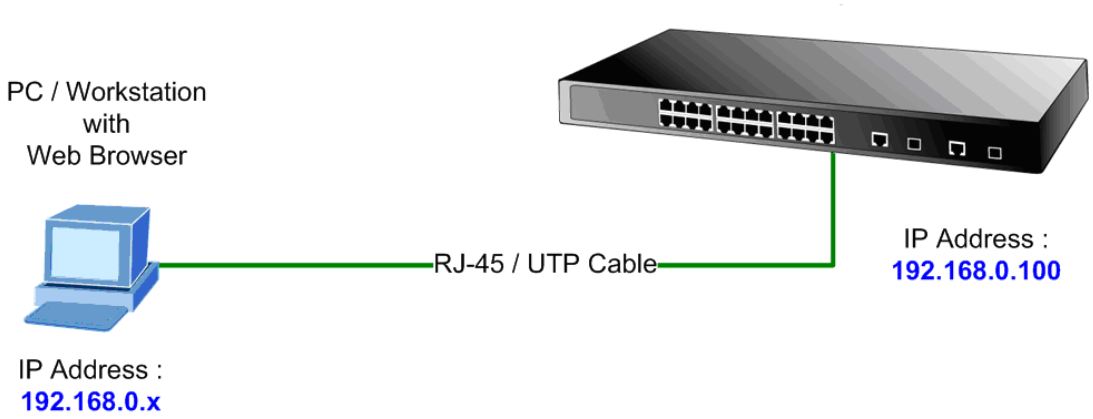
3.2.1 Web Management

PLANET FGSW-2620CS provides a built-in browser interface. You can manage the Switch remotely by having a remote host with Web browser, such as Microsoft Internet Explorer, Netscape Navigator or Mozilla Firefox.

The following shows how to start up the Web Management of the Switch. Please note the Switch is configured through an Ethernet connection. Make sure the manager PC must be set on the same IP subnet address; for example, the default IP address of the Switch is **192.168.0.100** (the factory-default IP address), then the manager PC should be set at 192.168.0.x (where x is a number between 1 and 254, except 100), and the default subnet mask is 255.255.255.0.

Use Internet Explorer 7.0 or the above Web browser and enter default IP address http://192.168.0.100

After entering the user name and password (default user name and password are **"admin"**) in login screen



3.2.2 PLANET Smart Discovery Utility

To easily list the FGSW-2620CS in your Ethernet environment, Planet Smart Discovery Utility from user's manual CD-ROM is an ideal solution.

The following install instructions guide you to running Planet Smart Discovery Utility.

1. Insert Planet Smart Discovery Utility in administrator PC.

2. Run this utility and the following screen appears.

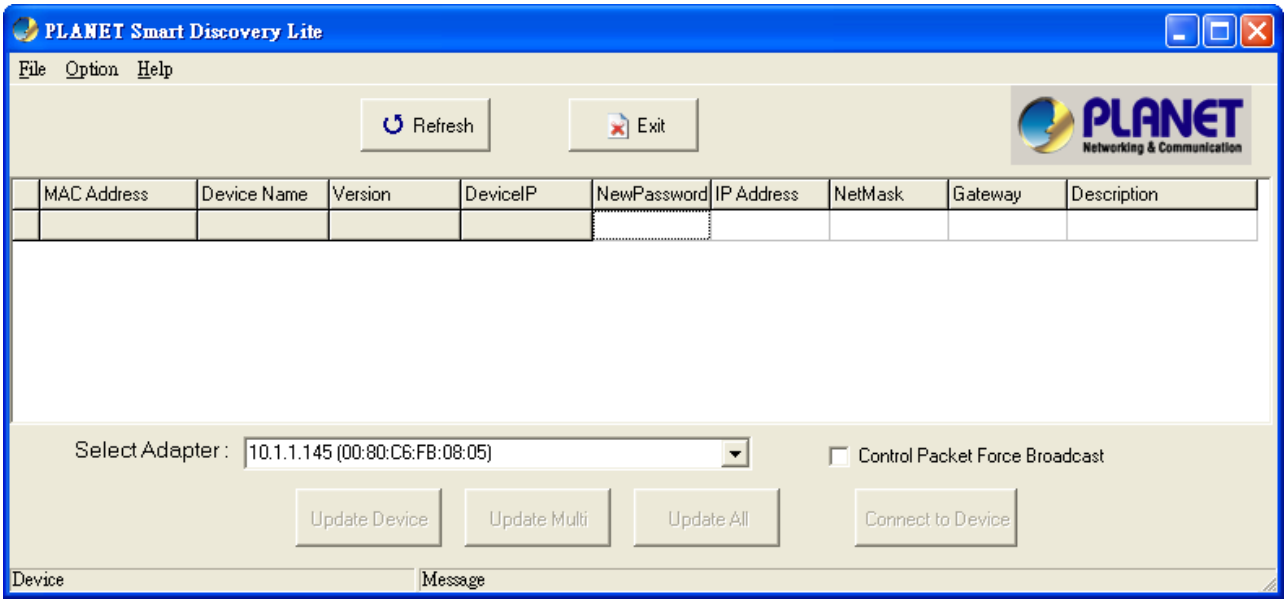


Figure 3-1 Planet Smart Discovery Utility Screen

Note

If there are two LAN cards or above in the same administrator PC, choose a different LAN card by using the **"Select Adapter"** tool.

3. Press **"Refresh"** button for the currently connected devices in the discovery list as the screen is shown as follows.

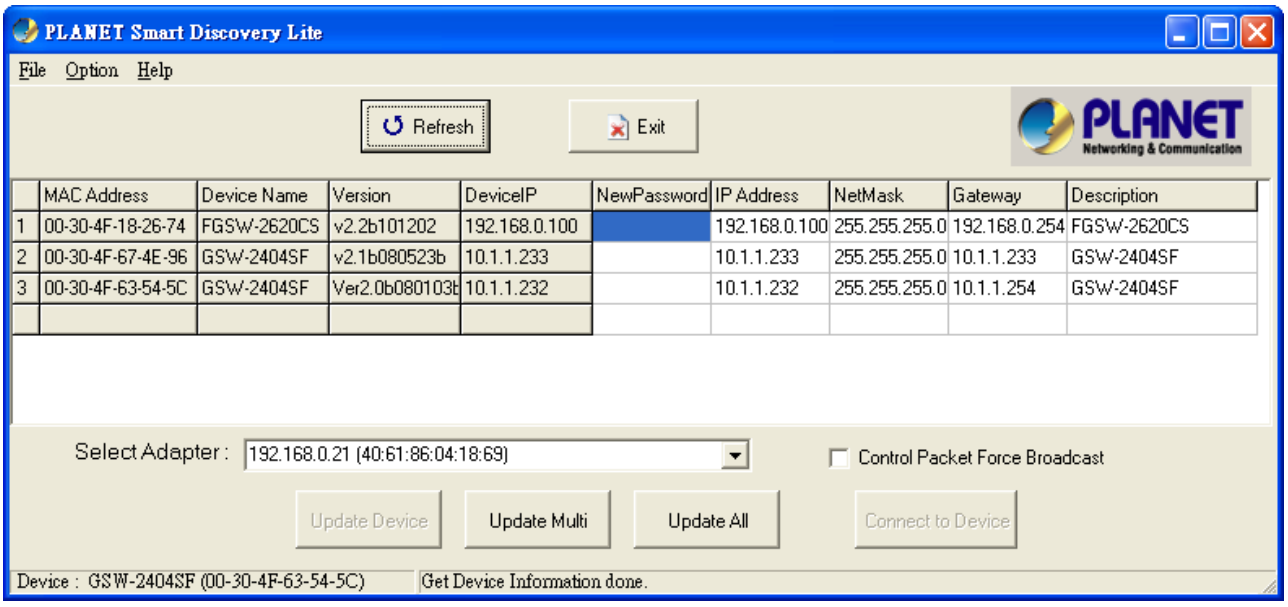


Figure 3-2 Planet Smart Discovery Utility Screen

This utility shows all the necessary information from the devices, such as MAC Address, Device Name, firmware version, and Device IP Subnet address. It also can assign new password, IP Subnet address and description to the devices.

3. After the setup is completed, press **"Update Device"**, **"Update Multi"** or **"Update All"** button to take effect. The features of the 3 buttons are shown below:
   Update Device: use current setting on one single device.
   Update Multi: use current setting on multi-devices.
   Update All: use current setting on the whole devices in the list.
   The same functions mentioned above also can be found in **"Option"** tools bar.
4. To click the **"Control Packet Force Broadcast"** function, it can allow assigning new setting value to the Web Smart Switch under different IP subnet addresses.
6. Press **"Connect to Device"** button and then the Web login screen appears in Figure 3-3.
7. Press **"Exit"** button to shut down Planet Smart Discovery Utility.

3.3 Logging on to the FGSW-2620CS

When you log on to the Web Smart Switch Web interface for the first time, a sign-on string appears and you are prompted for a Web login user name and password.

Figure 3-3 Web Smart Switch Web Login Screen

The factory default login user name and password are **admin**.

Note

For security reason, please change and memorize the new password after this first setup.

4. WEB MANAGEMENT

To modify your PC's IP domain to the same with Web Smart Switch, use the default IP address (***192.168.0.100***) to remotely configure Web Smart Switch through the **Web** interface.

4.1 Login in to the Switch

To access the Web-browser interface, you must first enter the user name and password. The default user name and password are **"admin".** The following screen will appear on the Web browser program:

Figure 4-1 Web Login Screen

After the user name and password are entered, you will see the Web Main Menu screen.

The Switch Menu provides seven major management functions as the screen in Figure 4-2 appears.

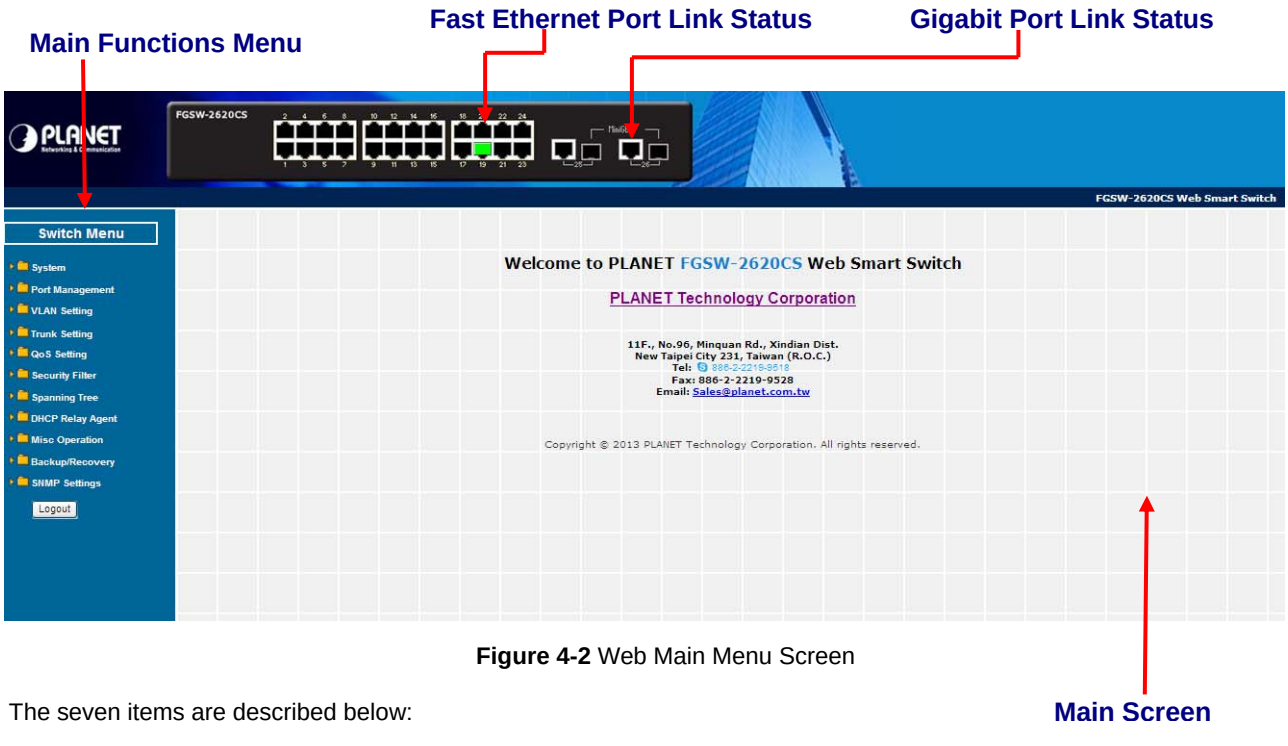


Figure 4-2 Web Main Menu Screen

The seven items are described below:

- **System:** Provides System configuration of Web Smart Switch. **Explained in section 4.2.**
- **Port Management:** Provides Port Management configuration of Web Smart Switch. **Explained in section 4.3.**
- **VLAN Setting:** Provides VLAN Setting configuration of Web Smart Switch. **Explained in section 4.4.**
- **Trunk Setting:** Provides Trunk Setting configuration of Web Smart Switch. **Explained in section 4.5.**
- **QoS Setting:** Provide sQoS Setting configuration of Web Smart Switch. **Explained in section 4.6.**
- **Security Filter:** Provides Security Filter configuration of Web Smart Switch. **Explained in section 4.7.**
- **Spanning Tree:** Provides Spanning Tree configuration of Web Smart Switch. **Explained in section 4.8.**
- **DHCP Relay Agent:** Provides DHCP Relay Agent configuration of Web Smart Switch. **Explained in section 4.9.**
- **Misc Operation:** Provides Misc Operation configuration of Web Smart Switch. **Explained in section 4.10.**
- **Backup/Recovery:** Provides Backup/Recovery configuration of Web Smart Switch. **Explained in section 4.11.**
- **SNMP Settings:** Provides SNMP Settings configuration of Web Smart Switch. **Explained in section 4.12.**
- **Logout:** Provides Logout function of Web Smart Switch. **Explained in section 4.13.**

4.2 System

This section provides System Information, IP Configuration, Password Setting, Factory Default, Firmware Update and Reboot functions of Web Smart Switch as the screen in Figure 4-3 appears and Table 4-1 describes the System object of Web Smart Switch.

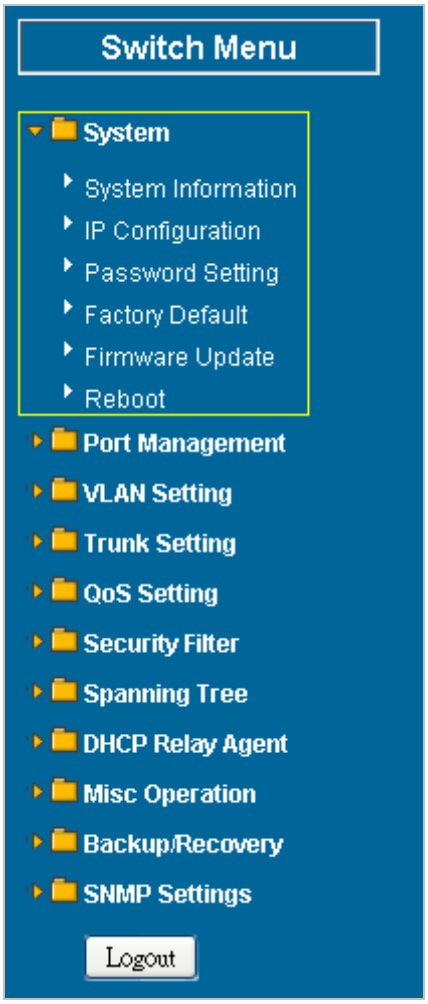


Figure 4-3 System Web Page Screen

Object	Description
System Information	Displays the MAC address, Hardware Version, and Software Version, Device Description. **Explained in section 4.2.1.**
IP Configuration	Allows to change the IP subnet address of Web Smart Switch. **Explained in section 4.2.2.**
Password Setting	Allows to change the user name and password of Web Smart Switch. **Explained in section 4.2.3.**
Factory Default	Allows to reset the Web Smart Switch to factory default mode. **Explained in section 4.2.4.**
Firmware Update	Allows to proceed firmware upgrade process of Web Smart Switch. **Explained in section 4.2.5.**
Reboot	Allows to reboot the Web Smart Switch. **Explained in section 4.2.6.**

Table 4-1 Descriptions of the System Web Page Screen Objects

4.2.1 System Information

This section displays the MAC address, Hardware Version and Software Version and allows to define the device description. Press **"Apply"** button to take effect as the screen in Figure 4-4 appears.

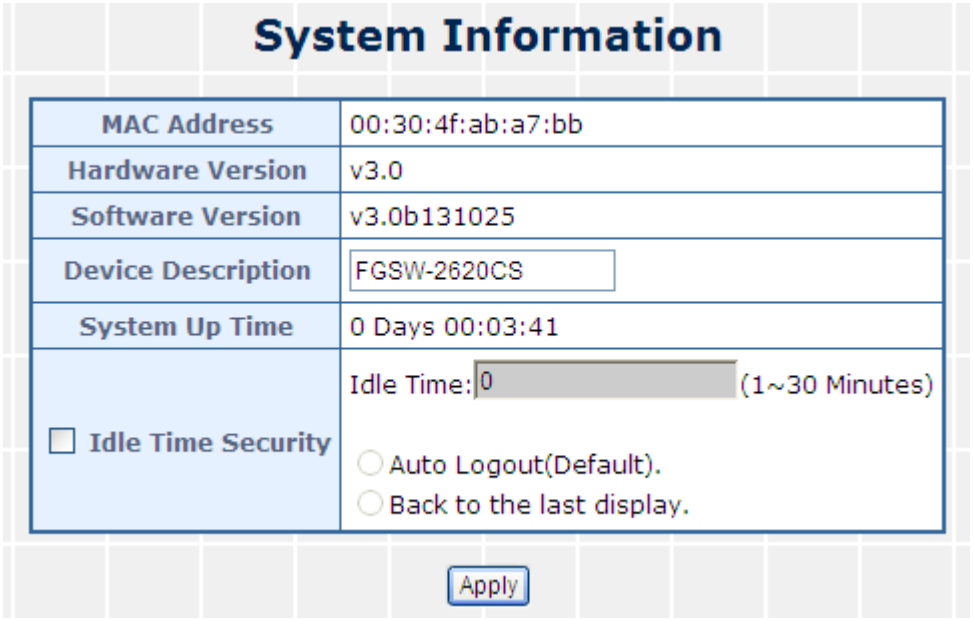


Figure 4-4 System Information Web Page Screen

The page includes the following fields:

Object	Description
• **MAC Address**	Displays the unique hardware address assigned by manufacturer (default).
• **Hardware Version**	Displays the current hardware version.
• **Software Version**	The software version of the switch.
• **Device Description**	Describes the Managed Switch. Up to 15 characters are allowed for the Device Description.
• **System Up Time**	The period of time the device has been operational.

• **Idle Time Security**	Set idle time and behavior.

Table 4-2 Descriptions of the System Information Web Page Screen Objects

4.2.2 IP Configuration

This section provides change in the IP Address, Subnet Mask and Gateway as the screen in Figure 4-5 appears.

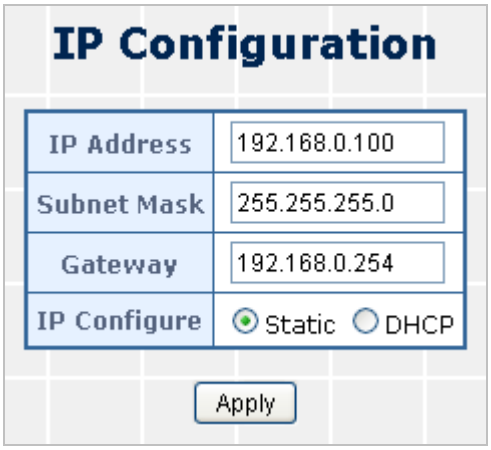


Figure 4-5 IP Configuration Web Page Screen

The page includes the following fields:

Object	Description
IP Address	Assign the IP address that the network is using. If DHCP client function is enabled, this switch is configured as a DHCP client. The network DHCP server will assign the IP address to the switch and display it in this column. The default IP is **192.168.0.100** or the user has to assign an IP address manually when DHCP Client is disabled.
Subnet Mask	Assign the subnet mask to the IP address. If DHCP client function is disabled, the user has to assign the subnet mask in this column field. The default subnet mask is **255.255.255.0**.
Gateway	Assign the network gateway for the switch. If DHCP client function is disabled, the user has to assign the gateway in this column field. The default gateway is **192.168.0.254**.
IP Configure	Select **static** IP address or **DHCP** client function When DHCP function is enabled, the Web Smart Switch will be assigned an IP address from the network DHCP server. The default IP address will be replaced by the assigned IP address on DHCP server. After the user clicks Apply, a popup dialog shows up to inform the user that when the DHCP client is enabled, the current IP will lose and user should find the new IP on the DHCP server.

Table 4-3 Descriptions of the IP Configuration Web Page Screen Objects

4.2.3 Password Setting

This section provides change in the user name and password as the screen in Figure 4-6 appears.

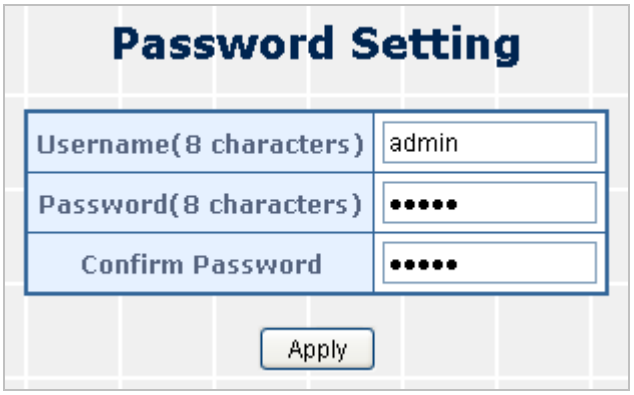


Figure 4-6 Password Setting Web Page Screen

The page includes the following fields:

Object	Description
User Name	Displays the user name.
Password	Specifies the new password. The password is not displayed. As it enters a "•" corresponding to each character is displayed in the field. (The maximum length is 8 characters)
Confirm Password	This confirms the new password. The password entered into this field must be exactly the same as the password entered in the Password field.

Table 4-4 Descriptions of the Password Setting Web Page Screen Objects

4.2.4 Factory Default

This section shows how to reset the Web Smart Switch to factory default mode as the screen in Figure 4-7 appears.

Figure 4-7 Factory Default Web Page Screen

Press **"Factory Default"** button to take effect. The following screen in Figure 4-8 appears and then another Web page login screen with default setting will show. After the default user name and password are filled out, the Web Smart Switch management will continue its function.

Figure 4-8 Factory Default Web Page Screen

4.2.5 Firmware Update

This section provides the firmware upgrade of the Web Smart Switch as the screen in Figure 4-9 appears.

Figure 4-9 Firmware Update Web Page Screen

Press **"Update"** button for start the firmware upgrade process, the screen in Figure 4-10 & 4-11 appears.

Figure 4-10 Firmware Update Web Page Screen

Figure 4-11 Firmware Update Web Page Screen

Press **"Browser"** button to find the firmware location on administrator PC as the screen in Figure 4-12 appears.

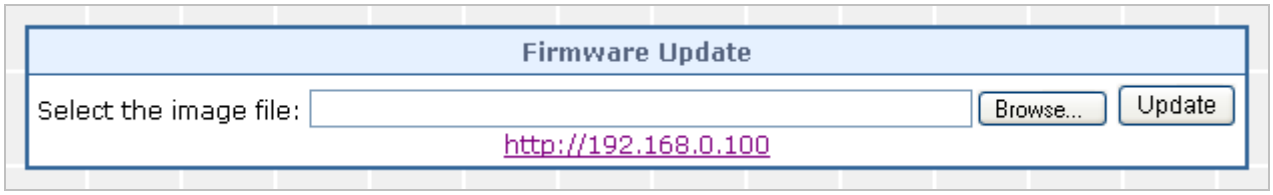


Figure 4-12 Firmware Update Web Page Screen

After locating the firmware on administrator PC, press **"Update"** button to start the firmware upgrade process as the screen in Figure 4-13 appears.

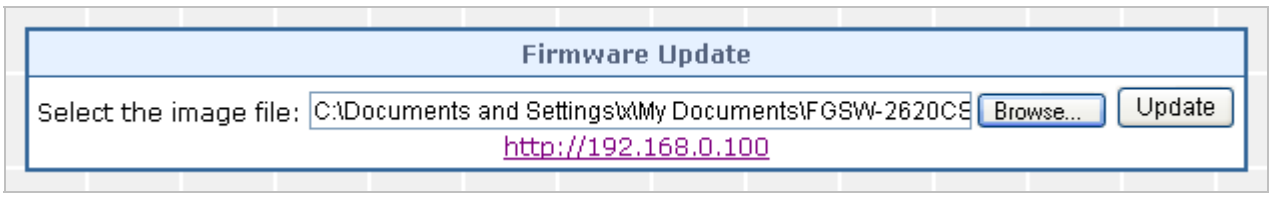


Figure 4-13 Firmware Update Web Page Screen

When firmware upgrade process is completed, then the following screen appears. Please press continue button and the page will turn to the login page.to enable to use the latest firmware of the Web Smart Switch.

Figure 4-14 Firmware Update Web Page Screen

1. It is recommended to use IE 7.0 or FireFox browser tools for firmware upgrade process.

2. Firmware upgrade needs several minutes. Please wait for a while, and don't power off the Web Smart Switch until the update progress is completed.

4.2.6 Reboot

This section allows rebooting the Web Smart Switch as the screen in Figure 4-15 appears.

Figure 4-15 Reboot Web Page Screen

Press **"Reboot"** button to reboot the Web Smart Switch. After device reboot is completed, the Web login screen appears and login for further management.

4.3 Port Management

This section provides Port Configuration, Port Mirroring, Bandwidth Control, Broadcast Storm Control and Port Statistics from Web Smart Switch as the screen in Figure 4-16 appears and Table 4-5 describes the system object of Web Smart Switch.

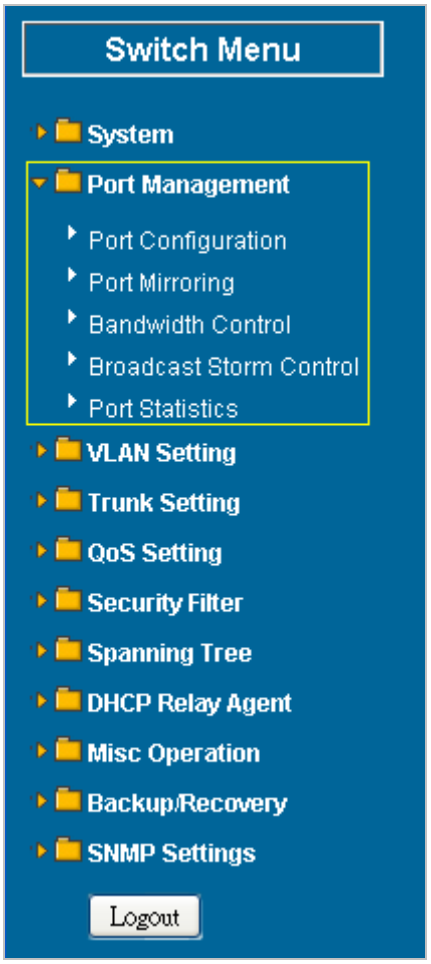


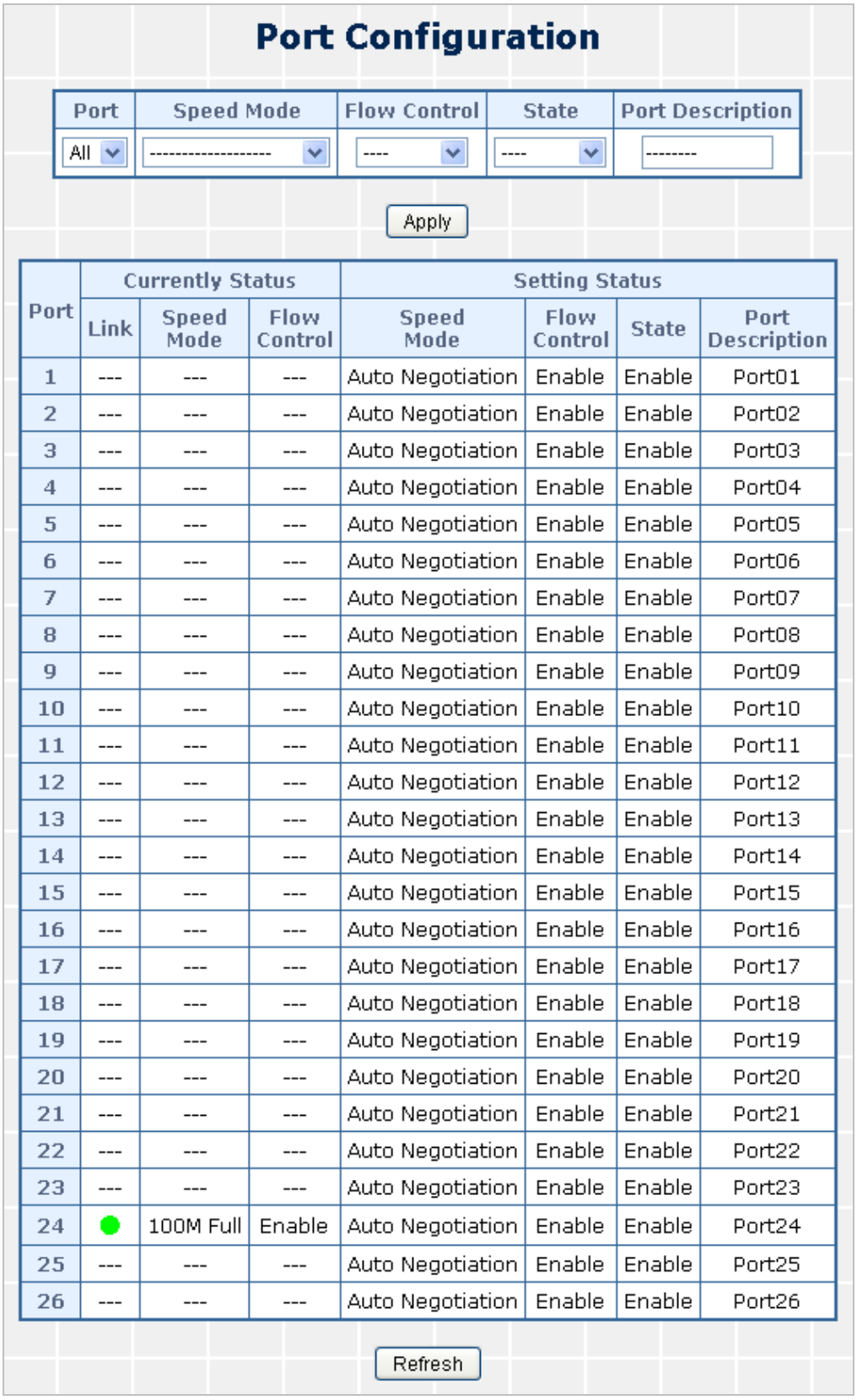
Figure 4-16 Port Management Web Page Screen

Object	Description
Port Configuration	Allows to configure each port of Web Smart Switch. **Explained in section 4.3.1.**
Port Mirroring	Allows to use port mirroring function of Web Smart Switch. **Explained in section 4.3.2.**
Bandwidth Control	Allows to configure bandwidth control of each port from Web Smart Switch. **Explained in section 4.3.3.**
Broadcast Storm Control	Allows to configure broadcast storm control of each port from Web Smart Switch. **Explained in section 4.3.4.**
Port Statistics	Displays each port statistics of Web Smart Switch. **Explained in section 4.3.5.**

Table 4-5 Descriptions of the Port Management Web Page Screen Objects

4.3.1 Port Configuration

This section introduces detailed settings of each port on Web Smart Switch as the screen in Figure 4-17 appears and Table 4-6 describes the Port Configuration objects of Web Smart Switch.



Port Configuration

Port	Speed Mode	Flow Control	State	Port Description
All	----------	----	----	--------

Apply

Port	Currently Status			Setting Status			
	Link	Speed Mode	Flow Control	Speed Mode	Flow Control	State	Port Description
1	---	---	---	Auto Negotiation	Enable	Enable	Port01
2	---	---	---	Auto Negotiation	Enable	Enable	Port02
3	---	---	---	Auto Negotiation	Enable	Enable	Port03
4	---	---	---	Auto Negotiation	Enable	Enable	Port04
5	---	---	---	Auto Negotiation	Enable	Enable	Port05
6	---	---	---	Auto Negotiation	Enable	Enable	Port06
7	---	---	---	Auto Negotiation	Enable	Enable	Port07
8	---	---	---	Auto Negotiation	Enable	Enable	Port08
9	---	---	---	Auto Negotiation	Enable	Enable	Port09
10	---	---	---	Auto Negotiation	Enable	Enable	Port10
11	---	---	---	Auto Negotiation	Enable	Enable	Port11
12	---	---	---	Auto Negotiation	Enable	Enable	Port12
13	---	---	---	Auto Negotiation	Enable	Enable	Port13
14	---	---	---	Auto Negotiation	Enable	Enable	Port14
15	---	---	---	Auto Negotiation	Enable	Enable	Port15
16	---	---	---	Auto Negotiation	Enable	Enable	Port16
17	---	---	---	Auto Negotiation	Enable	Enable	Port17
18	---	---	---	Auto Negotiation	Enable	Enable	Port18
19	---	---	---	Auto Negotiation	Enable	Enable	Port19
20	---	---	---	Auto Negotiation	Enable	Enable	Port20
21	---	---	---	Auto Negotiation	Enable	Enable	Port21
22	---	---	---	Auto Negotiation	Enable	Enable	Port22
23	---	---	---	Auto Negotiation	Enable	Enable	Port23
24	●	100M Full	Enable	Auto Negotiation	Enable	Enable	Port24
25	---	---	---	Auto Negotiation	Enable	Enable	Port25
26	---	---	---	Auto Negotiation	Enable	Enable	Port26

Refresh

Figure 4-17 Port Configuration Web Page Screen

The page includes the following fields:

Object	Description
• **Port**	Allows to choose all or one port of Web Smart Switch for further management. The available options are **All** & **01 to 26**.
• **Speed Mode**	Allows to choose various speed duplex modes from one specific port of Web Smart Switch as the available options are shown below: **Auto Negotiation** **1000Full(1000Mbps Port Only)** **100Full** **100Half** **10Full** **10Half** Default mode is **Auto Negotiation**.
• **Flow Control**	Allows to configure Flow control function of each port from Web Smart Switch, the available options are **Enable** and **Disable**. Default mode is **Enable**.
• **State**	Allows to disable or enable one specific port from Web Smart Switch, the available options are **Enable** and **Disable**. Default mode is **Enable**.
• **Port Description**	Allows to input per Port Description of Web Smart Switch, up to maximum **7** characters allow.
• **Port**	Indicates port 1 to port 26.
• **Current Status**	Displays each port Current Status, such as Link, Speed Mode and Flow Control.
• **Link**	Displays current link status from each port of the Web Smart Switch.
• **Speed Mode**	Displays current speed mode from each port of the Web Smart Switch.
• **Flow Control**	Displays current flow control status from each port of the Web Smart Switch.
• **Setting Status**	Displays each port Current Setting Status, such as Speed Mode, Flow Control, State and Port Description.
• **Speed Mode**	Displays each port Speed Mode setting value.
• **Flow Control**	Displays each port Flow Control setting value.
• **State**	Displays each port State setting value.
• **Port Description**	Displays each Port Description.

Table 4-6 Descriptions of the Port Configuration Web Page Screen Objects

4.3.2 Port Mirroring

This section introduces detailed settings of Port Mirroring function of Web Smart Switch as the screen in Figure 4-18 appears and Table 4-7 describes the Port Mirroring objects of Web Smart Switch.

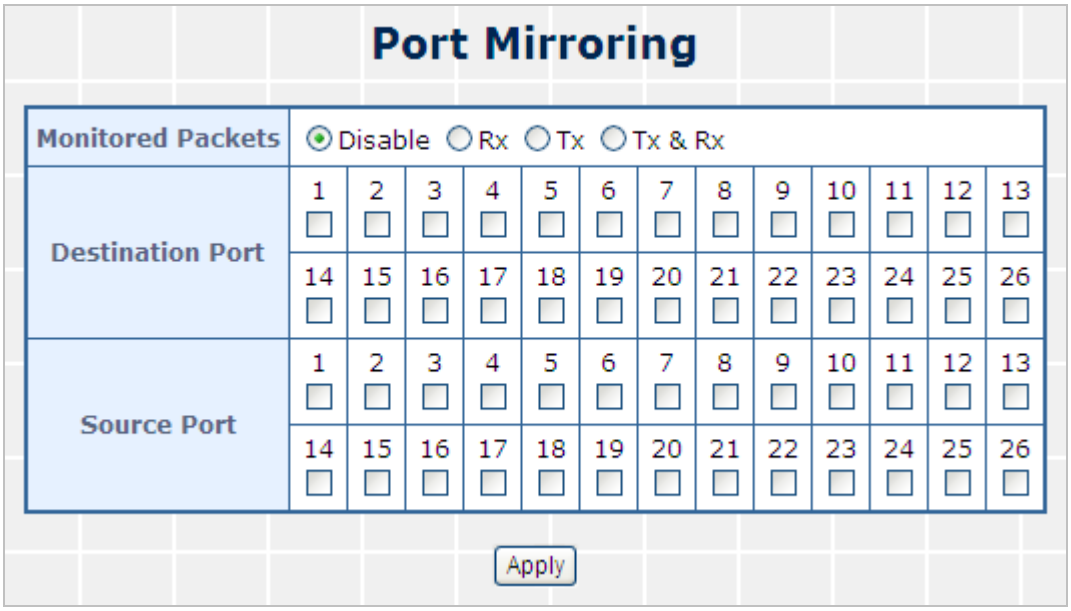


Figure 4-18 Port Mirroring Web Page Screen

The page includes the following fields:

Object	Description
• **Monitored Packets**	Provides to disable and enable the Port Mirroring function, the available options are **Disable**, **RX**, **TX**, **TX & RX**. Default mode is **Disable**.
• **Destination Port**	The destination port can be used to see all monitor port traffic. It can connect destination port to LAN analyzer or Netxray.
• **Source Port**	The source port that want to monitor. All monitor port traffic will be copied to destination port.

Table 4-7 Descriptions of the Port Mirroring Screen Objects

4.3.3 Bandwidth Control

This section introduces detailed settings of Bandwidth Control function of Web Smart Switch as the screen in Figure 4-19 appears and Table 4-8 describes the Bandwidth Control objects of Web Smart Switch.

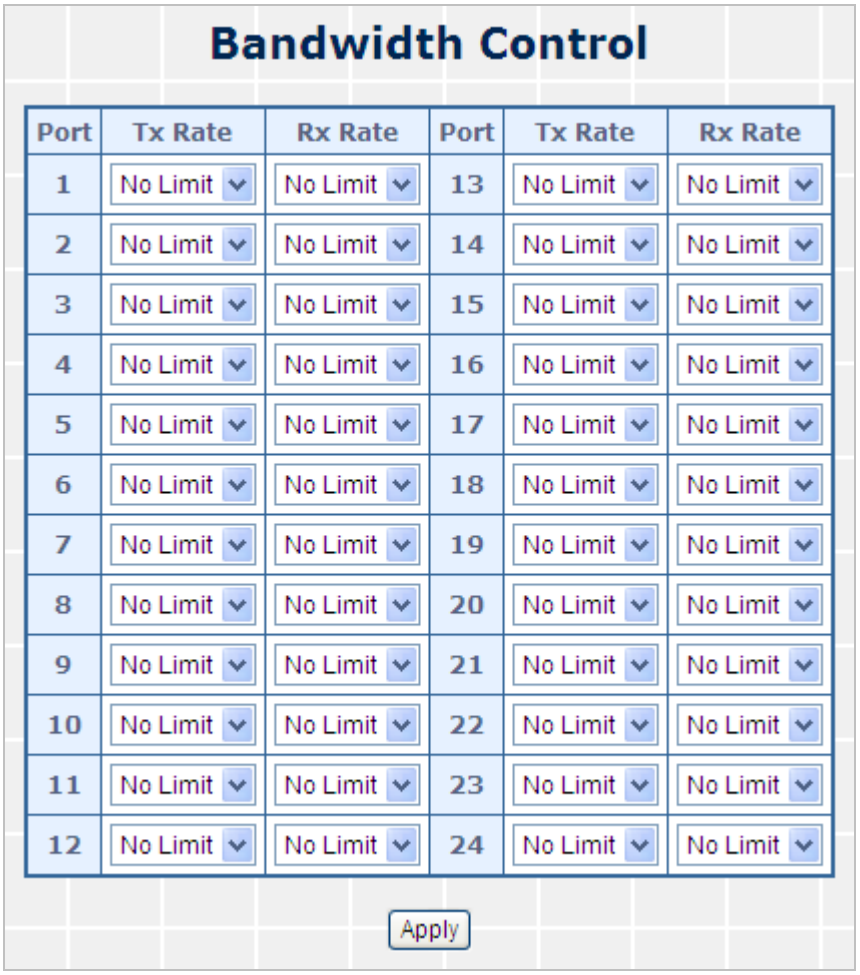


Figure 4-19 Bandwidth Control Web Page Screen

The page includes the following fields:

Object	Description
• **Port**	Indicates port 1 to port 24
• **Tx Rate**	Provides **No Limit**, **1Mbps**, **2Mbps**, **4Mbps**, **8Mbps**, **16Mbps**, **32Mbps**, **64Mbps** different transmit rate for bandwidth control function of Web Smart Switch. Default mode is "**No Limit**".
• **Rx Rate**	Provides **No Limit**, **1Mbps**, **2Mbps**, **4Mbps**, **8Mbps**, **16Mbps**, **32Mbps**, **64Mbps** different transmit rate for bandwidth control function of Web Smart Switch. Default mode is "**No Limit**".

Table 4-8 Descriptions of the Bandwidth Control Screen Objects

4.3.4 Broadcast Storm Control

This section introduces detailed settings of Broadcast Storm Control function of Web Smart Switch as the screen in Figure 4-20 appears and Table 4-9 describes the Broadcast Storm Control objects of Web Smart Switch.

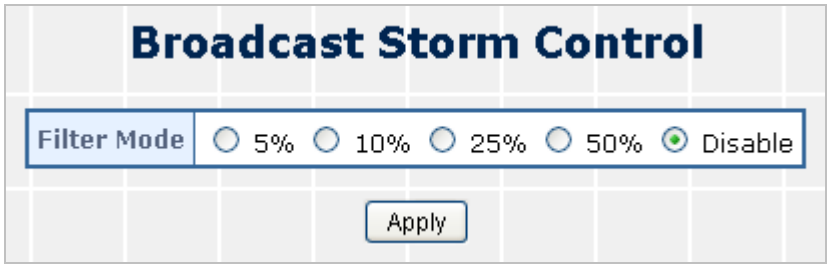


Figure 4-20 Broadcast Storm Control Web Page Screen

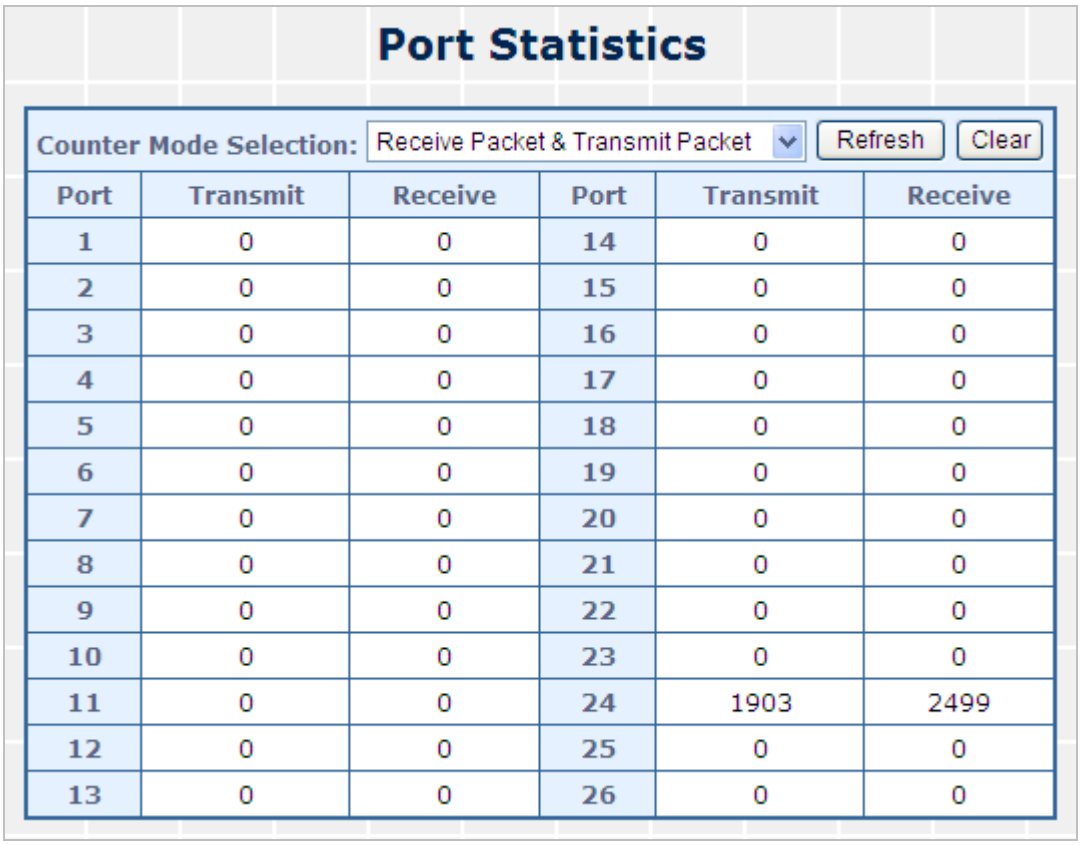
The page includes the following fields:

Object	Description
• **Filter Mode**	Provides **5%**, **10%**, **25%**, **50%** and **Disables** different filter mode. Default mode is **Disable**.

Table 4-9 Descriptions of the Broadcast Storm Control Screen Objects

4.3.5 Port Statistics

This section introduces detailed information of Port Statistics function of Web Smart Switch as the screen in Figure 4-21 appears and Table 4-10 describes the Port Statistics objects of Web Smart Switch.



Port	Transmit	Receive	Port	Transmit	Receive
1	0	0	14	0	0
2	0	0	15	0	0
3	0	0	16	0	0
4	0	0	17	0	0
5	0	0	18	0	0
6	0	0	19	0	0
7	0	0	20	0	0
8	0	0	21	0	0
9	0	0	22	0	0
10	0	0	23	0	0
11	0	0	24	1903	2499
12	0	0	25	0	0
13	0	0	26	0	0

Figure 4-21 Port Statistics Web Page Screen

The page includes the following fields:

Object	Description
• **Counter Mode Selection**	Provides different types of Ethernet traffic counter modes. The available options are shown below: **Receive Packet & Transmit Packet** **Collision Count & Transmit Packet** **Drop Packet & Receive Packet** **CRC error Packet & Receive Packet** Default mode is **Receive Packet & Transmit Packet**.
• **Port**	Indicates port 1 to port 26.
• **Transmit**	Displays Transmit count value from each port.
• **Receive**	Displays Receive count value from each port.

Table 4-10 Descriptions of the Port Statistics Screen Objects

4.4 VLAN Setting

A Virtual LAN (VLAN) is a logical network grouping that limits the broadcast domain. It allows you to isolate network traffic so only members of the VLAN receive traffic from the same VLAN members. 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 plug into the same switch physically.

The Switch supports IEEE 802.1Q (tagged-based) and Port-Base VLAN setting in web management page. In the default configuration, VLAN support is **"No VLAN"**.

Port-based VLAN

Port-based VLAN limit traffic that flows into and out of switch ports. Thus, all devices connected to a port are members of the VLAN(s) the port belongs to, whether there is a single computer directly connected to a switch, or an entire department.

On port-based VLAN.NIC do not need to be able to identify 802.1Q tags in packet headers. NIC send and receive normal Ethernet packets. If the packet's destination lies on the same segment, communications take place using normal Ethernet protocols. Even though this is always the case, when the destination for a packet lies on another switch port, VLAN considerations come into play to decide if the packet is dropped by the Switch or delivered.

IEEE 802.1Q VLANs

IEEE 802.1Q (tagged) VLAN are implemented on the Switch. 802.1Q VLAN require tagging, which enables them to span the entire network (assuming all switches on the network are IEEE 802.1Q-compliant).

VLAN allow a network to be segmented in order to reduce the size of broadcast domains. All packets entering a VLAN will only be forwarded to the stations (over IEEE 802.1Q enabled switches) that are members of that VLAN, and this includes broadcast, multicast and unicast packets from unknown sources.

VLAN can also provide a level of security to your network. IEEE 802.1Q VLAN will only deliver packets between stations that are members of the VLAN. Any port can be configured as either tagging or untagging. The untagging feature of IEEE 802.1Q VLAN allows VLAN to work with legacy switches that don't recognize VLAN tags in packet headers. The tagging feature allows VLAN to span multiple 802.1Q-compliant switches through a single physical connection and allows Spanning Tree to be enabled on all ports and work normally.

Any port can be configured as either tagging or untagging. The untagging feature of IEEE 802.1Q VLAN allows VLAN to work with legacy switches that don't recognize VLAN tags in packet headers. The tagging feature allows VLAN to span multiple 802.1Q-compliant switches through a single physical connection and allows Spanning Tree to be enabled on all ports and work normally.

Some relevant terms:

Tag - The act of putting 802.1Q VLAN information into the header of a packet.

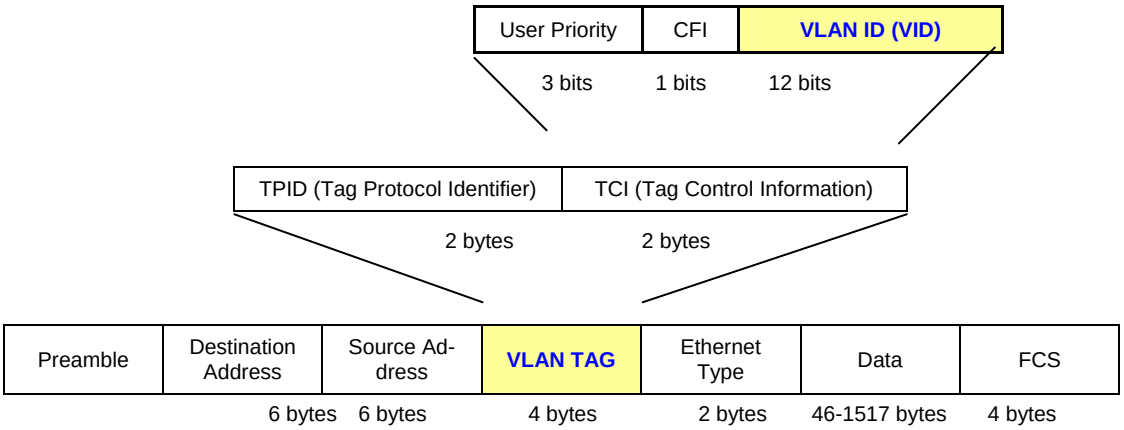
Untag - The act of stripping 802.1Q VLAN information out of the packet header.

802.1Q VLAN Tags

The figure below shows the 802.1Q VLAN tag. There are four additional octets inserted after the source MAC address. Their presence is indicated by a value of 0x8100 in the Ether Type field. When a packet's Ether Type field is equal to 0x8100, the packet carries the IEEE 802.1Q/802.1p tag. The tag is contained in the following two octets and consists of 3 bits of user priority, 1 bit of Canonical Format Identifier (CFI - used for encapsulating Token Ring packets so they can be carried across Ethernet backbones), and 12 bits of VLAN ID (VID). The 3 bits of user priority are used by 802.1p. The VID is the VLAN identifier and is used by the 802.1Q standard. Because the VID is 12 bits long, 4094 unique VLAN can be identified.

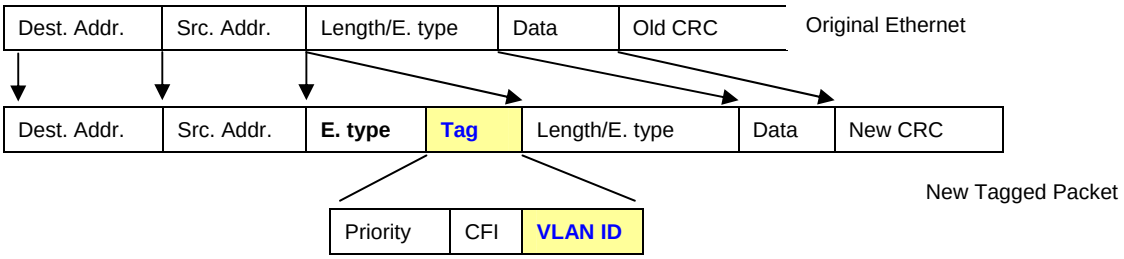
The tag is inserted into the packet header making the entire packet longer by 4 octets. All of the information originally contained in the packet is retained.

802.1Q Tag



The Ether Type and VLAN ID are inserted after the MAC source address, but before the original Ether Type/Length or Logical Link Control. Because the packet is now a bit longer than it was originally, the Cyclic Redundancy Check (CRC) must be recalculated.

Adding an IEEE802.1Q Tag



Port VLAN ID

Packets that are tagged (are carrying the 802.1Q VID information) can be transmitted from one 802.1Q compliant network device to another with the VLAN information intact. This allows 802.1Q VLAN to span network devices (and indeed, the entire network – if all network devices are 802.1Q compliant).

Every physical port on a switch has a PVID. 802.1Q ports are also assigned a PVID, for use within the switch. If no VLAN are defined on the switch, all ports are then assigned to a default VLAN with a PVID equal to 1. Untagged packets are assigned the PVID of the port on which they were received. Forwarding decisions are based upon this PVID, in so far as VLAN are concerned. Tagged packets are forwarded according to the VID contained within the tag. Tagged packets are also assigned a PVID, but the PVID is not used to make packet forwarding decisions, the VID is.

Tag-aware switches must keep a table to relate PVID within the switch to VID on the network. The switch will compare the VID of a packet to be transmitted to the VID of the port that is to transmit the packet. If the two VID are different the switch will drop the packet. Because of the existence of the PVID for untagged packets and the VID for tagged packets, tag-aware and tag-unaware network devices can coexist on the same network.

A switch port can have only one PVID, but can have as many VID as the switch has memory in its VLAN table to store them.

Because some devices on a network may be tag-unaware, a decision must be made at each port on a tag-aware device before packets are transmitted – should the packet to be transmitted have a tag or not? If the transmitting port is connected to a tag-unaware device, the packet should be untagged. If the transmitting port is connected to a tag-aware device, the packet should be tagged.

Default VLANs

The Switch initially configures one VLAN, VID = 1, called **"default."** The factory default setting assigns all ports on the Switch to the **"default"**. As new VLAN are configured in Port-based mode, their respective member ports are removed from the "default."

Note

Based on the Switch chipset specifications, the Switch supports **SVL(Shared VLAN Learning)** , and all VLAN groups share the same Layer 2 learned MAC address table.

■ VLAN Settings

This section provides VLAN Configuration from Web Smart Switch as the screen in Figure 4-22 appears and Table 4-11 describes the VLAN Configuration object of Web Smart Switch.

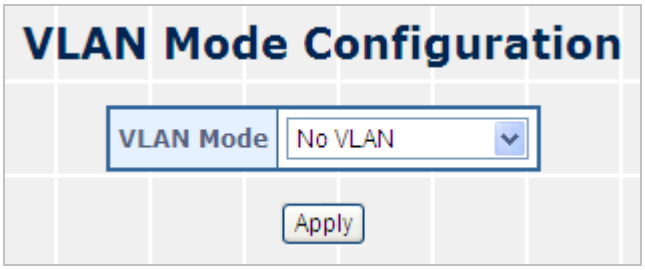


Figure 4-22 VLAN Setting Web Page Screen

The page includes the following fields:

Object	Description
• **VLAN Mode**	Provides different VLAN operation modes. The available options are shown below: **No VLAN** **802.1Q VLAN. Explained in section 4.4.1.** **Port-based VLAN. Explained in section 4.4.3.** **MTU. Explained in section 4.4.5.** Default mode is **No VLAN**.
• **Apply Button**	Press this button to save the current configuration of Web Smart Switch.

Table 4-11 Descriptions of the VLAN Setting Screen Objects

4.4.1 802.1Q VLAN

This section introduces detailed information of IEEE 802.1Q VLAN function of Web Smart Switch. Choose **"802.1Q VLAN"** from VLAN from the VLAN Mode and press **"Apply"** button to enable the 802.1Q VLAN function as the screen in Figure 4-23 & 4-24 appears and Table 4-12 describes the 802.1Q VLAN objects of Web Smart Switch.

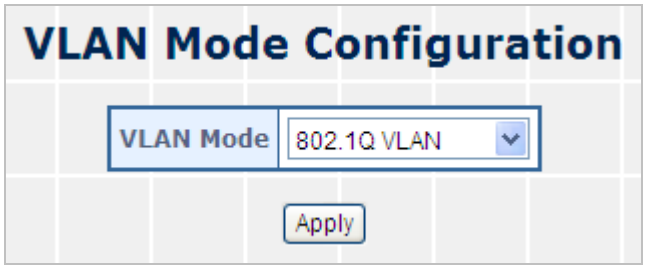


Figure 4-23 802.1Q VLAN Configuration Web Page Screen

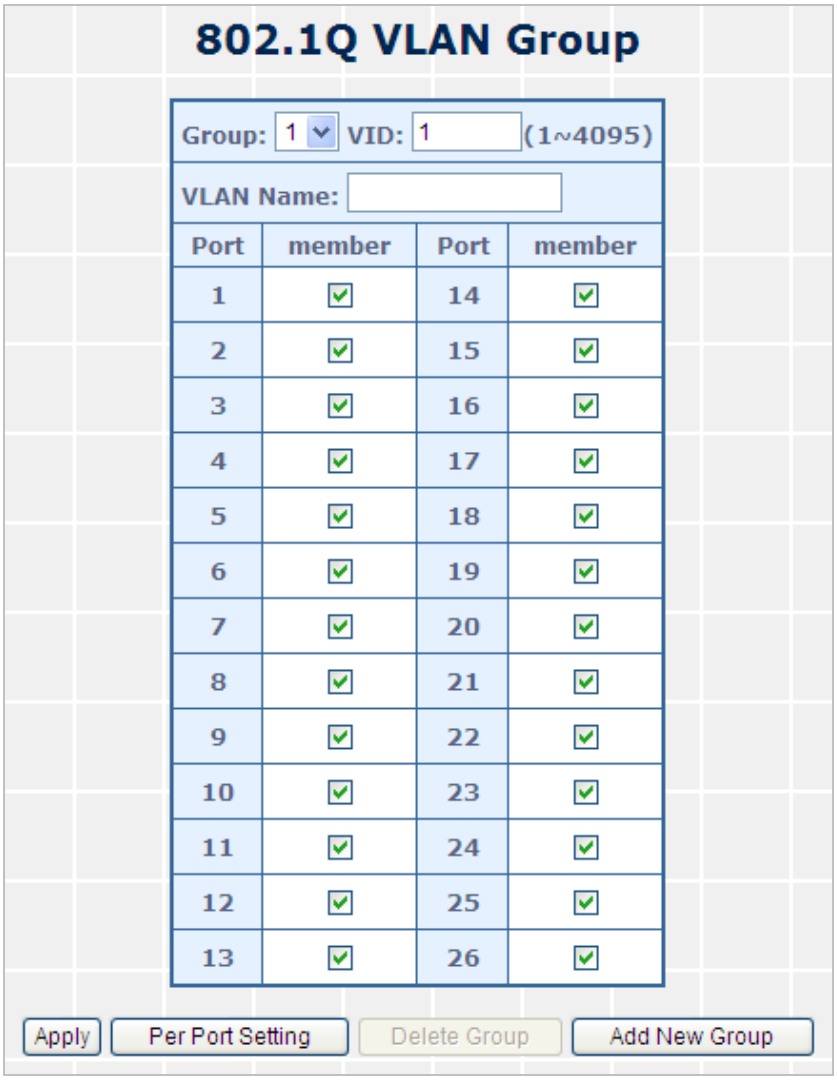


Figure 4-24 802.1Q VLAN Configuration Web Page Screen

The page includes the following fields:

Object	Description

• **Group**	Displays the existence of 802.1Q VLAN groups.
• **VID**	Displays different VLAN IDs from multi-802.1Q VLAN groups.
• **VLAN Name**	Assigns and displays different VLAN names from multi-802.1Q VLAN groups. Up to maximum **8** characters allow.
• **Port**	Indicates port 1 to port 26.
• **Member**	Allows to click specific port as member port from different 802.1Q VLAN groups.
• **Apply Button**	Press this button to save the current configuration of Web Smart Switch.
• **Per Port Setting**	Allows to define each port UnTag / Tag, Uplink and PVID as the screen in Figure 4-25 appears.
• **Delete Group**	Press this button to delete the existence of 802.1Q VLAN groups.
• **Add New Group**	Press this button to create a new 802.1Q VLAN group. Up to a maximum of **32 802.1Q VLAN groups** support Web Smart Switch
• **Apply Button**	Press this button to save the current configuration of Web Smart Switch.

Table 4-12 Descriptions of the 802.1Q VLAN Setting Screen Objects

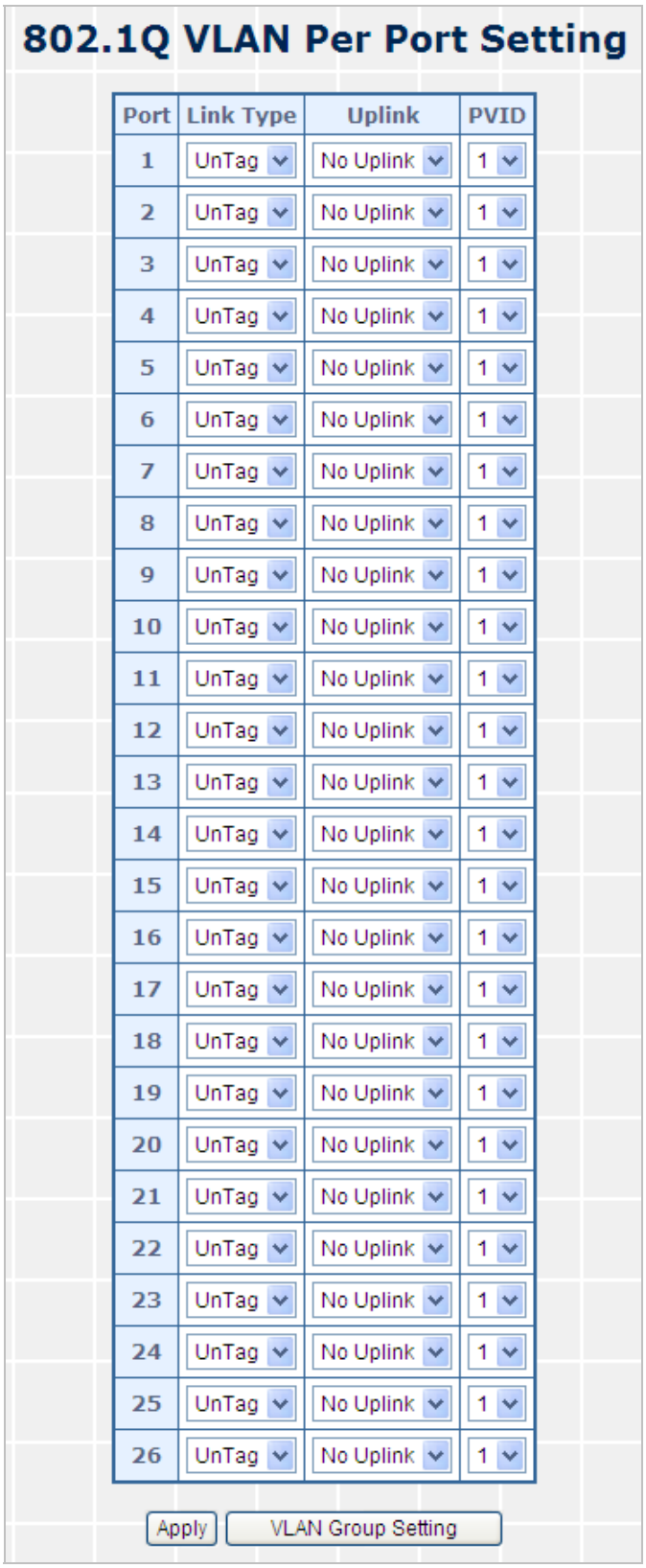


Figure 4-25 802.1Q VLAN Per Port Setting Web Page Screen

This section introduces detailed information of IEEE 802.1Q VLAN Per Port Setting of Web Smart Switch as Table 4-13 describes the 802.1Q VLAN Per Port Setting objects of Web Smart Switch.

The page includes the following fields:

Object	Description
Port	Indicates port 1 to port 26.
Link Type	Defines **UnTag** or **Tag** on each port of Web Smart Switch. Default mode is "**UnTag**".
Uplink	Defines **No Uplink** or **Uplink** on each port of Web Smart Switch. Default mode is "**No Uplink**".
PVID	Assigns PVID on each port of Web Smart Switch. Default PVID is "**1**".
Apply Button	Press this button to save the current configuration of Web Smart Switch.
VLAN Group Setting	Return to 802.1Q VLAN Group Setting screen.

Table 4-13 Descriptions of the 802.1Q VLAN Per Port Setting Screen Objects

4.4.2 802.1Q VLAN Setting example

Two separate 802.1Q VLAN scenarios

1. Shows how the Web Smart Switch handles Untagged and Tagged traffic from two 802.1Q VLAN groups.
2. Each VLAN isolates network traffic. Only the same VLAN member port can receive traffic from each other.

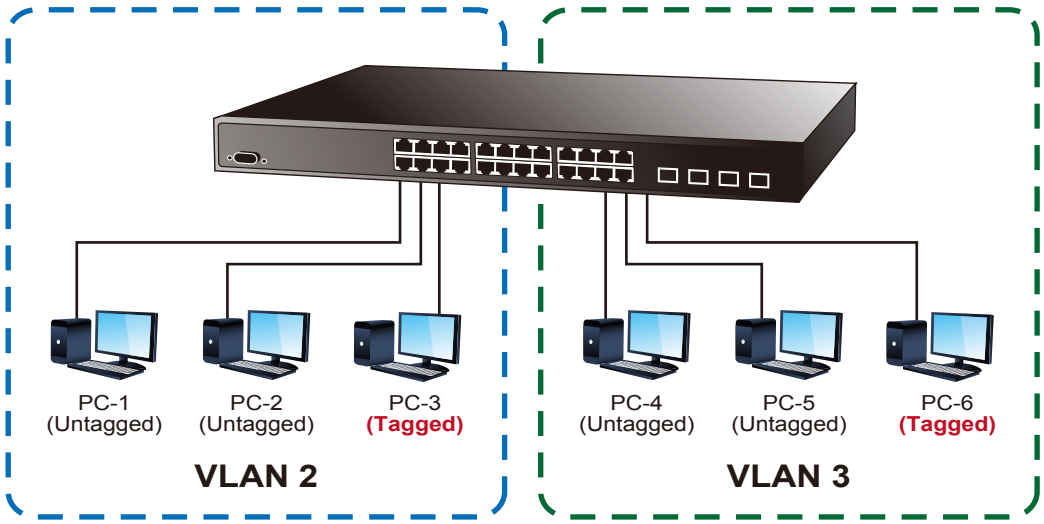


Figure 4-26 two separate 802.1Q VLAN diagram

VLAN Group	VID	Untagged Members	Tagged Members
VLAN Group 1	1	Port-7~Port-24	N/A
VLAN Group 2	2	Port-1,Port-2	Port-3
VLAN Group 3	3	Port-4,Port-5	Port-6

Table 4-14 VLAN and Port Configuration

The scenario described as follows:

- **Untagged packet entering VLAN 2**

1. While **[PC-1]** transmits an **untagged** packet enters **Port-1**, the Web Smart Switch will tag it with a **VLAN Tag=2**. **[PC-2]** and **[PC-3**] will receive the packet through **Port-2** and **Port-3**.
2. [PC-4], [PC-5] and [PC-6] receive no packet.
3. While the packet leaves **Port-2**, it will be stripped away, and its tag becomes an **untagged** packet.
4. While the packet leaves **Port-3**, it will keep as a **tagged** packet with **VLAN Tag=2**.

- **Tagged packet entering VLAN 2**

5. While **[PC-3]** transmits a **tagged** packet with **VLAN Tag=2** entered. **Port-3**, **[PC-1]** and **[PC-2]** will receive the packet through **Port-1** and **Port-2**.
6. While the packet leaves **Port-1** and **Port-2**, it will be stripped away. Its tag becomes an **untagged** packet.

- **Untagged packet entering VLAN 3**

7. While **[PC-4]** transmits an **untagged** packet that enters **Port-4**, the switch will tag it with a **VLAN Tag=3**. **[PC-5]** and **[PC-6]** will receive the packet through **Port-5** and **Port-6**.
8. While the packet leaves **Port-5**, it will be stripped away. Its tag becomes an **untagged** packet.
9. While the packet leaves **Port-6**, it will keep as a **tagged** packet with **VLAN Tag=3**.

In this example, VLAN Group 1 is set as default VLAN, but only focuses on VLAN 2, VLAN 3 traffic flow.

Setup steps

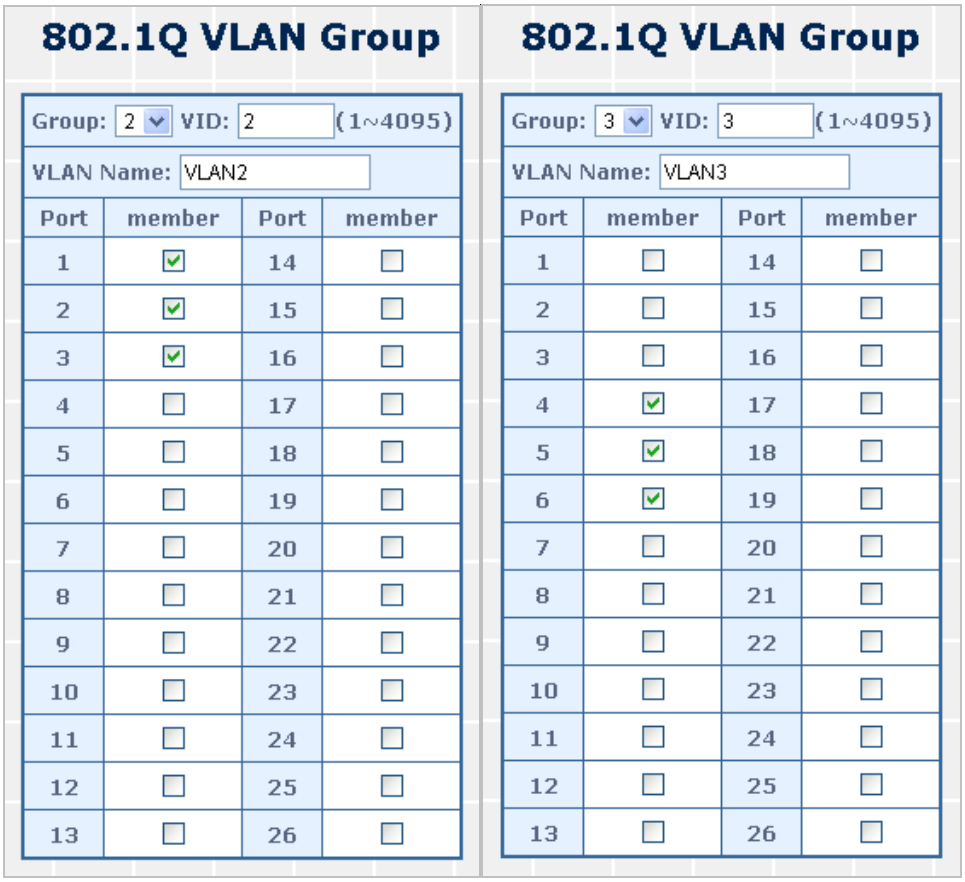
1. Create VLAN Group:

Set VLAN Group 1 = default-VLAN with VID (VLAN ID) =1.

Add two VLANs – VLAN 2 and VLAN 3, VLAN Group 2 with VID=*2*, VLAN Group 3 with VID=*3.*

2. Assign VLAN Member :

VLAN 2 : **Port-1,Port-2 and Port-3**. VLAN 3 : **Port-4, Port-5 and Port-6.** VLAN 1: All other ports – Port-7~Port-24.



802.1Q VLAN Group

Group: 2 VID: 2 (1~4095)

VLAN Name: VLAN2

Port	member	Port	member
1	☑	14	☐
2	☑	15	☐
3	☑	16	☐
4	☐	17	☐
5	☐	18	☐
6	☐	19	☐
7	☐	20	☐
8	☐	21	☐
9	☐	22	☐
10	☐	23	☐
11	☐	24	☐
12	☐	25	☐
13	☐	26	☐

802.1Q VLAN Group

Group: 3 VID: 3 (1~4095)

VLAN Name: VLAN3

Port	member	Port	member
1	☐	14	☐
2	☐	15	☐
3	☐	16	☐
4	☑	17	☐
5	☑	18	☐
6	☑	19	☐
7	☐	20	☐
8	☐	21	☐
9	☐	22	☐
10	☐	23	☐
11	☐	24	☐
12	☐	25	☐
13	☐	26	☐

Figure 4-27 Assign VLAN members to VLAN 2 and VLAN 3

Please remember to remove Port 1 – Port 6 from VLAN 1 membership, since Port 1 – Port 6 has been assigned to VLAN 2 and VLAN 3.

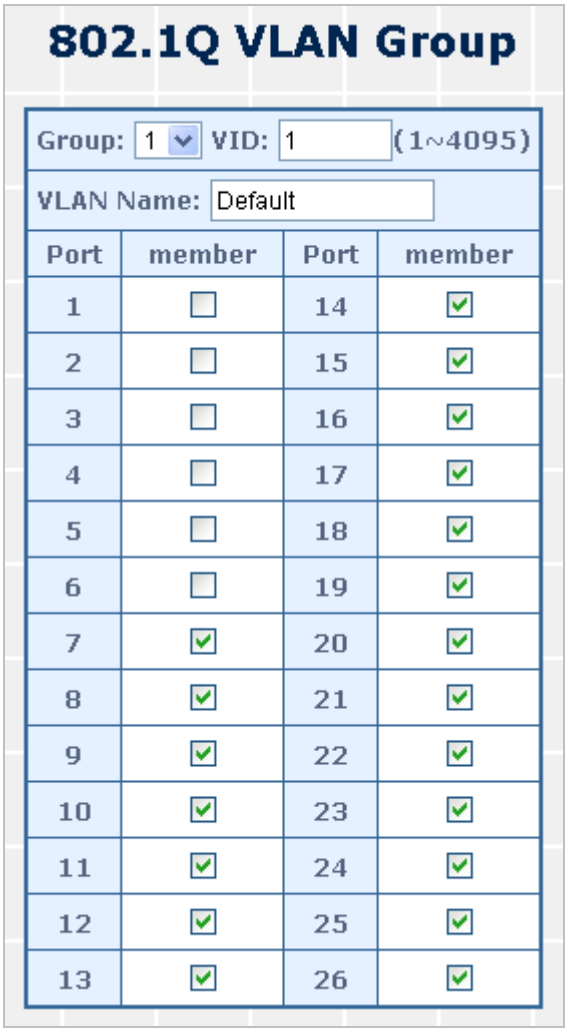


Figure 4-28 Remove specified ports from VLAN 1 member

Note

It's important to remove the VLAN member port from VLAN 1 group or else the ports would become overlapping setting.

3. **Assign PVID for each port:**

   Port-1,Port-2 and Port-3 : PVID=*2.*

   Port-4,Port-5 and Port-6 : PVID=*3.*

   Port-7~Port-24 : PVID=*1.*

4. **Enable VLAN Tag for specific ports**

   Link Type: Port-3 (VLAN-2) and Port-6 (VLAN-3).

The Per Port VLAN configuration in Figure 4-29 appears.

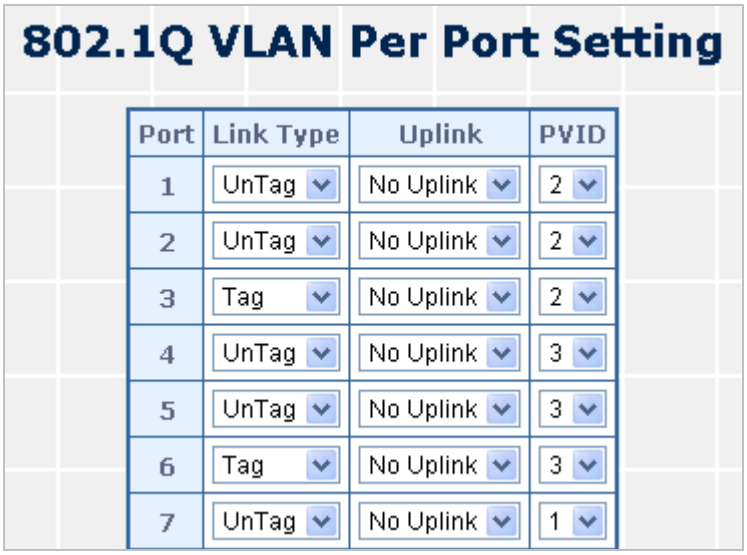


Figure 4-29 Port 1-Port 6 802.1Q VLAN Configuration

Two separate 802.1Q VLANs with overlapping area scenario

1. Based on the two separate VLAN group examples shown above, VLAN 2 and VLAN 3 member porst cannot see each other.

2. The member ports from VLAN 2 and VLAN 3 need to access one public server.

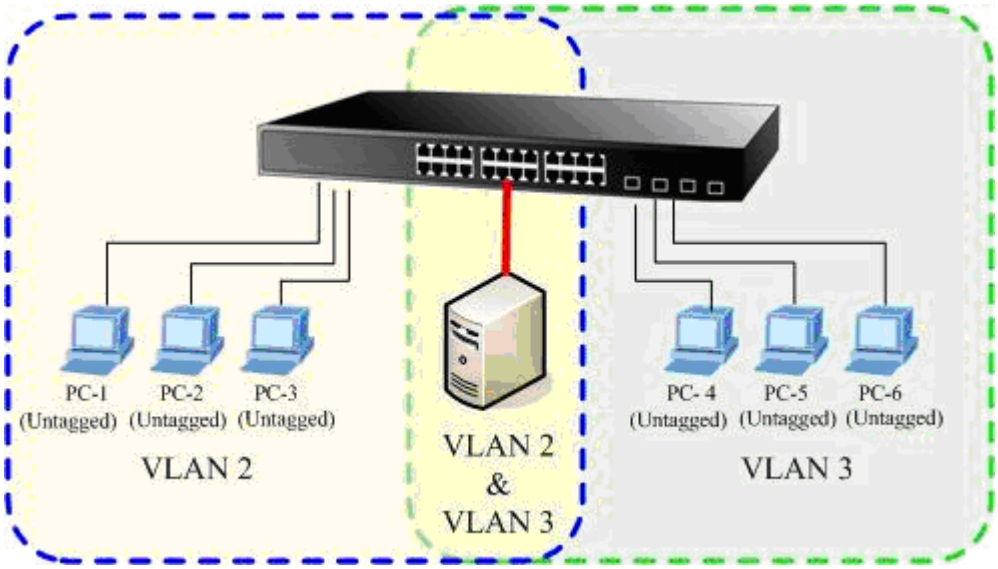


Figure 4-30 A Server connects to the VLAN overlapping area

1. Specify **Port-7** on the Web Smart Switch that connects to the server.

2. Assign **Port-7** to both **VLAN 2** and **VLAN 3** on the VLAN Member configuration page as the screen in Figure 4-31 appears.

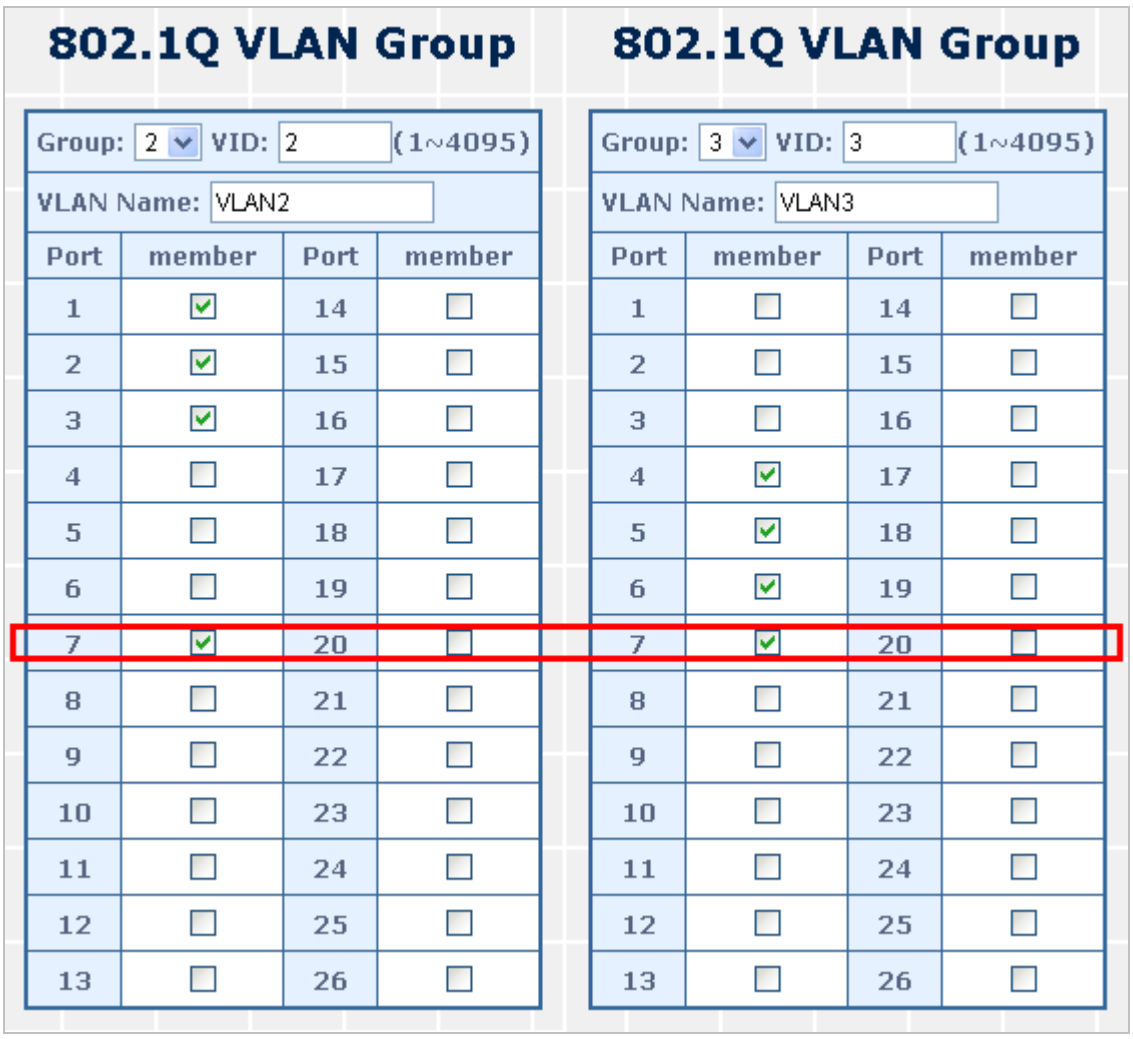


Figure 4-31 VLAN overlapping port setting

3. Define a **VLAN 1** as a **"Public Area"** that overlaps with both **VLAN 2 members** and **VLAN 3 members**.

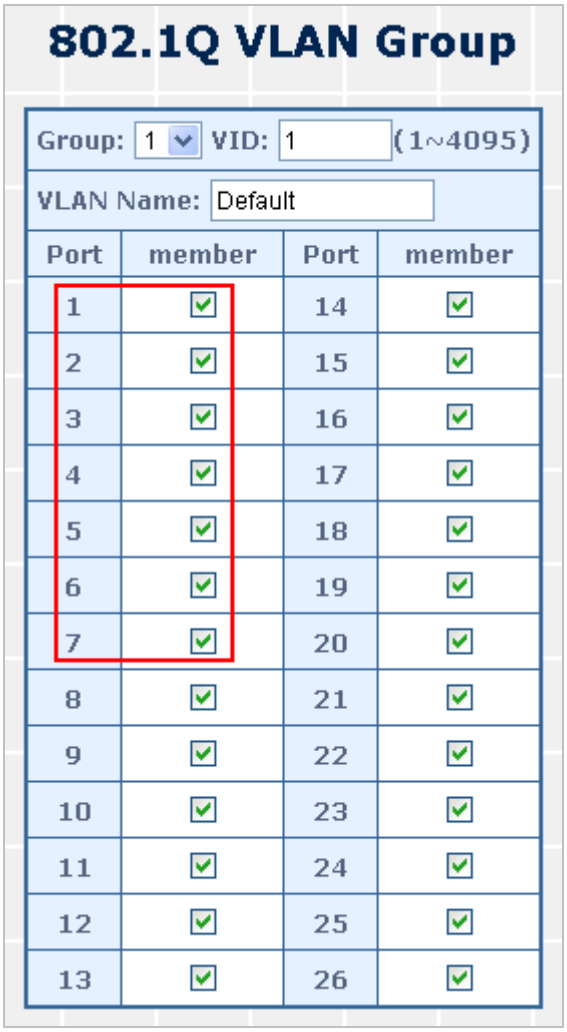


Figure 4-32 VLAN 1 – The public area member assigned

4. Set up **Port-7** with "**PVID=1**" on VLAN Per Port Configuration page as the screen in Figure 4-33 appears.

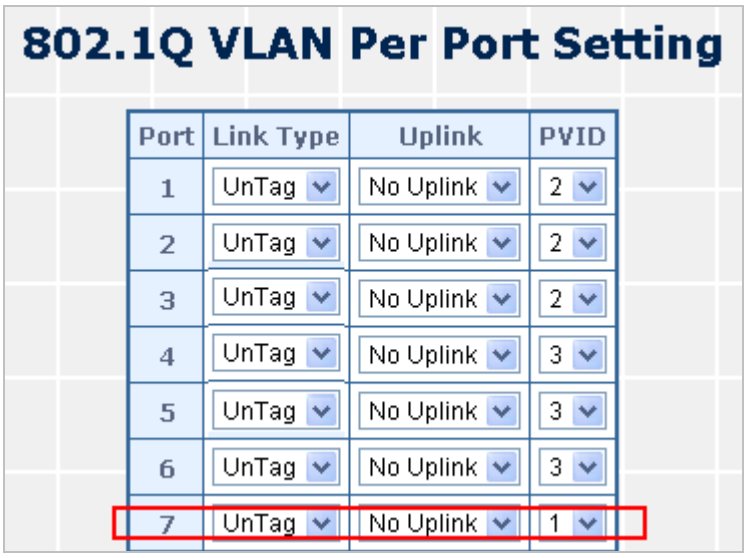


Figure 4-33 Setting up of Port-7 with PVID-1

Although the VLAN 2 members: Port-1 to Port-3 and VLAN 3 members: Port-4 to Port-6 also belongs to VLAN 1. But with different PVID settings, packets form VLAN 2 or VLAN 3 is not able to access to the other VLAN.

4.4.3 Port-based VLAN

This section introduces detailed information of Port-based VLAN function of Web Smart Switch. Choose **"Port-based VLAN"** from VLAN in the VLAN Mode and press **"Apply"** button to enable the port based VLAN function. The screen in Figure 4-34 & 4-35 appears and Table 4-15 describes the Port-based VLAN objects of Web Smart Switch.

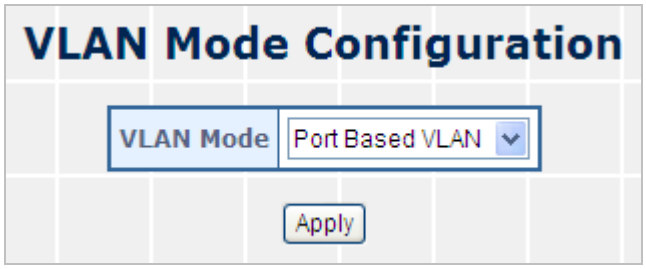


Figure 4-34 Port-based VLAN Configuration Web Page Screen

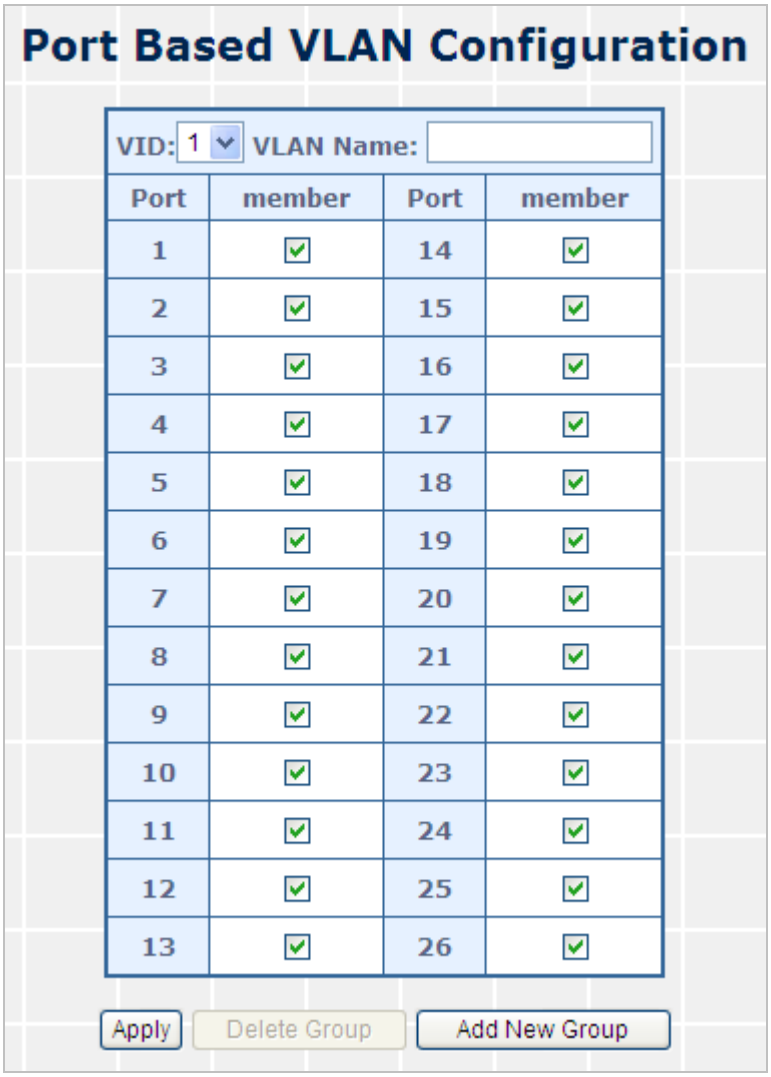


Figure 4-35 Port-based VLAN Configuration Web Page Screen

The page includes the following fields:

Object	Description
• **VID**	Displays different VLAN IDs from multi-port based VLAN groups.
• **VLAN Name**	Assigns and displays different VLAN names from multi-port based VLAN groups. Up to maximum **8** characters allowed.
• **Port**	Indicates port 1 to port 26.
• **Member**	Allows to click specific port as member port from different port based VLAN groups.
• **Apply button**	Press this button to save the current configuration of Web Smart Switch.
• **Delete Group**	Press this button to delete the existence of port based VLAN groups.
• **Add New Group**	Press this button to create a new port based VLAN group. Up to a maximum of **26 port based VLAN groups** can be created.

Table 4-15 Descriptions of the VLAN Setting Screen Objects

4.4.4 Port Based VLAN Setting:

VLAN scenario

1. Port 26 is the file server port for all the workstations

2. Port 1 to port 25 are different devices that do not need to communicate with one another.

Setup steps

1. Port Setting

1.1 Assign VLAN 1 to the first VLAN group with port 1 and port 26.

1.2 Assign VLAN 2 to the second VLAN group with port 2 and port 26

1.3 Repeat the same steps for port 3 to port 25. i.e. 3 & 26, 4 & 26, ….., 25 & 26

After the above steps are completed, port 1 to port 25 are separated physically as they belong to different VLAN groups (different VLANs). However, they all can access port 26 as port 26 uses overlapping feature to communicate with port 1 to port 25.

4.4.5 MTU VLAN

This section introduces detailed information of MTU VLAN function of Web Smart Switch. Choose **"MTU"** from VLAN in the VLAN Mode and press **"Apply"** button to enable the MTU VLAN function as the screen in Figure 4-36 appears and Table 4-16 describes the MTU VLAN objects of Web Smart Switch.

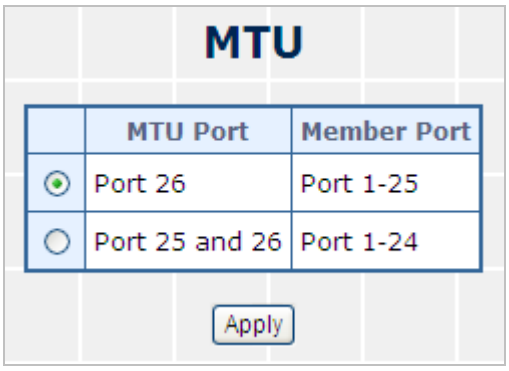


Figure 4-36 MTU VLAN Configuration Web Page Screen

The page includes the following fields:

Object	Description
• **MTU Port**	Indicates the MTU Port of Web Smart Switch.
• **Member Port**	Indicates the Member Port of Web Smart Switch.
• **Apply Button**	Press this button to save the current configuration of Web Smart Switch.

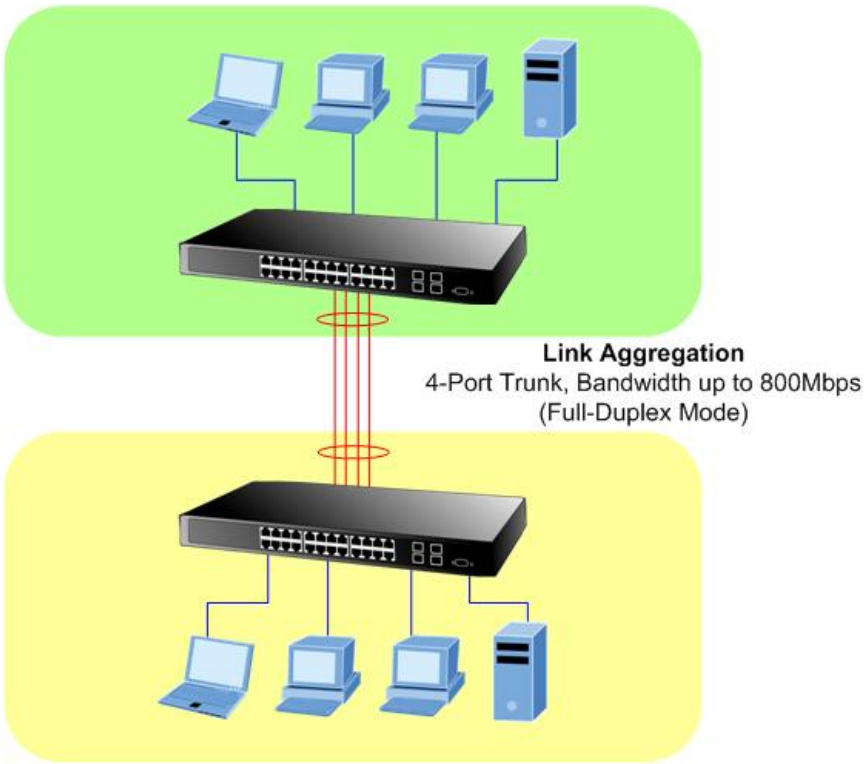
Table 4-16 Descriptions of the MTU VLAN Setting Screen Objects

4.5 Trunk

Port link aggregations can be used to increase the bandwidth of a network connection or to ensure fault recovery. Link aggregation lets you group up to 4 consecutive ports into a single dedicated connection between any two the Switch or other Layer 2 switches. However, before making any physical connections between devices, use the Link aggregation Configuration menu to specify the link aggregation on the devices at both ends. When using a port link aggregation, note that:

- The ports used in a link aggregation must all be of the same media type (RJ-45, 100 Mbps fiber).
- The ports that can be assigned to the same link aggregation have certain other restrictions (see below).
- Ports can only be assigned to one link aggregation.
- The ports at both ends of a connection must be configured as link aggregation ports.
- None of the ports in a link aggregation can be configured as a mirror source port or a mirror target port.
- Enable the link aggregation prior to connecting any cable between the switches to avoid creating a data loop.
- Disconnect all link aggregation port cables or disable the link aggregation ports before removing a port link aggregation to avoid creating a data loop.

It allows a maximum of 4 ports to be aggregated at the same time and up to 2 groups. If the group is defined as a local static link aggregation group, then the number of ports must be the same as the group member ports.



■ Trunk Setting

This function allows to configure the trunk function. It provides up to two trunk groups and each trunk group provides 4 member ports. It also provides four various Trunk Hash Algorithm policies for selection as the screen in Figure 4-37 appears and Table 4-17 describes the Trunk Setting objects of Web Smart Switch.

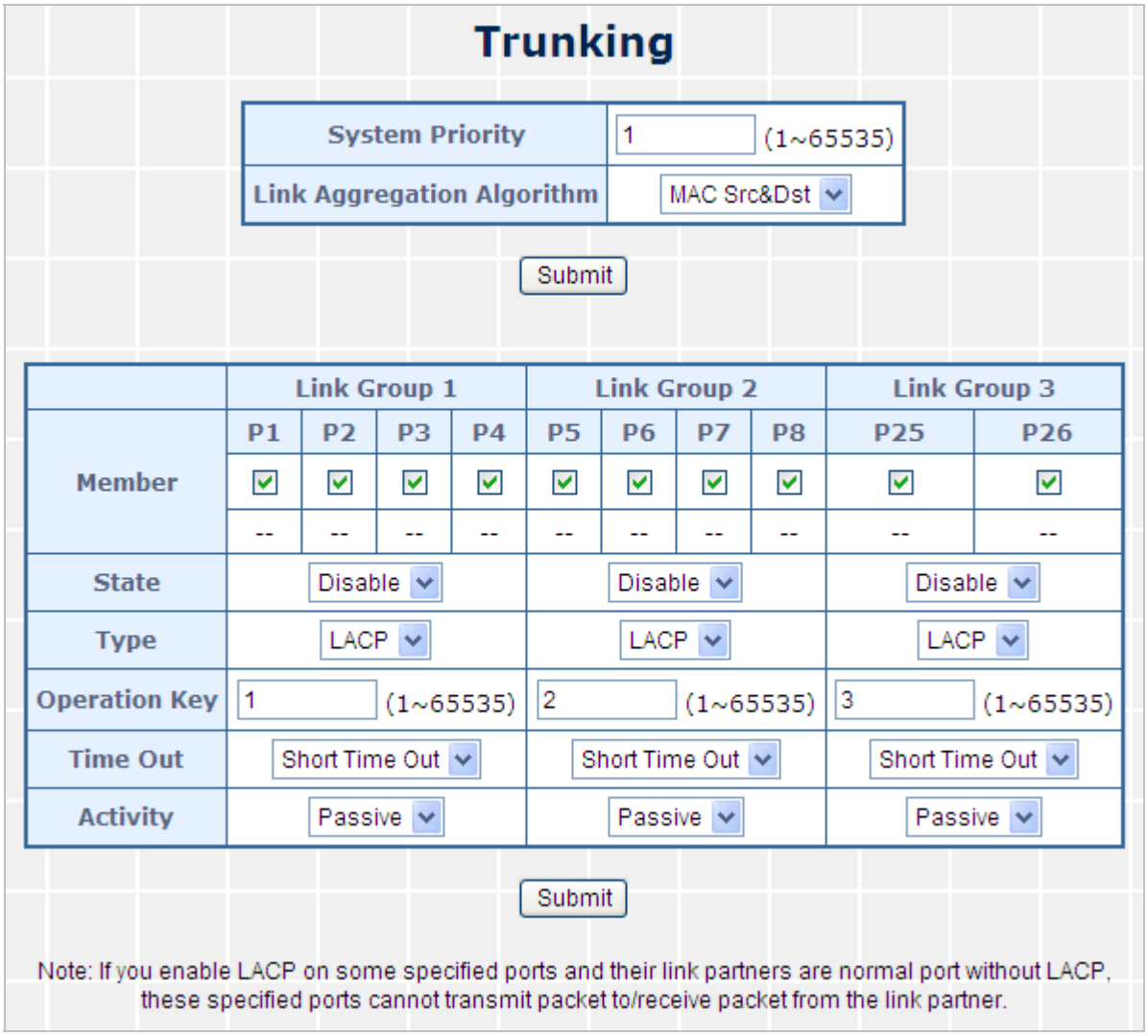


Figure 4-37 Trunk Setting Web Page Screen

The page includes the following fields:

Object	Description
• **System Priority**	A value which is used to identify the active LACP. The Managed Switch with the lowest value has the highest priority and is selected as the active LACP peer of the trunk group.
• **Link Aggregation Algorithm**	Provides different algorithm methods of link aggregation. The available options are shown below: **MAC Src&Dst** **MAC Source** Default mode is **MAC Src&Dst**.
• **Member**	Allows to click specific port as member port from different link groups. Default link group 1 includes **P1**, **P2**, **P3**, **P4**. Default link group 2 includes **P5**, **P6**, **P7**, **P8**.

	Default link group 3 includes **P25**, **P26**.
• **State**	Allows to disable or enable port trunk from Web Smart Switch. The available options are **Enable** and **Disable**. Default mode is **Disable**.
• **Type**	Allows to select port trunk type from Web Smart Switch. The available options are **LACP** and **Static**. Default mode is **LACP**.
• **Operation Key**	The LACP operation key must be set to the same value for ports that belong to the same LAG. Range: 1-65535; Default Link Group 1: **1** Default Link Group 2: **2** Default Link Group 3: **3**
• **Time Out**	The time out configuration mode command assigns an administrative LACP timeout. To reset the default administrative LACP timeout, use the no form of this command. The available options are shown below: **Long Time Out** **Short Time Out** Default mode is **Short Time Out**.
• **Activity**	Allows link group to automatically send LACP protocol packets or not. Default mode is **Passive**.

Table 4-17 Descriptions of the Trunk Setting Screen Objects

4.6 QoS Setting

This function provides QoS Setting of Web Smart Switch as the screen in Figure 4-38 appears and Table 4-18 describes the QoS Setting of Web Smart Switch.

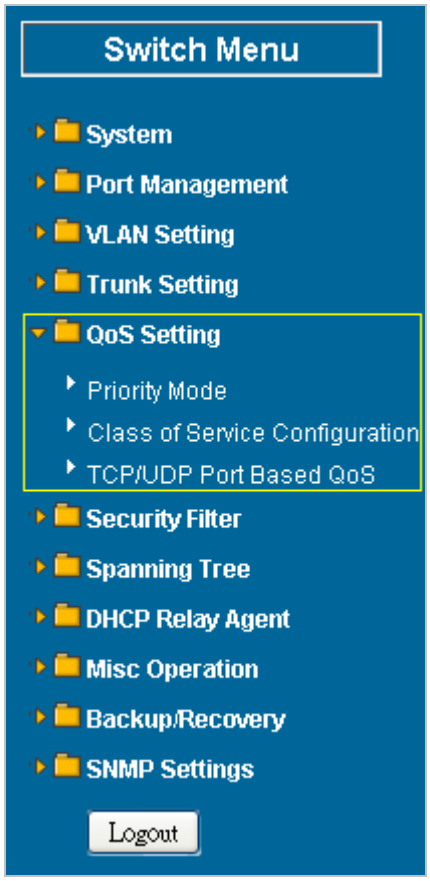


Figure 4-38 QoS Setting Web Page Screen

The page includes the following fields:

Object	Description
• **Priority Mode**	Provides three different Priority polices on Web Smart Switch, **explained in section 4.6.1.**
• **Class of Service Configuration**	Provides three different polices on each port of Web Smart Switch, **explained in section 4.6.2.**
• **TCP/UDP Port Based QoS**	Allows to define various QoS modes on TCP / UDP port, **explained in section 4.6.3.**

Table 4-18 Descriptions of the QoS Setting Screen Objects

4.6.1 Priority Mode

This section introduces detailed information of Priority Mode of Web Smart Switch as the screen in Figure 4-39 appears and Table 4-19 describes the Priority Mode of Web Smart Switch.

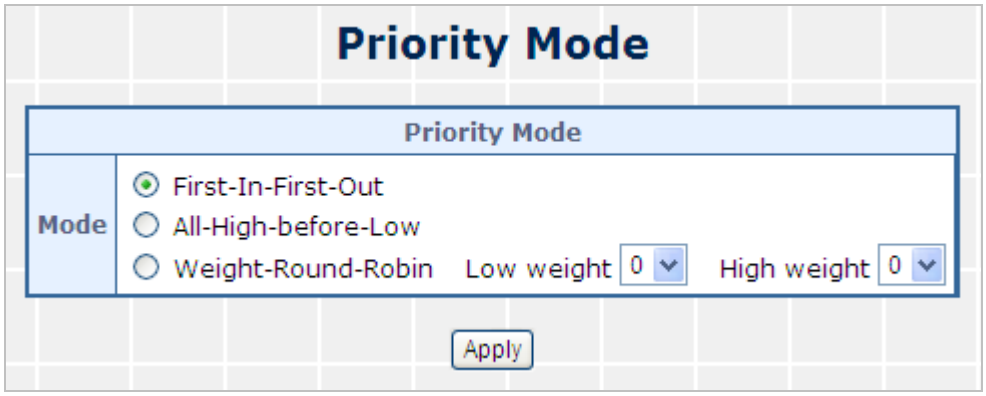


Figure 4-39 Priority Mode Web Page Screen

The page includes the following fields:

Object	Description
• **Priority Mode**	Provides three different Priority polices on Web Smart Switch. The available options are shown below: **Fist-In-First-Out** **All-High-Before-Low** **Weight-Round-Robin= Low weight (0-7 range) : High weight (0-7 range)** Default mode is **First-In-First-Out**.

Table 4-19 Descriptions of the Priority Mode Screen Objects

4.6.2 Class of Service Configuration

This section introduces detailed information of Class of Service Configuration of Web Smart Switch as the screen in Figure 4-40 appears and Table 4-20 describes the Class of Service Configuration of Web Smart Switch.

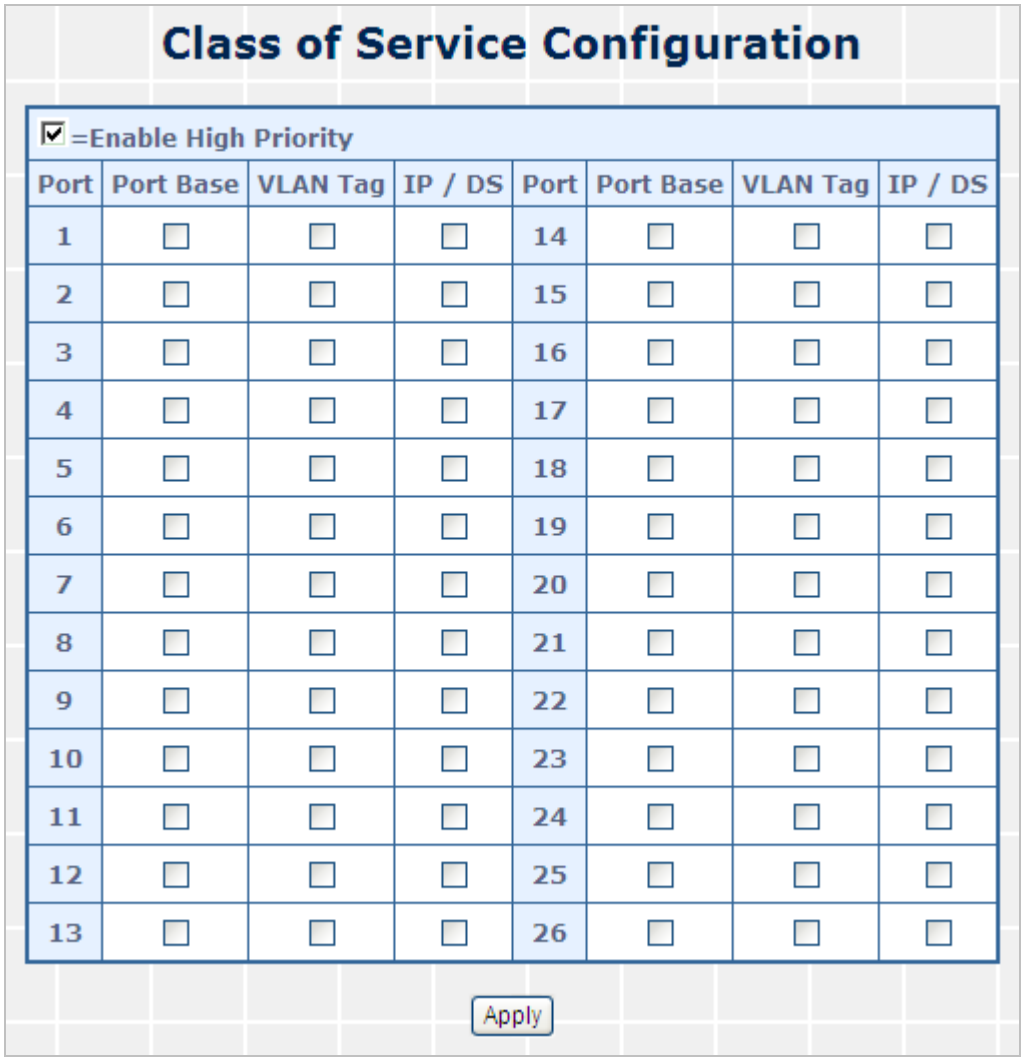


Figure 4-40 Class of Service Configuration Web Page Screen

The page includes the following fields:

Object	Description
• **Enable High Priority**	Allows to disable or enable the High Priority function. Default mode is **Enable**.
• **Port**	Indicates port 1 to port 26.
• **Port Base**	Defines per port Class of Service policy based on Port Base policy.
• **VLAN Tag**	Defines per port Class of Service policy based on VLAN Tag priority policy.
• **IP /DS**	Defines per port Class of Service policy based on IP / DS policy.

Table 4-20 Descriptions of the Class of Service Configuration Screen Objects

- **VLAN Priority tag value define**

	IEEE 802.1p priority value from VLAN tag
High Priority	User priority values= 4~7
Low Priority	User priority values= 0~3

- **IP TOS/DSCP Priority value define**

	TOS/DSCP Value				
High Priority	EF DSCP 46 (101110)	AF11 DSCP 10 (001010)	AF21 DSCP 18 (010010)	AF31 DSCP 26 (011010)	AF41 DSCP 34 (100010)
Low Priority	Other DSCP values				

DSCP: Differentiated Services Code Point

EF: Expected Forwarding

AF: Assured Forwarding

4.6.3 TCP / UDP Port Based QoS

This section introduces detailed information of TCP / UDP Port-based QoS Configuration of Web Smart Switch as the screen in Figure 4-41 appears and Table 4-21 describes the TCP / UDP Port-based QoS Configuration of Web Smart Switch.

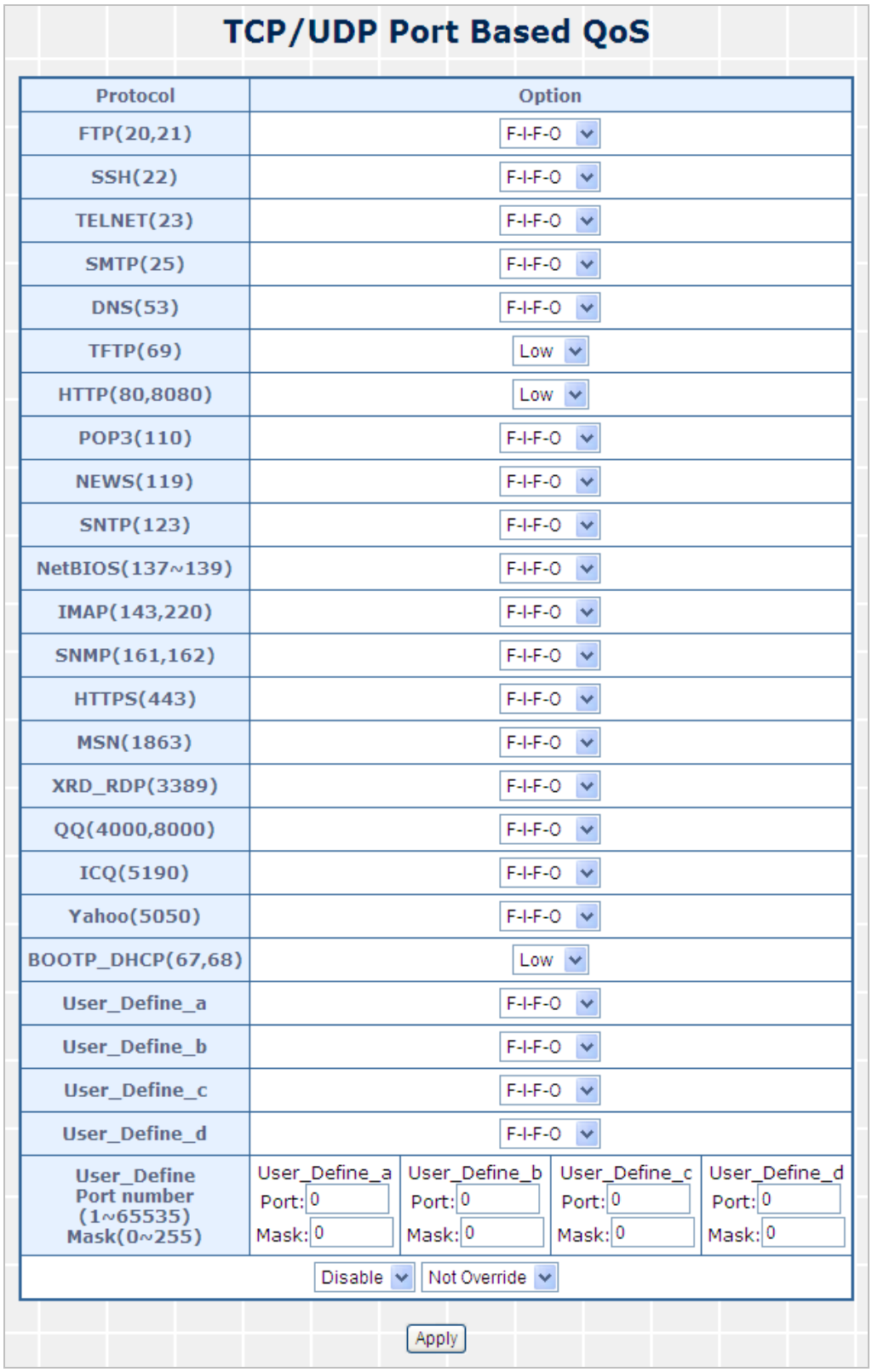


Figure 4-41 TCP / UDP Port-based QoS Configuration Web Page Screen

The page includes the following fields:

Object	Description
• **Protocol**	Displays different Protocols to define optional QoS policy
• **FTP(20,21)**	Provides **F-I-F-O, Discard, Low, High** options.
• **SSH(22)**	Provides **F-I-F-O, Discard, Low, High** options.
• **TELNET(23)**	Provides **F-I-F-O, Discard, Low, High** options.
• **SMTP(25)**	Provides **F-I-F-O, Discard, Low, High** options.
• **DNS(53)**	Provides **F-I-F-O, Discard, Low, High** options.
• **TFTP(69)**	Provides **Low, High** options.
• **HTTP(80,8080)**	Provides **Low, High** options.
• **POP3(110)**	Provides **F-I-F-O, Discard, Low, High** options.
• **NEWS(119)**	Provides **F-I-F-O, Discard, Low, High** options.
• **SNTP(123)**	Provides **F-I-F-O, Discard, Low, High** options.
• **NetBIOS(137~139)**	Provides **F-I-F-O, Discard, Low, High** options.
• **IMAP(143,220)**	Provides **F-I-F-O, Discard, Low, High** options.
• **SNMP(161,162)**	Provides **F-I-F-O, Discard, Low, High** options.
• **HTTPS(443)**	Provides **F-I-F-O, Discard, Low, High** options.
• **MSN(1863)**	Provides **F-I-F-O, Discard, Low, High** options.
• **XRD_RDP(3389)**	Provides **F-I-F-O, Discard, Low, High** options.
• **QQ(4000,8000)**	Provides **F-I-F-O, Discard, Low, High** options.
• **ICQ(5190)**	Provides **F-I-F-O, Discard, Low, High** options.
• **Yahoo(5050)**	Provides **F-I-F-O, Discard, Low, High** options.
• **BOOTP_DHCP(67,68)**	Provides **Low, High** options.
• **User_Define_a**	Provides **F-I-F-O, Discard, Low, High** options.
• **User_Define_b**	Provides **F-I-F-O, Discard, Low, High** options.
• **User_Define_c**	Provides **F-I-F-O, Discard, Low, High** options.
• **User_Define_d**	Provides **F-I-F-O, Discard, Low, High** options.
• **User_Define** **Port number (1~65535)** **Mask(0~255)**	Allows to define 4 protocol port numbers, such as Port and Mask. The available options are shown below: **User_Define_a** **User_Define_b** **User_Define_c** **User_Define_d**
• **Disable**	Allows to choose "**Disable**" or "**Enable**" options. Default mode is **Disable**.
• **Not Override**	Allows to choose "**Override**" or "**Not Override**" options. Default mode is **Not Override**.

Table 4-21 Descriptions of the TCP / UDP Port-based QoS Configuration Screen Objects

4.7 Security Filter

This function provides Security Filter of Web Smart Switch as the screen in Figure 4-42 appears and Table 4-22 describes the Security Filter of Web Smart Switch.

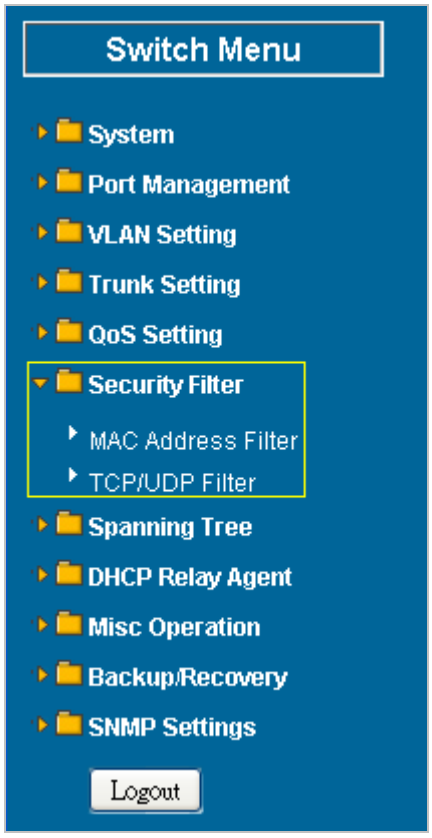


Figure 4-42 Security Filter Web Page Screen

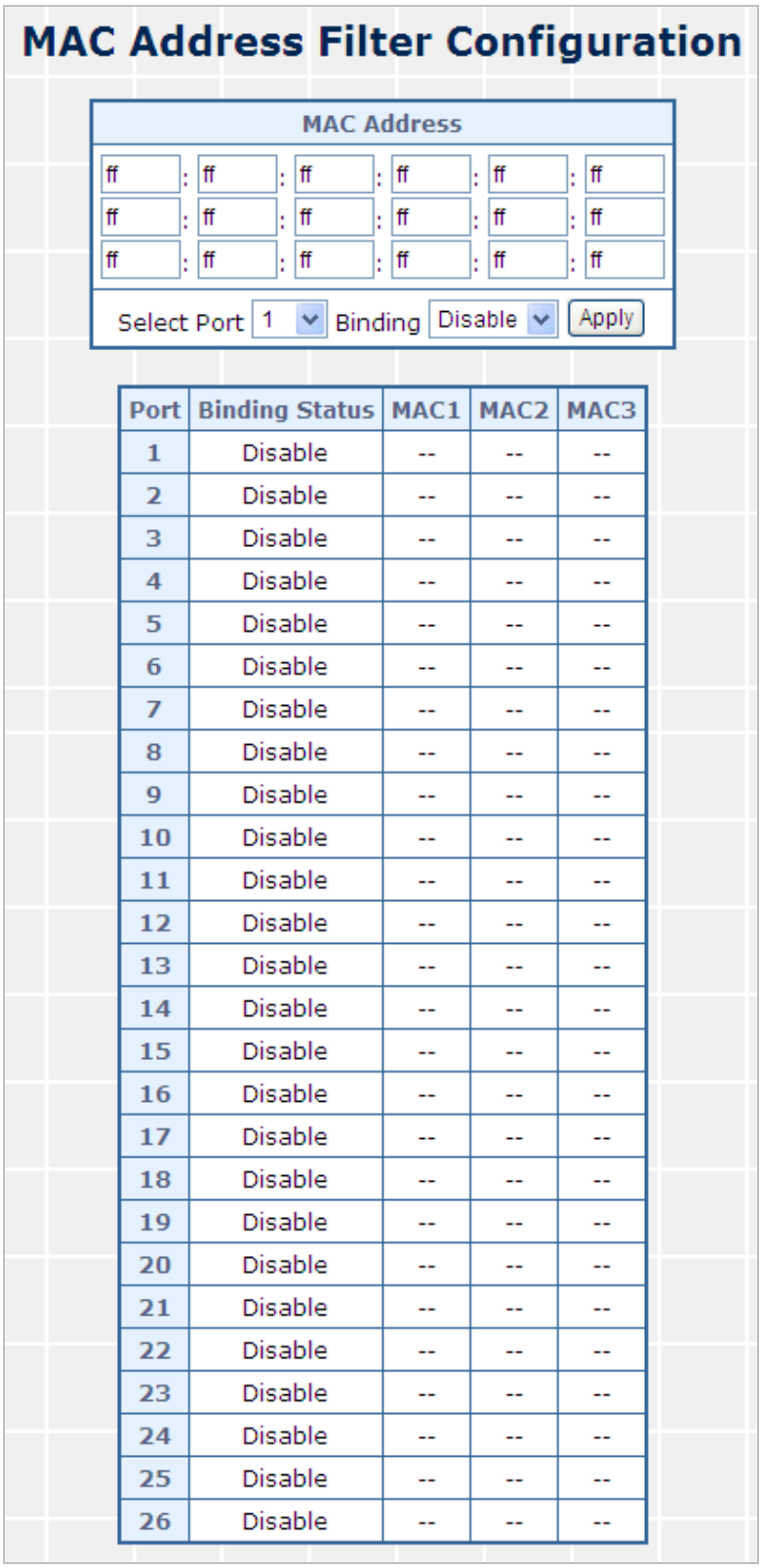
The page includes the following fields:

Object	Description
• **MAC Address Filter**	Allows to define three MAC Addresses on each port of Web Smart Switch. **Explained in section 4.7.1**.
• **TCP/UDP Filter**	Allows to define the filter policy of TCP / UDP flow on Web Smart Switch. **Explained in section 4.7.2**.

Table 4-22 Descriptions of the Security Filter Web Page Screen Objects

4.7.1 MAC Address Filter

This section introduces detailed information of MAC Address Filter of Web Smart Switch as the screen in Figure 4-43 appears and Table 4-23 describes the MAC Address Filter of Web Smart Switch.



Port	Binding Status	MAC1	MAC2	MAC3
1	Disable	--	--	--
2	Disable	--	--	--
3	Disable	--	--	--
4	Disable	--	--	--
5	Disable	--	--	--
6	Disable	--	--	--
7	Disable	--	--	--
8	Disable	--	--	--
9	Disable	--	--	--
10	Disable	--	--	--
11	Disable	--	--	--
12	Disable	--	--	--
13	Disable	--	--	--
14	Disable	--	--	--
15	Disable	--	--	--
16	Disable	--	--	--
17	Disable	--	--	--
18	Disable	--	--	--
19	Disable	--	--	--
20	Disable	--	--	--
21	Disable	--	--	--
22	Disable	--	--	--
23	Disable	--	--	--
24	Disable	--	--	--
25	Disable	--	--	--
26	Disable	--	--	--

Figure 4-43 MAC Address Filter Web Page Screen

The page includes the following fields:

Object	Description
• **MAC Address**	Allows to input three MAC Addresses on each port of Web Smart Switch.
• **Select Port**	Allows to select port 1 to port 26.
• **Binding**	Allows to disable or enable the binding function on each port of Web Smart Switch.
• **Port**	Indicates port 1 to port 26.
• **Binding Status**	Displays Binding Status from each port of Web Smart Switch.
• **MAC 1**	Displays the first MAC Address assigned to each port of Web Smart Switch.
• **MAC 2**	Displays the second MAC Address assigned to each port of Web Smart Switch.
• **MAC 3**	Displays the third MAC Address assigned to each port of Web Smart Switch.

Table 4-23 Descriptions of the MAC Address Filter Screen Objects

4.7.2 TCP / UDP Filter

This section introduces detailed information of TCP / UDP Filter of Web Smart Switch as the screen in Figure 4-44 appears and Table 4-24 describes the TCP / UDP Filter Configuration of Web Smart Switch.

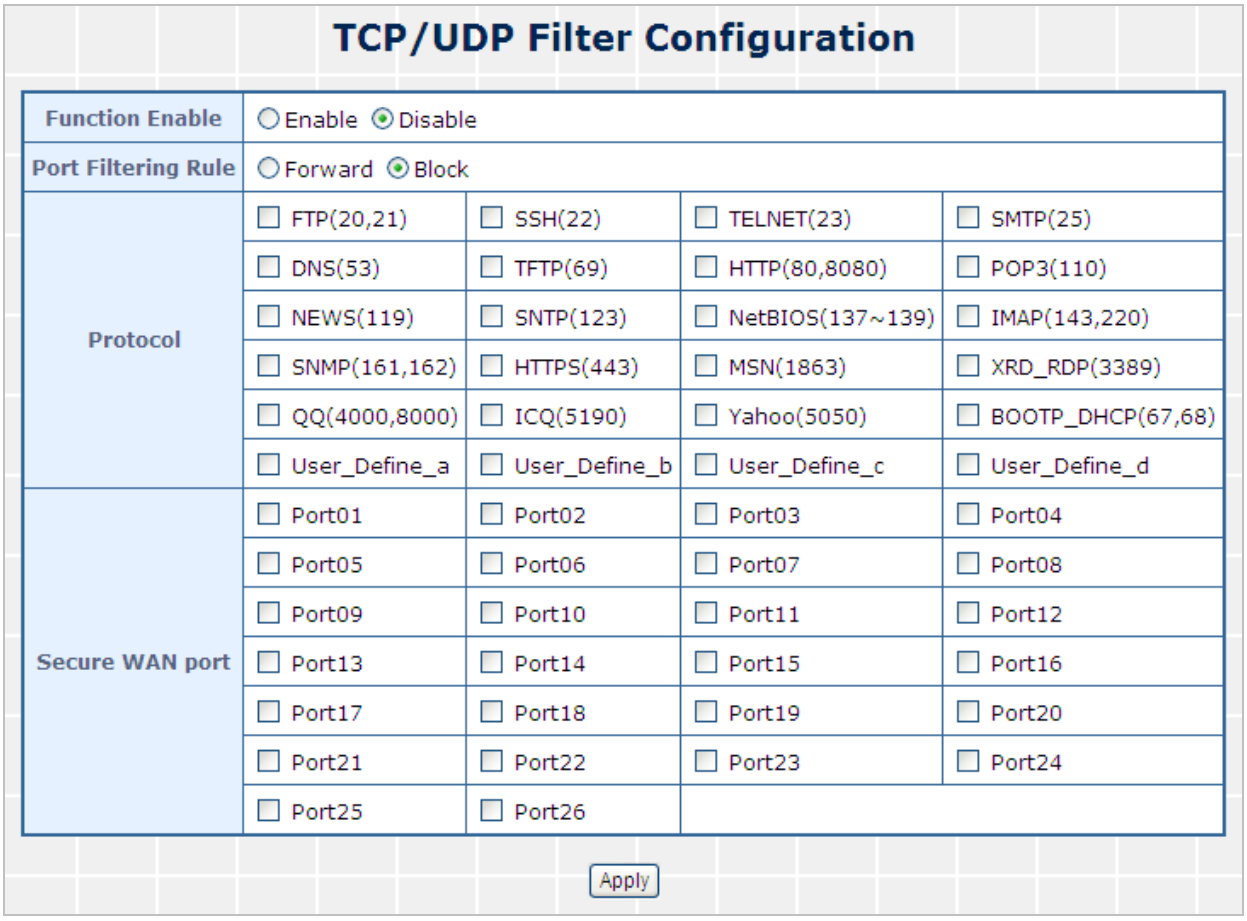


Figure 4-44 TCP / UDP Filter Web Page Screen

The page includes the following fields:

Object	Description
• **Function Enable**	Allows to **Disable** or **Enable** the TCP / UDP Filter function. Default mode is **Disable**.
• **Port Filtering Rule**	Allows to **Forward** or **Block** the Port Filtering Rule. Default mode is **Block**.
• **Protocol**	Displays different Protocols to define the TCP / UDP Filter policy.
• **FTP(20,21)** • **SSH(22)** • **TELNET(23)** • **SMTP(25)** • **DNS(53)** • **TFTP(69)** • **HTTP(80,8080)** • **POP3(110)** • **NEWS(119)** • **SNTP(123)** • **NetBIOS(137~139)** • **IMAP(143,220)** • **SNMP(161,162)** • **HTTPS(443)** • **MSN(1863)** • **XRD_RDP(3389)** • **QQ(4000,8000)** • **ICQ(5190)** • **Yahoo(5050)** • **BOOTP_DHCP(67,68)** • **User_Define_a** • **User_Define_b** • **User_Define_c** • **User_Define_d**	Allows to choose the listed protocols for filtering
• **Secure Egress Port**	Indicates port 1 to port 26. Click specific port for filtering.

Table 4-24 Descriptions of the TCP / UDP Filter Configuration Screen Objects

4.8 Spanning Tree

This function provides Spanning Tree of Web Smart Switch as the screen in Figure 4-45 appears and Table 4-25 describes the Spanning Tree of Web Smart Switch.

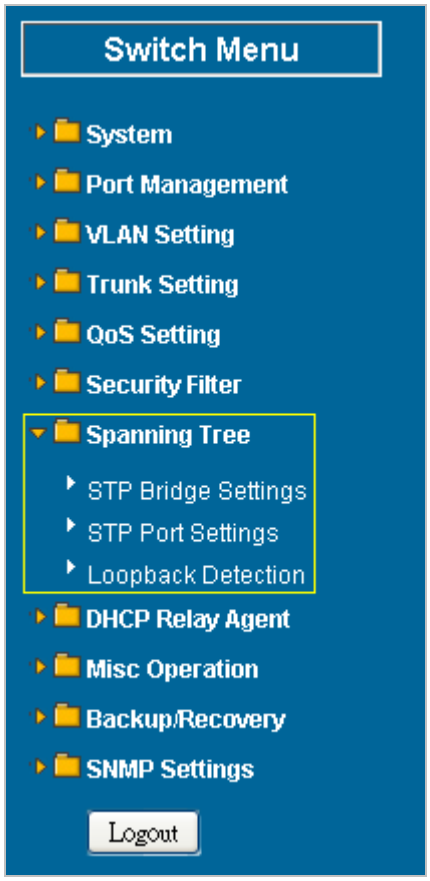


Figure 4-45 Spanning Tree Web Page Screen

The page includes the following fields:

Object	Description
• **STP Bridge Setting**	Allows to set STP bridge of Web Smart Switch. **Explained in section 4.8.1**.
• **STP Port Setting**	Allows to define STP on each port of Web Smart Switch. **Explained in section 4.8.2**.
• **Loopback Detection**	Allows to set loopback detection on Web Smart Switch. **Explained in section 4.8.3**.

Table 4-25 Descriptions of the Spanning Tree Web Page Screen Objects

4.8.1 STP Bridge Setting

This section introduces detailed information of STP Bridge Setting of Web Smart Switch as the screen in Figure 4-46 appears and Table 4-26 describes the STP Bridge Setting Configuration of Web Smart Switch.

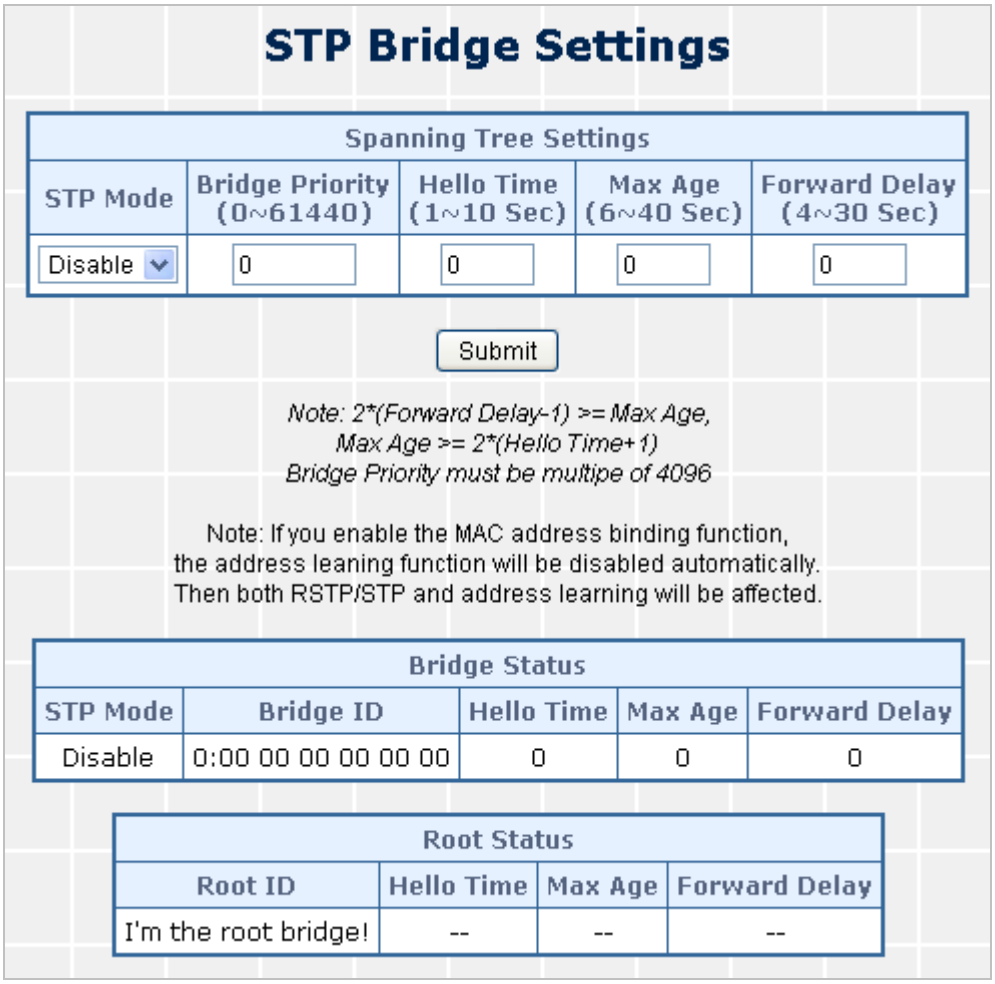


Figure 4-46 STP Bridge Setting Web Page Screen

The page includes the following fields:

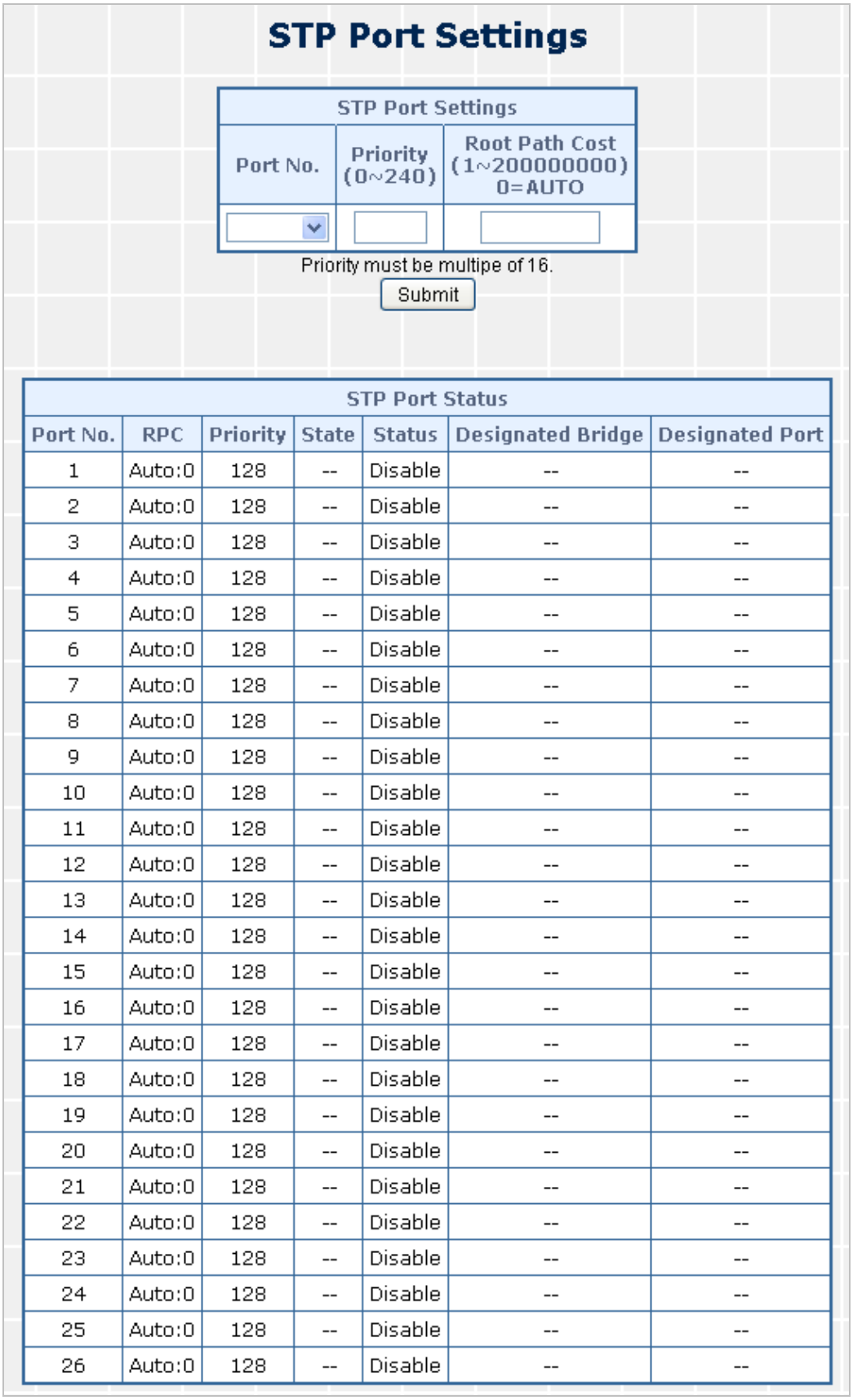
Object	Description
• **STP Mode**	The STP mode setting. Valid values are **Disable**, **STP** & **RSTP**. Default mode is **Disable**.
• **Bridge Priority**	The switch with the lowest value has the highest priority and is selected as the root. If the value is changed, the user must reboot the switch. The value must be a multiple of 4096 according to the protocol standard rule.
• **Hello Time**	The time that controls the switch to send out the BPDU packet to check STP current status. Enter a value between 1 through 10.
• **Max Age**	The number of seconds a switch waits without receiving Spanning-tree Protocol configuration messages before attempting a reconfiguration.

	Enter a value between 6 through 40.
• **Forward Delay**	The number of seconds a port waits before changing from its Rapid Spanning-Tree Protocol learning and listening states to the forwarding state. Enter a value between 4 through 30.
• **Bridge ID**	The Bridge ID of this Bridge instance.
• **Hello Time**	Minimum time between transmissions of Configuration BPDUs.
• **Max Age**	Path Cost to the Designated Root for the Root Bridge.
• **Forward Delay**	Derived value of the Root Port Bridge Forward Delay parameter.
• **Root ID**	The switch port is currently assigned as the *root* port role.

Table 4-26 Descriptions of the STP Bridge Settings Configuration Screen Objects

4.8.2 STP Port Setting

This section introduces detailed information of STP Port Setting of Web Smart Switch as the screen in Figure 4-47 appears and Table 4-27 describes the STP Port Setting Configuration of Web Smart Switch.



STP Port Status

Port No.	RPC	Priority	State	Status	Designated Bridge	Designated Port
1	Auto:0	128	--	Disable	--	--
2	Auto:0	128	--	Disable	--	--
3	Auto:0	128	--	Disable	--	--
4	Auto:0	128	--	Disable	--	--
5	Auto:0	128	--	Disable	--	--
6	Auto:0	128	--	Disable	--	--
7	Auto:0	128	--	Disable	--	--
8	Auto:0	128	--	Disable	--	--
9	Auto:0	128	--	Disable	--	--
10	Auto:0	128	--	Disable	--	--
11	Auto:0	128	--	Disable	--	--
12	Auto:0	128	--	Disable	--	--
13	Auto:0	128	--	Disable	--	--
14	Auto:0	128	--	Disable	--	--
15	Auto:0	128	--	Disable	--	--
16	Auto:0	128	--	Disable	--	--
17	Auto:0	128	--	Disable	--	--
18	Auto:0	128	--	Disable	--	--
19	Auto:0	128	--	Disable	--	--
20	Auto:0	128	--	Disable	--	--
21	Auto:0	128	--	Disable	--	--
22	Auto:0	128	--	Disable	--	--
23	Auto:0	128	--	Disable	--	--
24	Auto:0	128	--	Disable	--	--
25	Auto:0	128	--	Disable	--	--
26	Auto:0	128	--	Disable	--	--

Figure 4-47 STP Port Setting Web Page Screen

The page includes the following fields:

Object	Description
• **Port No.**	Allows to choose one port of Web Smart Switch for further management. The available options are **01 to 26**.
• **Priority (0~240)**	Decide which port should be blocked by setting its priority as the lowest. Enter a number between **0 and 240**. The value of priority must be the multiple of 16. Default value is **128**.
• **Root Path Cost (1~200,000,000)**	The cost of the path to the other bridge from this transmitting bridge at the specified port. Enter a number **1 through 200,000,000**. Default value is **Auto**.
• **Port No.**	The switch port number of the logical STP port.
• **RPC**	Root Path Cost. For the Root Bridge this is zero. For all other Bridges, it is the sum of the Port Path Costs on the least cost path to the Root Bridge.
• **Priority**	Displays the current priority for each port.
• **State**	The current STP port state. The port state can be one of the following values: **Alternate** **Back Up** **Root Port** **Designated Port**
• **Status**	The current STP port status. The port status can be one of the following values: **Listening** **Blocking** **Learning** **Forwarding**
• **Designated Bridge**	ID of the STP bridge designated as the root port
• **Designated Port**	Port number of the bridge from where the bridge is designated as the root port

Table 4-27 Descriptions of the STP Port Setting Configuration Screen Objects

4.8.3 Loopback Detection Setting

This section introduces detailed information of Loopback Detection Settings of Web Smart Switch as the screen in Figure 4-48 appears and Table 4-28 describes the Loopback Detection Setting Configuration of Web Smart Switch.

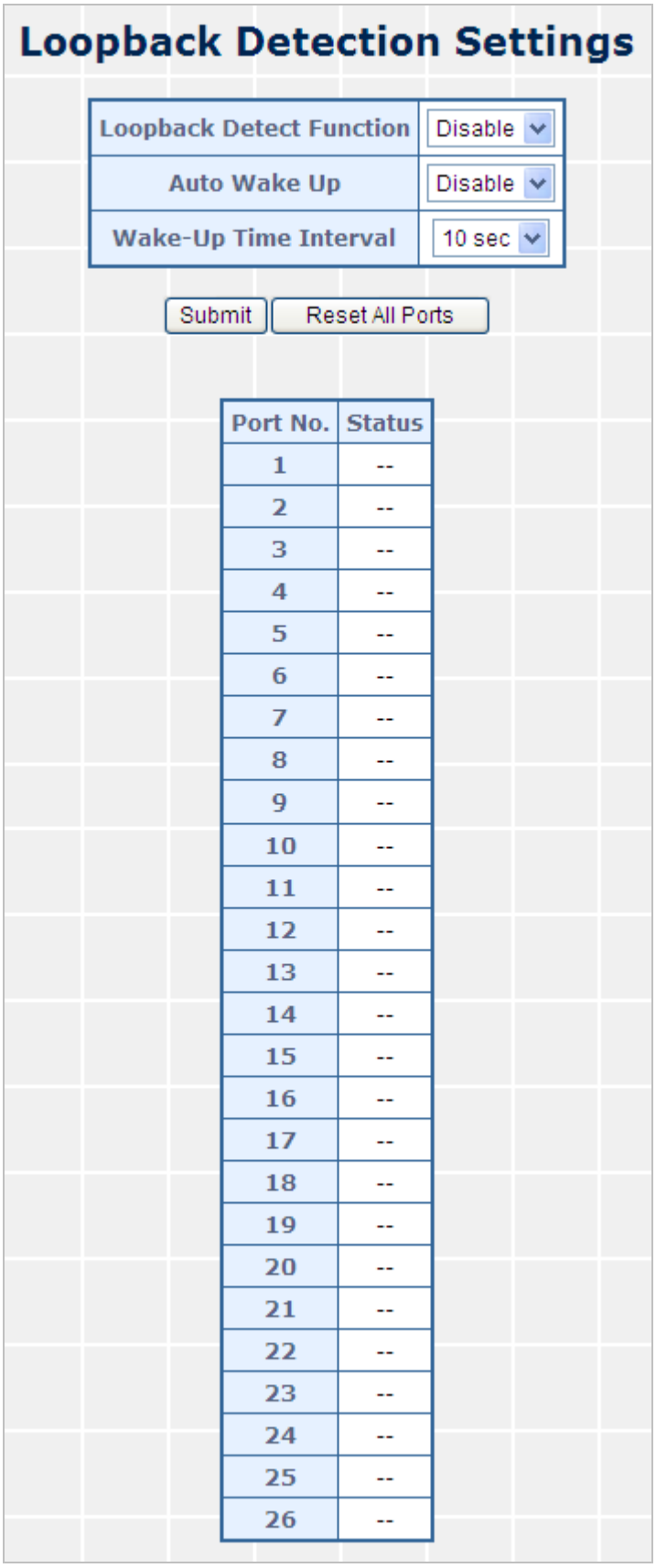


Figure 4-48 Loopback Detection Setting Web Page Screen

The page includes the following fields:

Object	Description
• **Loopback Detect Function**	Allows to **Disable** or **Enable** the Loopback Detect Function. Default mode is **Disable**.
• **Auto Wake Up**	Allows to **Disable** or **Enable** the Auto Wake Up function. Default mode is **Disable**.
• **Wake-Up Time Interval**	Provides **5 sec**, **10 sec**, **30 sec**, **60 sec** different interval time for wake-up time of Web Smart Switch. Default mode is **10 sec**.

Table 4-28 Descriptions of the Loopback Detection Setting Configuration Screen Objects

4.9 DHCP Relay Agent

This function provides DHCP Relay Agent of Web Smart Switch as the screen in Figure 4-49 appears and Table 4-29 describes the DHCP Relay Agent of Web Smart Switch.

Figure 4-49 DHCP Relay Agent Web Page Screen

The page includes the following fields:

Object	Description
• **DHCP Relay Agent**	Allows to set DHCP Relay Agent of Web Smart Switch. **Explained in section 4.9.1**.
• **Relay Server**	Allows to set Relay Server of Web Smart Switch. **Explained in section 4.9.2**.
• **VLAN MAP Relay Agent**	Allows to define VLAN MAP Relay Agent of Web Smart Switch. **Explained in section 4.8.3**.

Table 4-29 Descriptions of the DHCP Relay Agent Web Page Screen Objects

4.9.1 DHCP Relay Agent

This section introduces detailed information of DHCP Relay Agent of Web Smart Switch as the screen in Figure 4-50 appears and Table 4-30 describes the STP Bridge Setting Configuration of Web Smart Switch.

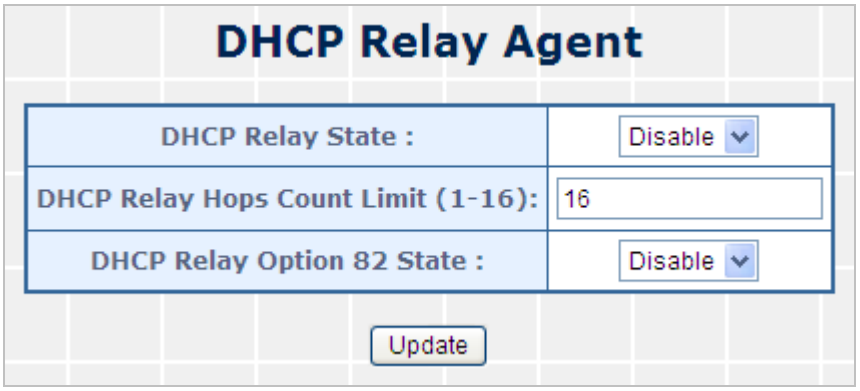


Figure 4-50 DHCP Relay Agent Web Page Screen

The page includes the following fields:

Object	Description
• **DHCP Relay State**	Allows to **Disable** or **Enable** the DHCP Relay State Function. Default mode is **Disable**.
• **DHCP Relay Hops Count Limit (1-16)**	This field allows an entry between1 and1 6 to define the maximum number of router hops DHCP/BOOTP messages which can be forwarded across. The default hop count is **16**.
• **DHCP Relay Option 82 State**	Allows to **Disable** or **Enable** the DHCP Relay Option 82 State Function. Default mode is **Disable**.

Table 4-30 Descriptions of the DHCP Relay Agent Configuration Screen Objects

4.9.2 Relay Server

This section introduces detailed information of Relay Server of Web Smart Switch as the screen in Figure 4-51 appears and Table 4-31 describes the Relay Server Configuration of Web Smart Switch.

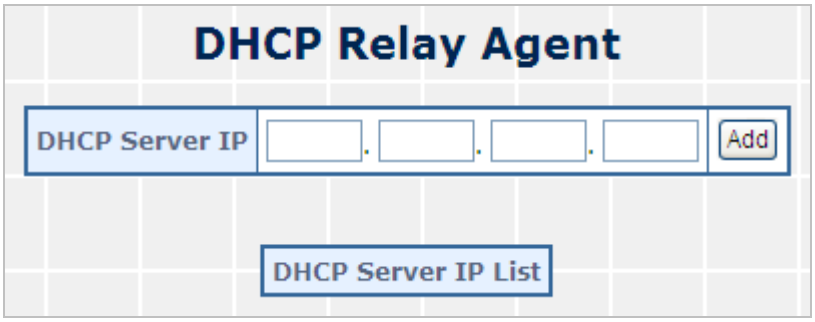


Figure 4-51 STP Bridge Setting Web Page Screen

The page includes the following fields:

Object	Description
• **DHCP Server IP**	Assign the DHCP Server IP address.

Table 4-31 Descriptions of the STP Bridge Setting Configuration Screen Objects

4.9.3 VLAN MAP Relay Agent

This section introduces detailed information of VLAN MAP Relay Agent of Web Smart Switch as the screen in Figure 4-52 appears and Table 4-32 describes the VLAN MAP Relay Agent Configuration of Web Smart Switch.

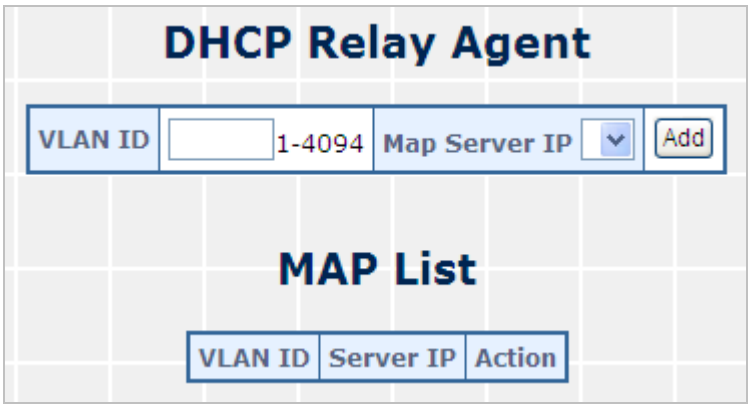


Figure 4-52 VLAN MAP Relay Agent Web Page Screen

The page includes the following fields:

Object	Description
• **VLAN ID**	The VLAN ID for the entry.
• **Map Server IP**	Select the server IP that you want to filter.

Table 4-32 Descriptions of the VLAN MAP Relay Agent Configuration Screen Objects

4.10 Misc Operation

This function provides Misc Operation of Web Smart Switch as the screen in Figure 4-53 appears and Table 4-33 describes the Misc Operation of Web Smart Switch.

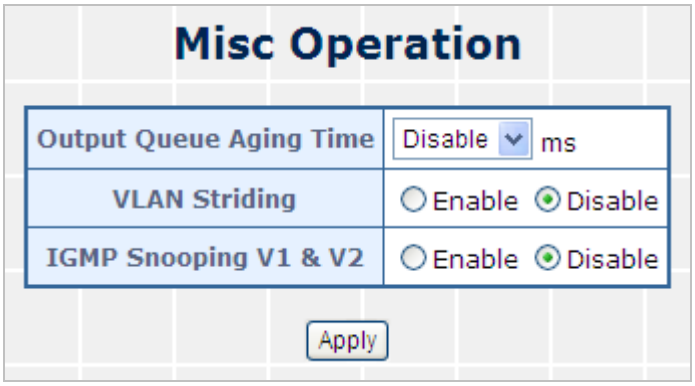


Figure 4-53 Misc Operation Web Page Screen

The page includes the following fields:

Object	Description
• **Output Queue Aging Time**	Allows to define the Output Queue Aging Time of Web Smart Switch. The available options are **Disable**, **200ms**, **400ms**, **600ms** and **800ms**. Default mode is **Disable**.
• **VLAN Striding**	Allows to **Disable** or **Enable** the VLAN Striding function of Web Smart Switch. Default mode is **Disable**.
• **IGMP Snooping V1 & V2**	Allows to **Disable** or **Enable** the IGMP Snooping V1 & V2 function of Web Smart Switch. Default mode is **Disable**.

Table 4-33 Descriptions of the Misc Operation Screen Objects

4.11 Backup/Recovery

This function provides Backup/Recovery of Web Smart Switch as the screen in Figure 4-54 appears and Table 4-34 describes the Backup/Recovery of Web Smart Switch.

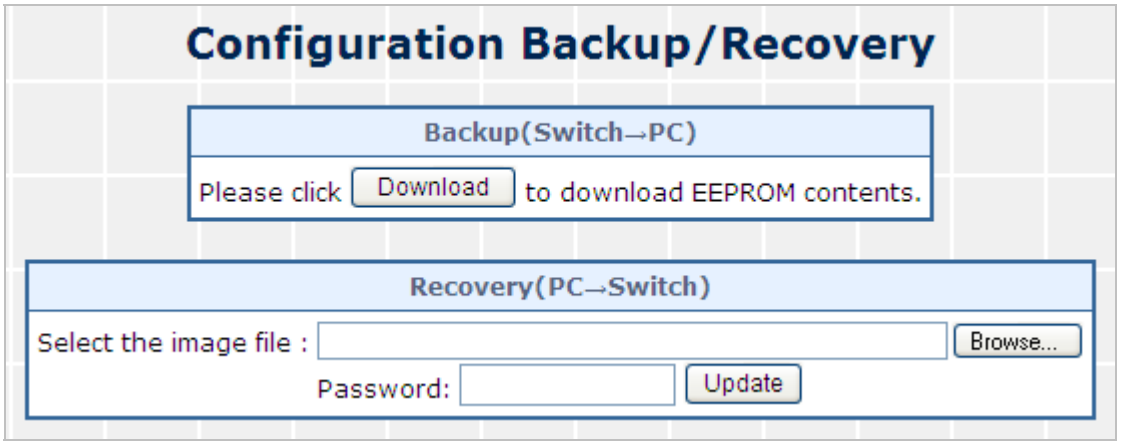


Figure 4-54 Backup/Recovery Web Page Screen

The page includes the following fields:

Object	Description
• **Backup (Switch → PC)**	Allows to back up the current configuration of PC.
• **Recovery (PC → Switch)**	Allows to recover the current configuration of switch. Use "Browser" button to select file from which you want to reload to switch and type in the switch password.

Table 4-34 Descriptions of the Misc Operation Screen Objects

4.12 SNMP Setting

This function provides SNMP Setting of Web Smart Switch as the screen in Figure 4-55 appears and Table 4-35 describes the SNMP Setting of Web Smart Switch.

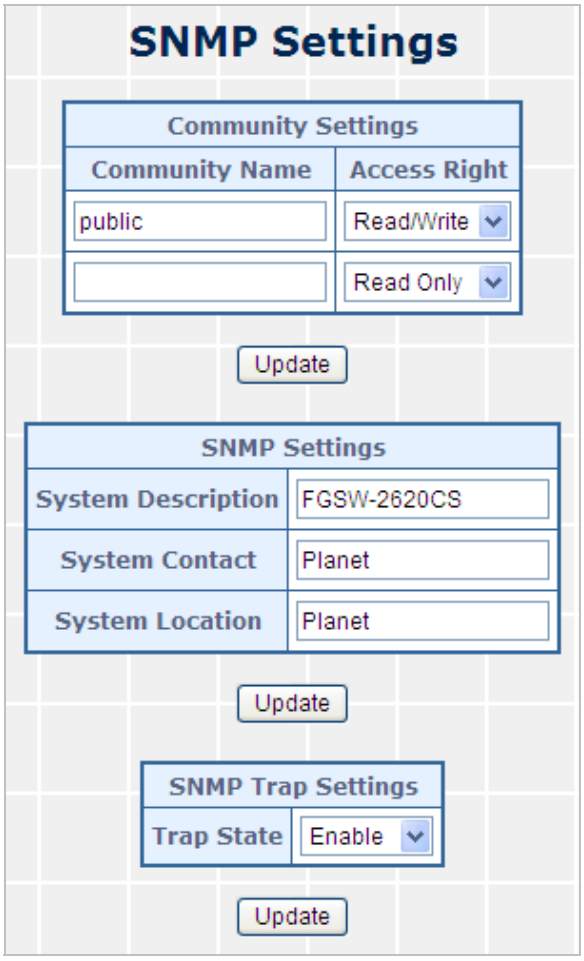


Figure 4-55 SNMP Setting Web Page Screen

The page includes the following fields:

Object	Description
• **Community Name**	Indicates the community name.
• **Access Right**	Defines the group access rights. The possible field values are: **Read/Write** **Read Only**
• **System Description**	An administratively assigned name for this managed node. Default description is **FGSW-2620CS**.
• **System Contact**	The textual identification of the contact person for this managed node. Default contact is **Planet**.
• **System Location**	The physical location of this node (e.g., telephone closet, 3rd floor). Default contact is **Planet**.
• **Trap State**	Allows to **Disable** or **Enable** the trap state function of Web Smart Switch. Default mode is **Enable**.

Table 4-35 Descriptions of the SNMP Settings Screen Objects

4.13 Logout

This section provides Web logout function on Web Smart Switch after choosing this function and the following screen appears in Figure 4-56. Please press **"Logout"** button to take effect and Login Web Screen appears. Please re-login the Web Smart Switch for further management.

Figure 4-56 Logout Web Page Screen

5. SWITCH OPERATION

5.1 Address Table

The Switch is implemented with an address table. This address table is composed of many entries. Each entry is used to store the address information of some node in network, including MAC address, port no, etc. This information comes from the learning process of Ethernet Switch.

5.2 Learning

When one packet comes in from any port, the Switch will record the source address, port number and the other related information in address table. This information will be used to decide either forwarding or filtering for future packets.

5.3 Forwarding & Filtering

When one packet comes from some port of the Ethernet Switching, it will also check the destination address besides the source address learning. The Ethernet Switching will look up the address-table for the destination address. If not found, this packet will be forwarded to all the other ports except the port which this packet comes in. And these ports will transmit this packet to the network it connected. If found, and the destination address is located at a different port from this packet comes in, the Ethernet Switching will forward this packet to the port where this destination address is located according to the information from the address table. But, if the destination address is located at the same port with this packet that comes in, then this packet will be filtered,thereby increasing the network throughput and availability.

5.4 Store-and-Forward

Store-and-Forward is one type of packet-forwarding techniques. A Store-and Forward Ethernet Switching stores the incoming frame in an internal buffer, do the complete error checking before transmission. Therefore, no error packets occur. It is the best choice when a network needs efficiency and stability.

The Ethernet Switch scans the destination address from the packet-header, searches the routing table provided for the incoming port and forwards the packet, only if required. The fast forwarding makes the switch attractive for connecting servers directly to the network, thereby increasing throughput and availability. However, the switch is most commonly used to segment existing hubs, which nearly always improves the overall performance. An Ethernet Switching can be easily configured in any Ethernet network environment to significantly boost bandwidth using the conventional cabling and adapters.

Due to the learning function of the Ethernet switching, the source address and corresponding port number of each incoming and outgoing packet are stored in a routing table. This information is subsequently used to filter packets whose destination address is on the same segment as the source address. This confines network traffic to its respective domain, reducing the overall load on the network.

The Switch performs "Store and forward" therefore, no error packets occur. More reliably, it reduces the re-transmission rate. No packet loss will occur.

5.5 Auto-Negotiation

The STP ports on the Switch have built-in "Auto-negotiation". This technology automatically sets the best possible bandwidth when a connection is established with another network device (usually at Power On or Reset). This is done by detecting the modes and speeds at the second of both devices connected. Both 10Base-T and 100Base-TX devices can connect with the port in either half- or full-duplex mode. 1000Base-T can be only connected in full-duplex mode.

6. TROUBLESHOOTING

This chapter contains information to help you solve problems. If the Switch is not functioning properly, make sure the Ethernet Switch is set up according to instructions in this manual.

The Link LED is not lit

Solution:

Check the cable connection and remove duplex mode of the Switch.

Some stations cannot talk to other stations located on the other port

Solution:

Please check the VLAN, port trunking function that may introduce this kind of problem.

Performance is bad

Solution:

Check the full duplex status of the Ethernet Switch. If the Ethernet Switch is set to full duplex and the partner is set to half duplex, then the performance will be poor.

100Base-TX port link LED is lit, but the traffic is irregular

Solution:

Check that the attached device is not set to dedicate full duplex. Some devices use a physical or software switch to change duplex modes. Auto-negotiation may not recognize this type of full-duplex setting.

Why the Switch doesn't connect to the network

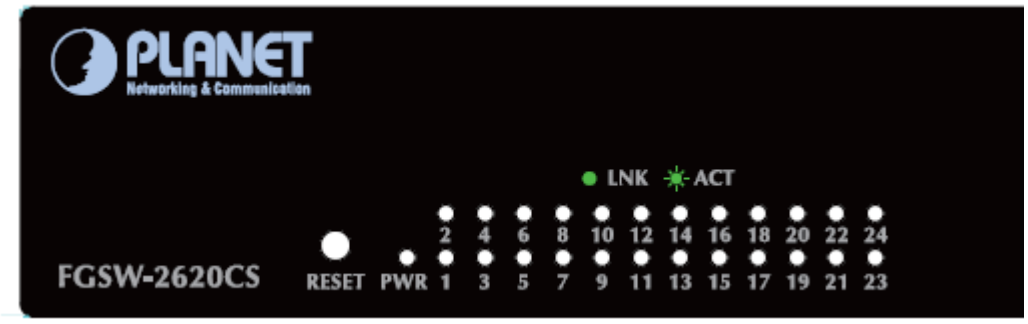
Solution:

Check the LNK/ACT LED on the switch Try another port on the Switch. Make sure the cable is installed properly. Make sure the cable is the right type. Turn off the power. After a while, turn on the power again.

How to deal with the forgotten password situation of FGSW-1820CS / FGSW-2620CS

Solution:

Please press Reset button on front panel for 5 seconds and then the Web Smart Switch will reset to factory default mode(user name and password: admin)



APPENDIX: A NETWORKING CONNECTION

A.1 Switch's RJ-45 Pin Assignments

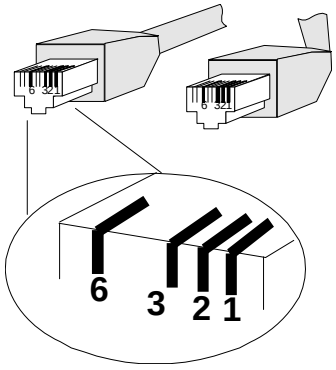
1000Mbps, 1000Base T

RJ-45 Connector pin assignment		
Contact	**MDI**	**MDI-X**
1	BI_DA+	BI_DB+
2	BI_DA-	BI_DB-
3	BI_DB+	BI_DA+
4	BI_DC+	BI_DD+
5	BI_DC-	BI_DD-
6	BI_DB-	BI_DA-
7	BI_DD+	BI_DC+
8	BI_DD-	BI_DC-

10/100Mbps, 10/100Base-TX

RJ-45 Connector pin assignment		
Contact	MDI Media Dependant Interface	MDI-X Media Dependant Interface -Cross
1	Tx + (transmit)	Rx + (receive)
2	Tx - (transmit)	Rx - (receive)
3	Rx + (receive)	Tx + (transmit)
4, 5	Not used	
6	Rx - (receive)	Tx - (transmit)
7, 8	Not used	

A.2 RJ-45 cable pin assignment



The standard RJ-45 receptacle/connector

There are 8 wires on a standard UTP/STP cable and each wire is color-coded. The following shows the pin allocation and color of straight cable and crossover cable connection:

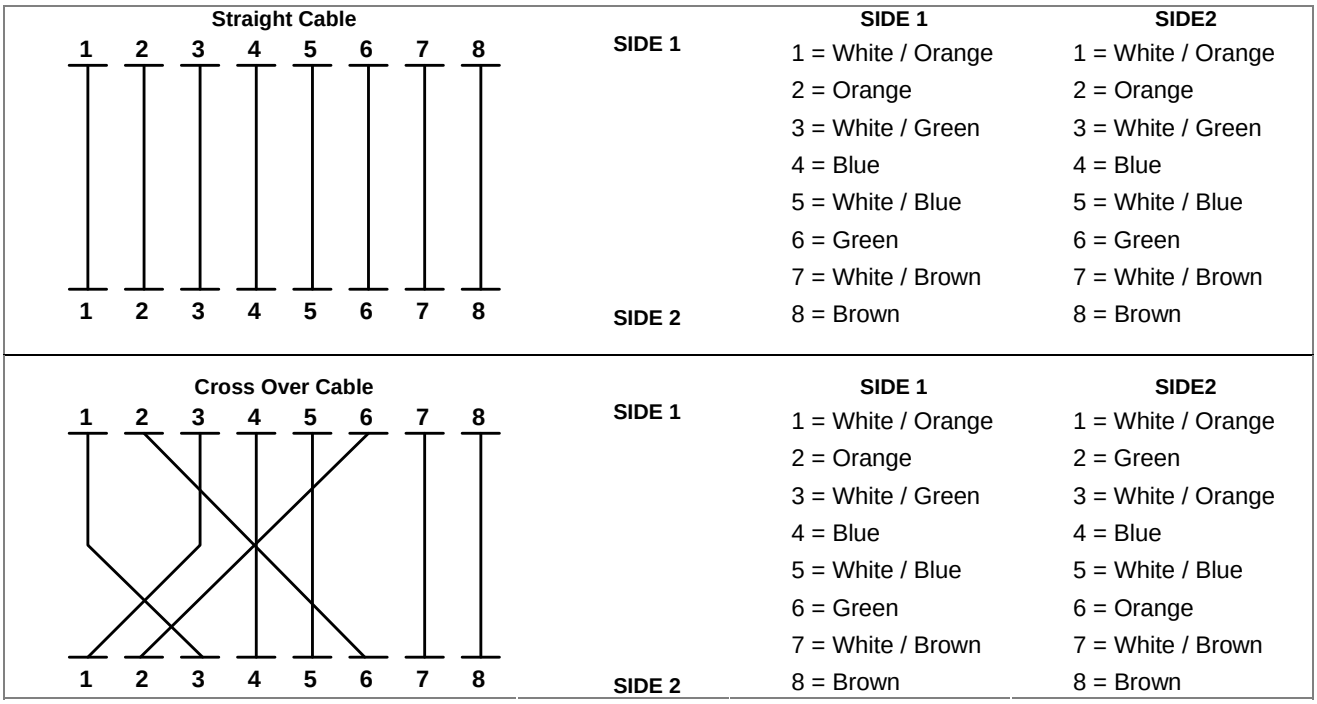


Figure A-1: Straight-through and Crossover Cable

Please make sure your connected cables are with same pin assignment and color as the above picture before deploying the cables onto your network.

EC Declaration of Conformity

For the following equipment:

*Type of Product: 24-Port 10/100Base-TX + 2G TP/SFP Combo Web Smart Switch
*Model Number: FGSW-2620CS

* Produced by:
Manufacturer's Name : **Planet Technology Corp.**
Manufacturer's Address: 10F., No.96, Minquan Rd., Xindian Dist.,
New Taipei City 231, Taiwan (R.O.C.)

is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility Directive on (2004/108/EC).
For the evaluation regarding the EMC, the following standards were applied:

EN 55022	(1998 / A1:2000 / A2:2003 Class A)
EN 61000-3-2	(2006)
EN 61000-3-3	(1995 / A1:2001 / A2:2005)
EN 55024	(1998 / A1:2001 / A2:2003)
IEC 61000-4-2	(2001)
IEC 61000-4-3	(2002)
IEC 61000-4-4	(2004)
IEC 61000-4-5	(2001)
IEC 61000-4-6	(2003+ A1:2004)
IEC 61000-4-8	(2001)
IEC 61000-4-11	(2004)

Responsible for marking this declaration if the:

☒ **Manufacturer** ☐ **Authorized representative established within the EU**

Authorized representative established within the EU (if applicable):

Company Name: **Planet Technology Corp.**

Company Address: **10F., No.96, Minquan Rd., Xindian Dist., New Taipei City 231, Taiwan (R.O.C.)**

Person responsible for making this declaration

Name, Surname **Kent Kang**

Position / Title : **Product Manager**

Taiwan	**3th Jan, 2011**	Kent Kang
Place	*Date*	*Legal Signature*