PLANET
Networking & Communication

User's Manual

GSW-4804SF

48-Port 10/100/1000Mbps with 4-Port Shared SFP Web Smart Switch

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Revision

PLANET 48-Port 10/100/1000Mbps with 4-Port Shared SFP Web Smart Switch User's Manual

FOR MODEL: GSW-4804SF

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TABLE OF CONTENTS

1. INTRODUCTION

Thank you for purchasing PLANET 48-Port 10/100/1000Mbps with 4-Port shared SFP Web Smart Switch- GSW-4804SF. In the following section, the term "**Switch**" means the Switch, i.e. GSW-4804SF; term of "**switch**" can be any third part switches.

1.1 Packet Contents

Check the contents of your package for following parts:

- GSW-4804SF Web Smart Switch x1
- Quick Installation Guide x1
- User's Manual CD x1
- RS-232 Console Cable x 1
- Power Cord x1
- Rubber Feet x 4
- Two rack-mounting brackets with attachment screws x1

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 against to repack the product in case there is a need to return it to us for repair.

1.2 How to Use This Manual

This User Manual is structured as follows:

- **Section 2, Installation**

  The section explains the functions of the Switch and how to physically install the Switch.

- **Section 3, Configuration**

  The section contains the information about the software function of the Switch.

- **Section 4, Web Configuration**

  The section explains how to manage the Switch through Web interface.

- **Section 5, Switch Operation**

  The section explains the switch operation of the Switch.

- **Section 6, Troubleshotting**

  The section contains troubleshooting guide of the Switch.

- **Appendex A Networking Connection**

  The section contains cable information of the Switch.

  Appendex B 802.1Q VLAN Multi-Untagged VLAN setting sample

  The section contains 802.1Q VLAN setting example of the Switch.

1.3 Product Feature

- **Physical Port**
  - ☐ 48-Port 10/100/1000Base-T RJ-45
  - ☐ 4 SFP slots, shared with Port-45, Port-46, Port-47 and Port-48
  - ☐ RS232 Console interface for reset system to factory default mode

- **Layer 2 Features**
  - ☐ Complies with the IEEE 802.3, IEEE 802.3u, IEEE 802.3ab, IEEE 802.3z Gigabit Ethernet standard
  - ☐ Per port supports Auto-negotiation, 10Base-T / 100Base-TX Half-Duplex / Full-Duplex modes and 1000Base-T Full-Duplex mode.
  - ☐ 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
  - ☐ 16K MAC address table, automatic source address learning and ageing
  - ☐ 9K Jumbo frame size
  - ☐ 49 Port based VLAN groups / 512 IEEE 802.1Q Tagged based VLAN groups support
  - ☐ Support up to 12 Link Aggregation groups, each group for up to maximum 8 port with 16Gbps bandwidth(Full Duplex Mode)
  - ☐ Port Mirroring to monitor the incoming or outgoing traffic on a particular port
  - ☐ Per port disable / enable, speed duplex mode / Flow control setting
  - ☐ Per port Link Status test

- **Quality of Service**
  - ☐ Support for strict priority and Weighted Round Robin (WRR) CoS policies
  - ☐ Support QoS and bandwidth control on each port

- **Multicast**
  - ☐ Support IGMP Snooping V1/V2, up to 256 multicast Groups
  - ☐ Support IGMP Route Port

- **Security**
  - ☐ MAC-Based Access Control List
  - ☐ IP-Based Access Control List (ACL)
  - ☐ TCP/UDP/ICMP Access Control List (ACL)
  - ☐ Security Defense / ARP Defense
  - ☐ Port Security for MAC address binding / filtering / learning / aging time setting

Management

- ☐ Web-based management
- ☐ Management VLAN for high security access limit
- ☐ Web firmware upgradeable
- ☐ Web configuration backup / recovery
- ☐ EMI standards comply with FCC, CE class A

1.4 Product Specification

Product	**GSW-4804SF** 48-Port 10/100/1000Mbps with 4-Port Shared SFP Web Smart Switch
Hardware Specification	
Copper Ports	48-10 / 100 / 1000Base-T RJ-45 Auto-MDI/MDI-X ports
SFP/mini-GBIC Slots	4 SFP interfaces, shared with Port-45, Port-46, Port-47 and Port-48
Switch Architecture	Store-and-Forward
Switch Fabric	96Gbps / non-blocking
Switch Throughput	71.4Mpps
Address Table	16K entries
Flow Control	Back pressure for Half-Duplex mode, IEEE 802.3x Pause Frame for Full-Duplex mode
Jumbo Frame	9K
LED	System: Power, SYS (Green) Per RJ-45 Port: 10/100 LED (Green) and 1000 LED (Orange) Per SFP interface: 1000 LED (Orange)
Layer 2 function	
Management Interface	Web Browser interface
Management VLAN	Yes
Web firmware upgrade	Yes
Configuration backup / Recovery	Yes
Port Configuration	Port disable/enable. Auto-negotiation 10/100/1000Mbps full and half duplex mode selection. Flow Control disable / enable. Bandwidth control on each port.
Port Statistics	Display per port's management status, link status, detail various packet receive information
Link Aggregation	Supports 12 groups of 8 member port maximum
Access Control List	MAC / IP / TCP/ UDP / ICMP Based Access Control List (ACL)
Security Defense	Yes, worm, RPC Leak, Shake wave, TFTP, Shock wave and Phatbot option
ARP Defense	Yes
VLAN	49 Port Based VLAN groups / 512 IEEE 802.1Q Tagged VLAN groups
Port Security	MAC address binding / filtering / learning / aging time setting
QoS	Quality of Service Queue Management
IGMP Snooping	V1 / V2, up to 256 multicast Groups
IGMP Route Port	Yes
Port Mirror	Monitor the incoming or outgoing traffic on a particular port
Standards Conformance	
Regulation Compliance	FCC Part 15 Class A, CE

Standards Compliance	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX IEEE 802.3ab Gigabit 1000Base-T IEEE 802.3z Gigabit SX/LX IEEE 802.3x Flow Control and Back pressure IEEE 802.1p Class of service IEEE 802.1Q VLAN Tagging
Physical Specifications	
Dimensions	430 x 350 x 45mm (W x D x H), 1U height
Weight	4.94 kg
Power Requirement	100~240V AC, 50-60 Hz
Power Consumption / Dissipation	57 Watts / 194 BTU (Maximum)
Environment Specifications	
Operating	Temperature: 0°C ~ 50 degree C Relative Humidity: 20% ~ 85% (non-condensing)
Storage	Temperature: -40°C ~ 70 degree C Relative Humidity: 20% ~ 90% (non-condensing)

2. INSTALLATION

This section describes the functionalities of the Switch's components and guides how to install it on the desktop or shelf, for easier management and control of the Switch. Before connecting any network device to the Switch, please read this chapter completely before continuing.

2.1 Product Description

The PLANET GSW-4804SF is a 48-Port 10/100/1000Mbps with 4-Port shared SFP Web Smart Switch. It boasts a high performance switch architecture that is capable of providing 96Gbps non-blocking switch fabric and 71.4Mpps wire-speed throughput. With its four built-in 1000Base-SX / LX SFP interfaces share with port 45 to port 48, the Switch offer incredible extensibility, flexibility and connectivity between the Core switch and Servers application.

2.1.1 Product Overview

The PLANET GSW-4804SF is a High-Density, Rack-mountable; Layer 2 Web Smart Gigabit Switch. Since Gigabit network interface had become the basic equipment and requirement of Enterprise and Network Servers, with 96Gbps switching fabric, the GSW-4804SF can handle extremely large amounts of data in a secure topology linking to a backbone or high capacity servers. The powerful QoS and Network Security features make GSW-4804SF to meets the needs of effective data traffic control for ISP and Enterprise, such as VoIP, video streaming and multicast application.

Per Gigabit port with 9K Jumbo frame supported, can handle extremely large amounts of data transmission in a secure topology linking to a backbone or high-power servers, the four mini-GBIC slots are compatible with 1000Base-SX/LX and WDM SFP (Small Factor Pluggable) fiber-optic modules. The distance can be extended from 550 meters (Multi-Mode fiber) up to above 10/20/30/40/50/70/120 kilometers (Single-Mode fiber or WDM fiber). They are well suited for using within the enterprise data centers and distributions.

For efficient management, the GSW-4804SF Web Smart Switch is equipped with Web interfaces. With its built-in Web-based management, the Switch offers an easy-to-use, platform-independent management and configuration facility. The GSW-4804SF can be programmed for basic switch management functions such as Port speed configuration, bandwidth control, Link Aggregation, Access Control List (ACL), VLAN, MAC address binding / filtering / learning / aging time setting. QoS, IGMP Snooping and Port Mirror function.

2.1.2 Switch Front Panel

Figure 2-1 shows the front panel of the Switch, it consists of 48 Auto Negotiation 10/100/1000Mbps RJ-45 ports with Auto MDI / MDI-X feature, four shared Gigabit SFP interfaces with port 45 to port 48 and LED indicators.

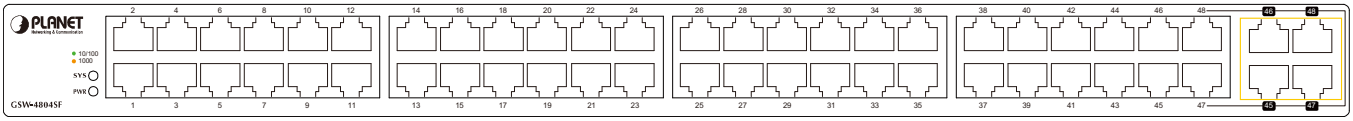

Figure 2-1 GSW-4804SF front panel

2.1.3 LED Indications

2.1.3.1 LED Indications

■ **System**

LED	Color	Function
PWR	**Green**	Lights to indicate that the Switch has power
SYS	**Green**	Lights to indicate that the CPU is operating

■ **Per 10/100/1000Base-T RJ-45 port**

LED	Color	Function
LNK/ACT (Dual Color)	**Orange**	**Lights** to indicate the port is running in 1000Mbps speed **Blink**: indicate that the switch is actively sending or receiving data over that port
	Green	**Lights**: indicate that the port is operating at 10Mbps or 100Mbps **Blink**: indicate that the switch is actively sending or receiving data over that port

■**Per SFP interfaces** (Share with 10/100/1000Base-T Port-45, Port-46, Port-47 and Port-48)

LED	Color	Function
LNK/ACT	**Orange**	**Lights** to indicate the port is running in 1000Mbps speed **Blink**: indicate that the switch is actively sending or receiving data over that port

2.1.4 Switch Rear Panel

Figure 2-2 shows the rear panel of the Switch, the rear panel indicates an AC inlet power socket that accept input power from 100-240V AC, 50/60Hz and one ON / OFF switch, also one RS-232 console port for reset system to factory default mode.

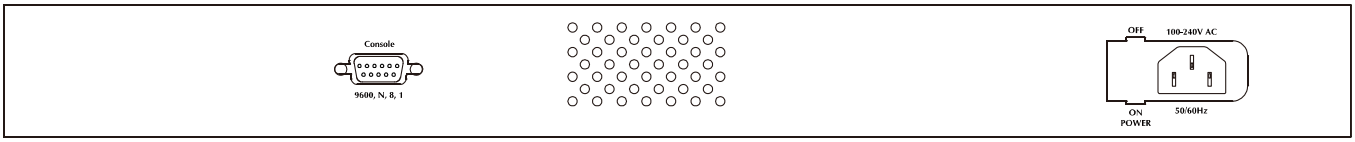

Figure 2-2 GSW-4804SF real panel

Power Notice:

1. The device is a power-required device, it means, it will not work till it is powered. If your networks should 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 Switch from being damaged by unregulated surge or current to the Switch or the power adapter.

2.2 Install the Switch

This section describes how to install the Switch and make connections to the Switch. Please read the following topics and perform the procedures in the order being presented. To install your Switch on a desktop or shelf, simply complete the following steps.

2.2.1 Desktop Installation

To install the Switch on desktop or shelf, please follows these steps:

Step1: Attach the rubber feet to the recessed areas on the bottom of the Switch.

Step2: Place the Switch on the desktop or the shelf near an AC power source.

Step3: Keep enough ventilation space between the Switch and the surrounding objects.

> ***Notice:*** When choosing a location, please keep in mind the environmental restrictions discussed in Chapter 1, Section 4, and Specification.

Step4: Connect the Switch to network devices.

A. Connect one end of a standard network cable to the 10/100/1000Mbps RJ-45 ports or Gigabit SFP mini-GBIC interfaces on the front of the Switch.

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

> ***Notice:*** Connection to the Switch requires UTP Category 5 network cabling with RJ-45 tips. For more information, please see the Cabling Specification in Appendix A.

Step5: Supply power to the Switch.

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

B. Connect the power plug of the power cable to a standard wall outlet.

When the Switch receives power, the Power / System LED should remain solid Green.

2.2.2 Rack Mounting

To install the Switch in a **19-inch** standard rack, please follows the instructions described below.

Step1: Place the Switch on a hard flat surface, with the front panel positioned towards the front side.

Step2: Attach the rack-mount bracket to each side of the Switch with supplied screws attached to the package. **Figure 2-3** shows how to attach brackets to one side of the Switch.

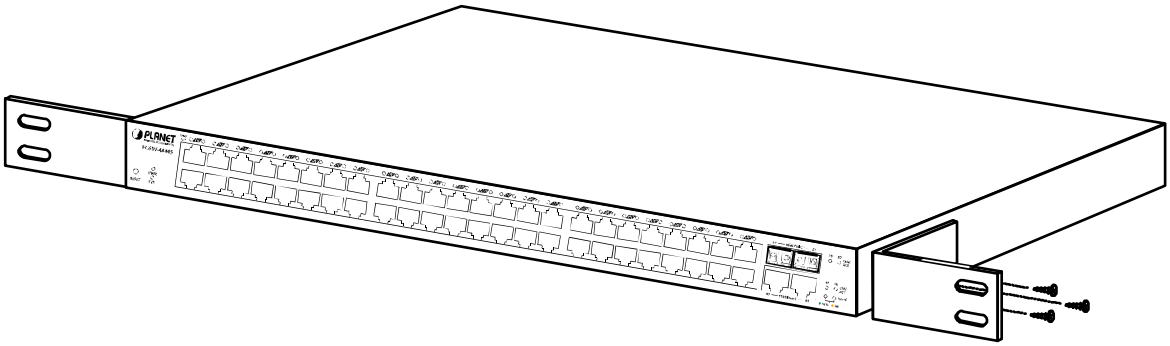

Figure 2-3 Attach brackets to the Switch.

Caution:

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

Step3: Secure the brackets tightly.

Step4: Follow the same steps to attach the second bracket to the opposite side.

Step5: After the brackets are attached to the Switch, use suitable screws to securely attach the brackets to the rack, as shown in **Figure 2-4**.

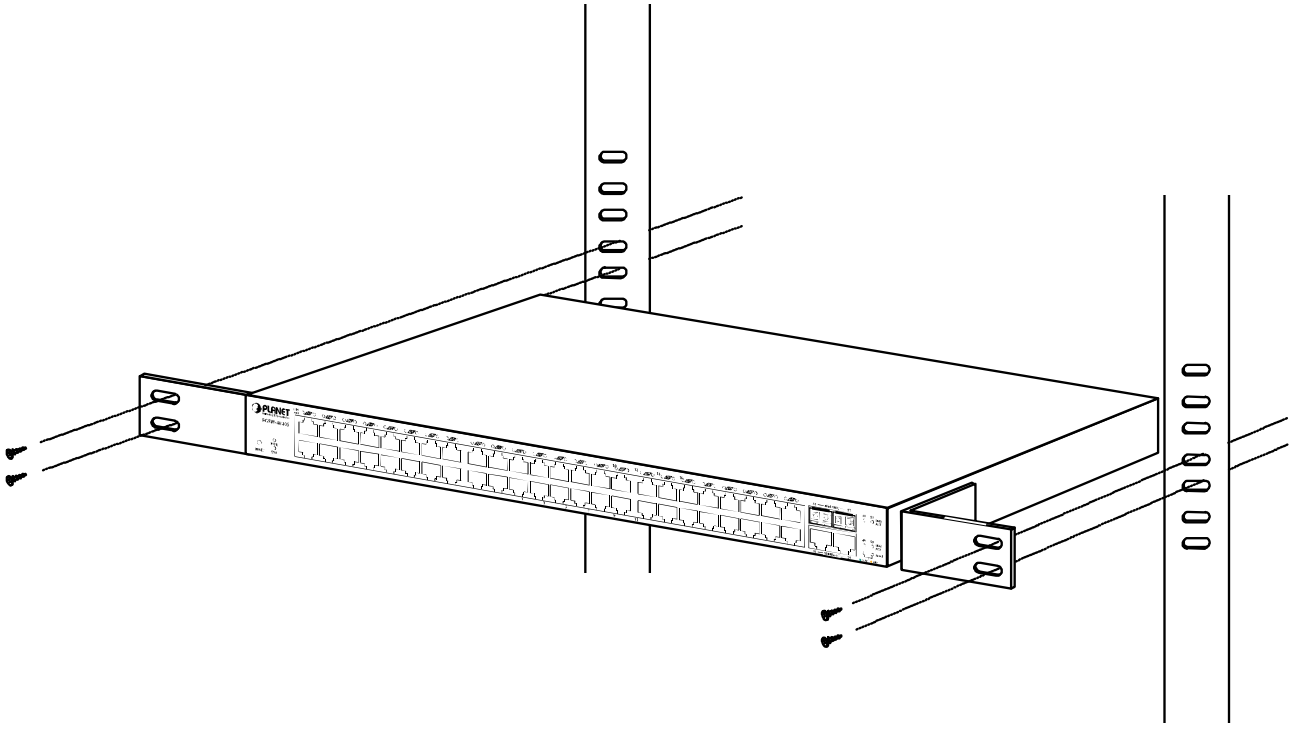

Figure 2-4 Mounting the Switch in a Rack

Step6: Proceeds with the steps 4 and steps 5 of session **2.2.1 Desktop Installation** to connect the network cabling and supply power to the Switch.

2.2.3 Installing the SFP transceiver

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

The SFP transceivers are hot-pluggabe and hot-swappable. You can plug-in and out the transceiver to/from any SFP interfaces without having to power down the Switch. As the **Figure 2-5** appears.

Figure 2-5 Plug-in the SFP transceiver

Approved PLANET SFP Transceivers

PLANET GSW-4804SF supports both **Single-mode** and **Multi-mode** SFP transceiver. The following list of approved PLANET SFP transceivers is correct at the time of publication:

- MGB-GT SFP (1000Base-T SFP transceiver)
- MGB-SX SFP (1000Base-SX SFP transceiver)
- MGB-LX SFP (1000Base-LX SFP transceiver)

Before connect the other switches, workstation or Media Converter.

1. Make sure both side of the SFP transceiver are with the same media type, for example: 1000Base-SX to 1000Base-SX, 1000Bas-LX to 1000Base-LX.
2. Check the fiber-optic cable type match the SFP transceiver model.
   - To connect to **1000Base-SX** SFP transceiver, use the **Multi-mode** fiber cable- with one side must be male duplex LC connector type.
   - To connect to **1000Base-LX** SFP transceiver, use the **Single-mode** fiber cable-with one side must be male duplex LC connector type.

Connect the fiber cable

1. Attach 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 Switch. Ensure that the SFP transceiver is operating correctly.
4. Check the Link mode of the SFP port if the link failed. Co works with some fiber-NICs or Media Converters, set the Link mode to **"1000"** is needed.

Remove the transceiver module

1. Make sure there is no network activity by consult or check 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 horizontal.
4. Pull out the module gently through the handle.

Figure 2-6 Pull out the SFP transceiver

Notice: Never pull out the module without pull the handle or the push bolts on the module. Direct pull out the module with violent could damage the module and SFP module slot of the device.

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3. CONFIGURATION

This chapter explains the methods that you can use to configure management access to the Switch. It describes the types of management applications and the communication and management protocols that deliver data between your management device (work-station or personal computer) and the system. It also contains information about port connection options.
This chapter covers the following topics:

- Management Access Overview
- Administration Console Access
- Reset system to factory default mode under Console interface
- Web Management Access
- Standards, Protocols, and Related Reading

3.1 Management Access Overview

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

- An administration console for reset system to factory default mode
- Web browser interface for Smart function configuration

The administration Web browser interface embedded in the Switch software and it is available for immediate use, and the console interface designed for reset system to factory default mode. Both management methods have their own advantages.
Table 3-1 compares both management methods.

Method	Advantages	Disadvantages
Console	・Once forget or loss the IP address and username / password, allow to reset system to factory defult mode easily.	・Not provide further management fucntion configure ability.
Web Browser	・Ideal for configuring the Switch remotely. ・Compatible with all popular browsers. ・Can be accessed from any location. ・Most visually appealing.	・Security can be compromised (hackers need only know the IP address and subnet mask). ・May encounter lag times on poor connections.

Table 3-1 Management Methods Comparison

3.2 Administrator Console Access

The administration console is a local connection method between the administrator PC and the Switch. Using this method, you can reset the Switch to factory default mode from a personal computer, Apple Macintosh, or workstation connected to the Switch's console **(Serial)** port. Direct access to the administration console is achieved by directly connecting a terminal or a PC equipped with a terminal-emulation program **(such as HyperTerminal)** to the Switch console **(Serial)** port.

When using this management method, a null-modem cable is required to connect the Switch to the PC. After making this connection, configure the terminal-emulation program to use the following parameters:

The default parameters are:

- **9600 bps**
- **8 Data bits**
- **No Parity**
- **1 Stop bits**
- **No Flow Control**

After log on the Switch. This Console interface is often preferred for remain connected and monitor the system during save current system configuration or system reboots.

3.3 Reset to Factory Default Mode under Console Interface

Once, lose or forget the current IP address or login username / password. Once the terminal has connected to the Switch, power on the Switch, the terminal will display that is perform the loading GSW-4804SF program procedures. When the **" Waiting 2 seconds : Press <d> for default parameters"** text appears, please press **"d"** from your keyboard then the Switch will perform the reset device to factory default mode procedure and the screen appears in **Figure 3-1**.

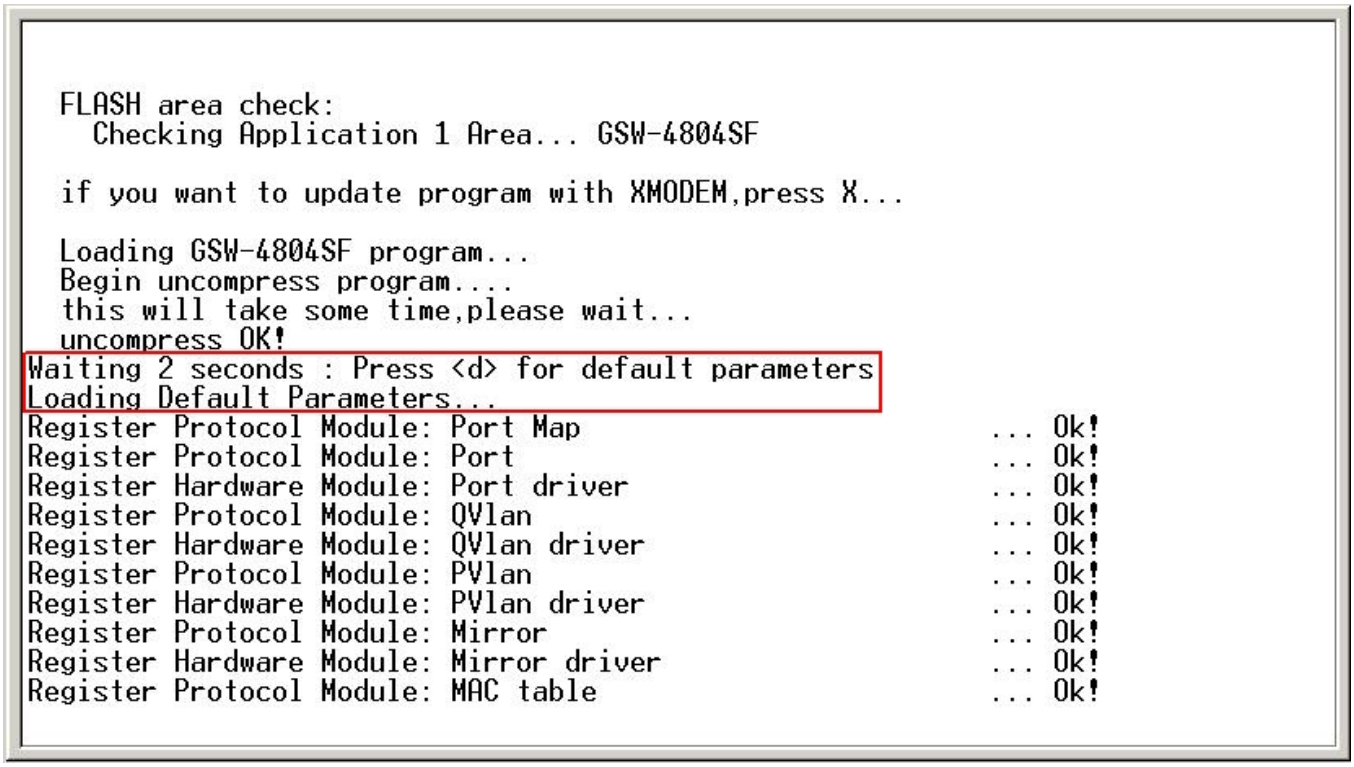


Figure 3-1 Loading Default Parameters of GSW-4804SF

Notice: This Console interface only provide reset system to factory default mode, for further switch management. Please access GSW-4804SF Web interface for further management.

3.4 Web Management Access

The PLANET GSW-4804SF provides 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 startup 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 5.0 or above Web browser. Enter the factory-default IP address to access the Web interface. The factory-default IP Address as following:

http://192.168.0.100

When the following login screen appears, the system will ask you to enter the username and password.

Default User Name: **admin**

Default Password: **admin**

The login screen in **Figure 3-2** appears.

Figure 3-2 Web Login Screen of GSW-4804SF

After entering the username and password (default user name and password is **"admin"**) in login screen (**Figure 3-2** appears). The Web main screen appears as **Figure 3-3**.

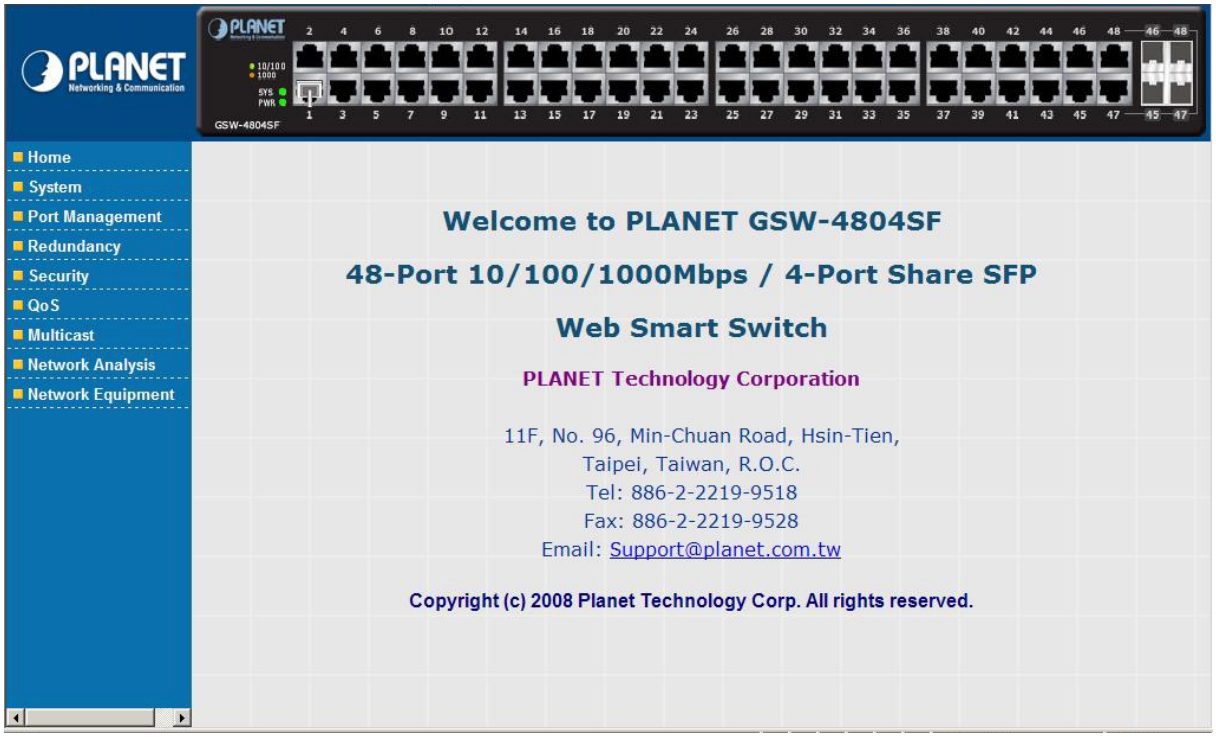


Figure 3-3 Web Main Screen of GSW-4804SF

Now, you can use the Web management interface to continue the Switch management, please refer to chapter 4 from user manual for more.

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

3.5 Management Architecture

All of the management application modules use the same Messaging Application Programming Interface (MAPI). By unifying management methods with a single MAPI, configuration parameters set using one method (console port, for example) are immediately displayable by the other management methods (for example, Web browser).

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

4. WEB CONFIGURATION

The PLANET GSW-4804SF can be configured through an Ethernet connection, make sure the manager PC must be set on same the IP subnet address with the Switch. For example, if you have changed the default IP address **(192.168.0.100)** of the Switch to 192.168.1.1 with subnet mask 255.255.255.0 via Web interface, then the manager PC should be set at 192.168.1.x (where x is a number between 1 and 253) with subnet mask 255.255.255.0. Or you can use the factory default IP address **192.168.0.100** to do the relative configuration on manager PC. The sceen in **Figure 4-1** appears.

Figure 4-1 Web Management via Ethernet

- **Logging on the Switch**

1. Use Internet Explorer 5.0 or above Web browser. Enter the factory-default IP address to access the Web interface. The factory-default IP Address as following:

   http://192.168.0.100

2. When the following login screen appears, the system will ask you to enter the username and password.

   Default User name: **admin**

   Default Password: **admin**

   The login screen in **Figure 4-2** appears.

Figure 4-2 Web Login Screen of GSW-4804SF

3. After entering the username and password, the main screen appears as **Figure 4-3**.

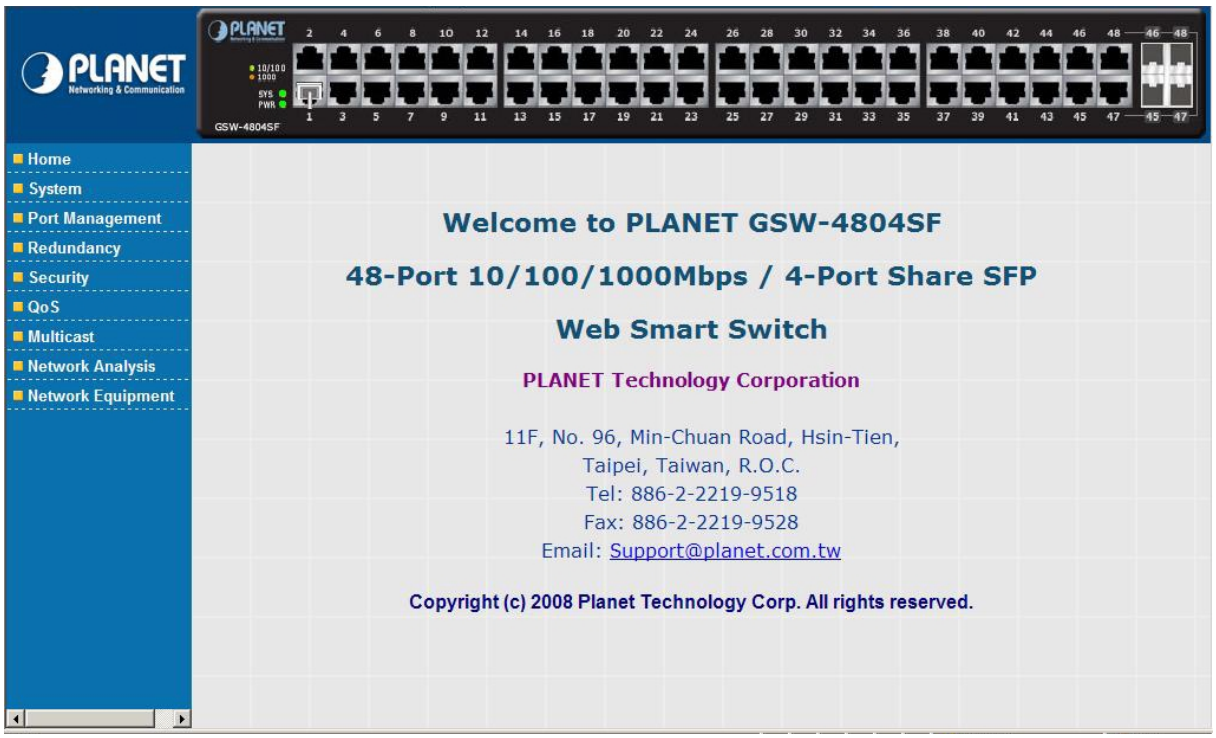


Figure 4-3 Web Main Screen of GSW-4804SF

Notice: It is recommended to use Internet Explore 5.0 or above to access the Switch.

The nine items and it description shown as below:

- **Home:** Provide Web Main Screen of the Switch. **Explained in section 4.1.**
- **System:** Provide System configuration of the Switch. **Explained in section 4.2.**
- **Port Management:** Provide Port Management configuration of the Switch. **Explained in section 4.3.**
- **Redundancy:** Provide Link Aggreation configuration of the Switch. **Explained in section 4.4.**
- **Security:** Provide Security configuration of of the Switch. **Explained in section 4.5.**
- **QoS:** Provide QoS Setting configuration of of the Switch. **Explained in section 4.6.**
- **Multicast:** Provide IGMP Snooping configuration of of the Switch. **Explained in section 4.7.**
- **Networking Analysis:** Provide Network analysis information of of the Switch. **Explained in section 4.8.**
- **Network Equipment:** Provide Network Equipment configuration of of the Switch. **Explained in section 4.9.**

4.1 Home

This section provides Web main screen display and the screen appears as **Figure 4-4.**

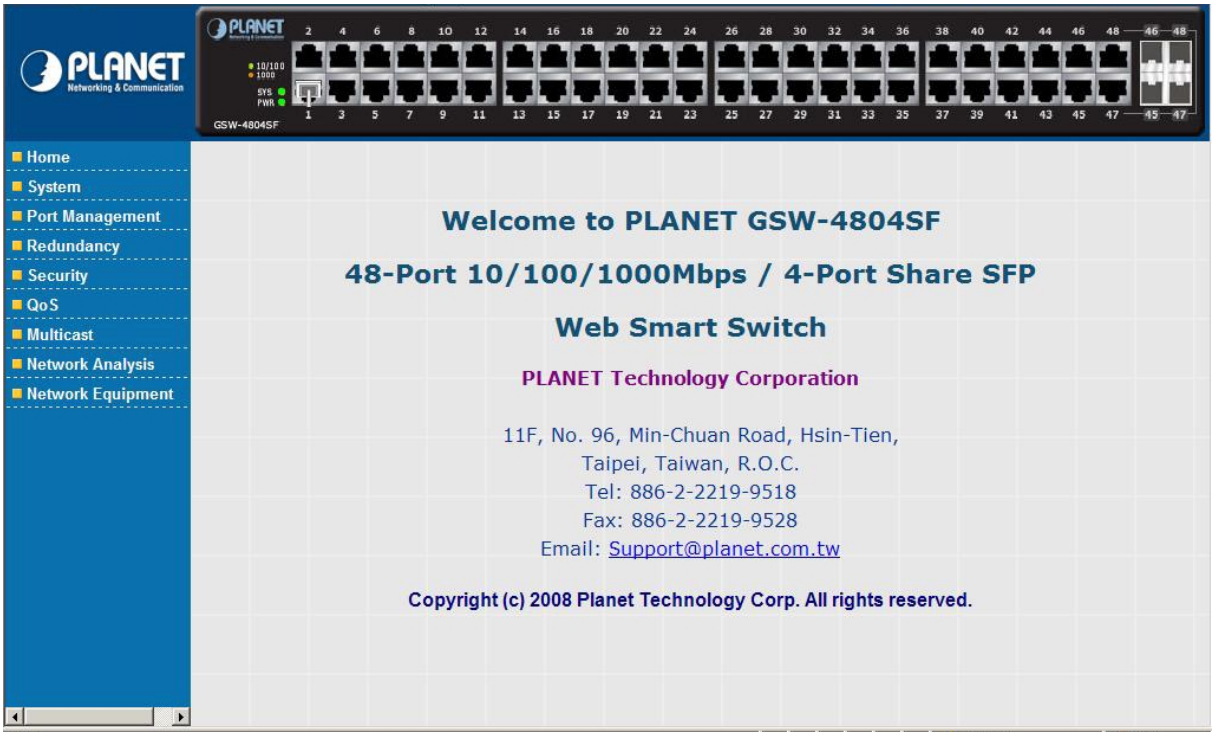


Figure 4-4 Home Web Screen

4.2 System

This section provides IP Address, System Information, Password, Console, Management VLAN, System Upgrade, Parameters Saving, Backup & Recovery, Load Default, Reboot and the screen appears as **Figure 4-5** and **Table 4-1** describes the System object of the Switch.

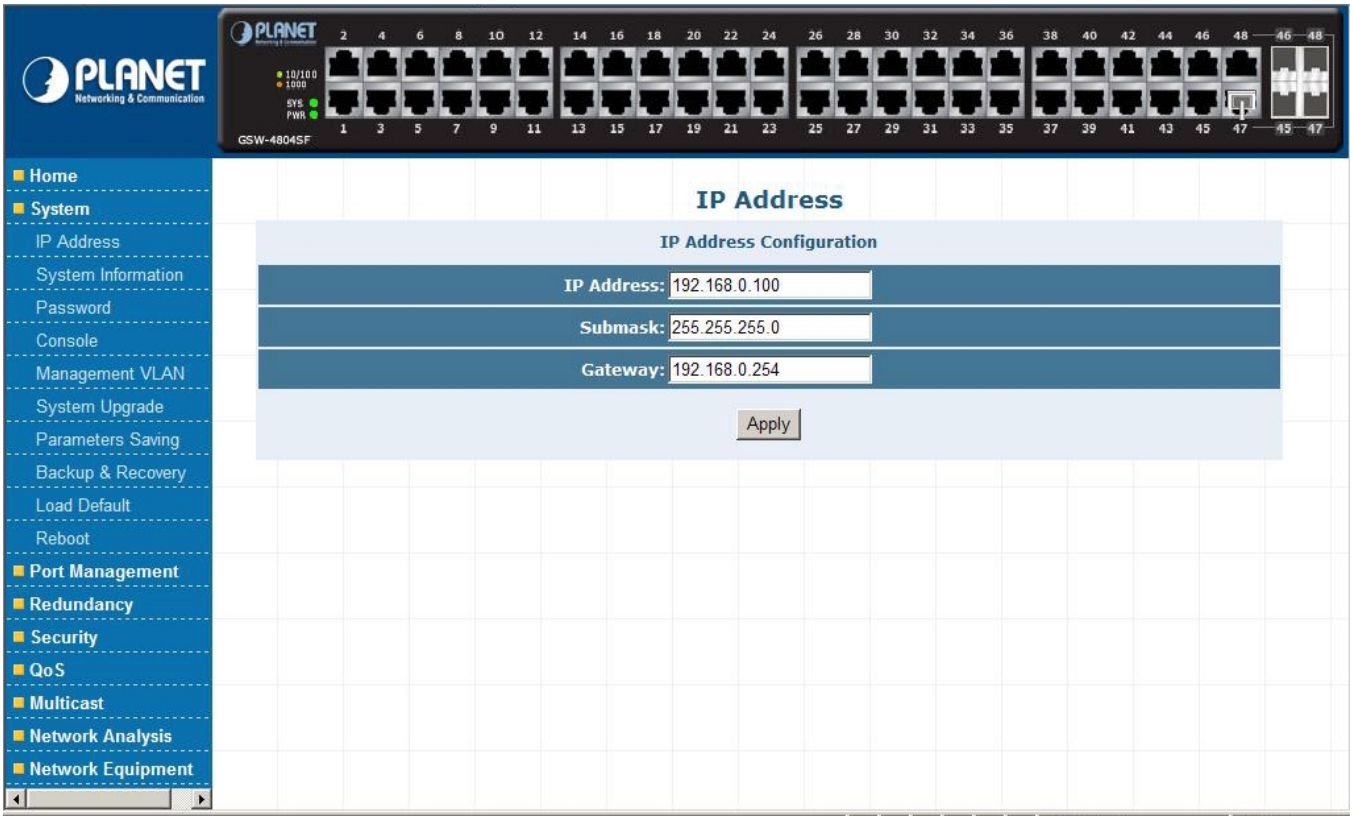


Figure 4-5 System Web Screen

Object	Description
IP Address	Allow to change the IP subnet address of the Switch. **Explained in section 4.2.1.**
System Information	Display the Model Name, Current IP Address, Current Submask, MAC address, and Firmware Version. **Explained in section 4.2.2.**
Password	Allow to change the password of the Switch. **Explained in section 4.2.3.**
Console	Display the baudrate value of the Switch. **Explained in section 4.2.4.**
Management VLAN	Allow to configure the Management VLAN function of the Switch. **Explained in section 4.2.5.**
System Upgrade	Allow proceed firmware upgrade process of the Switch. **Explained in section 4.2.6.**
Parameters Saving	Allow save current configuration of the Switch. **Explained in section 4.2.7.**
Backup & Recovery	Allow backup and recovery the configuration file of the Switch. **Explained in section 4.2.8.**
Load Default	Allow reset the Switch to factory default mode. **Explained in section 4.2.9.**
Reboot	Allow reboot the Switch. **Explained in section 4.2.10.**

Table 4-1 Descriptions of the System Web Screen Objects

4.2.1 IP Address

This section allows modify the IP Address, Subnetmask and Gateway. After setup complete, press **"Apply"** button to take affect. The screen in **Figure 4-6** appears.

Figure 4-6 IP Address Web Screen

4.2.2 System Information

This section displays the System Information and the screen in **Figure 4-7** appears.

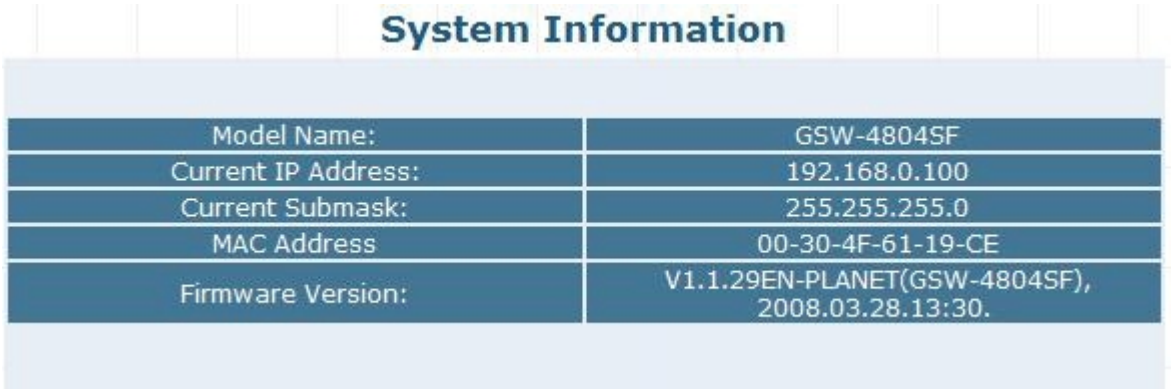


Figure 4-7 System Information Web Screen

4.2.3 Password

This section allow assign new password, after setup complete. Press **"Apply"** button to take affect and the screen in **Figure 4-8** appears.

Figure 4-8 Password Web Screen

Notice: 1. Up to 16 characters is allowed for the Password.

2. For security reason, please change and memorize the new password.

4.2.4 Console

This section displays the console baudrate setting information and the screen in **Figure 4-9** appears.

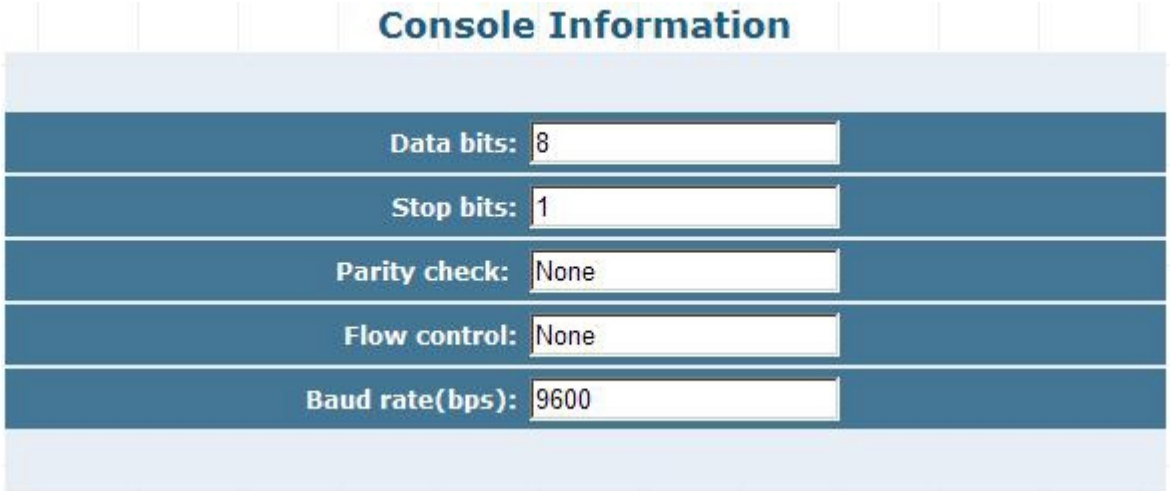


Figure 4-9 Console Web Screen

4.2.5 Management VLAN

This section provides the Management VLAN configuration, after setup complete. Press **"Apply"** button to take affect and the screen in **Figure 4-10** appears.

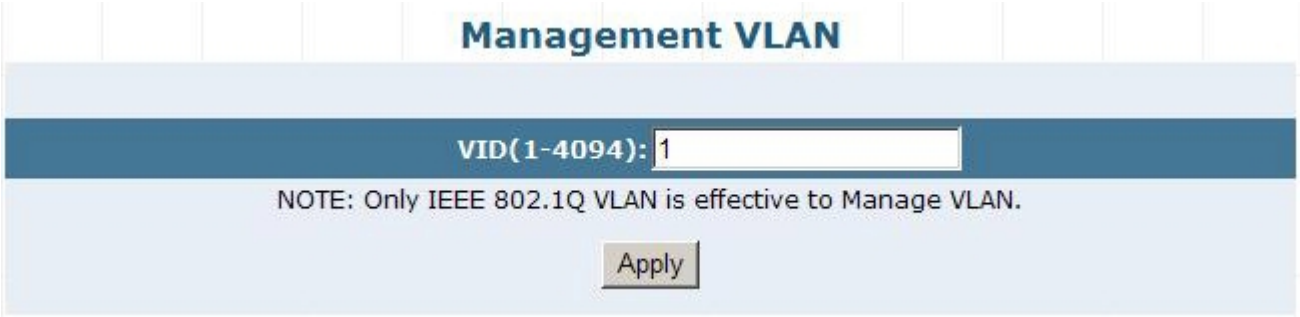


Figure 4-10 Management VLAN Web Screen

Notice: The available VLAN ID (VID) range is 1 to 4094.

4.2.6 System Upgrade

This section allows precede the firmware upgrade process and the screen in **Figure 4-11** appears.

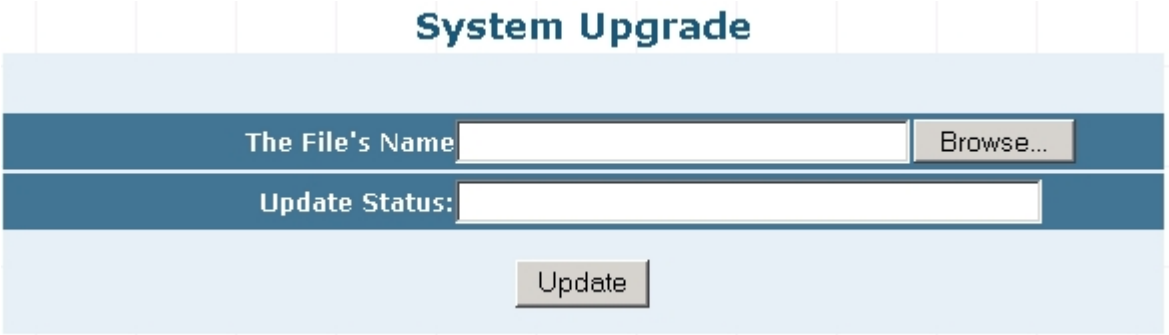


Figure 4-11 System Upgrade Web Screen

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

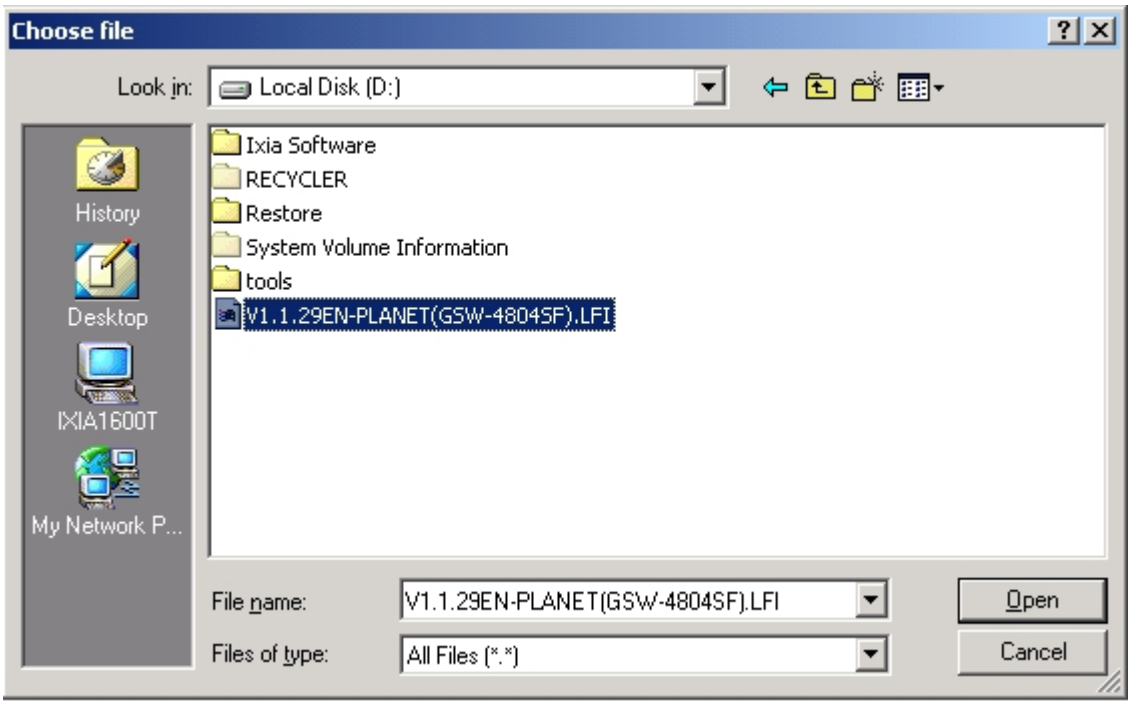


Figure 4-12 System Upgrade Web Screen

After find the firmware location from administrator PC, press **"Update"** button to start the firmware upgrade process. The screen in **Figure 4-13** appears.

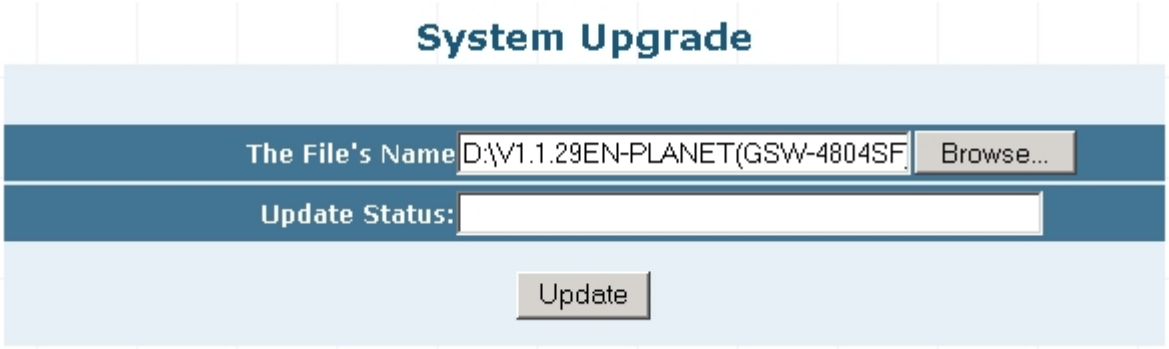


Figure 4-13 System Upgrade Web Screen

When the **"Are you sure you want to upgrade the system ?"** pop winodw appears in **Figure 4-14**. Please press **"OK"** button to start the firmware upgrade process.

Figure 4-14 System Upgrade Web Screen

The following firmware upgrade screen in **Figure 4-15 & 4-16** appears.

Figure 4-15 System Upgrade Web Screen

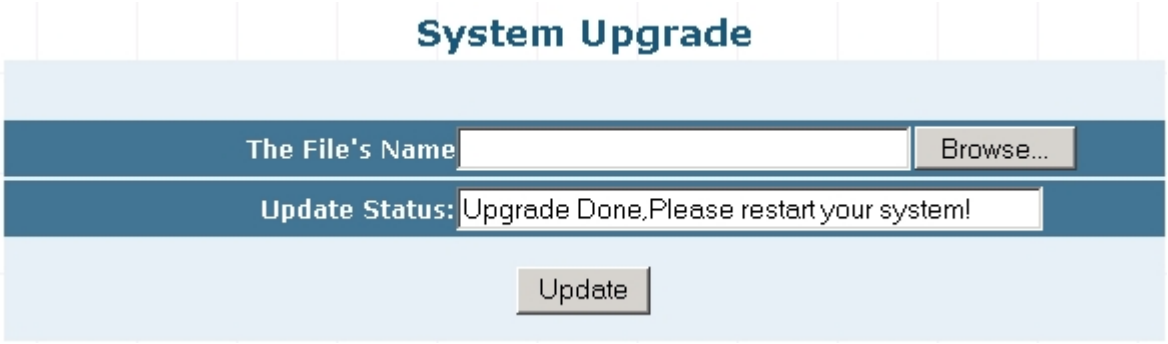


Figure 4-16 System Upgrade Web Screen

When the screen above appears, please reboot the Switch for take affect. After power on completed, then you can start use the latest firmware of GSW-4804SF.

Notice: Please not power off the Switch during the firmware upgrade process.

4.2.7 Parameters Saving

This section allows save current configuration and press **"Save"** button to take affect and the screen in **Figure 4-17** appears.

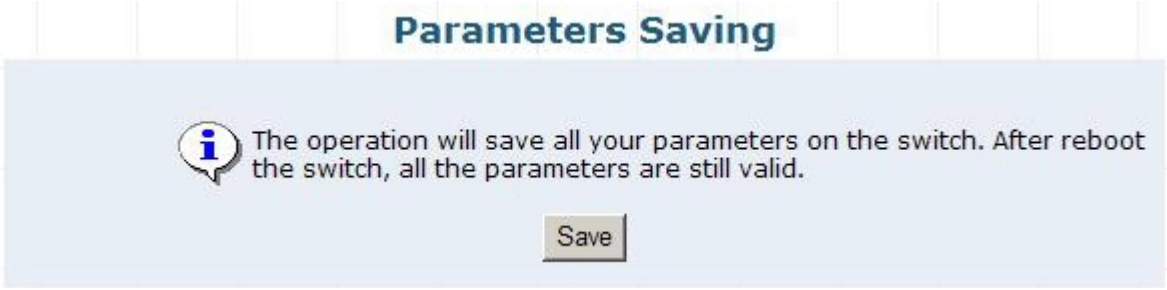


Figure 4-17 Parameters Saving Web Screen

At the same time, the Parameters Saving message appears under console inetrface and the screen in **Figure 4-18** appears.

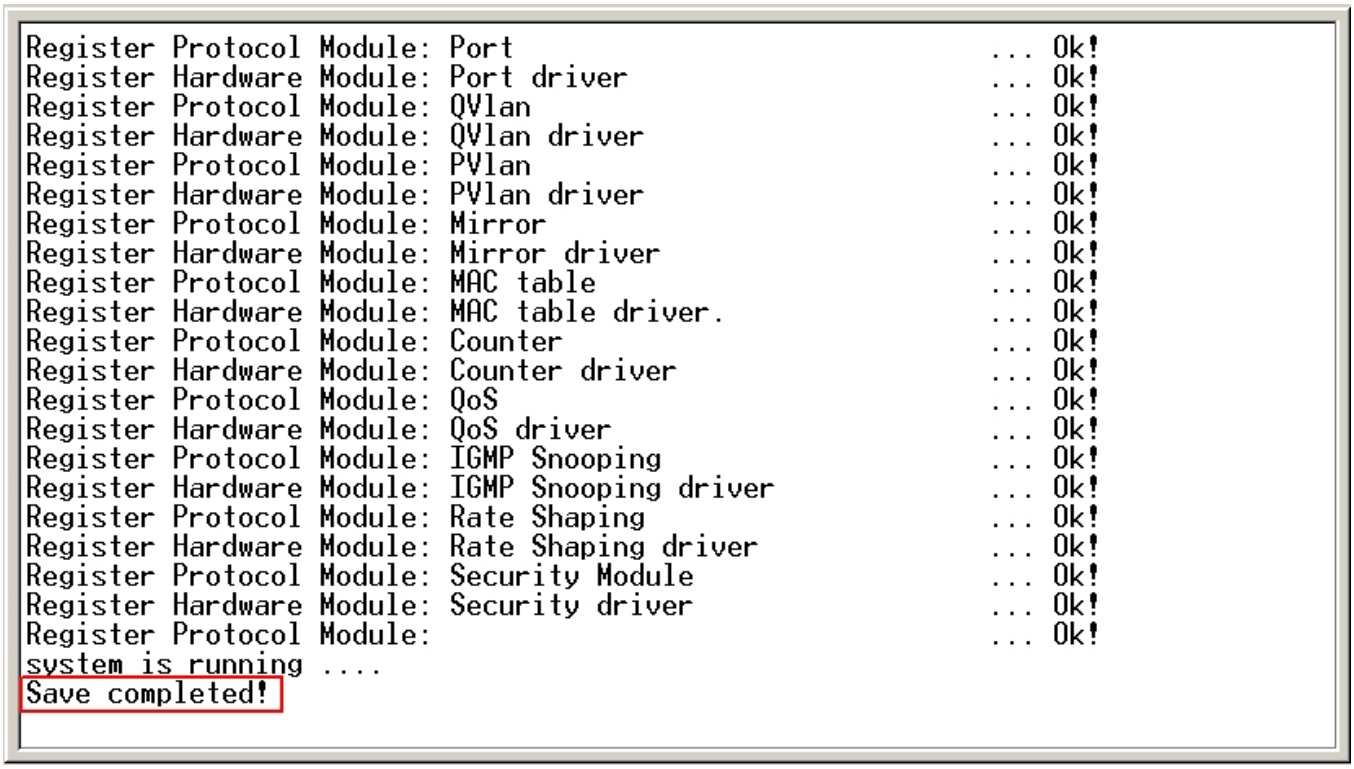


Figure 4-18 Parameters Saving Console Screen

Notice: Please save current configuration of the Switch to avoid Switch setting loss issue after Switch reboot.

4.2.8 Backup / Recovery

This section allows backup / recover configuration and the screen in **Figure 4-19** appears. This is a useful method for configure multi-Switch devices with the same configuration in a short time.

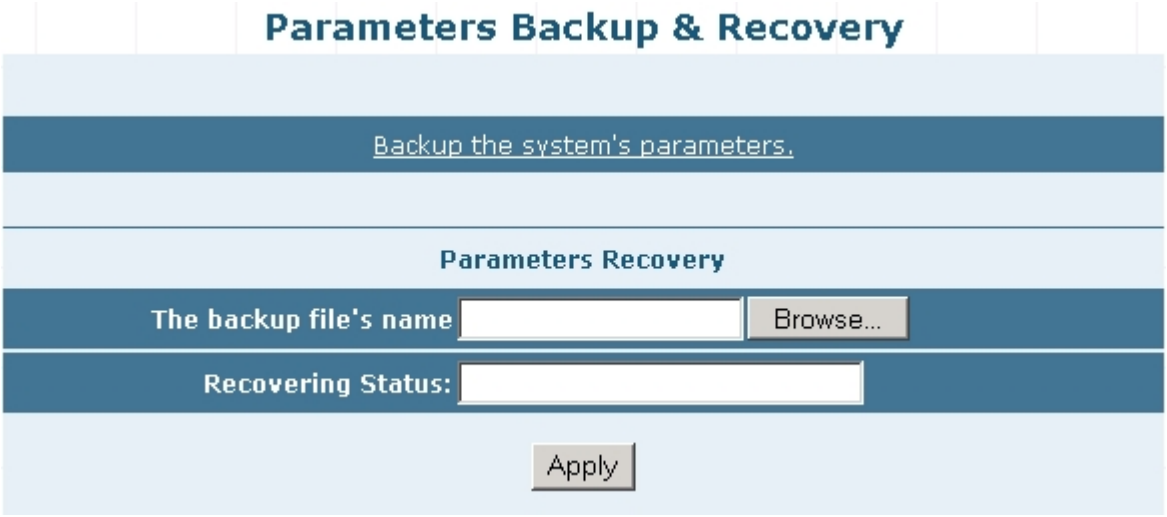


Figure 4-19 Backup / Recovery Web Screen

Backup

Press the **Backup the system's parameters** and save the backup configuration file into the location of administrator PC. The screen in **Figure 4-20 & 4-21 & 4-22** appears.

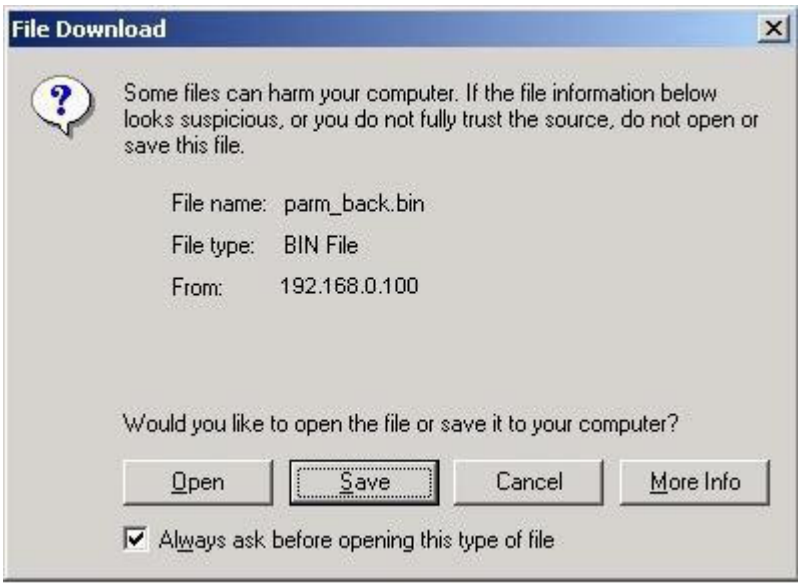


Figure 4-20 Backup Web Screen

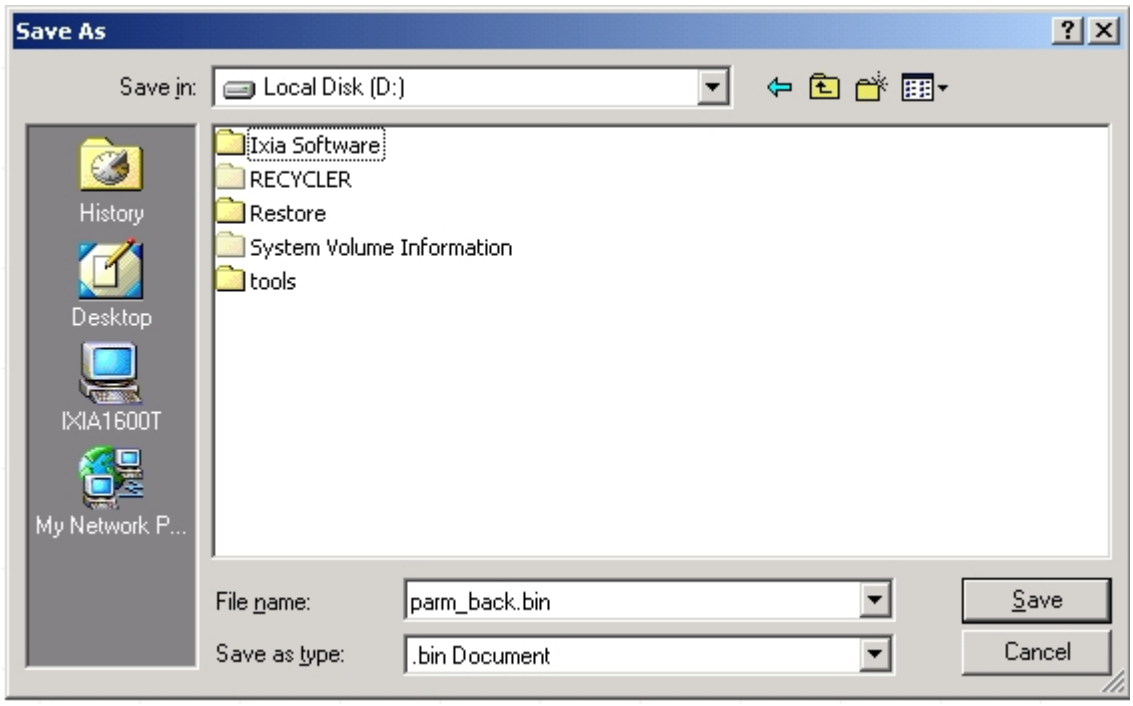


Figure 4-21 Backup Web Screen

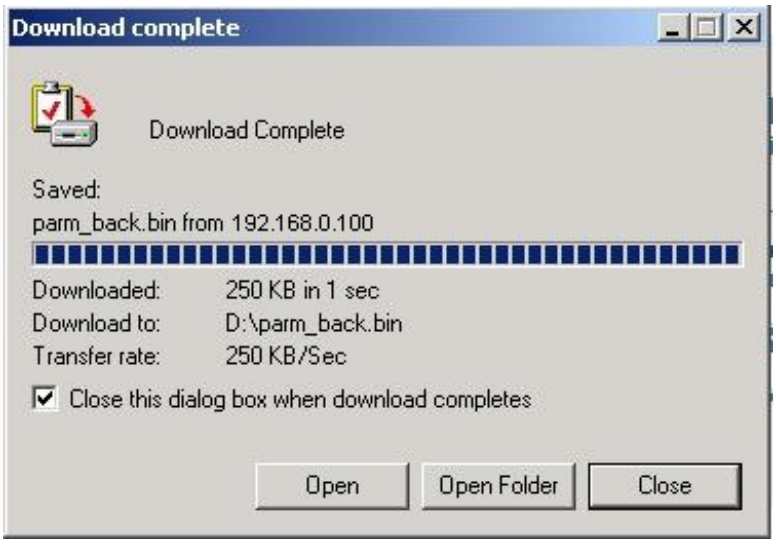


Figure 4-22 Backup Web Screen

Recovery

Press **"Browser"** button to find the backup configuration file location of administrator PC, the screen in **Figure 4-23** appears.

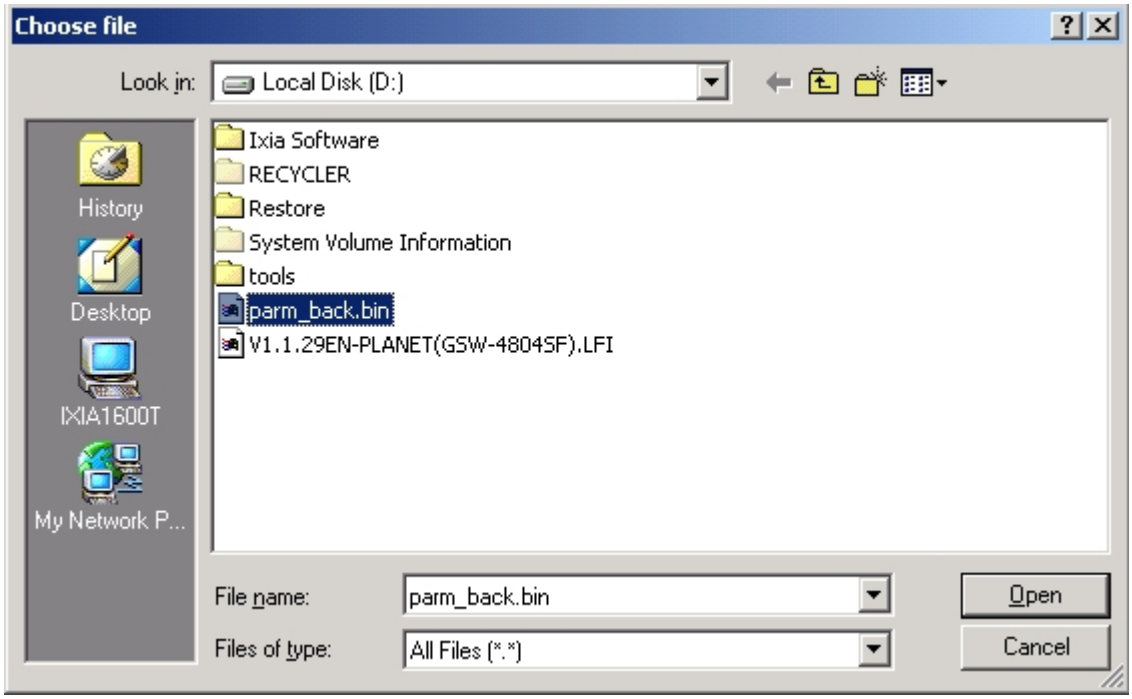


Figure 4-23 Recovery Web Screen

After find the backup configuration file location from administrator PC. The screen in **Figure 4-24** appears.

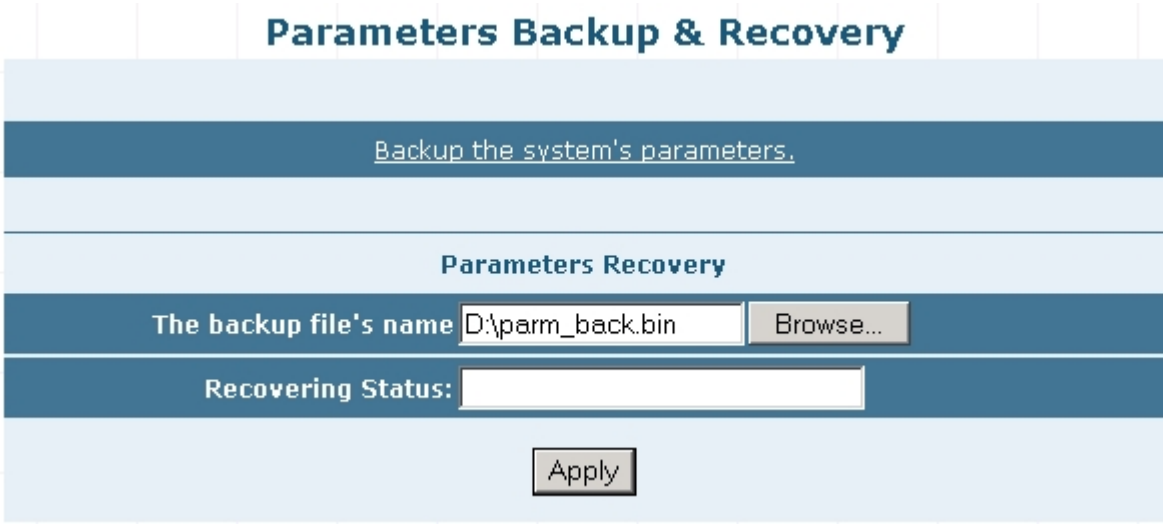


Figure 4-24 Recovery Web Screen

Press **"Apply"** button then the pop window with **"Are you sure want to Recover?"** appears. Press **"OK"** to start the configuraiton recover process. The screen in **Figure 4-25 & 4-26** appears.

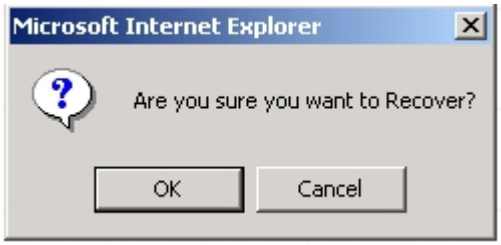


Figure 4-25 Recovery Web Screen

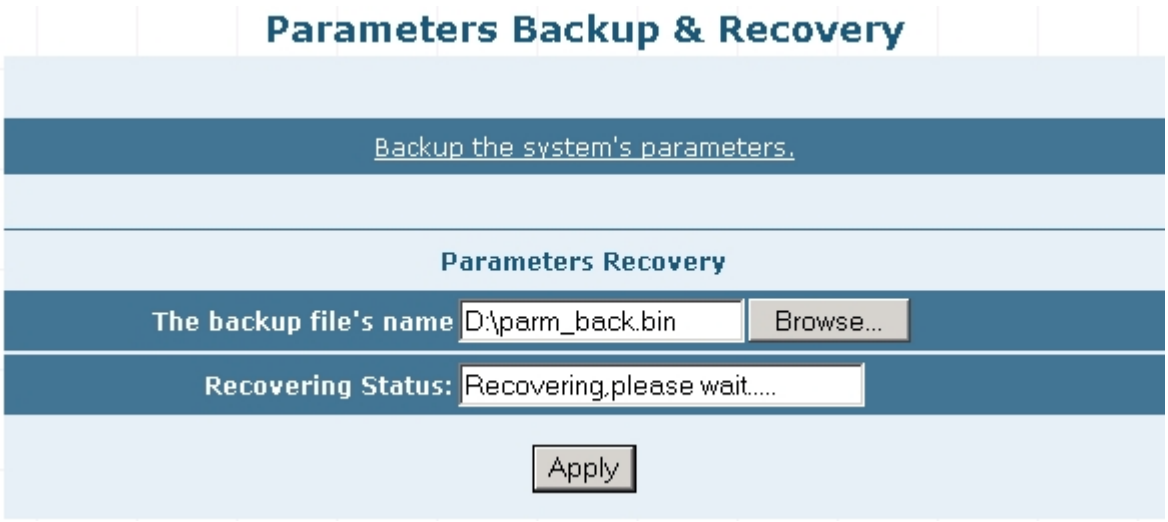


Figure 4-26 Recovery Web Screen

When the **"Upgrade Done,Please restart your system!"** text appears in Recovering Status. Please power off and power on the Switch for take affect, the screen in **Figure 4-27** appears.

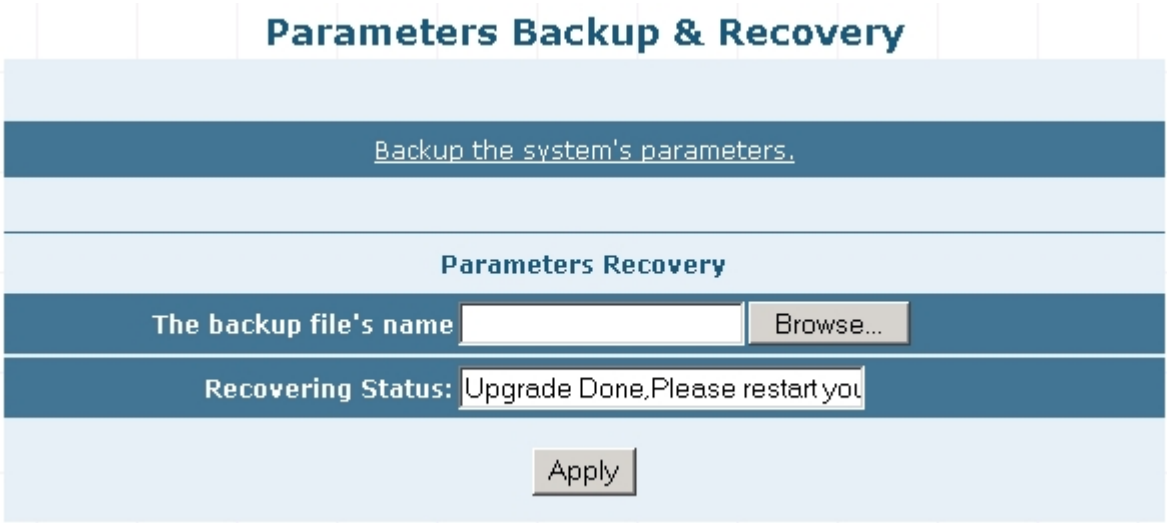


Figure 4-27 Recovery Web Screen

4.2.9 Load Default

This section allows reset the Switch to factory default mode, press **"Apply"** button and reboot the Switch to take affect and the screen in **Figure 4-28** appears.

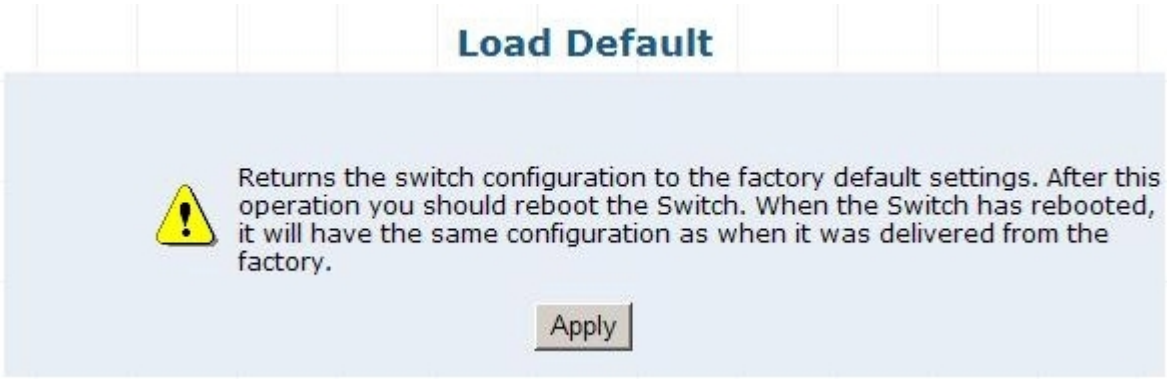


Figure 4-28 Load Default Web Screen

4.2.10 Reboot

This section allows reboot the Switch and press **"Reboot"** button to take affect, the screen in **Figure 4-29** appears.

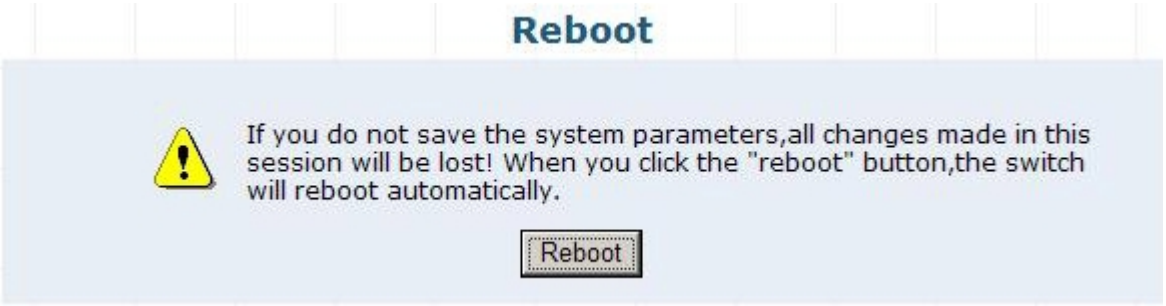


Figure 4-29 Reboot Web Screen

4.3 Port Management

This section provides Port Configuration, Port Statistics, Band Restricting, Cascade Connecting, Link Test, Buffer Schedule, and the screen appears as **Figure 4-30** and **Table 4-2** describes the Port Management object of the Switch.

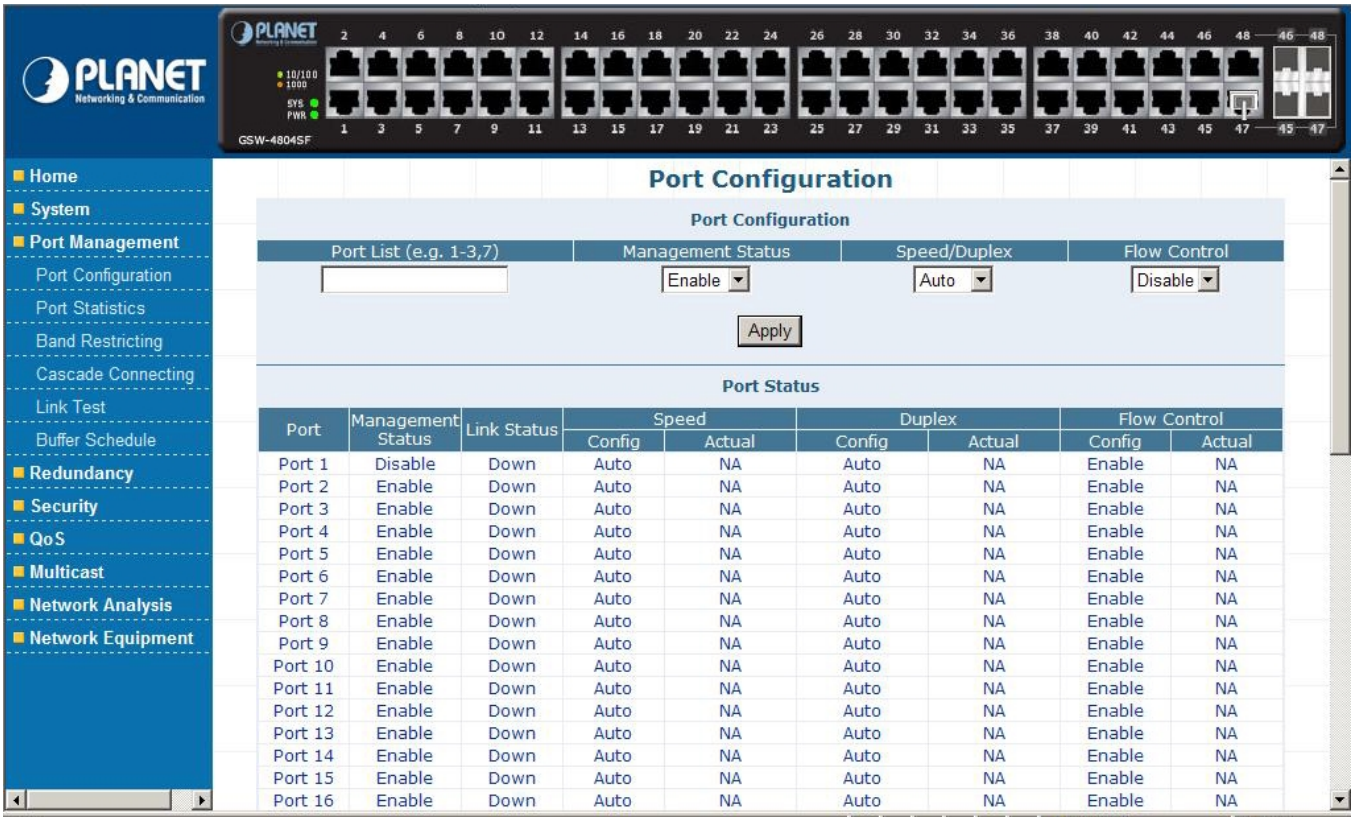


Figure 4-30 Port Management Web Screen

Object	Description
Port Configuration	Allow to change per port configuration of the Switch. **Explained in section 4.3.1.**
Port Statistics	Display per port statistics of the Switch. **Explained in section 4.3.2.**
Band Restricting	Allow to define per port bandwidth of the Switch. **Explained in section 4.3.3.**
Cascade Connecting	Allow to define cascade port of the Switch. **Explained in section 4.3.4.**
Link Test	Provide per port link test of the Switch. **Explained in section 4.3.5.**
Buffer Schedule	Provide Buffer Dispatch Schedule option of the Switch. **Explained in section 4.3.6.**

Table 4-2 Descriptions of the Port Management Web Screen Objects

4.3.1 Port Configuration

This section provide per port configuration, such as Management Status Disable or Enable, Speed duplex mode selection, Flow Control Disable or Enable. After setup completed, press **"Apply"** button to take affect. Also provide per port status and the screen in **Figure 4-31** appears. **Table 4-3** describes the Port Configuration object of the Switch.

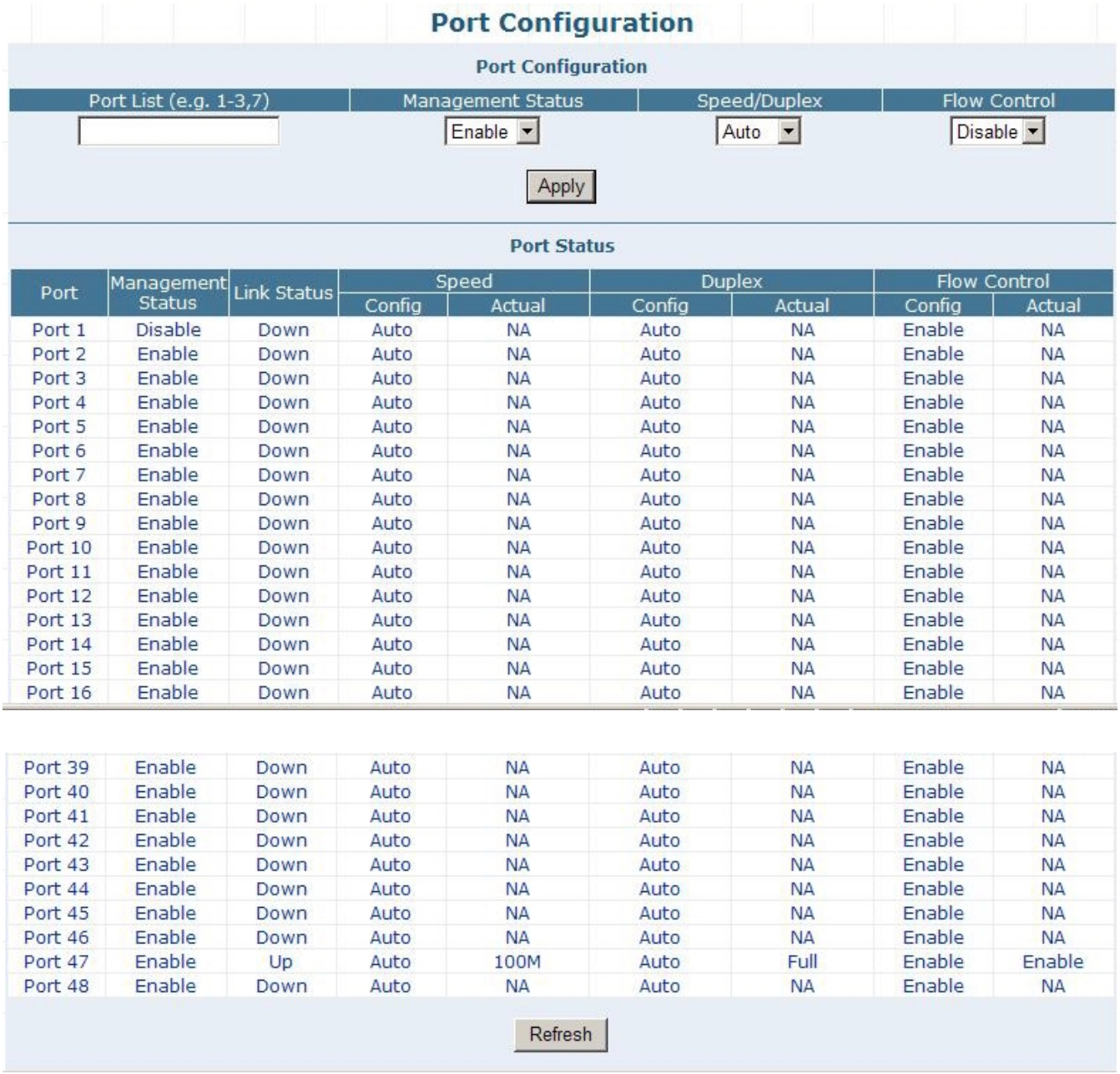


Figure 4-31 Port Configuration Web Screen

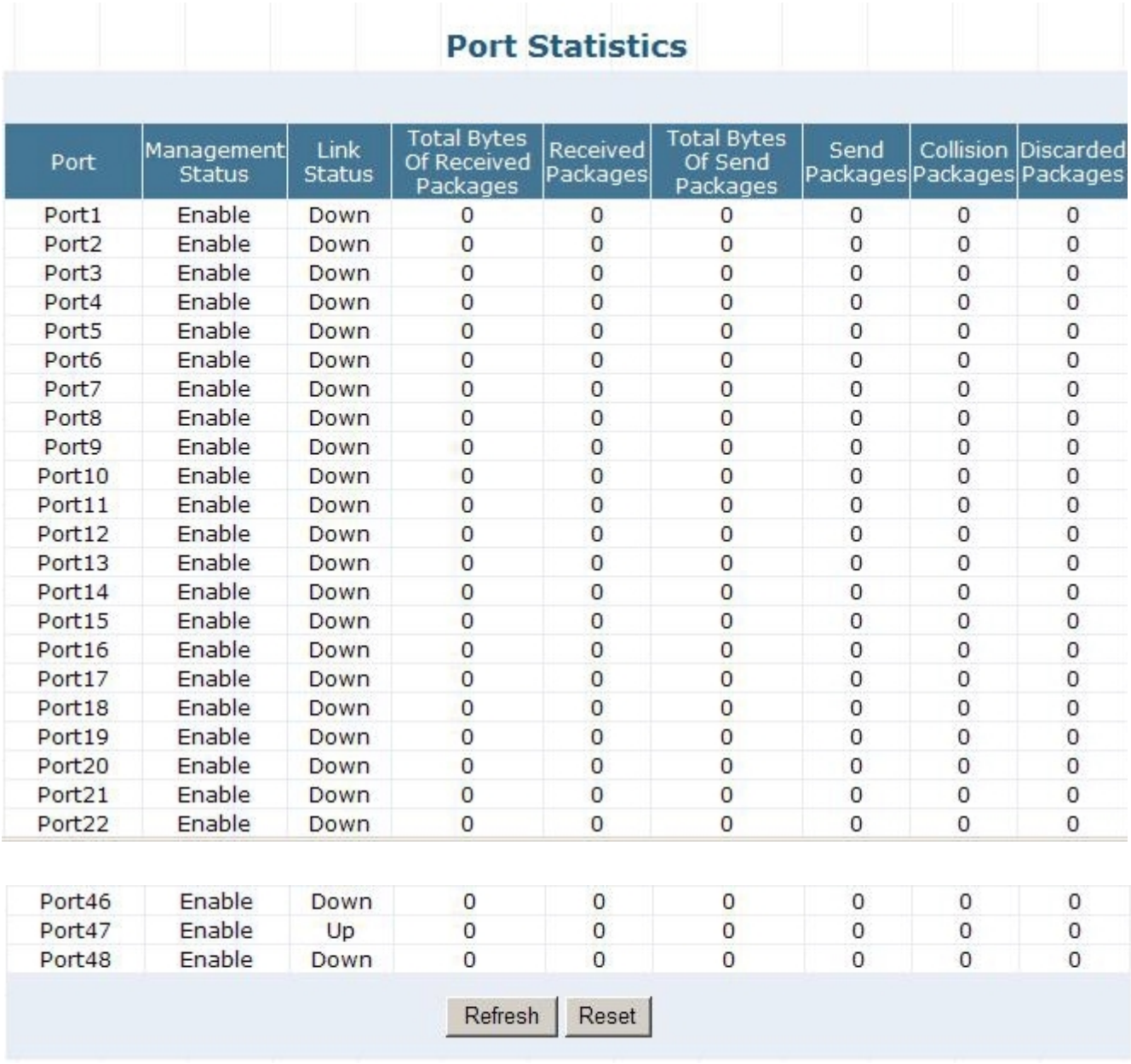
Object		Description
Port Configuration		
Port List		Allow choose one or multi-ports for configuration.
Management Status		Allow choose Disable or Enable for one or multi-ports, **the default mode is Enable**.
Speed/ Duplex		Allow defining various speed duplex modes for each port, the available options are Auto, 10H, 10F, 100H, 100F, 1000F. **The default mode is Auto**.
Flow Control		Allow choose Disable or Enable the Flow Control for one or multi-ports, **the default mode is Enable**.
Apply button		Press this button to take affect.
Port Status		
Port		Indicate the port 1 to port 48 of the Switch.
Management Status		Display per port Management Status of the Switch.
Link Status		Display per port Link Status of the Switch.
Speed	Config	Indicate the Speed mode that user configured on each port of the Switch.
	Actual	Indicate the current Speed mode on each port of the Switch.
Duplex	Config	Indicate the Duplex mode that user configured on each port of the Switch.
	Actual	Indicate the current Duplex mode on each port of the Switch.
Flow Control	Config	Indicate the Flow Control mode that user configured on each port of the Switch.
	Actual	Indicate the current Flow Control mode on each port of the Switch.
Refresh button		Press this button to refresh the Port Status screen.

Table 4-3 Descriptions of the Port Configuration Web Screen Objects

Notice: Due to the hardware restriction. The flow control function cannot across between port 1-24 and port 25-48.

4.3.2 Port Statistics

This section display per port detail Statistics and the screen in **Figure 4-32** appears. **Table 4-4** describes the Port Statistics object of the Switch.



Port Statistics

Port	Management Status	Link Status	Total Bytes Of Received Packages	Received Packages	Total Bytes Of Send Packages	Send Packages	Collision Packages	Discarded Packages
Port1	Enable	Down	0	0	0	0	0	0
Port2	Enable	Down	0	0	0	0	0	0
Port3	Enable	Down	0	0	0	0	0	0
Port4	Enable	Down	0	0	0	0	0	0
Port5	Enable	Down	0	0	0	0	0	0
Port6	Enable	Down	0	0	0	0	0	0
Port7	Enable	Down	0	0	0	0	0	0
Port8	Enable	Down	0	0	0	0	0	0
Port9	Enable	Down	0	0	0	0	0	0
Port10	Enable	Down	0	0	0	0	0	0
Port11	Enable	Down	0	0	0	0	0	0
Port12	Enable	Down	0	0	0	0	0	0
Port13	Enable	Down	0	0	0	0	0	0
Port14	Enable	Down	0	0	0	0	0	0
Port15	Enable	Down	0	0	0	0	0	0
Port16	Enable	Down	0	0	0	0	0	0
Port17	Enable	Down	0	0	0	0	0	0
Port18	Enable	Down	0	0	0	0	0	0
Port19	Enable	Down	0	0	0	0	0	0
Port20	Enable	Down	0	0	0	0	0	0
Port21	Enable	Down	0	0	0	0	0	0
Port22	Enable	Down	0	0	0	0	0	0
Port46	Enable	Down	0	0	0	0	0	0
Port47	Enable	Up	0	0	0	0	0	0
Port48	Enable	Down	0	0	0	0	0	0

Refresh Reset

Figure 4-32 Port Statistics Web Screen

Object	Description
Port	Indicate the port 1 to port 48 of the Switch.
Management Status	Display per port Management Status of the Switch.
Link Status	Display per port Link Status of the Switch.
Total Bytes Of Received Packages	Display per port received packages value (Unit: Bytes) of the Switch.
Received Packages	Display per port received packages value of the Switch.
Total Bytes Of Send Packages	Display per port send packages value (Unit: Bytes) of the Switch.
Send Packages	Display per port send packages value of the Switch.
Collision Packages	Display per port Collision packages value of the Switch.
Discarded Packages	Display per port Discarded packages value of the Switch.
Refresh button	Press this button to refresh the Port Statistics screen.
Reset button	Press this button to clear all counter value the Port Statistics screen.

Table 4-4 Descriptions of the Port Statistics Web Screen Objects

Also double click one specific port of front panel from Web interface then the one specific Port Status appears in **Figure 4-33**.

Table 4-5 describes the Port Status object of the Switch.

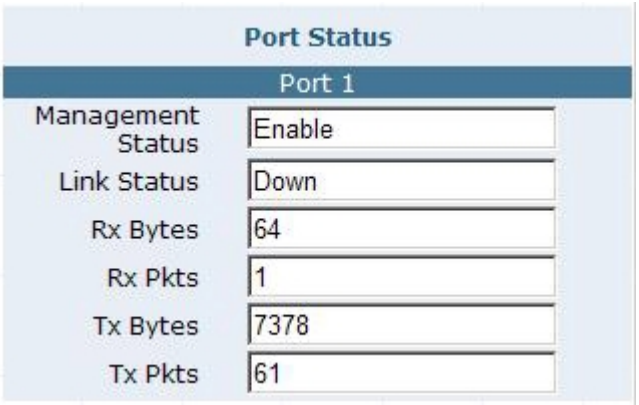


Figure 4-33 Port Status Web Screen

Object	Description
Port x	Indicate the port 1 to port 48 of the Switch.
Management Status	Display per port Management Status of the Switch.
Link Status	Display per port Link Status of the Switch.
Rx Bytes	Display per port received packages value (Unit: Bytes) of the Switch.
Rx Pkts	Display per port received packages value of the Switch.
Tx Bytes	Display per port send packages value (Unit: Bytes) of the Switch.
Tx Pkets	Display per port send packages value of the Switch.

Table 4-5 Descriptions of the Port Status Web Screen Objects

4.3.3 Band Restricting

This section provide per port Band Restricting configuration and the screen in **Figure 4-34** appears. **Table 4-6** describes the Band Restricting configuration object of the Switch.

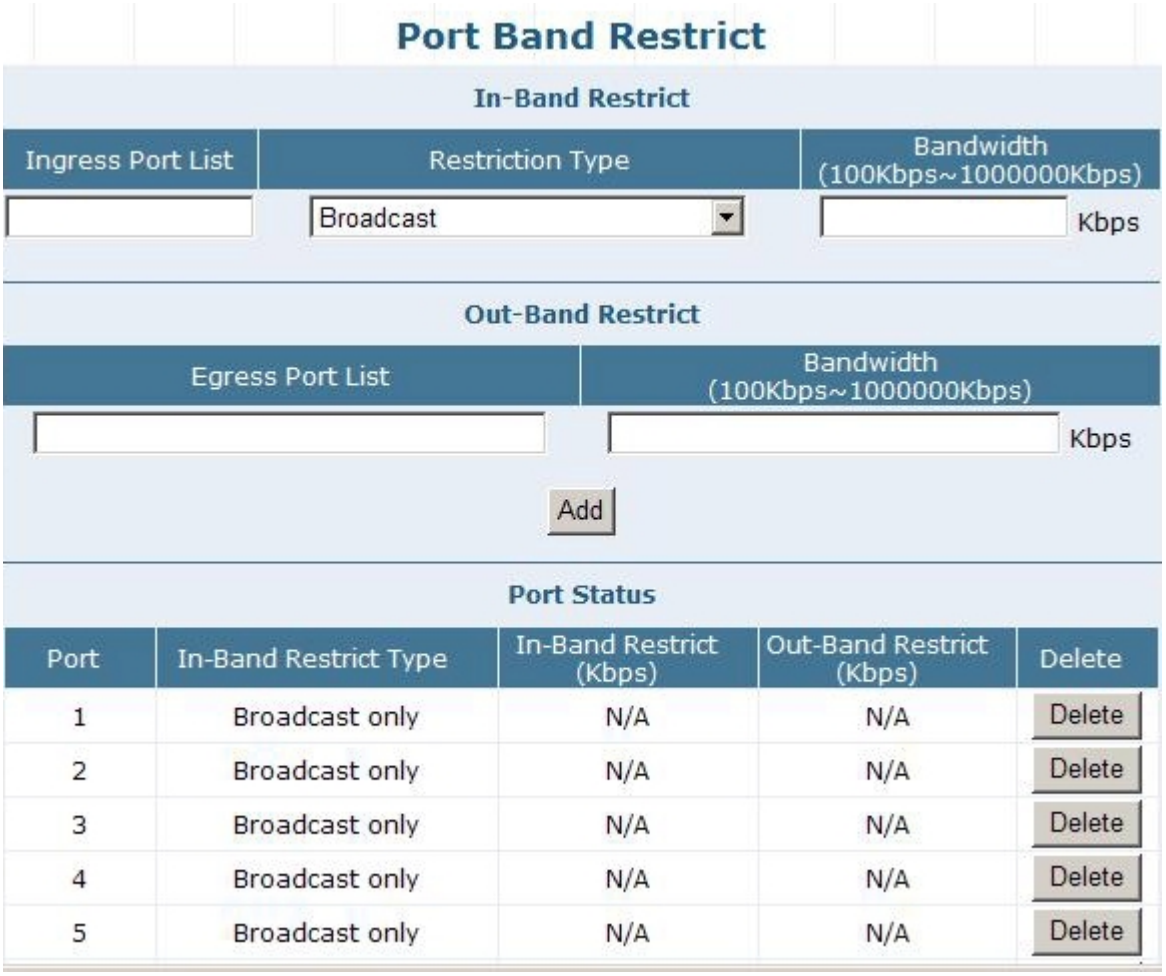


Figure 4-34 Band Restricting Web Screen

Object	Description
In-Band Restrict	
Ingress Port List	Allow choose one or multi-ports for configuration.
Restriction Type	Provide 4 different Restriction mode and the available options are Broadcast, Broadcast And Multicast, Broadcast, Multicast And Flooded and AllFrames. **Default mode is Broadcast**.
Bandwidth(100Kbps~1000000Kbps)	Allow to define the Ingress bandwidth value (Unit: Kbps) for each port of the Switch. **Default mode is no setting (NA)**.
Out-Band Restrict	
Egress Port List	Allow choose one or multi-ports for configuration.
Bandwidth(100Kbps~1000000Kbps)	Allow to define the Egress bandwidth value (Unit: Kbps) for each port of the Switch. **Default mode is no setting (NA)**.
Add button	Press this button to take affect.
Port Status	
Port	Indicate the port 1 to port 48 of the Switch.
In-Band Restrict Type	Display per port In-Band Restrict Type of the Switch.
In-Band Restrict(Kbps)	Display per port In-Band Restrict value (Unit: Kbps) of the Switch.
Out-Band Restrict(Kbps)	Display per port Out-Band Restrict value (Unit: Kbps) of the Switch.
Delete button	Allow to remove both In-Band Restrict value and Out-Band Restrict value from per port of the Switch.

Table 4-6 Descriptions of the Band Restricting Web Screen Objects

4.3.4 Cascade Connecting

This section allows assign per port as Cascade Stage Port configuration and the screen in **Figure 4-35** appears. **Table 4-7** describes the Cascade Connecting configuration object of the Switch.

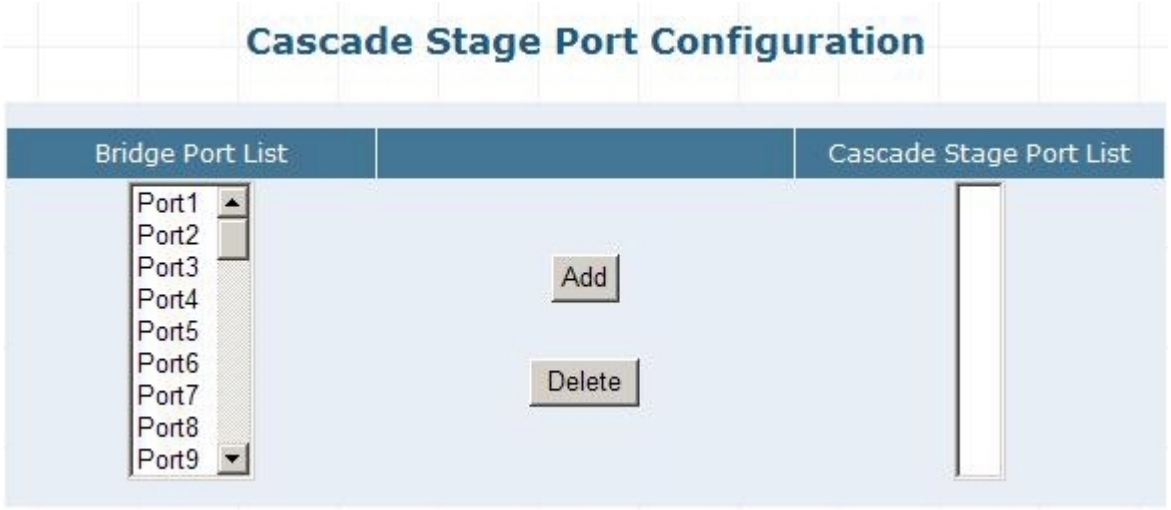


Figure 4-35 Cascade Connecting Web Screen

Object	Description
Bridge Port List	Allow choose one or multi-ports.
Add button	Press this button to add choose port into the Cascade Stage Port List.
Delete button	Allow remove specific port from the Cascade Stage Port List of the Switch.
Cascade Stage Port List	Display the Cascade Stage Port List includes that user choose port of the Switch.

Table 4-7 Descriptions of the Cascade Connecting Web Screen Objects

4.3.5 Link Test

This section provides per port Link Status and the screen in **Figure 4-36** appears. **Table 4-8** describes the Link Status object of the Switch.

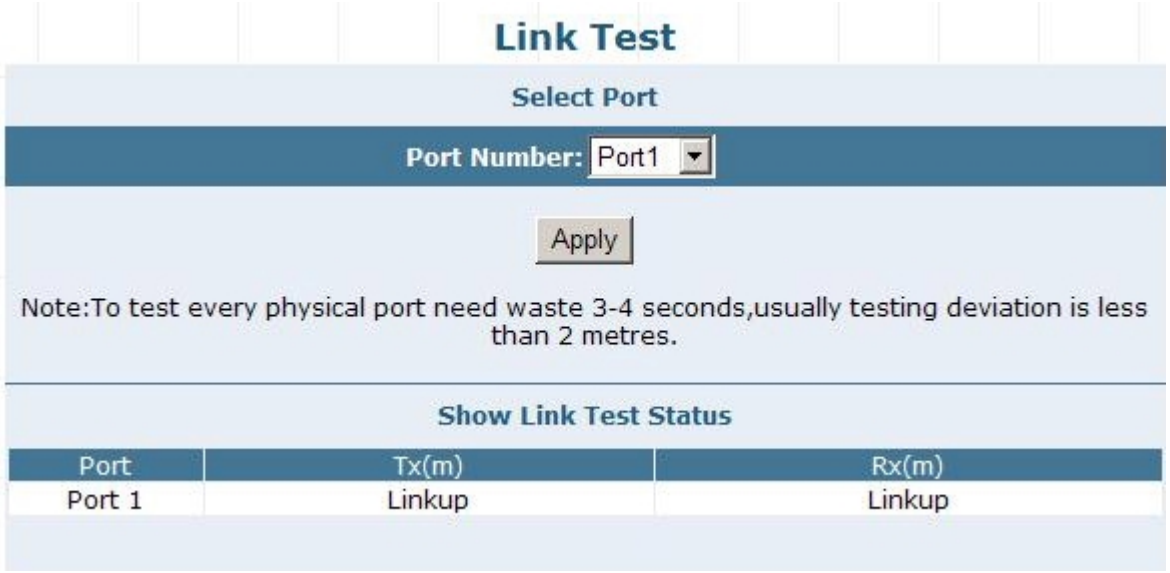


Figure 4-36 Link Test Web Screen

Object	Description
Select Port	
Port Number	Allow choose one port for Link Test.
Apply button	Press this button to take affect.
Show Link Test Status	
Port	Indicate the port 1 to port 48 of the Switch.
Tx(m)	Display one specific port Tx Link Status.
Rx(m)	Display one specific port Rx Link Status.

Table 4-8 Descriptions of the Link Test Web Screen Objects

4.3.6 Buffer Schedule

This section provides Buffer Schedule for the system and the screen in **Figure 4-37** appears. **Table 4-9** describes the Buffer Schedule object of the Switch.

Figure 4-37 Buffer Schedule Web Screen

Object	Description
Buffer Dispatch Schedule	
Default	Set the system run at default buffer allocation mode, this mode will not drop the packets when the Switch buffer zone is full.
Recommendatory1	Set the system run at Recommendatory1 allocation mode, this mode will drop the packets when the Switch buffer zone is full.
Apply button	Press this button to take affect.

Table 4-9 Descriptions of the Buffer Schedule Web Screen Objects

Notice: When the configuration changed, please save current configuration and reboot the Switch for take affect.

4.4 Redundancy

This section provides Link Aggregation Configuration and the screen appears as **Figure 4-38**and **Table 4-10** describes the Link Aggregation object of the Switch.

The Link Aggregation lets you group up to **eight** consecutive ports into a single dedicated connection. This feature can expand bandwidth to a device on the network. Link Aggregation operation requires full-duplex mode

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 **8** 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, 1000Mbps 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.
- All of the ports in a Link Aggregation have to be treated as a whole when moved from/to, added or deleted from a VLAN.
- 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 eight ports to be aggregated at the same time and the Switch supports up to 12 groups. If the group is defined as a Link Aggregationing group, then any extra ports selected are placed in a standby mode for redundancy if one of the other ports fails. If the group is defined as a local static Link Aggregationing group, then the number of ports must be the same as the group member ports.

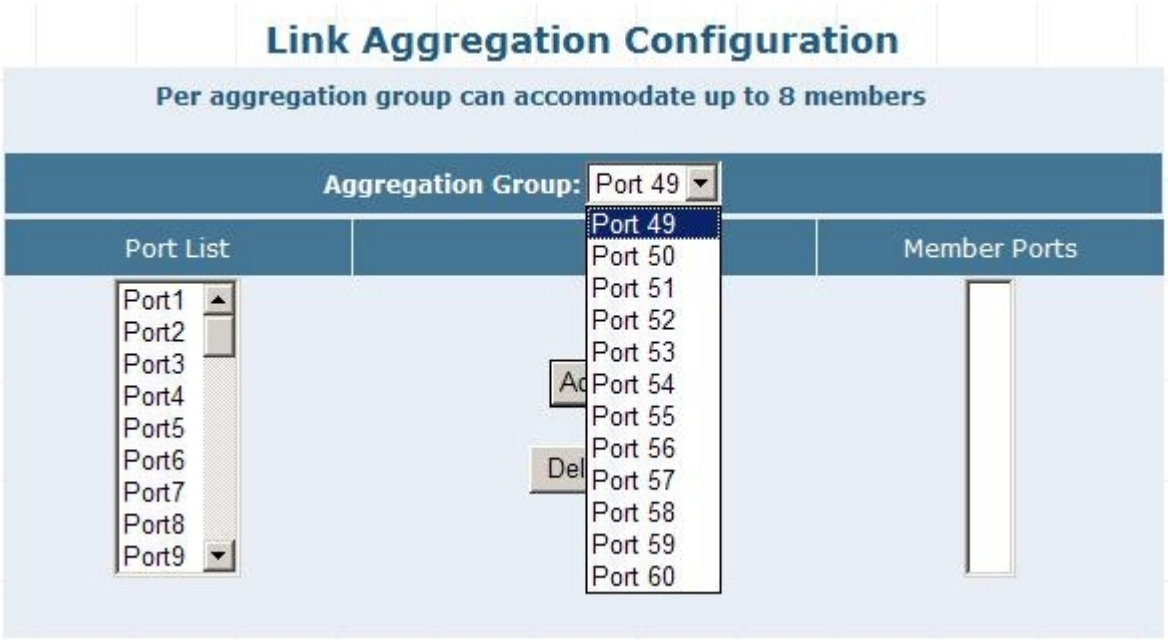


Figure 4-38 Link Aggregation Web Screen

Object	Description
Aggregation Group	Allow choose one Aggregation Group for further configuration of the Switch.
Port List	Indicate port 1 to port 48 of the Switch.
Member Ports	Display the Member Ports from per Aggregation Group of the Switch.
Add button	Press this button to add specific port into specific Aggregation Group of the Switch.
Delete button	Press this button to remove specific port from specific Aggregation Group of the Switch.

Table 4-10 Descriptions of the Link Aggregation Web Screen Objects

Notice: Due to the hardware restriction. The Link Aggregation function cannot across between port 1-24 and port 25-48.

4.5 Security

This section provides Security Configuration, such as ACL, Security Defence, ARP Defence, VLAN, MAC Address Binding, MAC Address Filtering, MAC Address Learning, MAC Address Aging Time and the screen appears as **Figure 4-39** and **Table 4-11** describes the Security object of the Switch.

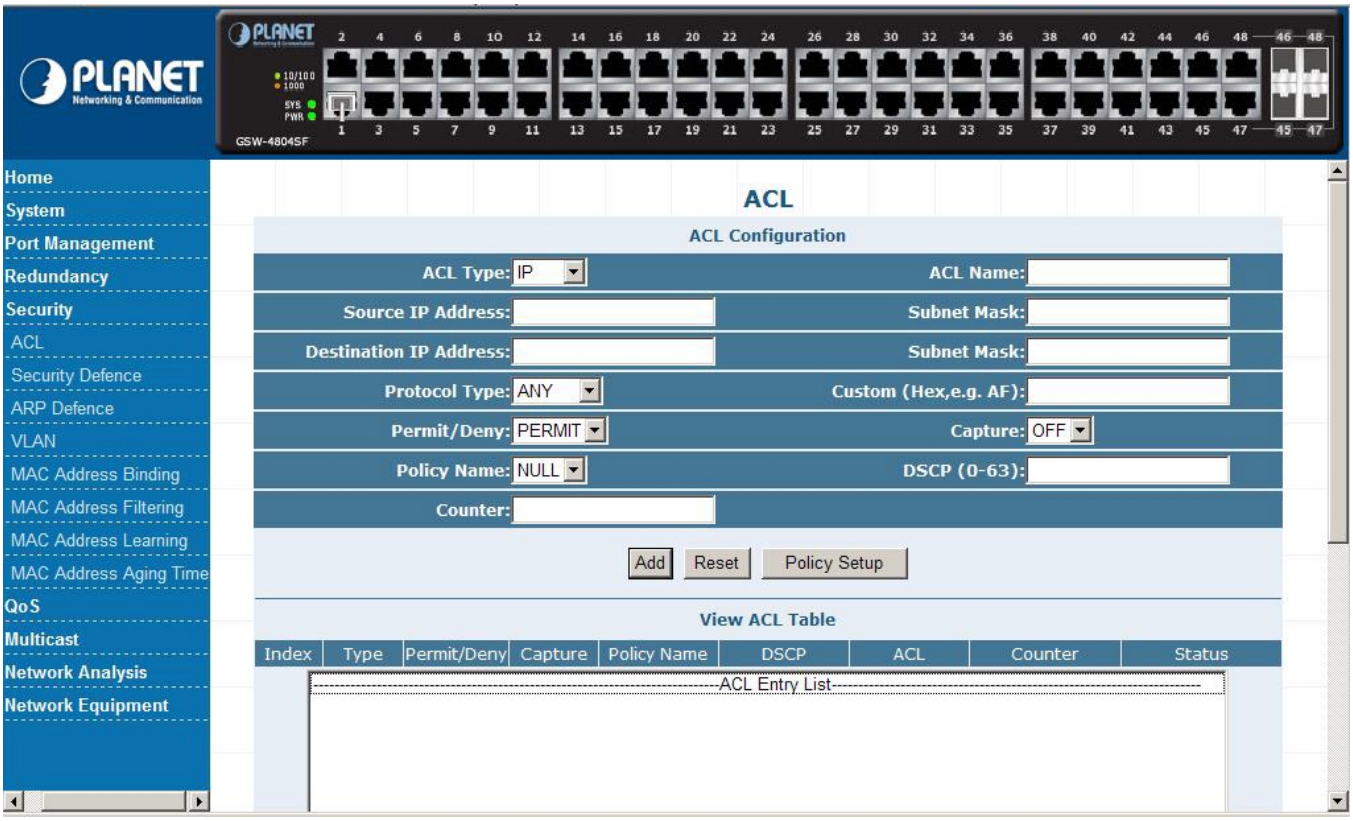


Figure 4-39 Security Web Screen

Object	Description
ACL	Allow define the Access Control List Configuration of the Switch. **Explained in section 4.5.1.**
Security Defence	Allow define the Security Defence Policy of the Switch. **Explained in section 4.5.2.**
ARP Defence	Allow define the ARP Defence Configuration of the Switch. **Explained in section 4.5.3.**
VLAN	Allow proceed the VLAN Configuration of the Switch. **Explained in section 4.5.4.**
MAC Address Binding	Allow proceed the MAC Address Binding Configuration of the Switch. **Explained in section 4.5.5.**
MAC Address Filtering	Allow proceed the MAC Address Filtering Configuration of the Switch. **Explained in section 4.5.6.**
MAC Address Learning	Allow proceed the MAC Address Learning Configuration of the Switch. **Explained in section 4.5.7.**
MAC Address Aging Time	Allow proceed the MAC Address Aging Time setting of the Switch. **Explained in section 4.5.8.**

Table 4-11 Descriptions of the Security Web Screen Objects

4.5.1 ACL

This section provides ACL configuration and View ACL Table. An ACL consists of a set of rules which are matched sequentially against a packet. When a packet meets the match criteria of a rule, the specified rule action (Permit / Deny) is taken and the additional rules are not checked for a match. The screen in **Figure 4-40** appears

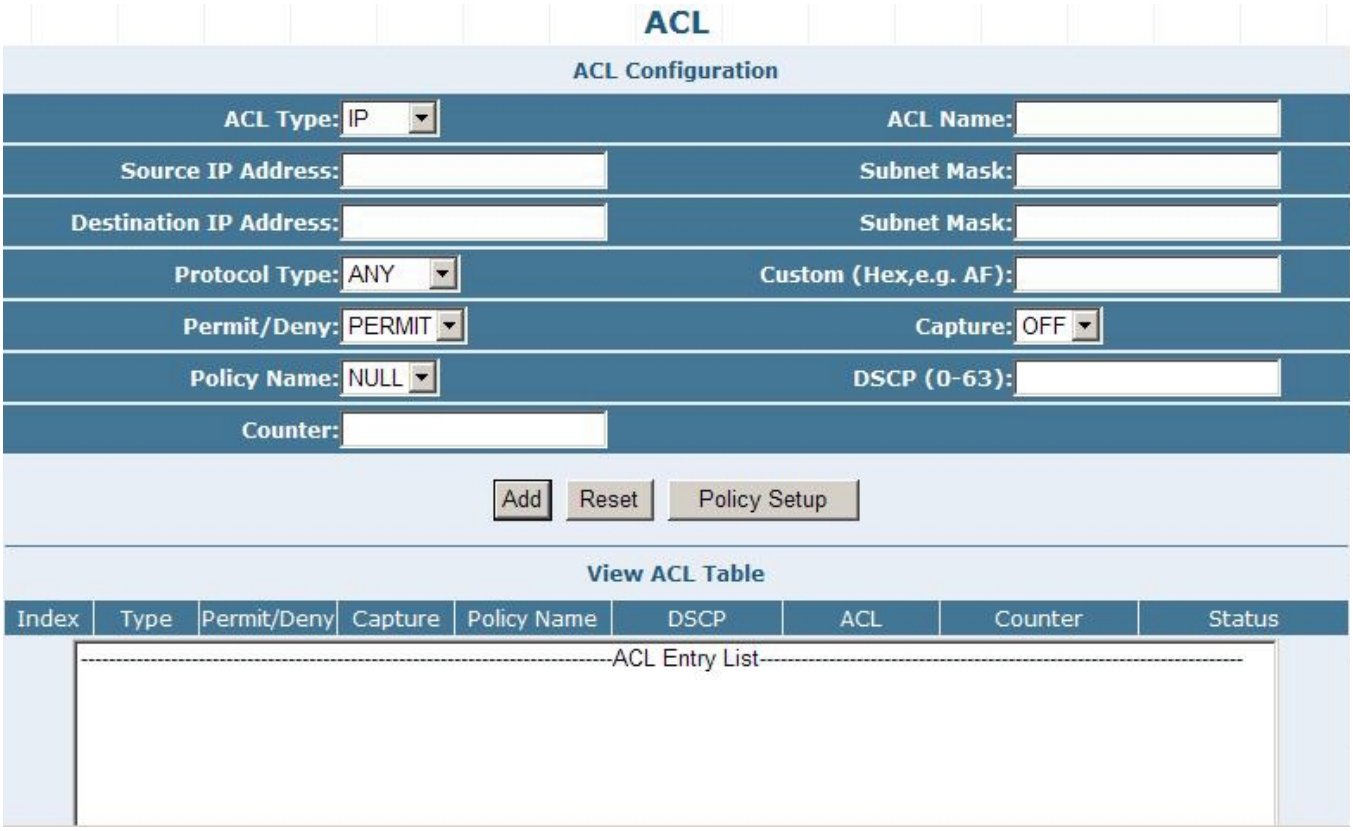


Figure 4-40 ACL Configuration Web Screen

ACL Configuration

The ACL configuration provide five various ACL type for security access control list and the available items are shown as below:

MAC.

IP.

TCP.

UDP.

ICMP.

Please refer to following sections for detail explanation.

ACL Type: MAC

This section provide MAC ACL configuration, the screen in **Figure 4-41** appears and **Table 4-12** describes the MAC ACL Configuration object of the Switch.

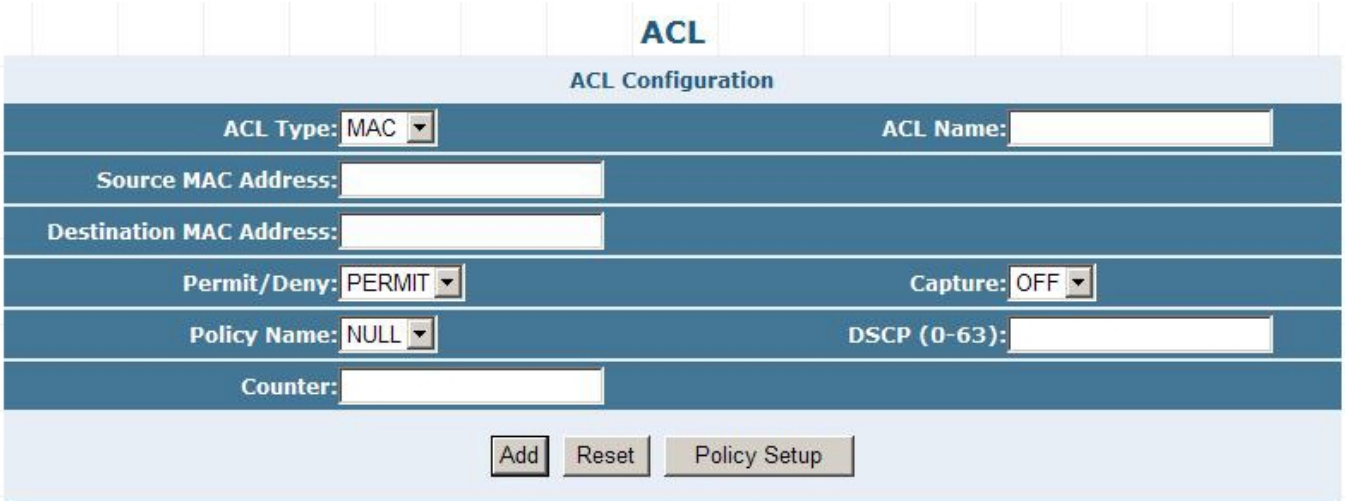


Figure 4-41 MAC ACL Configuration Web Screen

Object	Description
ACL Type:	Provide various ACL type and available options are MAC, IP, TCP, UDP, ICMP. **The default ACL Type is IP**.
ACL Name:	Allow input the ACL Name and **maximum length is 10 characters**.
Source MAC Address:	Allow input the Source MAC Address and the format must be **"XX-XX-XX-XX-XX-XX"**.
Destination MAC Address:	Allow input the Destination MAC Address and the format must be **"XX-XX-XX-XX-XX-XX"**.
Permit/Deny:	Allow choosing **"PERMIT"** or "**DENY"** option and **default is "PERMIT"**.
Capture:	Allow enable **(ON)** or disable **(OFF)** the capture ability and **default is "OFF"**.
Policy Name:	Allow use user configured policy by choose specific policy; create new policy by press **"Policy Setup"** button. **Default is "NULL"**.
DSCP (0-63):	Allow input DCSP value and available range from 0 to 63. **Default is "No value"**.
Counter:	Allow input Counter information and maximum length is 10 characters. **Default is "No Information"**.
Add button	Press this button to add configured MAC ACL to ACL table.
Reset button	Press this button to clear whole input information that not complete setting procedure.
Policy Setup button	Provide Traffic Shaping Configuration Web screen for add QoS policy. The screen in **Figure 4-42** appears and **Table 4-13** describes the Traffic Shaping Configuration object of the Switch.

Table 4-12 Descriptions of the MAC ACL Type Web Screen Objects

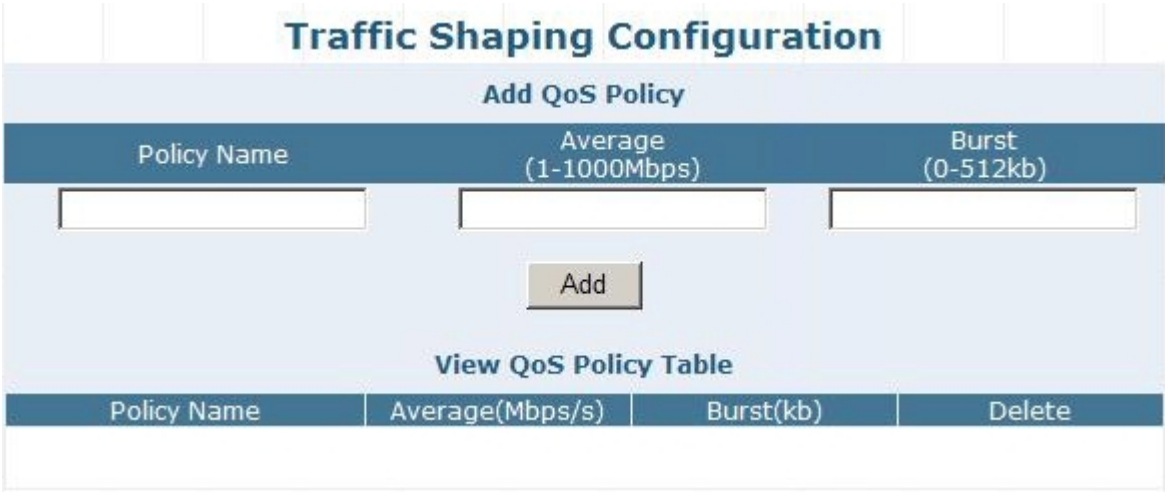


Figure 4-42 ACL Policy Setup Web Screen

Object	Description
Add QoS Policy	
Policy Name	Allow input the new policy name and **maximum length is 10 characters**.
Average (1-1000Mbps)	Allow input the average value and **available range is 1-1000Mbps.**
Burst (0-512kb)	Allow input the burst value and **available range is 0-512kb.**
Add button	Press this button to take affect.
View QoS Policy Table	
Policy Name	Display the per policy name.
Average (Mbps/s)	Display the average value from each policy.
Burst (kb)	Display the burst value from each policy.
Delete button	Press this button to delete.

Table 4-13 Descriptions of the ACL Policy Setup Web Screen Objects

ACL Type: IP (Default)

This section provide IP ACL configuration, the screen in **Figure 4-43** appears and **Table 4-14** describes the IP ACL Configuration object of the Switch.

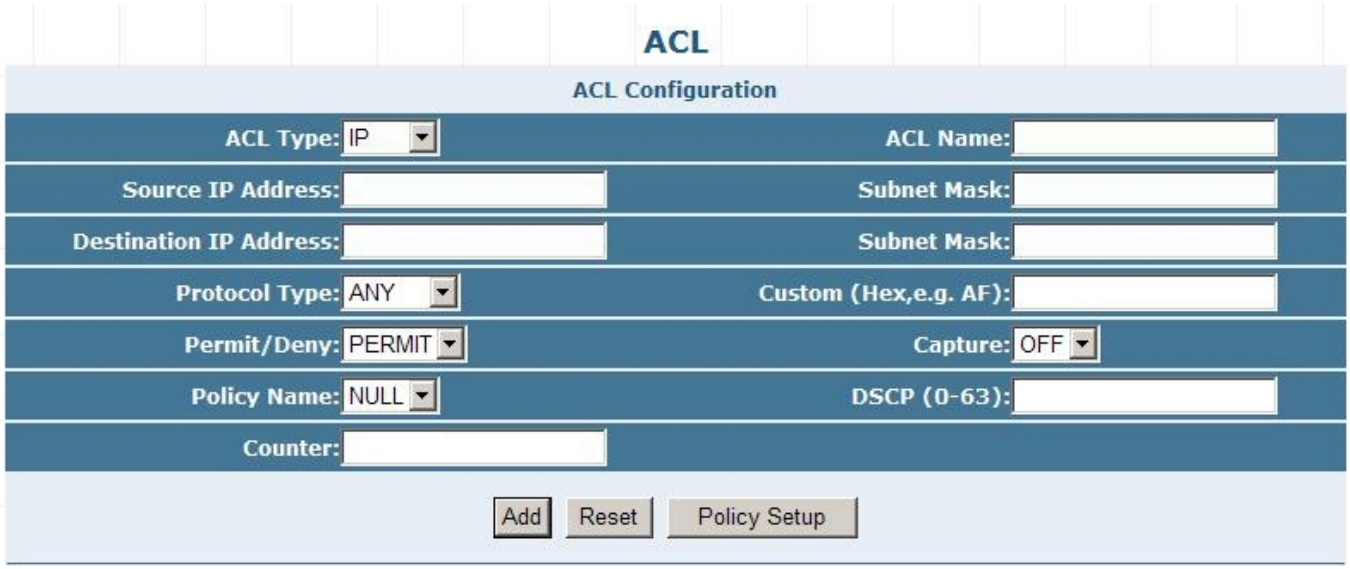


Figure 4-43 IP ACL Configuration Web Scree

Object	Description
ACL Type:	Provide various ACL type and available options are MAC, IP, TCP, UDP, ICMP. **The default ACL Type is IP**.
ACL Name:	Allow input the ACL Name and **maximum length is 10 characters**.
Source IP Address:	Allow input the Source IP Address and the format must be **"XXX.XXX.XXX.XXX"**.
Subnet Mask:	Allow input the Source Subnet Mask address and the format must be **"XXX.XXX.XXX.XXX"**.
Destination IP Address:	Allow input the Destination IP Address and the format must be **"XXX.XXX.XXX.XXX"**.
Subnet Mask:	Allow input the Destination Subnet Mask address and the format must be **"XXX.XXX.XXX.XXX"**.
Protocol Type:	Allow choose various Protocol Type and the available options are ANY, OTHER, AHP, EIGRP, ESP, GRE, ICMP, IGMP, IPINIP, NOS, OSPF, PCP, PIM, TCP, UDP. **Defult is "ANY"**.
Custom (Hex,e.g. AF):	Allow configure when choose OTHER in Prptocol Type.
Permit/Deny:	Allow choosing **"PERMIT"** or "**DENY"** option and **default is "PERMIT"**.
Capture:	Allow enable **(ON)** or disable **(OFF)** the capture ability and **default is "OFF"**.
Policy Name:	Allow use user configured policy by choose specific policy; create new policy by press **"Policy Setup"** button. **Default is "NULL"**.
DSCP (0-63):	Allow input DCSP value and available range from 0 to 63. **Default is "No value"**.
Counter:	Allow input Counter information and maximum length is 10 characters. **Default is "No Information"**.
Add button	Press this button to add configured IP ACL to ACL table.
Reset button	Press this button to clear whole input information that not complete setting procedure.
Policy Setup button	Provide Traffic Shaping Configuration Web screen for add QoS policy. The screen in **Figure 4-42** appears and **Table 4-13** describes the Traffic Shaping Configuration object of the Switch.

Table 4-14 Descriptions of the IP ACL Type Web Screen Objects

ACL Type: TCP

This section provide TCP ACL configuration, the screen in **Figure 4-44** appears and **Table 4-15** describes the TCP ACL Configuration object of the Switch.

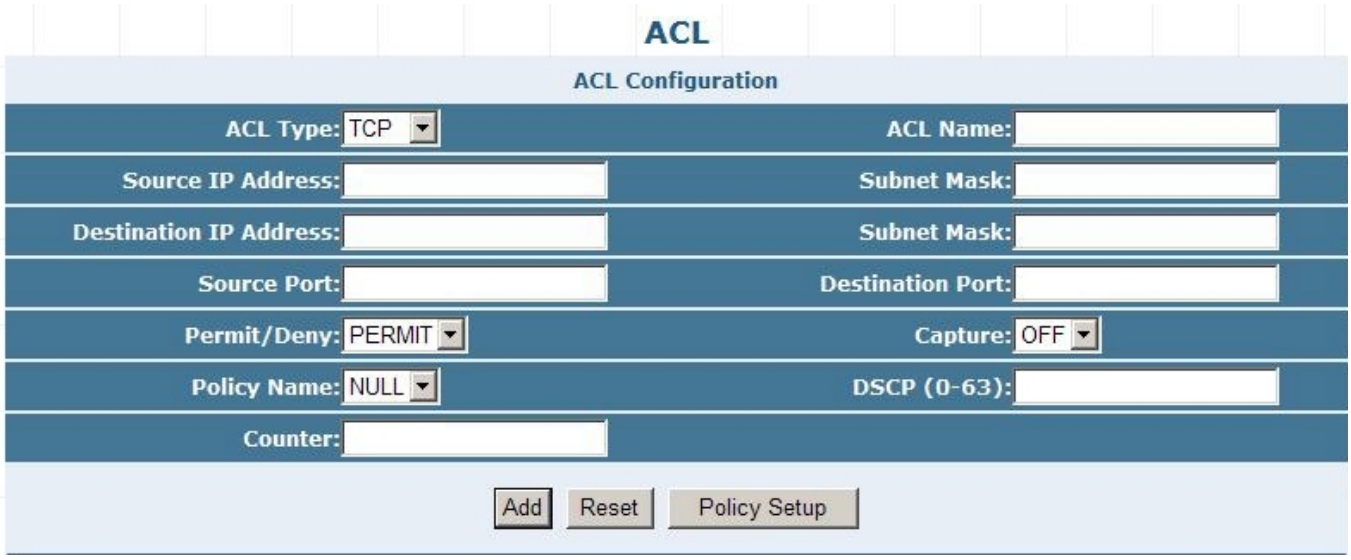


Figure 4-44 TCP ACL Configuration Web Screen

Object	Description
ACL Type:	Provide various ACL type and available options are MAC, IP, TCP, UDP, ICMP. **The default ACL Type is IP**.
ACL Name:	Allow input the ACL Name and **maximum length is 10 characters**.
Source IP Address:	Allow input the Source IP Address and the format must be **"XXX.XXX.XXX.XXX"**.
Subnet Mask:	Allow input the Source Subnet Mask address and the format must be **"XXX.XXX.XXX.XXX"**.
Destination IP Address:	Allow input the Destination IP Address and the format must be **"XXX.XXX.XXX.XXX"**.
Subnet Mask:	Allow input the Destination Subnet Mask address and the format must be **"XXX.XXX.XXX.XXX"**.
Source Port:	Allow to input the Source port information.
Destination Port:	Allow to input the Destination port information.
Permit/Deny:	Allow choosing **"PERMIT"** or "**DENY"** option and **default is "PERMIT"**.
Capture:	Allow enable **(ON)** or disable **(OFF)** the capture ability and **default is "OFF"**.
Policy Name:	Allow use user configured policy by choose specific policy; create new policy by press **"Policy Setup"** button. **Default is "NULL"**.
DSCP (0-63):	Allow input DCSP value and available range from 0 to 63. **Default is "No value"**.
Counter:	Allow input Counter information and maximum length is 10 characters. **Default is "No Information"**.
Add button	Press this button to add configured TCP ACL to ACL table.
Reset button	Press this button to clear whole input information that not complete setting procedure.
Policy Setup button	Provide Traffic Shaping Configuration Web screen for add QoS policy. The screen in **Figure 4-42** appears and **Table 4-13** describes the Traffic Shaping Configuration object of the Switch.

Table 4-15 Descriptions of the TCP ACL Type Web Screen Objects

ACL Type: UDP

This section provide UDP ACL configuration, the screen in **Figure 4-45** appears and **Table 4-16** describes the UDP ACL Configuration object of the Switch.

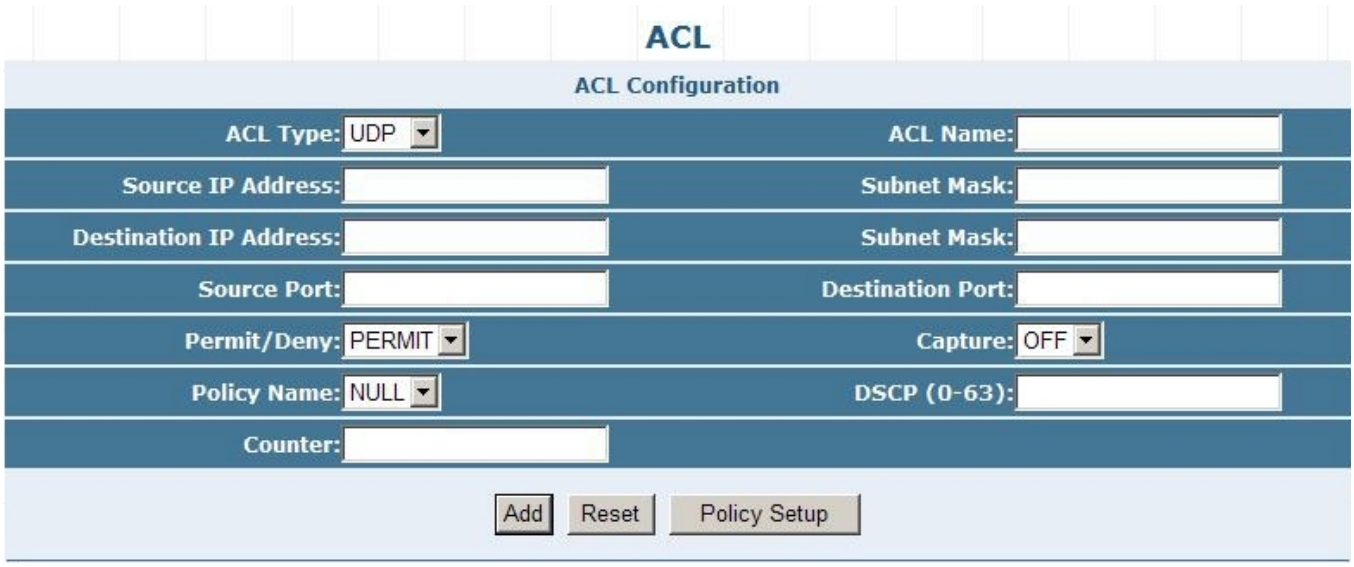


Figure 4-45 UDP ACL Configuration Web Screen

Object	Description
ACL Type:	Provide various ACL type and available options are MAC, IP, TCP, UDP, ICMP. **The default ACL Type is IP**.
ACL Name:	Allow input the ACL Name and **maximum length is 10 characters**.
Source IP Address:	Allow input the Source IP Address and the format must be **"XXX.XXX.XXX.XXX"**.
Subnet Mask:	Allow input the Source Subnet Mask address and the format must be **"XXX.XXX.XXX.XXX"**.
Destination IP Address:	Allow input the Destination IP Address and the format must be **"XXX.XXX.XXX.XXX"**.
Subnet Mask:	Allow input the Destination Subnet Mask address and the format must be **"XXX.XXX.XXX.XXX"**.
Source Port:	Allow to input the Source port information.
Destination Port:	Allow to input the Destination port information.
Permit/Deny:	Allow choosing **"PERMIT"** or "**DENY"** option and **default is "PERMIT"**.
Capture:	Allow enable **(ON)** or disable **(OFF)** the capture ability and **default is "OFF"**.
Policy Name:	Allow use user configured policy by choose specific policy; create new policy by press **"Policy Setup"** button. **Default is "NULL"**.
DSCP (0-63):	Allow input DCSP value and available range from 0 to 63. **Default is "No value"**.
Counter:	Allow input Counter information and maximum length is 10 characters. **Default is "No Information"**.
Add button	Press this button to add configured TCP ACL to ACL table.
Reset button	Press this button to clear whole input information that not complete setting procedure.
Policy Setup button	Provide Traffic Shaping Configuration Web screen for add QoS policy. The screen in **Figure 4-42** appears and **Table 4-13** describes the Traffic Shaping Configuration object of the Switch.

Table 4-16 Descriptions of the UDP ACL Type Web Screen Objects

ACL Type: ICMP

This section provide ICMP ACL configuration, the screen in **Figure 4-46** appears and **Table 4-17** describes the ICMP ACL Configuration object of the Switch.

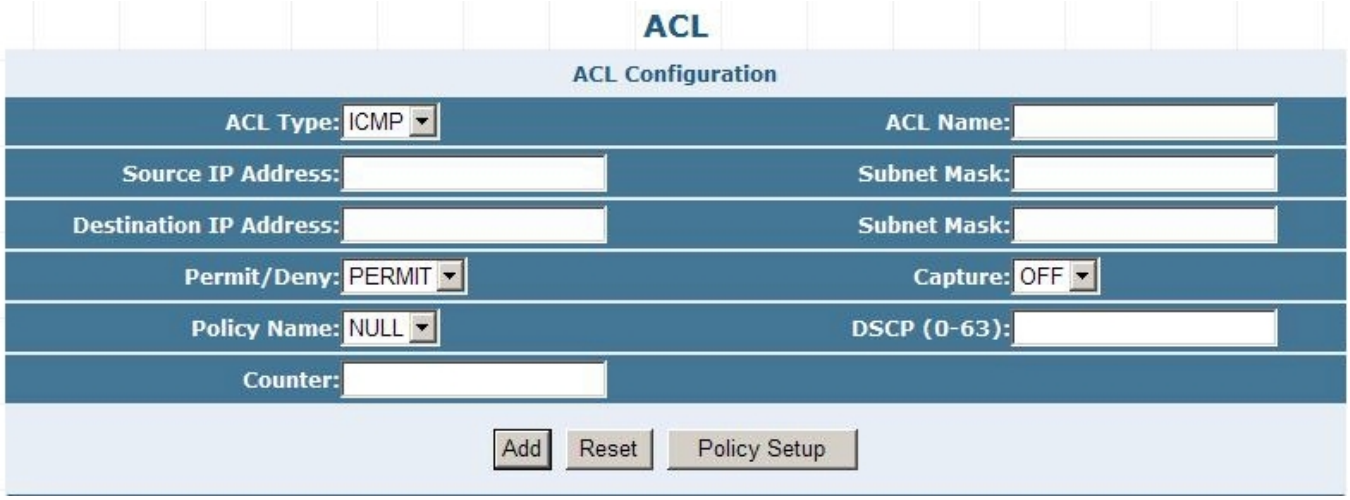


Figure 4-46 ICMP ACL Configuration Web Screen

Object	Description
ACL Type:	Provide various ACL type and available options are MAC, IP, TCP, UDP, ICMP. **The default ACL Type is IP**.
ACL Name:	Allow input the ACL Name and **maximum length is 10 characters**.
Source IP Address:	Allow input the Source IP Address and the format must be **"XXX.XXX.XXX.XXX"**.
Subnet Mask:	Allow input the Source Subnet Mask address and the format must be **"XXX.XXX.XXX.XXX"**.
Destination IP Address:	Allow input the Destination IP Address and the format must be **"XXX.XXX.XXX.XXX"**.
Subnet Mask:	Allow input the Destination Subnet Mask address and the format must be **"XXX.XXX.XXX.XXX"**.
Permit/Deny:	Allow choosing **"PERMIT"** or "**DENY"** option and **default is "PERMIT"**.
Capture:	Allow enable **(ON)** or disable **(OFF)** the capture ability and **default is "OFF"**.
Policy Name:	Allow use user configured policy by choose specific policy; create new policy by press **"Policy Setup"** button. **Default is "NULL"**.
DSCP (0-63):	Allow input DCSP value and available range from 0 to 63. **Default is "No value"**.
Counter:	Allow input Counter information and maximum length is 10 characters. **Default is "No Information"**.
Add button	Press this button to add configured TCP ACL to ACL table.
Reset button	Press this button to clear whole input information that not complete setting procedure.
Policy Setup button	Provide Traffic Shaping Configuration Web screen for add QoS policy. The screen in **Figure 4-42** appears and **Table 4-13** describes the Traffic Shaping Configuration object of the Switch.

Table 4-17 Descriptions of the ICMP ACL Type Web Screen Objects

View ACL Table

This section provide view the ACL Table, the screen in **Figure 4-47** appears and **Table 4-18** describes the ACL Table object of Switch

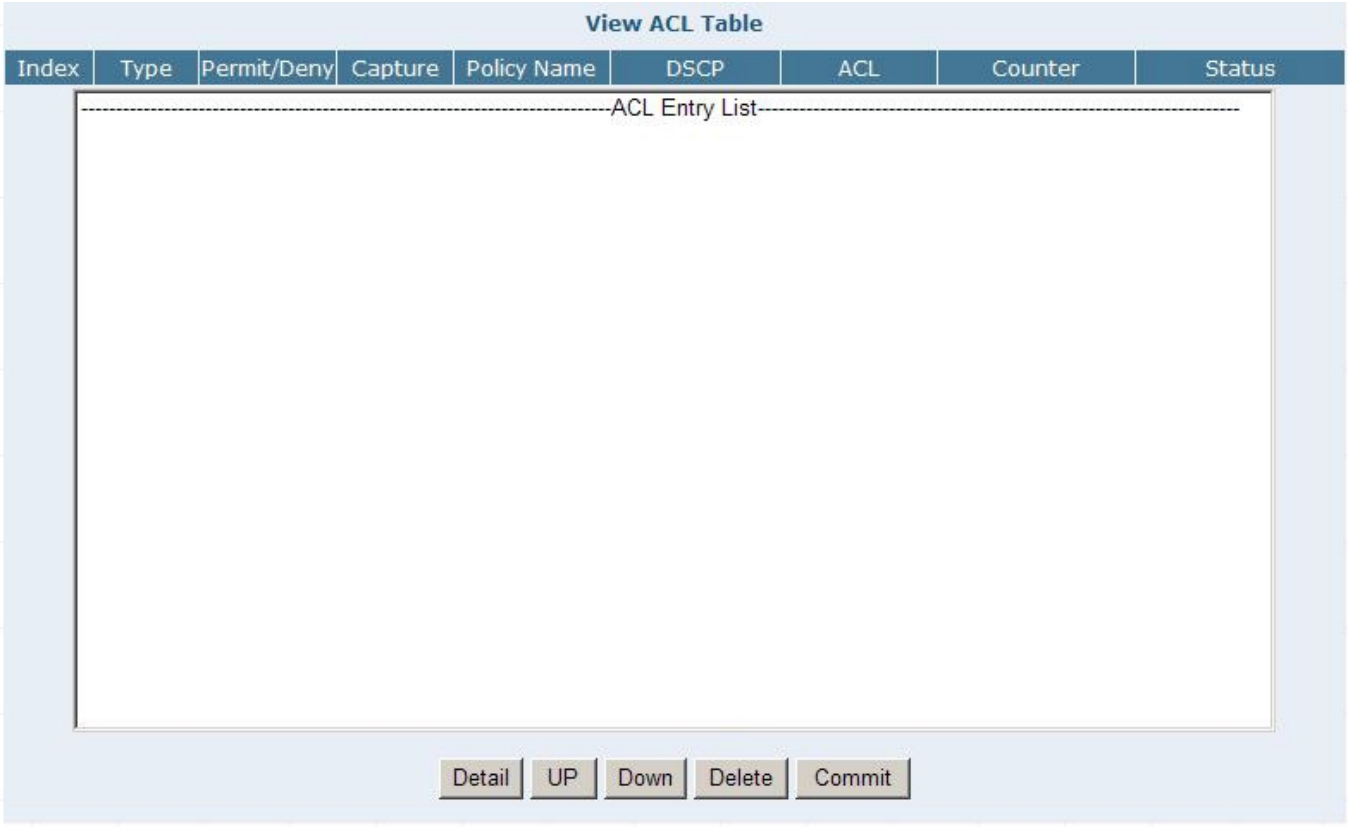


Figure 4-47 View ACL Table Web Screen

Object	Description
Index	Display the configured ACL Policy.
Type:	Display the ACL Type of each ACL Policy.
Permit/Deny	Display the Permit / Deny status of each ACL Policy.
Capture	Display the Capture status of each ACL Policy.
Policy Name	Display the Policy Name of each ACL Policy.
DSCP	Display the DSCP value of each ACL Policy.
ACL	Display the Name of each ACL Policy.
Counter	Display the Counter information of each ACL Policy.
Status	Display the Commit status or Uncommit status of each ACL Policy.
Detail	Press this button to display detail setting from one specific ACL Policy.
UP	Press this button to view the ACL table.
Down	Press this button to view the ACL table.
Delete button	Press this button to delete configured ACL Policy.
Commit	Press this button to set one specific ACL Policy status as **"Commit"**.

Table 4-18 Descriptions of the View ACL Table Web Screen Objects

4.5.2 Security Defernce

This section provides Security Defence Configuration and allow choose various Security Defence rules or user defines their own Security Defence rules for powerfull Security Defence ability under TCP / UDP port. The screen in **Figure 4-48** appears. **Table 4-19** describes the Security Defence object of the Switch.

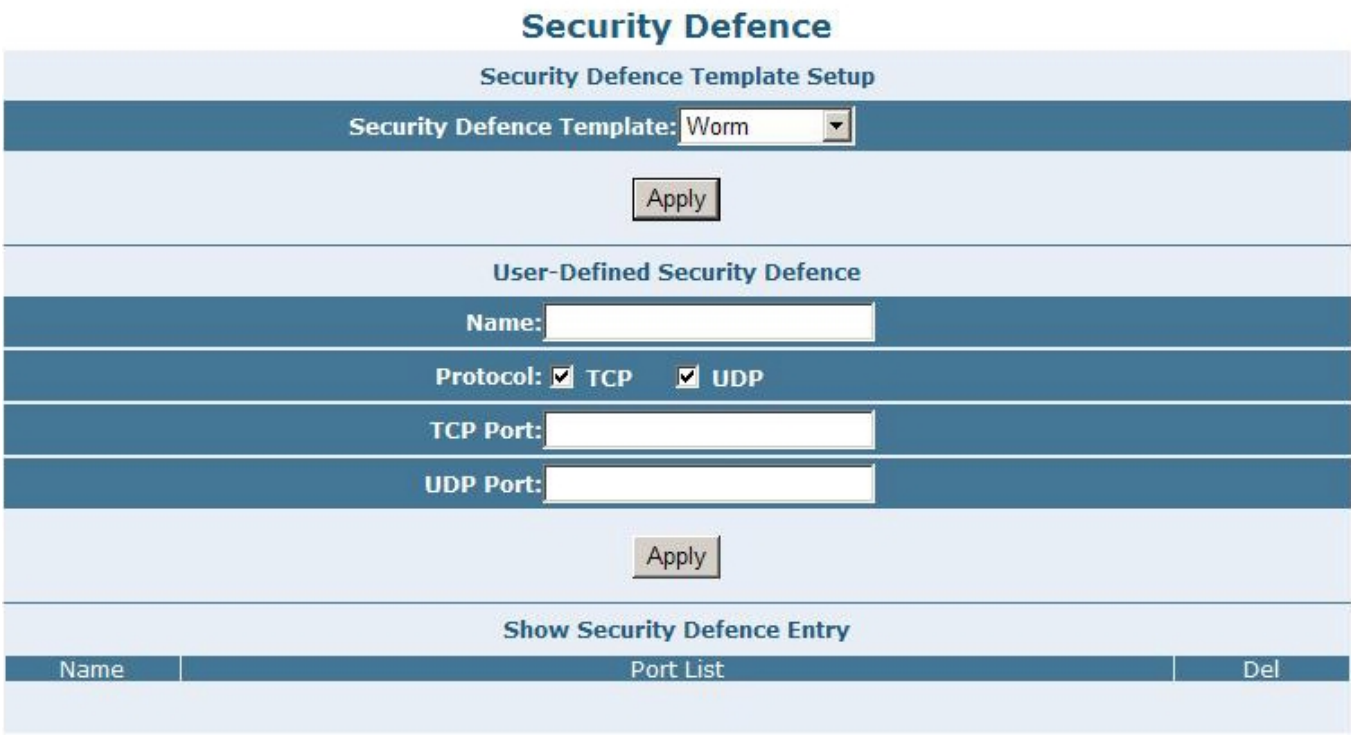


Figure 4-48 Security Defence Web Screen

Object	Description
Security Defence Template Setup	
Security Defence Template:	Provide various type of network attack for Secunity Defence and the available options are **Worm**, **RPC Leak, Shake Wave**, **Tftp**, **Shock Wave**, **Phatbot**. **Default is "Worm"**.
Apply button	Press this button to take affect.
User-Defined Security Defence	
Name:	Allow user define the name of Security Defence Template, **maximum length is 10 characters**.
Protocol:	Provide TCP and UDP protocol options for choose.
TCP Port:	Allow input TCP port when the TCP Protocol has been choosed.
UDP Port:	Allow input UDP port when the UDP Protocol has been choosed.
Apply button	Press this button to take affect.
Show Security Defence Entry	
Name	Display the Security Defence Template has been choosed.
Port List	Display the TCP Port and UDP Port information from each Security Defence Template
Delete button	Press this button to remove the Security Defence Template from this table list.

Table 4-19 Descriptions of the Security Defence Web Screen Objects

4.5.3 ARP Defernce

This section provides ARP Defence Configuration and allow define ARP Attack Defence Time. The screen in **Figure 4-49** appears. **Table 4-20** describes the ARP Defence object of the Switch.

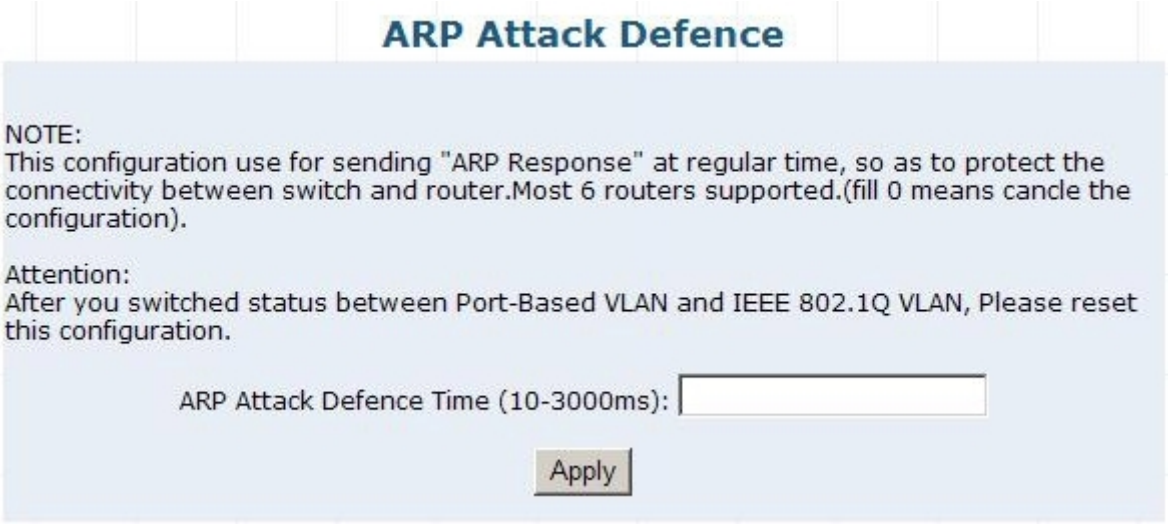


Figure 4-49 ARP Attack Defence Web Screen

Object	Description
ARP Attack Defence Time (10-3000ms):	Allow configuring the ARP Attack Defence Time and available range is 10 to 3000ms. **Default is no setting**.
Apply button	Press this button to take affect.

Table 4-20 Descriptions of the ARP Defence Web Screen Objects

4.5.4 VLAN

This section provides VLAN Configuration and the available options are 802.1Q VLAN and Port-Based VLAN. Before use the VLAN Configuration, please read following VLAN theorem completely before continuing.

VLAN Description

A Virtual Local Area Network (VLAN) is a network topology configured according to a logical scheme rather than the physical layout. VLAN can be used to combine any collection of LAN segments into an autonomous user group that appears as a single LAN. VLAN also logically segment the network into different broadcast domains so that packets are forwarded only between ports within the VLAN. Typically, a VLAN corresponds to a particular subnet, although not necessarily.

VLAN can enhance performance by conserving bandwidth, and improve security by limiting traffic to specific domains.

A VLAN is a collection of end nodes grouped by logic instead of physical location. End nodes that frequently communicate with each other are assigned to the same VLAN, regardless of where they are physically on the network. Logically, a VLAN can be equated to a broadcast domain, because broadcast packets are forwarded to only members of the VLAN on which the broadcast was initiated.

Notice:

1. No matter what basis is used to uniquely identify end nodes and assign these nodes VLAN membership, packets cannot cross VLAN without a network device performing a routing function between the VLAN.
2. The Switch supports Port-based VLAN and IEEE 802.1Q VLAN. The port untagging function can be used to remove the 802.1 tag from packet headers to maintain compatibility with devices that are tag-unaware.
3. The Switch's default is to assign all ports to a single 802.1Q VLAN named DEFAULT_VLAN. As new VLAN is created, the member ports assigned to the new VLAN will be removed from the DEFAULT_ VLAN port member list. The DEFAULT_VLAN has a VID = 1.

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 allow 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:

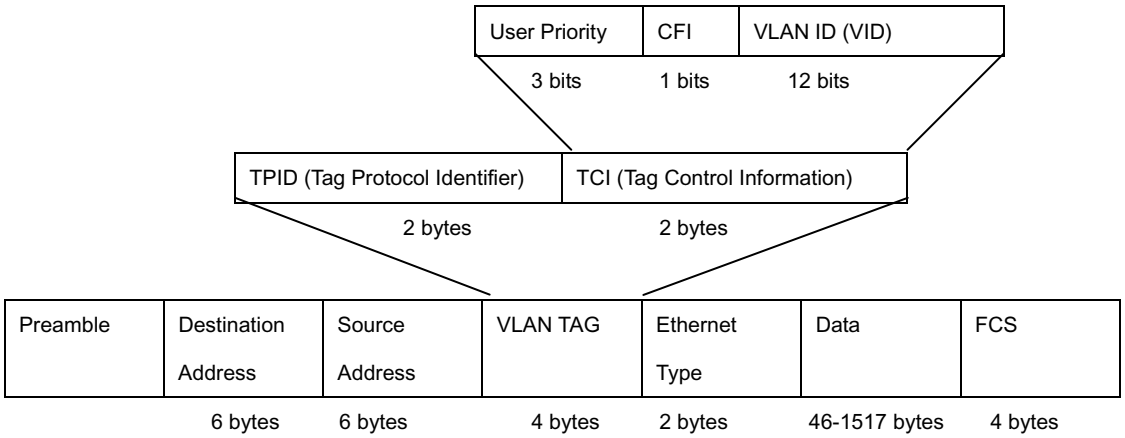
Tagging - The act of putting 802.1Q VLAN information into the header of a packet.

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

802.1Q VLAN Tags

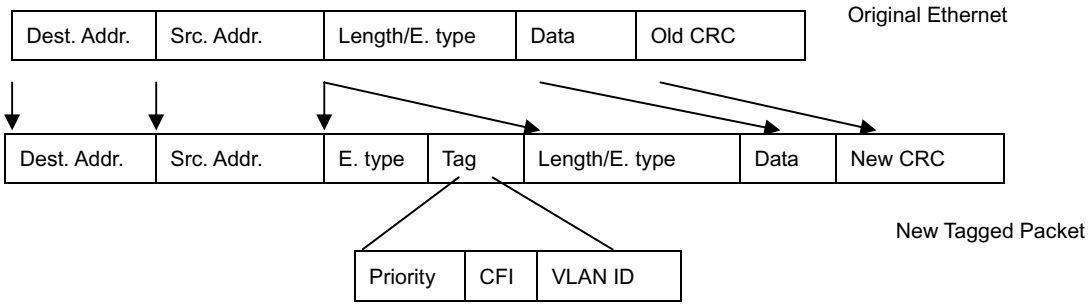
The figure below shows the 802.1Q VLAN tag. There are four additional octets inserted after the source MAC address. Their presence is indicated by a value of 0x8100 in the Ether Type field. When a packet's Ether Type field is equal to 0x8100, the packet carries the IEEE 802.1Q/802.1p tag. The tag is 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 VLAN Tags



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 IEEE 802.1Q 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."

VLAN and Link aggregation Groups

In order to use VLAN segmentation in conjunction with port link aggregation groups, you can first set the port link aggregation group(s), and then you may configure VLAN settings. If you wish to change the port link aggregation grouping with VLAN already in place, you will not need to reconfigure the VLAN settings after changing the port link aggregation group settings. VLAN settings will automatically change in conjunction with the change of the port link aggregation group settings

802.1Q VLAN Configuration

There are up to 256 configurable VLAN groups. By default when 802.1Q is enabled, all ports on the switch belong to default VLAN (VID 1). The default VLAN cannot be deleted.

Understand nomenclature of the Switch

Tagging and Untagging

Every port on an 802.1Q compliant switch can be configured as tagging or untagging.

- **Tagging:** Ports with tagging enabled will put the VID number, priority and other VLAN information into the header of all packets that flow into those ports. If a packet has previously been tagged, the port will not alter the packet, thus keeping the VLAN information intact. The VLAN information in the tag can then be used by other 802.1Q compliant devices on the network to make packet-forwarding decisions.
- **Untagging:** Ports with untagging enabled will strip the 802.1Q tag from all packets that flow into those ports. If the packet doesn't have an 802.1Q VLAN tag, the port will not alter the packet. Thus, all packets received by and forwarded by an untagging port will have no 802.1Q VLAN information. (Remember that the PVID is only used internally within the Switch). Untagging is used to send packets from an 802.1Q-compliant network device to a non-compliant network device.

Frame Income / Frame Leave	Income Frame is **tagged**	Income Frame is **untagged**
Leave port is tagged	Frame remains tagged	Tag is inserted
Leave port is untagged	Tag is removed	Frame remain untagged

Here pay attention to the explainion of **"Access"**,"**Always Untag**" and **"Trunk"**.

- **Access:** Ports will strip the 802.1Q tag from all packets that out of those ports. If the packet doesn't have an 802.1Q VLAN tag, the port will not alter the packet. Thus, all packets received by and forwarded by an untagging port will have no 802.1Q VLAN information. Untagging is used to send packets from an 802.1Q-compliant network device to a non-compliant network device.

  Ports with "Access" mode belong to a single untagged VLAN.

- **Trunk:** Ports with tagging enabled will put the VID number, priority and other VLAN information into the header of all packets that out of those ports. If a packet has previously been tagged, the port will not alter the packet, thus keeping the VLAN information intact. The VLAN information in the tag can then be used by other 802.1Q compliant devices on the network to make packet forwarding decisions.

- **Always Untag:** The port belongs to VLANs, and each VLAN is user-defined as tagged or untagged (full 802.1Q mode). Ports will strip the 802.1Q tag from all packets that out of those ports.

Port Mode	VLAN Membership	Frame Leave
Access	Belongs to a **single** untagged VLAN	Untagged (Tag=PVID be removed)
Always Untag	Allowed to belongs to **multiple** untagged VLANs at the same time	Untagged (Tag=PVID be removed)
Trunk	Allowed to belongs to **multiple** Tagged VLANs at the same time	Tagged (Tag=PVID or Original VID be remained)

Port VID (PVID)

Set the port VLAN ID that will be assigned to untagged traffic on a given port. This feature is useful for accommodating devices that you want to participate in the VLAN but that don't support tagging. The Switch allows each port to set one PVID, the range is 1~255, default PVID is 1. The PVID must be the same as the VLAN ID that the port was defined as belonging to in the VLAN group, or the untagged traffic will be dropped.

1. Select **802.1Q VLAN** in the **VLAN Type** field and click on the **"Apply"** button.

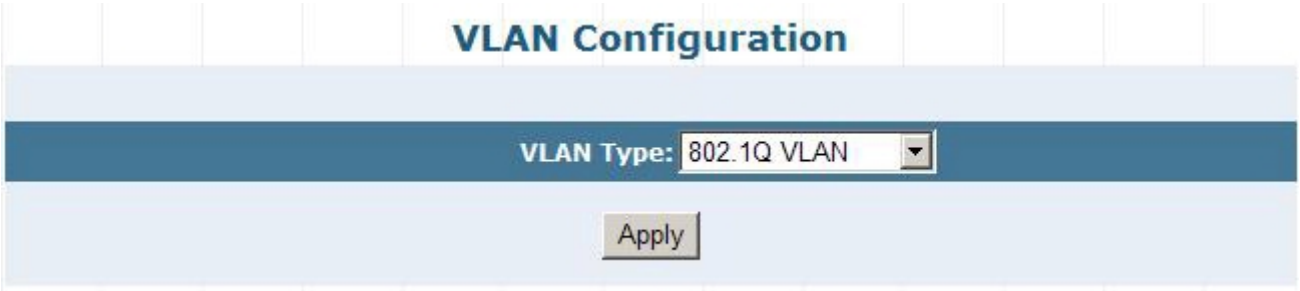


Figure 4-50 802.1Q VLAN Type Web Screen

The main page then changes to the **802.1Q VLAN** table which displays the VLAN configuration of each port.

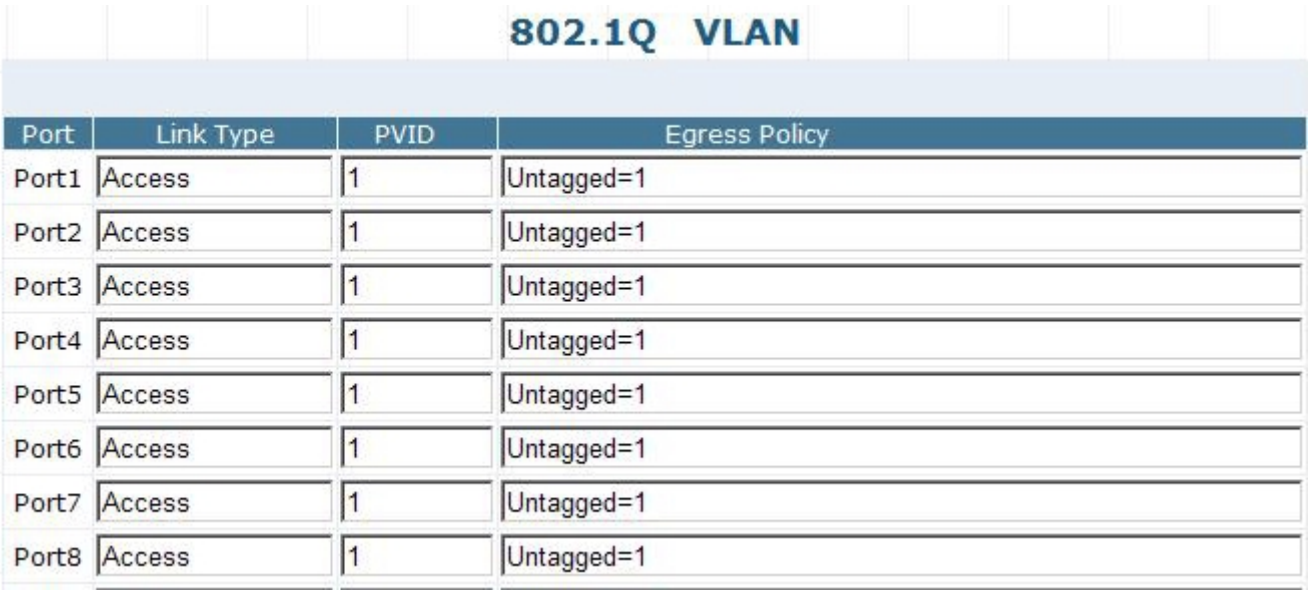


Figure 4-51 802.1Q VLAN Configuration Web Screen

2. If you want to configure port #2 to be in a VLAN other than default VLAN. Double click on **"port2"** to enter into VLAN port configuration window.

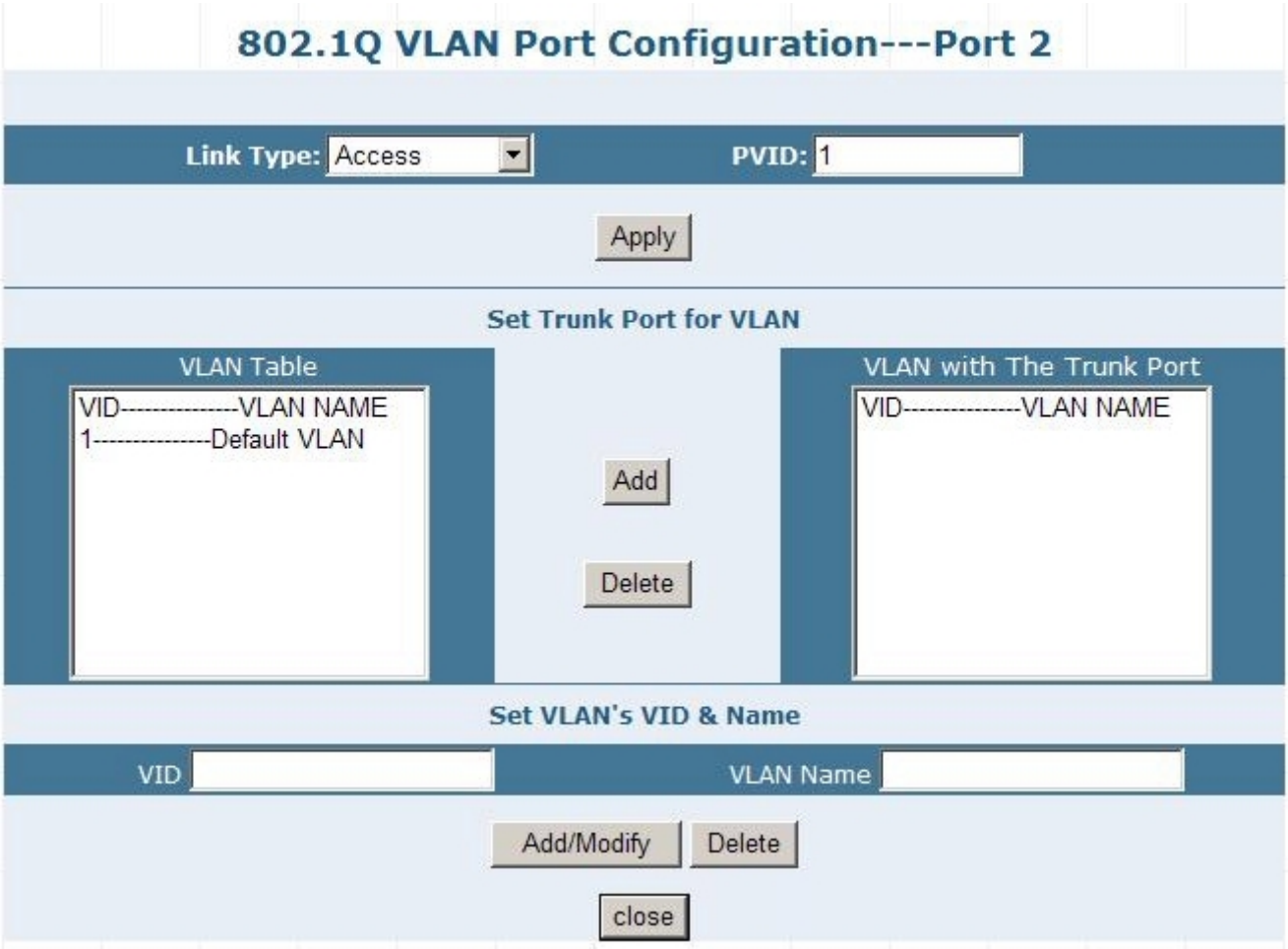


Figure 4-52 802.1Q VLAN Port Configuration Web Screen

3. Choose the **Link Type** in the drop drop down menu: **Access**, **Trunk** or **Always Untag**

Note that if the **Access** type is chosen, it will strip the 802.1Q tag from all packets that out of this port. On the other hand, if the **Trunk** type is chosen, it will put the VID number, priority and other VLAN information into the header of all packets that out of this port. And if the **Always Untag** type is chosen, it will strip the 802.1Q tag from all packets that out of the port. But the port can be assigned to more than one VLAN group.

4. Define the PVID for the port

Set the port VLAN ID that will be assigned to untagged traffic on a given port. This feature is useful for accommodating devices that you want to participate in the VLAN but that don't support tagging.

Figure 4-53 Define Per Port PVID Web Screen

5. Trunk configuration: If the **Trunk** type is chosen, please follow the steps to set the Trunk of the port.

5.1 Add and define the names and VIDs for new VLANs. The VID number ranges from 2 to 4094. Fill the **VID** field and the **VLAN Name** field in the **Set VLAN's VID & Name** table and click on the **"Add/Modify"** button to save.

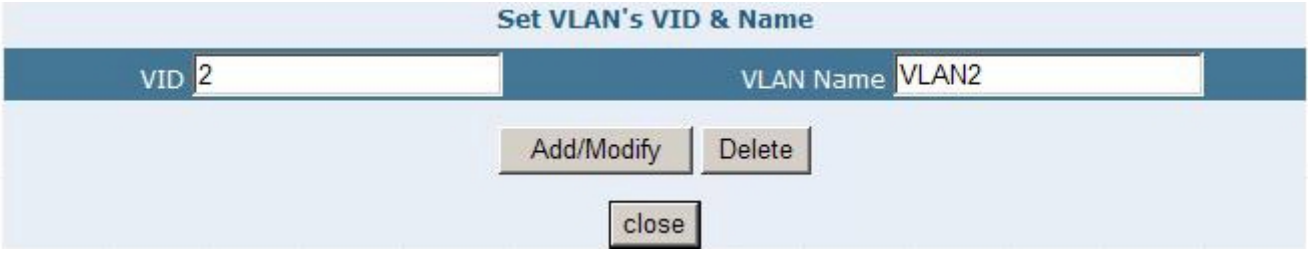


Figure 4-54 Define Per VLAN Group Web Screen

5.2 The added new VLAN then shows the the **VLAN Table** field in the **Set Trunk Port for VLAN** table.

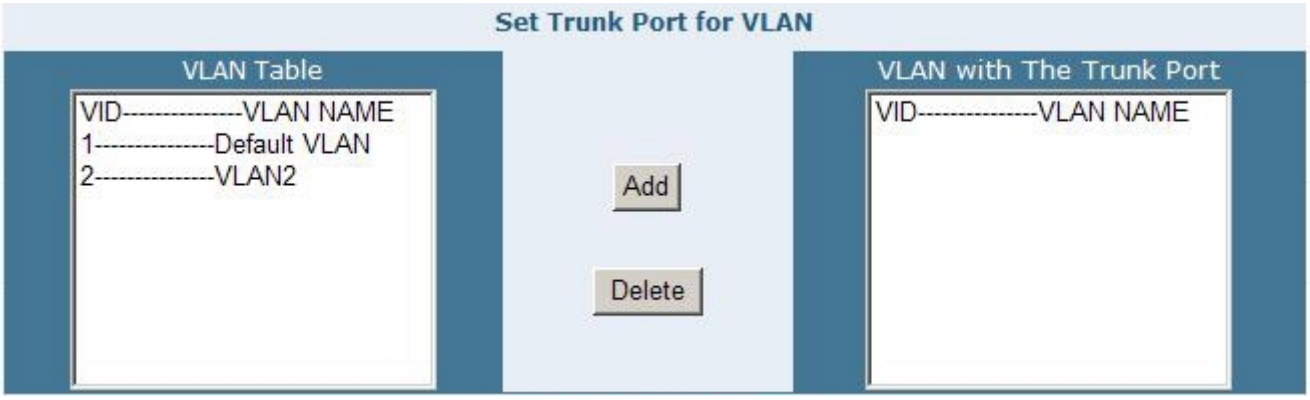


Figure 4-55 Define Per VLAN Group Web Screen

5.3 Select on the VLAN chich you want to tag with in the **VLAN Table** field and click on the **"Add"** button to add. This will add the VLAN in to the **VLAN with The Trunk Port** field.

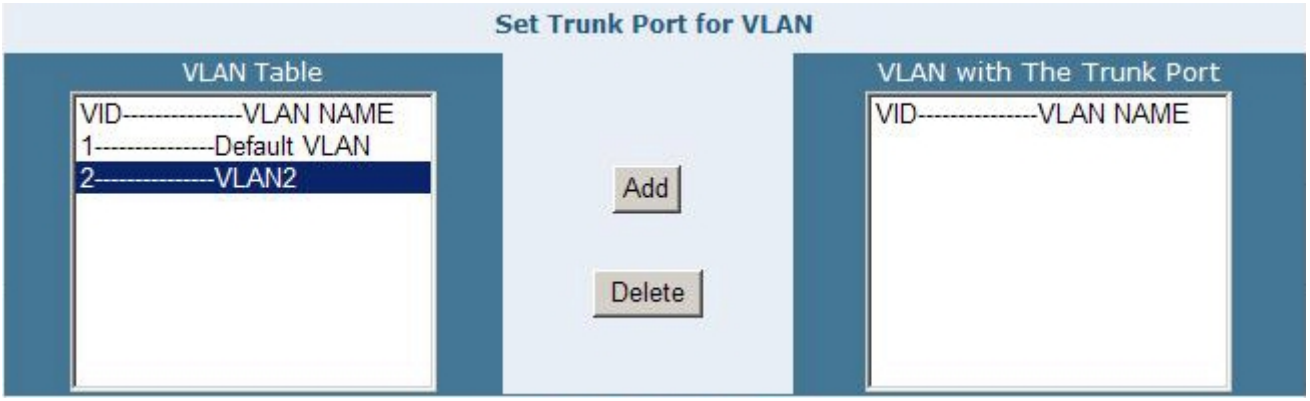


Figure 4-56 Define Per VLAN Group Web Screen

5.4 Click on the **"close"** button to close the VLAN port configuration table of port #2, and back to the 802.1Q main page.

5.5 Click on the **"Show VLAN Members"** button to show the VLAN members.

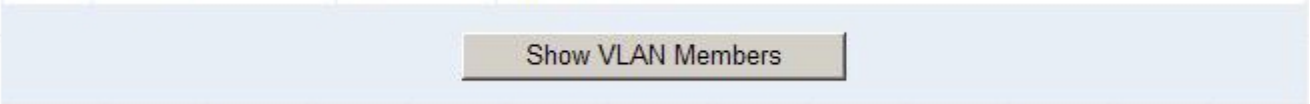


Figure 4-57 Show VLAN Members Web Screen

5.6 As shows in the following screen:

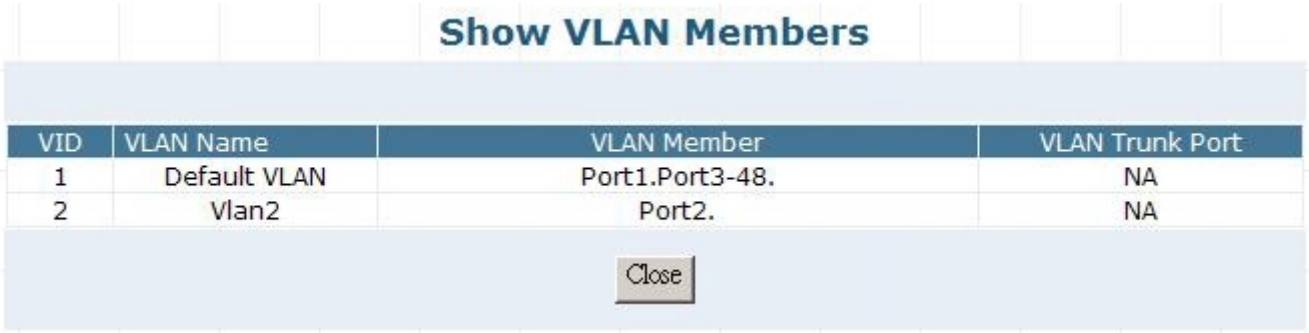


Figure 4-58 Show VLAN Members Web Screen

Port-based VLAN Configuration

Packets can only be broadcast among other members of the same VLAN group. Note all unselected ports are treated as belonging to the default system VLAN. If port-based VLAN are enabled, then VLAN-tagging is ignored.

1. On **VLAN Configuration** table, choose **Port-based VLAN**. Click on the **"Apply"** button.

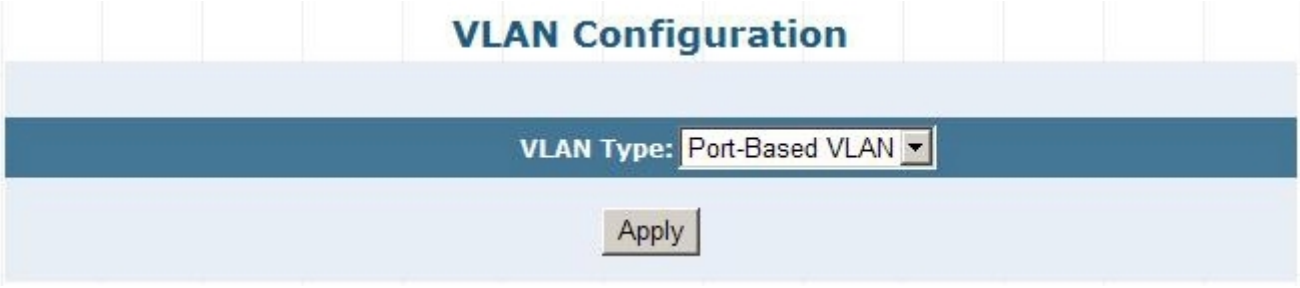


Figure 4-59 Port-Based VLAN Type Web Screen

2. The main page then change to **Port-base VLAN** table, click on the **"Add/Modify"** button to create a new VLAN group.

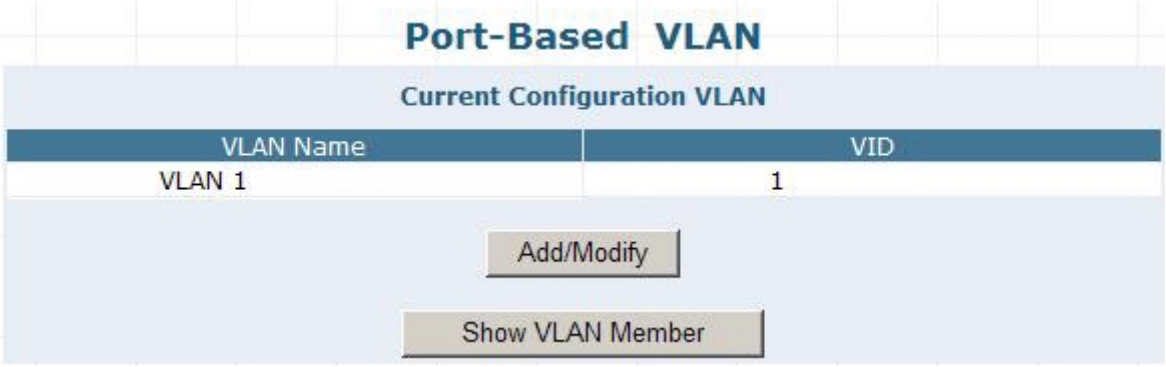


Figure 4-60 Port-Based VLAN Configuration Web Screen

3. The **Port-base VLAN Confirutation** table then pops up, enter the VLAN group ID, VLAN name and select the member ports for the VLAN.

4. Click the **"Apply"** button to add the VLAN.

5. Select the ports in the **Port List** field and click on the Add button to add the member ports to the VLAN. The selected VLAN member then shows in the **VLAN Member** field.

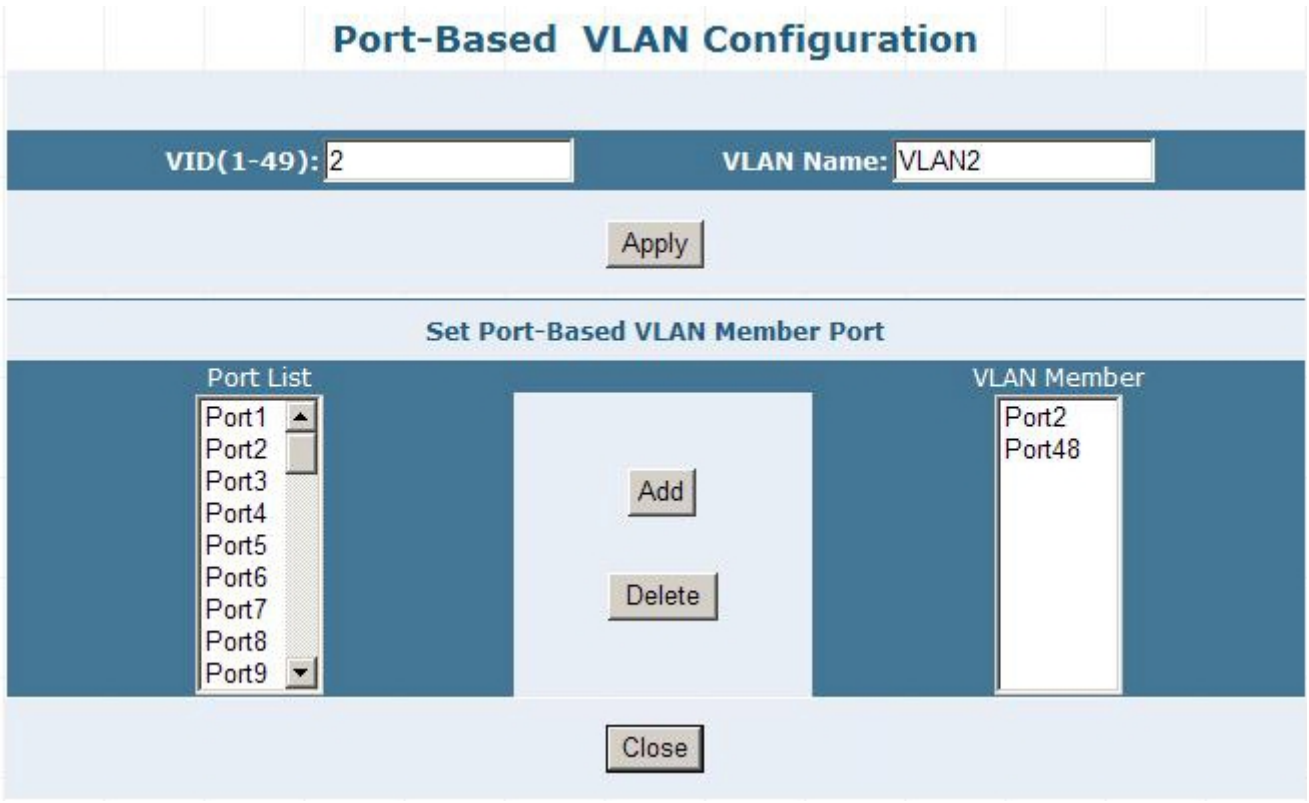


Figure 4-61 Port-Based VLAN Configuration Web Screen

6. Click on the **"Close"** button and back to the **Port-based VLAN** main page.

The **"Show VLAN Member"** button is to list the valid VLANs. You can also remove the added VALN by click on this button.

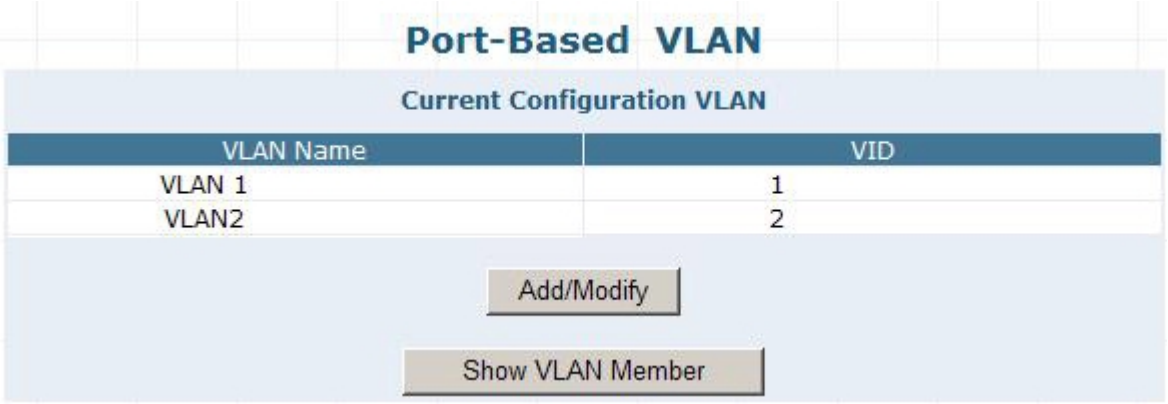


Figure 4-62 Show VLAN Members Web Screen

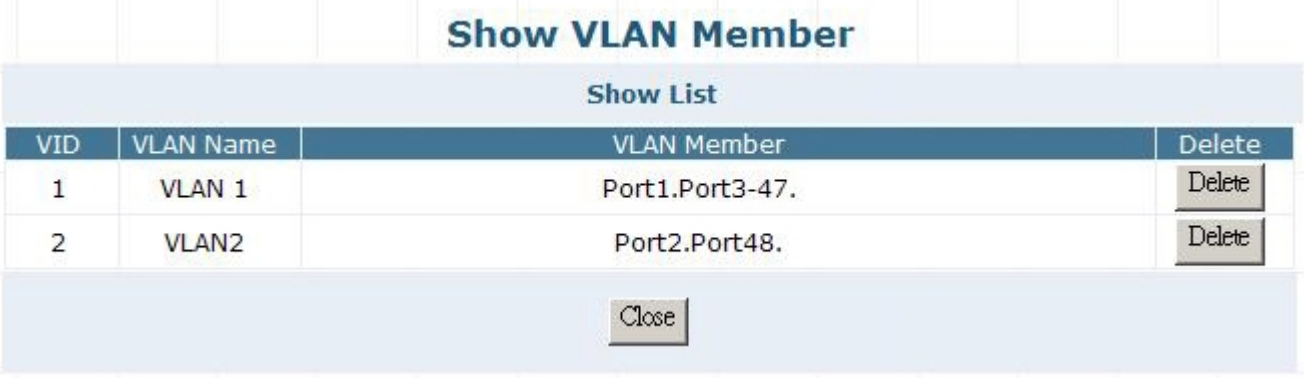


Figure 4-63 Show VLAN Members Web Screen

4.5.5 MAC Address Binding

This section provides MAC Address Binding Configuration and the screen in **Figure 4-64** appears. **Table 4-21** describes the MAC Address Binding object of the Switch.

This function is based upon for the Switch security. When you add one MAC Address is bind with one port. It remains in the switch's address table, regardless of whether the device is physically connected to the switch. This saves the switch from having to re-learn a device's MAC address after it has been disconnected or powered-off from the network, and then reconnected at some time later. If the Network station is connected with one port want to control the switch, the station's MAC Address must be the same as one MAC Address

To bind the MAC Address, click on the **Security / MAC Address Binding** menu button, the main web page then shows the **MAC Address Bind** function table.

1. Fill the **MAC Address** field with MAC address in the format **"XX-XX-XX-XX-XX-XX "** and choose the port to bind the MAC Address in the **Port** field.
2. Click on the **"Add"** button.
3. To remove the MAC Address binded by the port. Simply click on the **"Delete"** button of the MAC Address in the **Show MAC Address** Table.

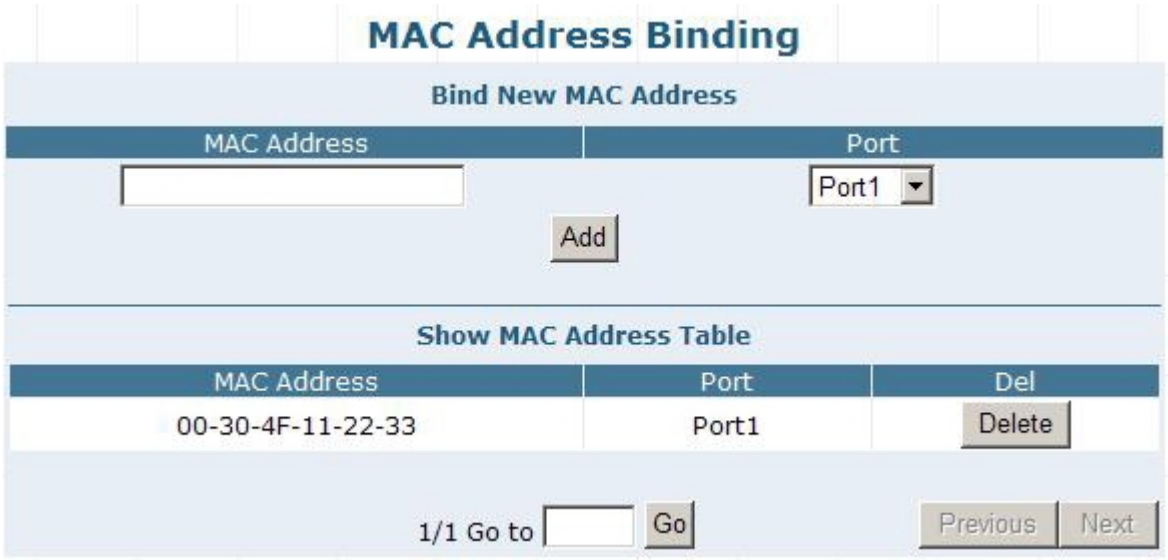


Figure 4-64 MAC Address Binding Web Screen

Object	Description
Bind New MAC Address	
MAC Address	Allow input the MAC Address and the format must be **"XX-XX-XX-XX-XX-XX"**.
Port	Choose one specific port for new input MAC Adress binding.
Add button	Press this button to add the new input MAC Address binding on one specific port.
Show MAC Address Table	
MAC Address	Display the binding MAC Address on one specific port.
Port	Display the port with binding MAC Address.
Delete button	Press this button for remove the binding MAC Address from the specific port.
Go	Press this button for go to specific page of MAC Address Table.
Previous	Press this button for back to previous page of MAC Address Table.
Next	Press this button for go to next page of MAC Address Table.

Table 4-21 Descriptions of the MAC Address Binding Web Screen Objects

Notice: The Switch provide maximum up to 800 binding MAC Address, 400 MAC address for port 1 to port 24, 400 MAC address for port 25 to port 28.

4.5.6 MAC Address Filtering

This section provides MAC Address Filtering Configuration and the screen in **Figure 4-65** appears. **Table 4-22** describes the MAC Address Filtering object of the Switch.

The MAC address Filtering allows the Switch to drop unwanted traffic. Traffic is filtered based on the destination addresses. To filter the MAC Address, click on the **Security / MAC Address Filtering** menu button, the main web page then shows the **MAC Address Filtering** function table.

1. Fill the **MAC Address** field with MAC address in the format **"XX-XX-XX-XX-XX-XX "**.

2. Click on the **"Add"** button to add.

3. To remove the MAC Address filtered by the port. Simply click on the **"Delete"** button of the MAC Address in the **Current Filtering MAC** Table.

Figure 4-65 MAC Address Filtering Web Screen

Object	Description
Add New MAC Address	
Add New MAC Address	Allow input the filtering MAC Address and the format must be **"XX-XX-XX-XX-XX-XX"**.
Add button	Press this button to add the new input filtering MAC Address.
Current Filtering MAC Address	
MAC Address	Display the filtering MAC Address.
Delete button	Press this button for remove the filtering MAC Address.

Table 4-22 Descriptions of the MAC Address Filtering Web Screen Objects

Notice: The Switch provide maximum up to 800 filtering MAC Address

4.5.7 MAC Address Learning

This section provides MAC Address Learning Configuration and the screen in **Figure 4-66** appears. **Table 4-23** describes the MAC Address Learning object of the Switch.

The Switch is able to disable MAC Address learning function on ports.

1. Fill the **Port Lis**t field in the **MAC Address Learning** table and select Enable/Disable in the **MAC Address Learning** field.

2. Click on the **"Apply"** button to take affect

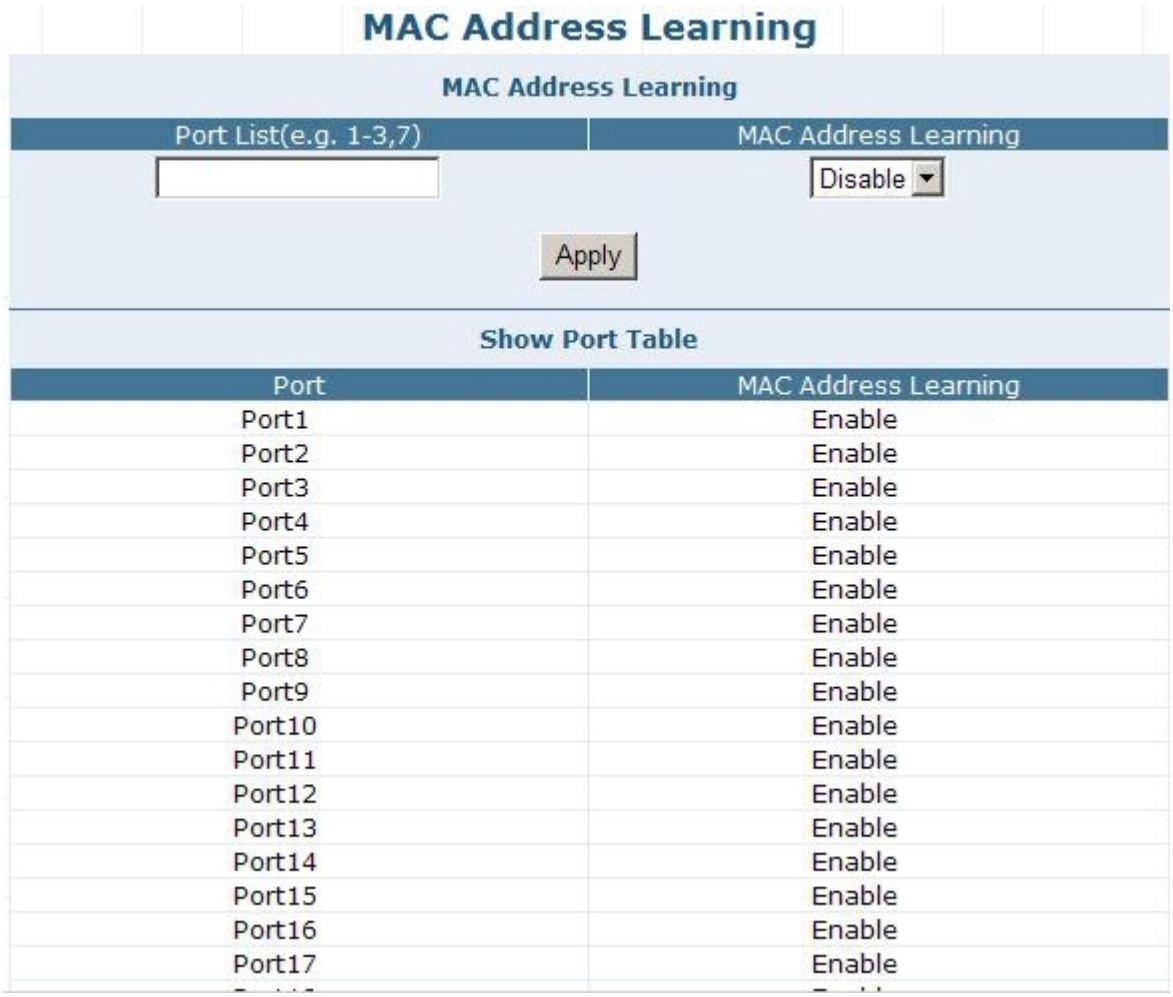


Figure 4-66 MAC Address Learning Web Screen

Object	Description
MAC Address Learning	
Port List	Allow choose one or multi-ports for MAC Address Learning Configuration.
MAC Address Learning	Allow **Disable** or **Enable** the MAC Address Learning function. **Default is "Disable"**.
Apply button	Press this button to take affect.
Show Port Table	
Port	Indicate Port 1 to Port 48 of the Switch..
MAC Address Learning	Display per port MAC Address Learning status.

Table 4-23 Descriptions of the MAC Address Learning Web Screen Objects

4.5.8 MAC Address Aging Time

This section provides MAC Address Aging Time Configuration and the screen in **Figure 4-67** appears. **Table 4-24** describes the MAC Address Aging Time object of the Switch.

The Aging Time affects the learning process of the Switch. Dynamic forwarding table entries, which are made up of the source and destination MAC addresses and their associated port numbers, are deleted from the table if they are not accessed within the aging time.

The aging time can be from 30 to 1,000 seconds with a default value of 300 seconds. A very long aging time can result in dynamic forwarding table entries that are out-of-date or no longer exist. This may cause incorrect packet forward indecisions by the Switch.

If the Aging Time is too short however, many entries may be aged out too soon. This will result in a high percentage of received packets whose source addresses cannot be found in the forwarding table, in which case the switch will broadcast the packet to all ports, negating many of the benefits of having a switch.

Static forwarding entries are not affected by the aging time.

To set the Aging Time, enter the number in the **MAC Address Aging Time** field, and click on the **"Apply"** button to save. The valid range is 30-1000 seconds. **Default is 300 seconds**.

Figure 4-67 MAC Address Aging Time Web Screen

Object	Description
MAC Address Aging Time (30-1000 seconds)	Allow define the MAC Address Aging Time and the available range is 30 to 1000 seconds. **Default is "300" seconds**.
Apply button	Press this button to take affect.

Table 4-24 Descriptions of the MAC Address Aging Time Web Screen Objects

4.6 QoS

This section provides QoS Configuration, such as 802.1p-Queue Mapping, Port Default Priority, Queue Management, Trust Mode and the screen appears as **Figure 4-68** and **Table 4-25** describes the QoS object of the Switch.

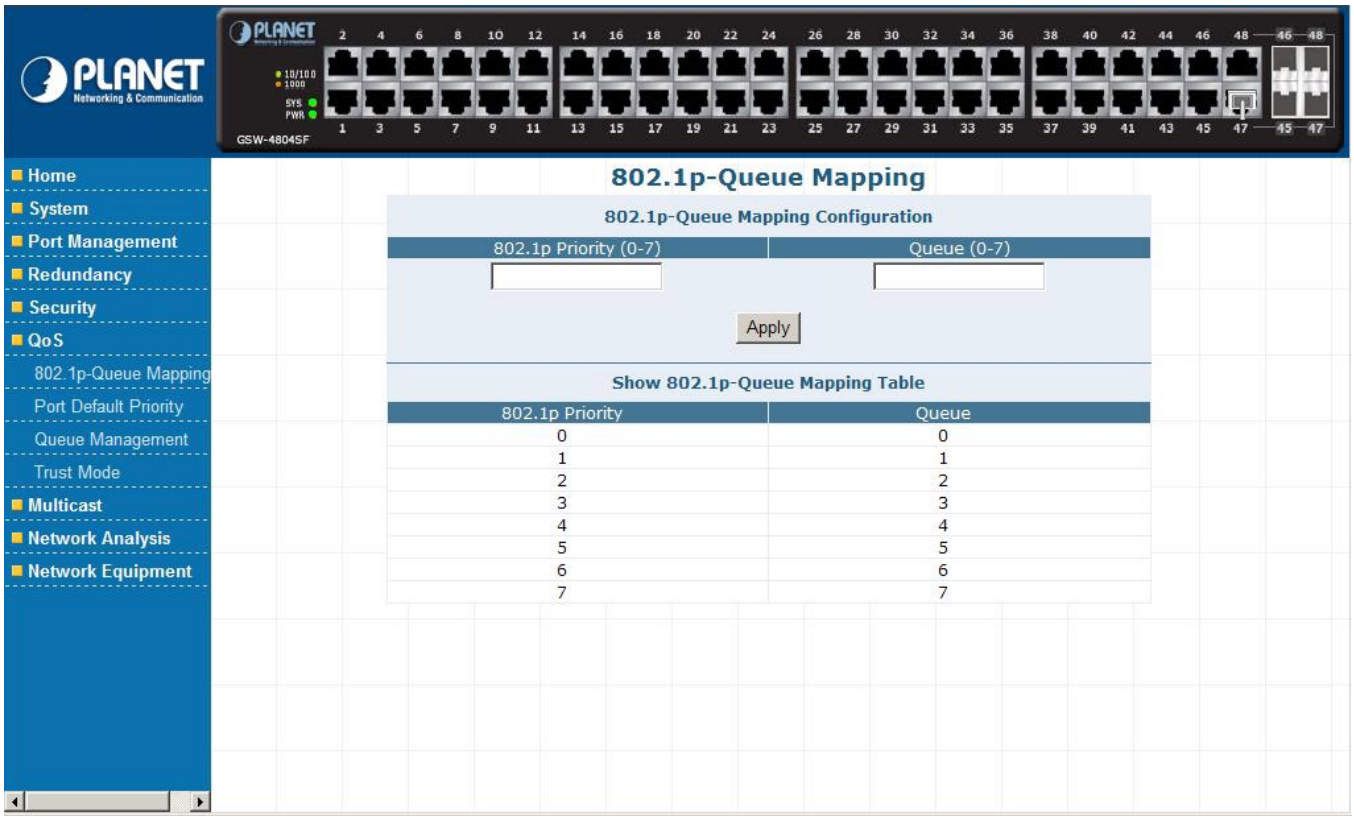


Figure 4-68 QoS Web Screen

Object	Description
802.1p-Queue Mapping	Provide 802.1p-Queue Mapping Configuration of the Switch. **Explained in section 4.6.1.**
Port Default Priority	Provide Port Default Priority Configuration of the Switch. **Explained in section 4.6.2.**
Queue Management	Provide Queue Management Configuration of the Switch. **Explained in section 4.6.3.**
Trust Mode	Provide Turst Mode Configuration of the Switch. **Explained in section 4.6.4.**

Table 4-25 Descriptions of the QoS Web Screen Objects

Understand QOS

Quality of Service (QoS) is an advanced traffic prioritization feature that allows you to establish control over network traffic. QoS enables you to assign various grades of network service to different types of traffic, such as multi-media, video, protocol-specific, time critical, and file-backup traffic.

QoS reduces bandwidth limitations, delay, loss, and jitter. It also provides increased reliability for delivery of your data and allows you to prioritize certain applications across your network. You can define exactly how you want the switch to treat selected applications and types of traffic.

You can use QoS on your system to:

- Control a wide variety of network traffic by:
- Classifying traffic based on packet attributes.
- Assigning priorities to traffic (for example, to set higher priorities to time-critical or business-critical applications).
- Applying security policy through traffic filtering.
- Provide predictable throughput for multimedia applications such as video conferencing or voice over IP by minimizing delay and jitter.
- Improve performance for specific types of traffic and preserve performance as the amount of traffic grows.
- Reduce the need to constantly add bandwidth to the network.
- Manage network congestion.

QoS Terminology

Classifier—classifies the traffic on the network. Traffic classifications are determined by protocol, application, source, destination, and so on. You can create and modify classifications. The Switch then groups classified traffic in order to schedule them with the appropriate service level.

DiffServ Code Point (DSCP) — is the traffic prioritization bits within an IP header that are encoded by certain applications and/or devices to indicate the level of service required by the packet across a network.

Service Level—defines the priority that will be given to a set of classified traffic. You can create and modify service levels.

Policy—comprises a set of "rules" that are applied to a network so that a network meets the needs of the business. That is, traffic can be prioritized across a network according to its importance to that particular business type.

QoS Profile—consists of multiple sets of rules (classifier plus service level combinations). The QoS profile is assigned to a port(s).

Rules—comprises a service level and a classifier to define how theSwitch will treat certain types of traffic. Rules are associated with a QoS Profile (see above).

To implement QoS on your network, you need to carry out the following actions:

1. Define a service level to determine the priority that will be applied to traffic.
2. Apply a classifier to determine how the incoming traffic will be classified and thus treated by the Switch.
3. Create a QoS profile which associates a service level and a classifier.
4. Apply a QoS profile to a port(s).

4.6.1 802.1p-Queue Mapping

This section provides 802.1p-Queue Mapping Configuration and the screen in **Figure 4-69** appears. **Table 4-26** describes the 802.1p-Queue Mapping object of the Switch.

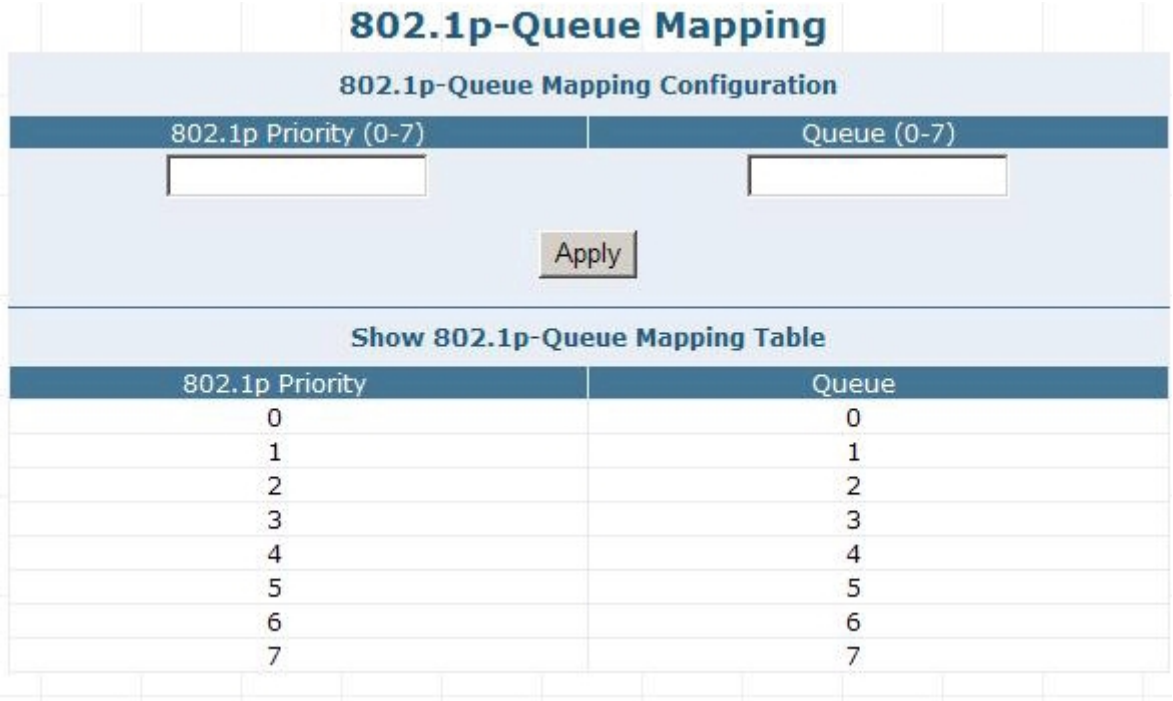


Figure 4-69 802.1p-Queue Mapping Web Screen

Object	Description
802.1p-Queue Mapping Configuration	
802.1p Priority (0-7)	Allow define the 802.1p Priority value from 0-7 with corresponding mapping number in the **Queue (0-7)** field.
Queue (0-7)	Allow define the Queuevalue from 0-7 with corresponding mapping number in the **802.1p Priprity (0-7)** field.
Apply button	Press this button to take affect.
Show 802.1p-Queue Mapping Table	
802.1p Priority	Display the 802.1p Priority mapping value (0-7).
Queue	Display the Queue Value (0-7).

Table 4-26 Descriptions of the 802.1p-Queue Mapping Web Screen Objects

4.6.2 Port Default Priority

This section provides Port Default Priority Configuration and the screen in **Figure 4-70** appears. **Table 4-27** describes the Port Default Priority object of the Switch.

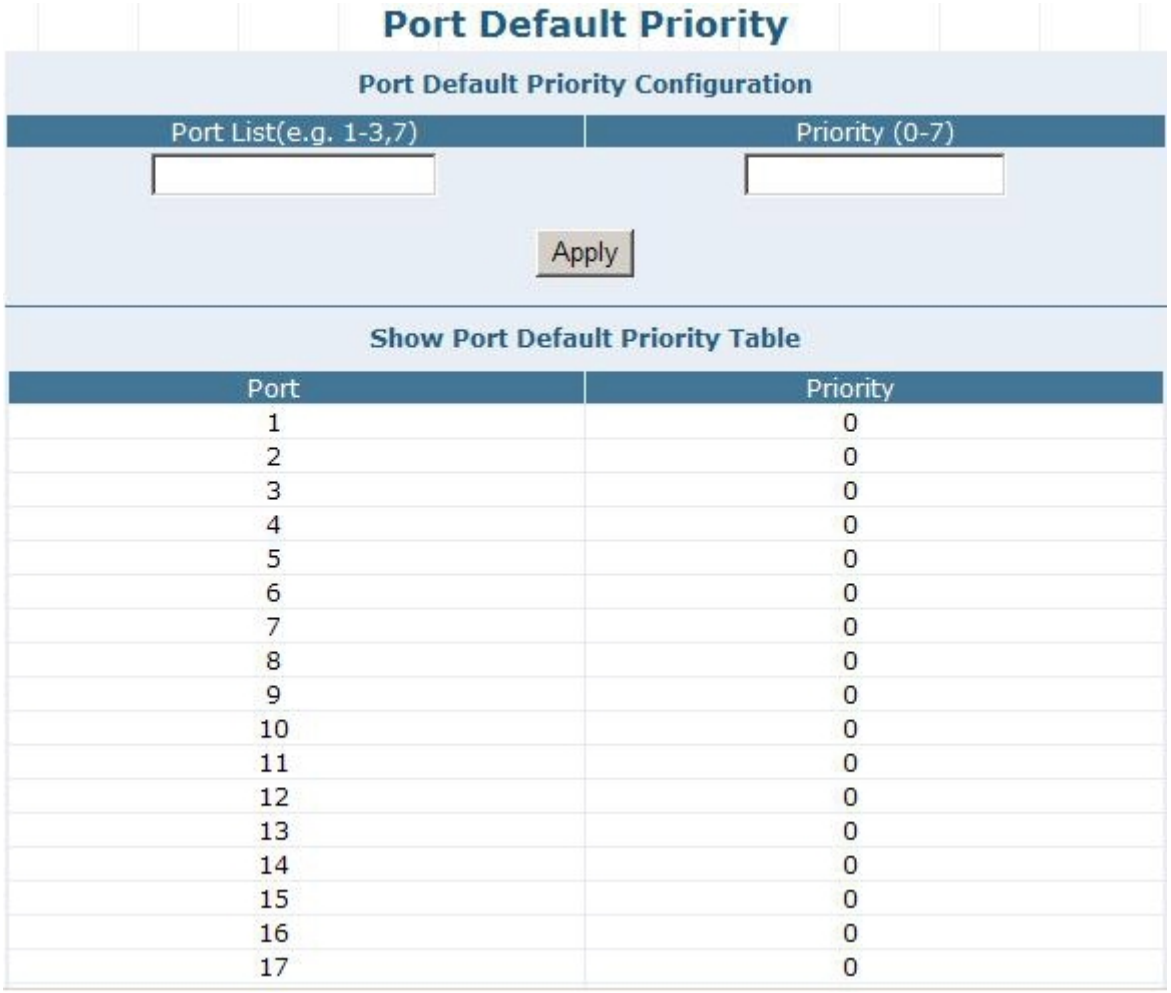


Figure 4-70 Port Default Priority Web Screen

Object	Description
Port Default Priority Configuration	
Port List(e.g. 1-3,7)	Allow choose one or multi-ports for configuration.
Priority (0-7)	Allow define the per port priority value from 0-7.
Apply button	Press this button to take affect.
Show Port Default Priority Table	
Port	Indicicate port 1 to port 48.
Priority	Display per port Priority value (0-7).

Table 4-27 Descriptions of the Port Default Priority Web Screen Objects

4.6.3 Queue Management

This section provides Queue Management Configuration and the screen in **Figure 4-71** appears. **Table 4-28** describes the Queue Management object of the Switch.

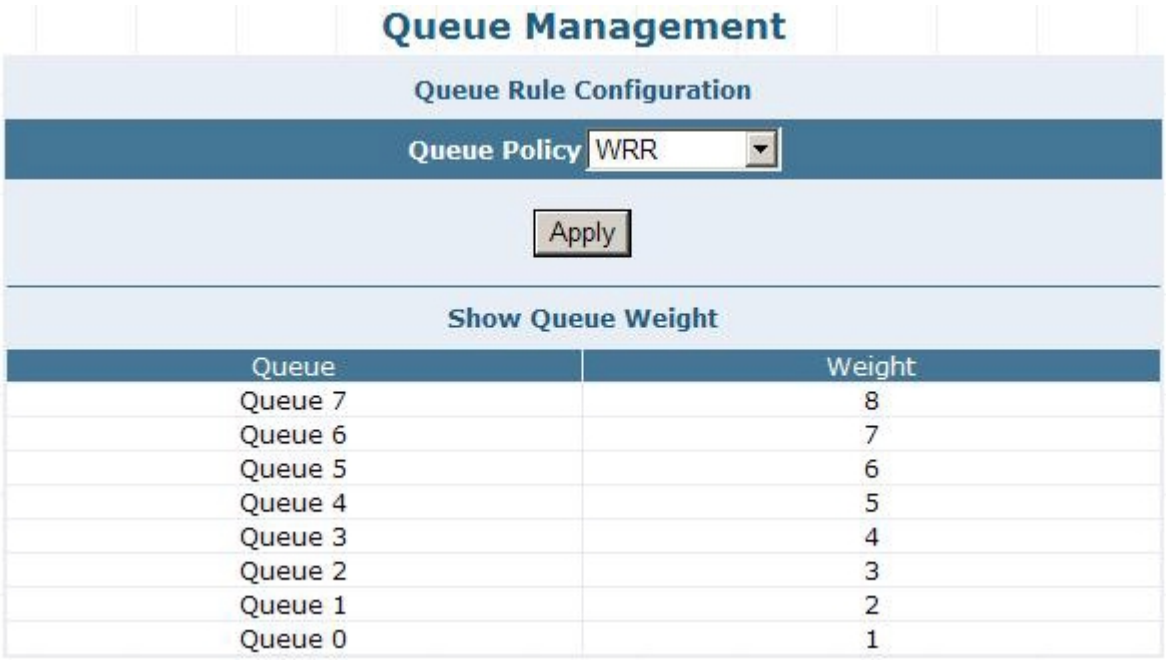


Figure 4-71 Queue Management Web Screen

Object	Description
Queue Rule Configuration	
Queue Policy	Provide two rules for the Priority Queue, the available options are Weighted Round Robin (**WRR**) and Always High. **Default is WRR (Weighted Round Robin)**.
Apply button	Press this button to take affect.
Show Queue Weight	
Queue	Display the Queue value (0-7) with corresponding mapping number in the **Weight (1-8)** field.
Weight	Display the Weight value (1-8) with corresponding mapping number in the **Queue (0-7)** field.

Table 4-28 Descriptions of the Queue Management Web Screen Objects

4.6.4 Turst Mode

This section provides Turst Mode Configuration and the screen in **Figure 4-72** appears. **Table 4-29** describes the Turst Mode object of the Switch.

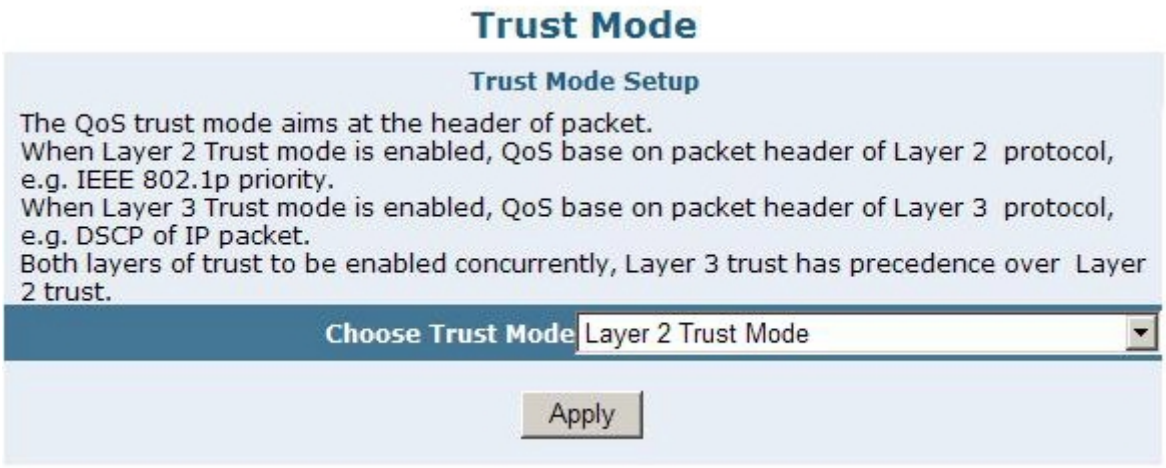


Figure 4-72 Turst Mode Web Screen

Object	Description
Trust Mode Setup	
Choose Trust Mode	Provide three various Trust Mode and the available options are **Layer 2 Trust Mode:** When Layer 2 Trust mode is enabled, QoS base on packet header of Layer 2 protocol, for example: IEEE 802.1p priority. **Layer 3 Trust Mode:** When Layer 3 Trust mode is enabled, QoS base on packet header of Layer 3 protocol, for example: DSCP of IP packet. **Both layers of turst to be enabled Concurrently:** Both layers of trust to be enabled concurrently, Layer 3 trust have precedence over Layer 2 trust. Default is **Layer 2 Trust Mode**.
Apply button	Press this button to take affect.

Table 4-29 Descriptions of the Turst Mode Web Screen Objects

4.7 Multicast

This section provides Multicast Configuration, such as IGMP Snooping, Static Routing Port and the screen appears as **Figure 4-73** and **Table 4-30** describes the Multicast object of the Switch.

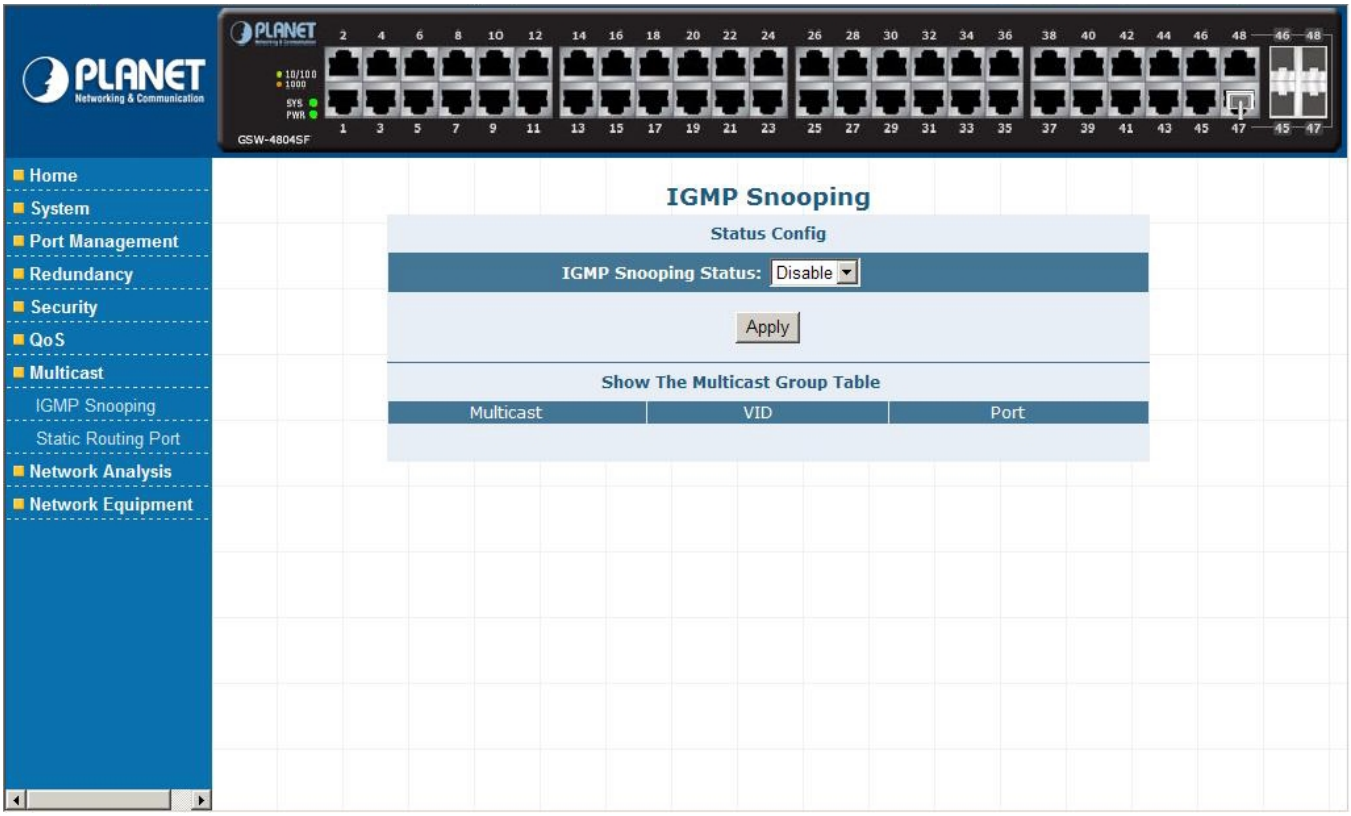


Figure 4-73 Multicast Web Screen

Object	Description
IGMP Snooping	Provide IGMP Snooping Disable or Enable. **Explained in section 4.7.1.**
Static Routing Port	Allow define the Static Routing Port of the Switch. **Explained in section 4.7.2.**

Table 4-30 Descriptions of the Multicast Web Screen Objects

Theory

Computers and network devices that want to receive multicast transmissions need to inform nearby routers that they will become members of a multicast group. The Internet Group Management Protocol (IGMP) is used to communicate this information. IGMP is also used to periodically check the multicast group for members that are no longer active. In the case where there is more than one multicast router on a sub network, one router is elected as the 'queried'. This router then keeps track of the membership of the multicast groups that have active members. The information received from IGMP is then used to determine if multicast packets should be forwarded to a given sub network or not. The router can check, using IGMP, to see if there is at least one member of a multicast group on a given subnet work. If there are no members on a sub network, packets will not be forwarded to that sub network.

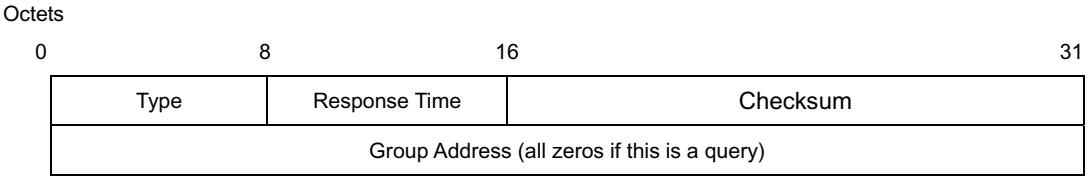
IGMP Versions 1 and 2

Multicast groups allow members to join or leave at any time. IGMP provides the method for members and multicast routers to communicate when joining or leaving a multicast group.

IGMP version 1 is defined in RFC 1112. It has a fixed packet size and no optional data.

The format of an IGMP packet is shown below:

IGMP Message Format



The IGMP Type codes are shown below:

Type	Meaning
0x11	Membership Query (if Group Address is 0.0.0.0)
0x11	Specific Group Membership Query (if Group Address is Present)
0x16	Membership Report (version 2)
0x17	Leave a Group (version 2)
0x12	Membership Report (version 1)

IGMP packets enable multicast routers to keep track of the membership of multicast groups, on their respective sub networks. The following outlines what is communicated between a multicast router and a multicast group member using IGMP.
A host sends an IGMP **"report"** to join a group

A host will never send a report when it wants to leave a group (for version 1).

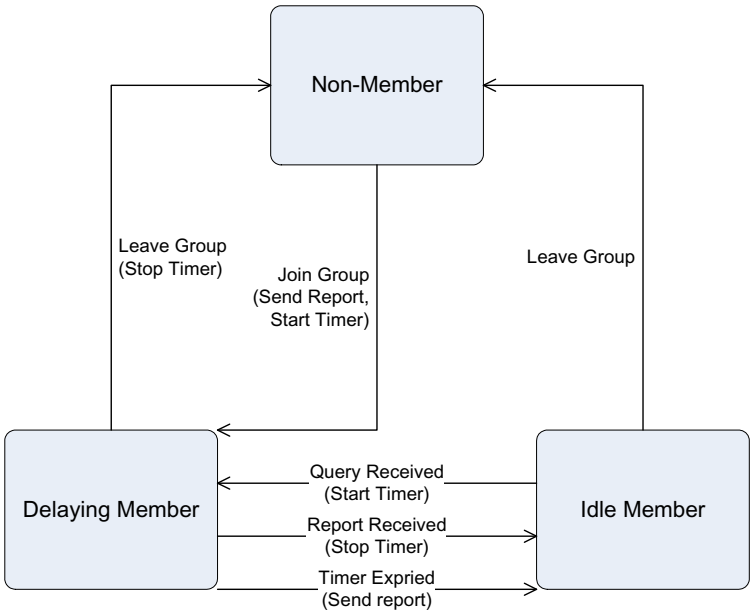
A host will send a **"leave"** report when it wants to leave a group (for version 2).

Multicast routers send IGMP queries (to the all-hosts group address: 224.0.0.1) periodically to see whether any group members exist on their sub networks. If there is no response from a particular group, the router assumes that there are no group members on the network.

The Time-to-Live (TTL) field of query messages is set to 1 so that the queries will not be forwarded to other sub networks.

IGMP version 2 introduces some enhancements such as a method to elect a multicast queried for each LAN, an explicit leave message, and query messages that are specific to a given group.

The states a computer will go through to join or to leave a multicast group are shown below:



IGMP State Transitions

4.7.1 IGMP Snooping

This section provides IGMP Snooping Configuration and the screen in **Figure 4-74** appears. **Table 4-31** describes the IGMP Snooping object of the Switch.

Figure 4-74 IGMP Snooping Web Screen

Object	Description
Status Config	
IGMP Snooping Status:	Provide IGMP Snooping Disable or Enable. **Default is Enable.**
Apply button	Press this button to take affect.
Show The Multicast Group Table	
Multicast	Display the Multicast group information.
VID	Display the VID of IGMP Groups in VLANs.
Port	Display the member ports of IGMP Groups in VLANs

Table 4-31 Descriptions of the IGMP Snooping Web Screen Objects

4.7.2 Static Routing Port

This section provides Static Routing Port Configuration and the screen in **Figure 4-75** appears. **Table 4-32** describes the Static Routing Port object of the Switch.

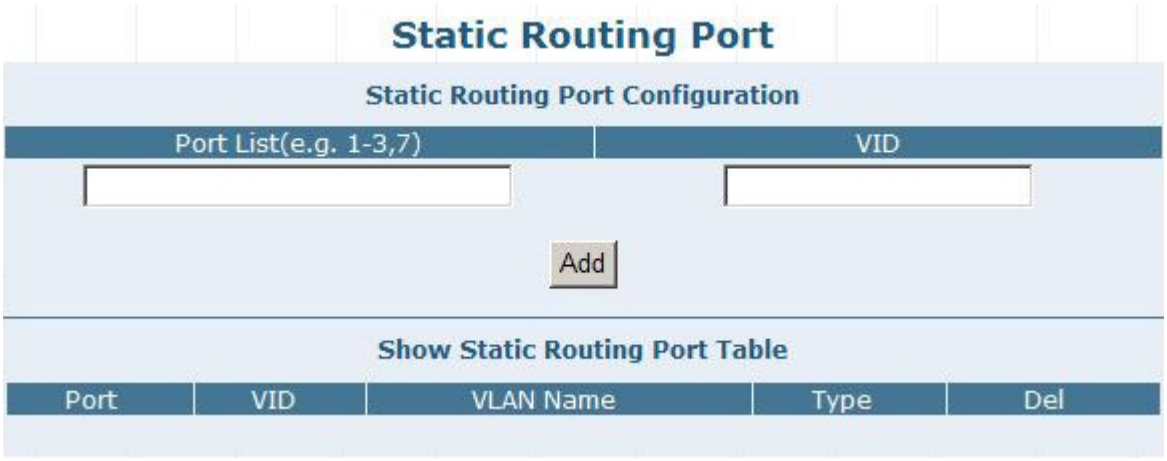


Figure 4-75 Static Routing Port Web Screen

Object	Description
Static Routing Port Configuration	
Port List(e.g. 1-3,7)	Allow choose one or multi-ports for configuration.
VID	Display the VLAN ID (VID) of choosed port.
Add button	Press this button to add choosed port into Static Routing Port Table.
Show Static Routing Port Table	
Port	Display the configured port.
VID	Display the VLAN ID (VID) of the configured port.
VLAN Name	Display the VLAN Name of VLAN Group that includes configured port. .
Type	Display the VLAN Type of VLAN Group that includes configured port.
Delete button	Press this button to remove one specific Static Routing Port.

Table 4-32 Descriptions of the Static Routing Port Web Screen Objects

4.8 Network Analysis

This section provides Network Analysis configuration, such as Port Analysis, Port Mirror, QoS Statistics, ARP Attack Log and the screen appears as **Figure 4-76** and **Table 4-33** describes the Network Analysis object of the Switch.

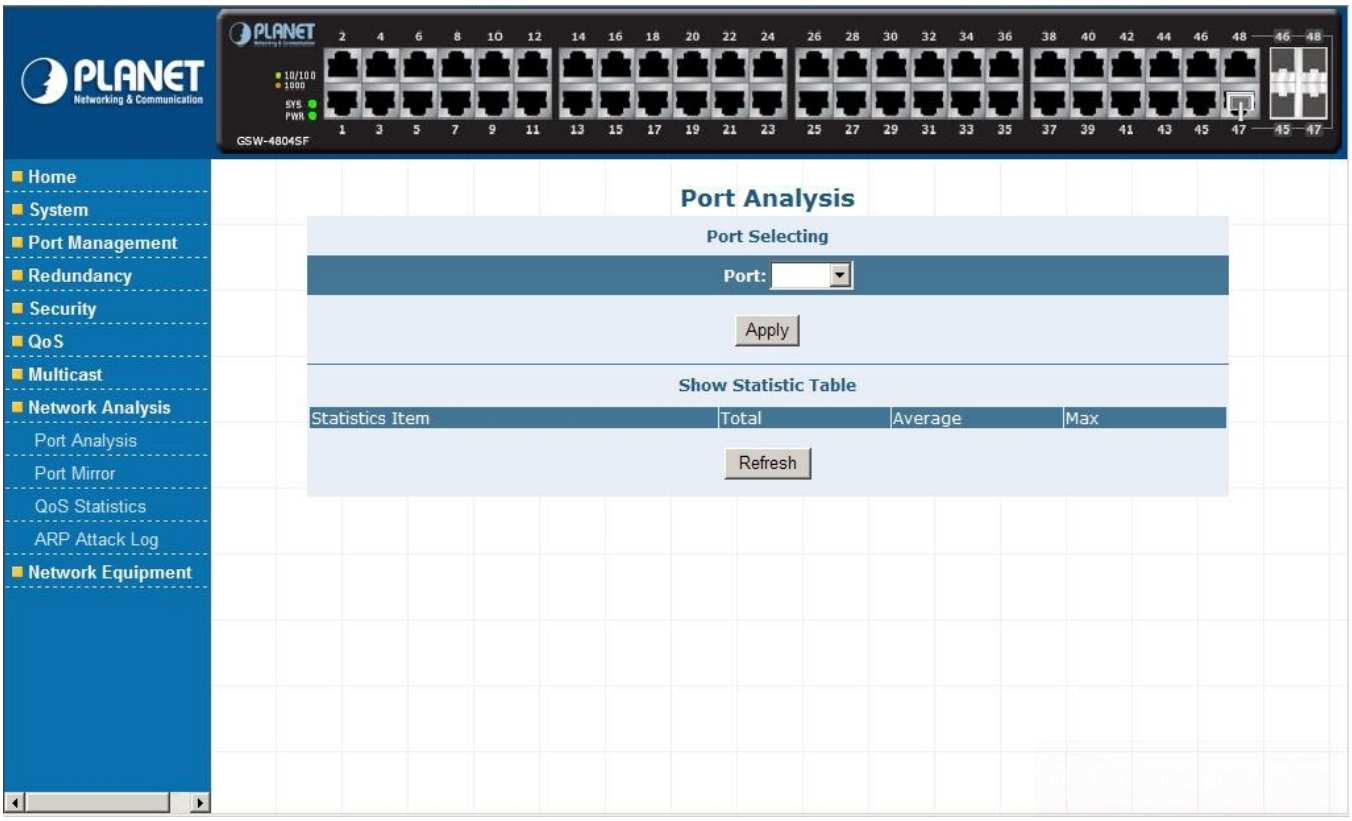


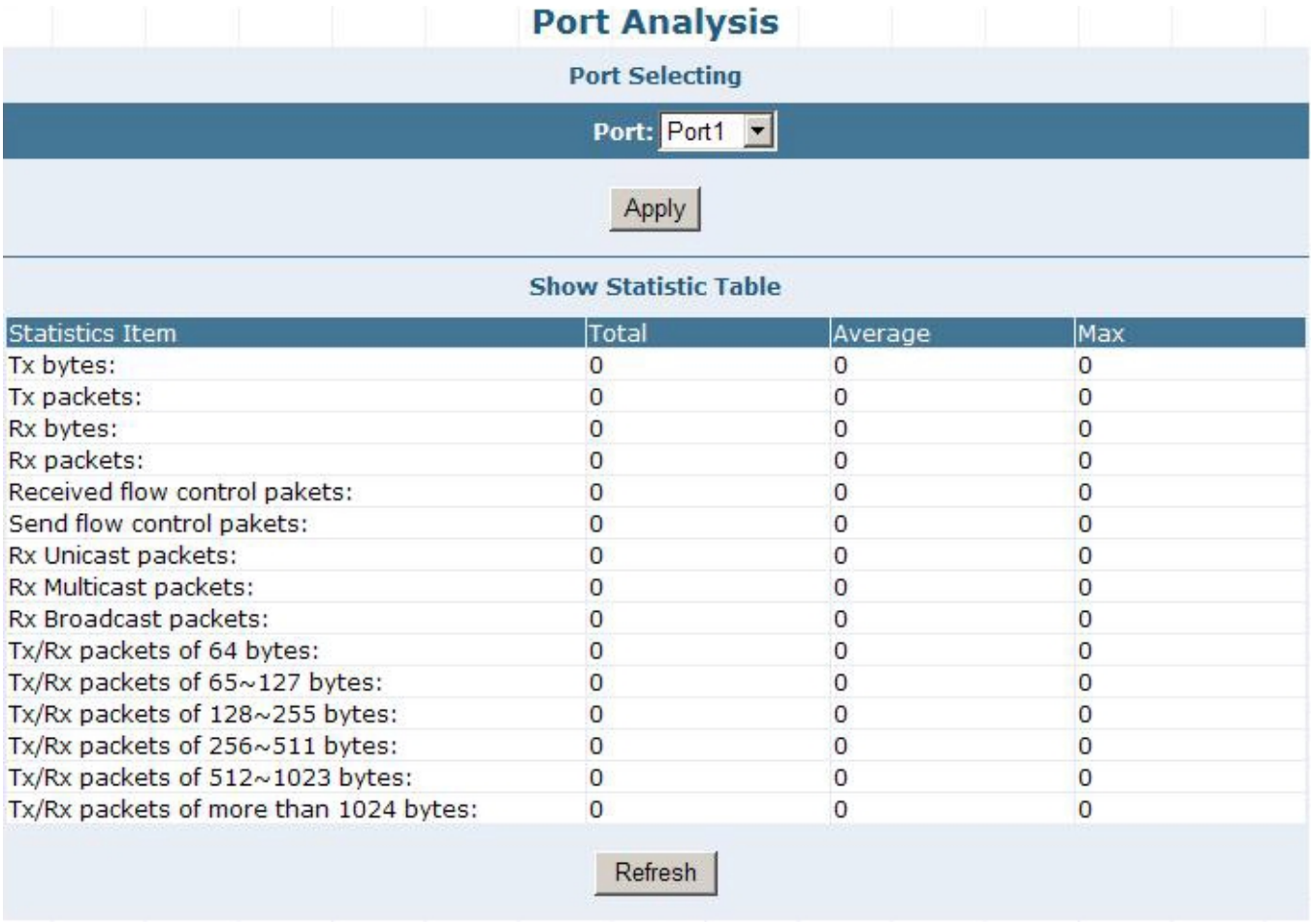
Figure 4-76 Network Analysis Web Screen

Object	Description
Port Analysis	Provide choose and display one specific port detail statistics. **Explained in section 4.8.1.**
Port Mirror	Provide Disable or Enable the Port Mirror function. **Explained in section 4.8.2.**
QoS Statistics	Display details QoS Statistics. **Explained in section 4.8.3.**
ARP Attack Log	Display details ARP Attack Log records. **Explained in section 4.8.4.**

Table 4-33 Descriptions of the Network Analysis Web Screen Objects

4.8.1 Port Analysis

This section provides display Per Port detail traffic transmits / receives statistics and the screen in **Figure 4-77** appears. **Table 4-34** describes the Port Analysis object of the Switch.



Statistics Item	Total	Average	Max
Tx bytes:	0	0	0
Tx packets:	0	0	0
Rx bytes:	0	0	0
Rx packets:	0	0	0
Received flow control pakets:	0	0	0
Send flow control pakets:	0	0	0
Rx Unicast packets:	0	0	0
Rx Multicast packets:	0	0	0
Rx Broadcast packets:	0	0	0
Tx/Rx packets of 64 bytes:	0	0	0
Tx/Rx packets of 65~127 bytes:	0	0	0
Tx/Rx packets of 128~255 bytes:	0	0	0
Tx/Rx packets of 256~511 bytes:	0	0	0
Tx/Rx packets of 512~1023 bytes:	0	0	0
Tx/Rx packets of more than 1024 bytes:	0	0	0

Figure 4-77 Port Analysis Web Screen

Object	Description
Port Selecting	
Port	Allow choose one port for detail traffic transmits / receives statistics display.
Apply button	Press this button to take affect.
Show Statistic Table	
Statistics Item	
Tx bytes:	Displays the value of packets transmits from choose port and the unit is bytes.
Tx packets:	Displays the value of packets transmits from choose port and the unit is packets.
Rx bytes:	Displays the value of packets receives from choose port and the unit is bytes.
Rx packets:	Displays the value of packets receives from choose port and the unit is packets.
Received flow control pakets:	Display the value of flow packets receives from chooses port.
Send flow control pakets:	Display the value of flow packets transmits packets from chooses port.
Rx Unicast packets:	Display the value of Unicast packets receives from chooses port.
Rx Multicast packets:	Display the value of Multicast packets receives from chooses port.
Rx Broadcast packets:	Display the value of Broadcast packets receives from chooses port.
Tx/Rx packets of 64 bytes:	Display the value of 64bytes packets transmit / receive from choosed port.
Tx/Rx packets of 65~127 bytes:	Display the value of 64 to 127bytes packets transmit / receive from choosed port.
Tx/Rx packets of 128~255 bytes:	Display the value of 128 to 255bytes packets transmit / receive from choosed port.
Tx/Rx packets of 256~511 bytes:	Display the value of 256 to 511bytes packets transmit / receive from choosed port.
Tx/Rx packets of 512~1023 bytes:	Display the value of 512 to 1023bytes packets transmit / receive from choosed port.
Tx/Rx packets of more than 1024 bytes:	Display the value of 1024bytes packets or above transmit / receive from choosed port.
Total	Display the total value from statistics items.
Average	Display the average value from statistics items.
Max	Display the maximum value from statistics items.
Refresh	Press this button to refresh the statistics table.

Table 4-34 Descriptions of the Port Analysis Web Screen Objects

4.8.2 Port Mirror

This section provides Port Mirror configuration and Port Mirroring is a method of monitoring network traffic that forwards a copy of each incoming and/or outgoing packet from one port of a network switch to another port where the packet can be studied. It enables the manager to keep close track of switch performance and alter it if necessary. The screen in **Figure 4-78** appears. **Table 4-35** describes the Port Mirror object of the Switch.

Figure 4-78 Port Mirror Web Screen

Object	Description
Flow Capture Configuration	
Capture Port:	Allow assign one specific port as capture port.
Capture Status:	Allow disable or enable the capture ability from one specific port. **Default mode is Disable.**
Apply button	Press this button to take affect.
Mirror Port Configuration	
Ingress Port List(e.g. 1-3,7)	Allow choose one or multi-ports as Ingress port.
Egress Port List(e.g. 1-3,7)	Allow choose one or multi-ports as Egress port.
Apply button	Press this button to take affect.

Table 4-35 Descriptions of the Port Mirror Web Screen Objects

4.8.3 QoS Statistics

This section provides QoS Statistics and the screen in **Figure 4-79** appears. **Table 4-36** describes the QoS Statistics object of the Switch.

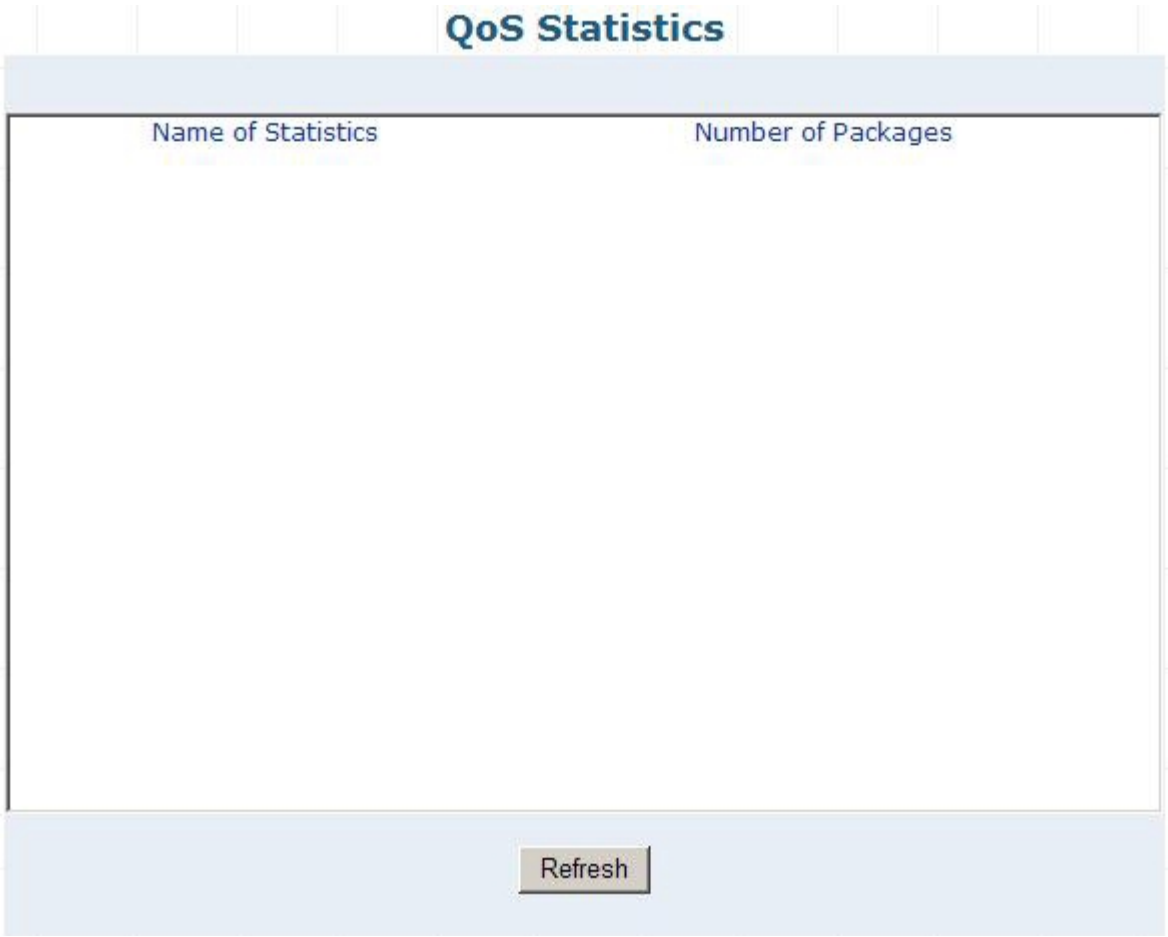


Figure 4-79 QoS Statistics Web Screen

Object	Description
QoS Statistics	
Name of Statistics	Display the name of Statistics, .
Number of Packages	Display the number of packages.
Refresh button	Press this button to refresh the QoS statistics table.

Table 4-36 Descriptions of the QoS Statistics Web Screen Objects

4.8.4 ARP Attack Log

This section provides ARP Attack Log information and the screen in **Figure 4-80** appears. **Table 4-37** describes the ARP Attack Log object of the Switch.

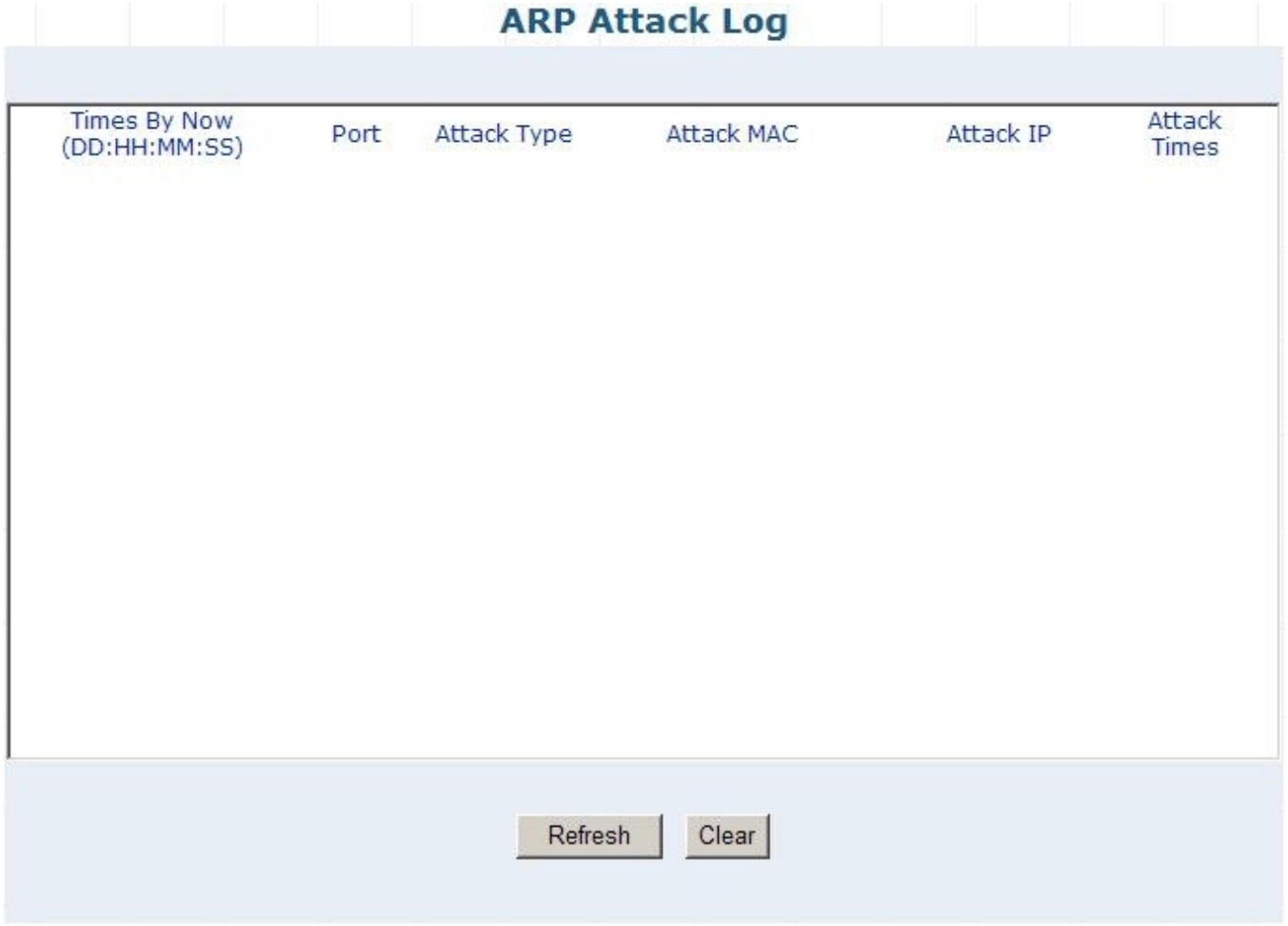


Figure 4-80 ARP Attack Log Web Screen

Object	Description
Times By Now(DD:HH:MM:SS)	Display detail attack time information.
Port	Display which port receives ARP attack.
Attack Type	Display the attack type.
Attack MAC	Display the attack source MAC address.
Attack IP	Display the attack source IP address.
Attack Times	Display the attack appears time information.
Refresh button	Press this button to refresh the ARP Attack Log Web Screen.
Clear button	Press this button to clear the information of ARP Attack Log Web Screen.

Table 4-37 Descriptions of the ARP Attack Log Web Screen Objects

4.9 Network Equipment

This section provides Network Equipment configuration, such as Host Security Defense, Facility Protection, Program Priority, and the screen appears as **Figure 4-81** and **Table 4-38** describes the Network Equipment object of the Switch.

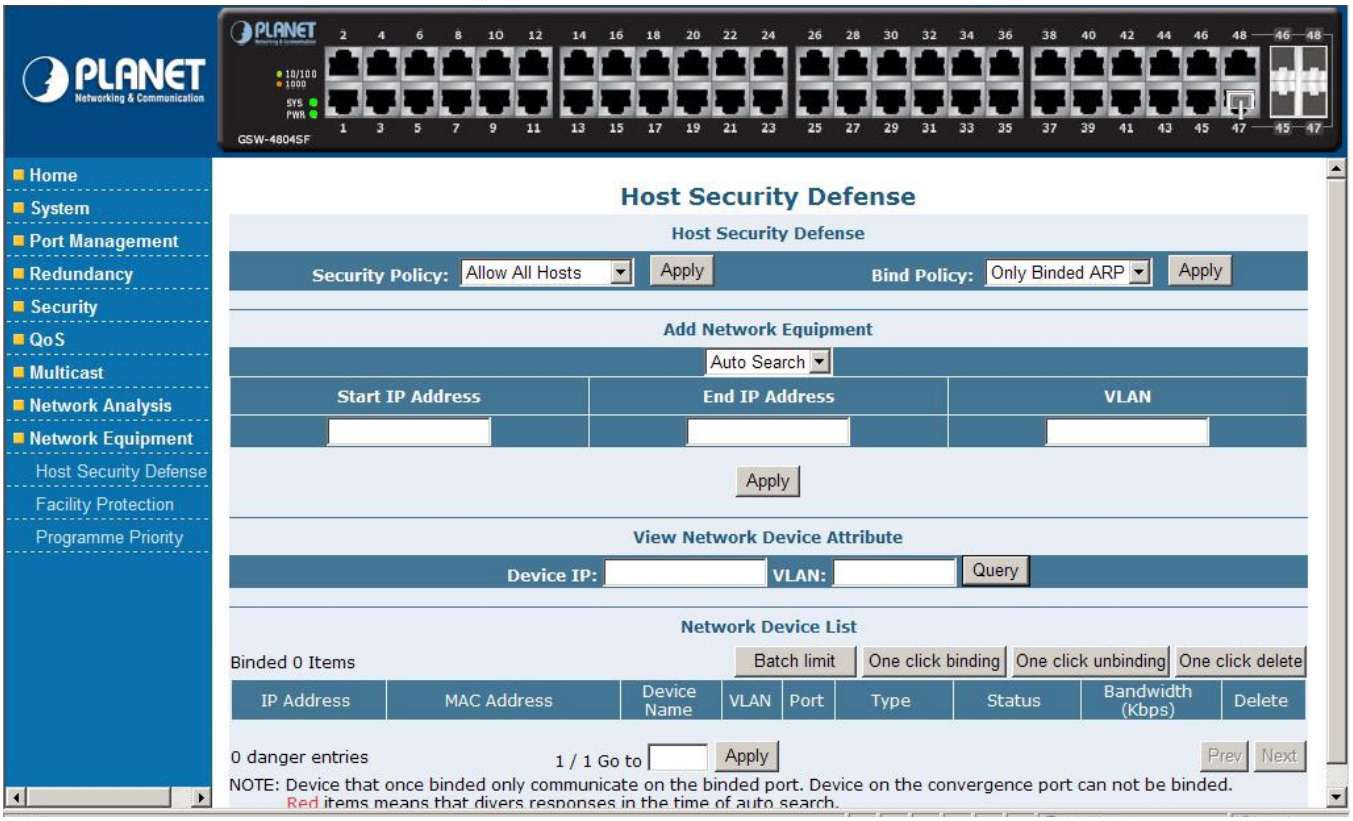


Figure 4-81 Network Equipment Web Screen

Object	Description
Host Security Defense	Provide setup the Security Defence policy. **Explained in section 4.9.1.**
Facility Protection	Provide setup the Facility Protection policy. **Explained in section 4.9.2.**
Programme Priority	Provide setup the Programme Priority Level. **Explained in section 4.9.3.**

Table 4-38 Descriptions of the Network Equipment Web Screen Objects

4.9.1 Host Security Defense

This section provides Host Security Defense configuration and the screen in **Figure 4-82** appears, the available options are **Host Security Defense**, **Add Network Equipment**, **View Network Device Attribute** and **Network list**. Please refer to following sections for detail explanation.

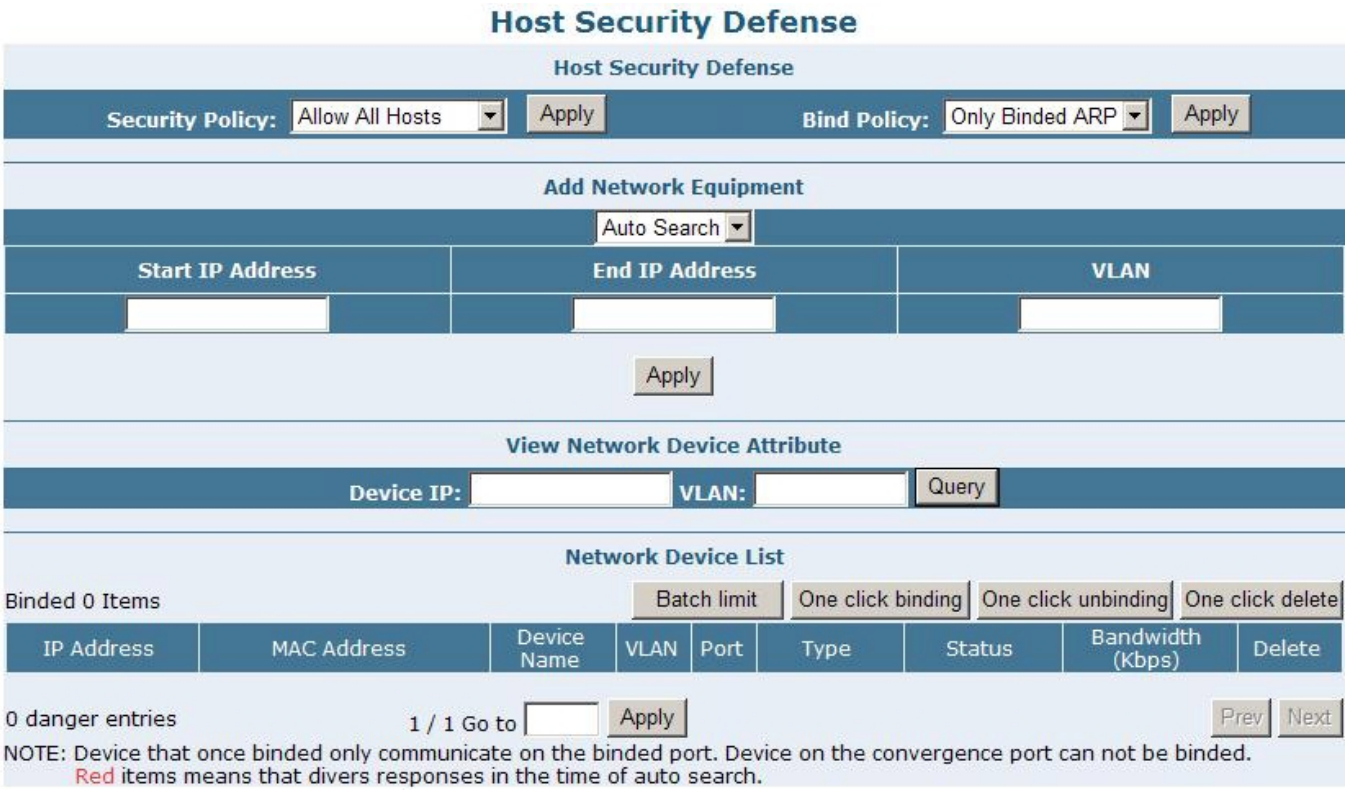


Figure 4-82 Host Security Defense Web Screen

Host Security Defense

This section provide Host Security Defense policy configuration, the screen in **Figure 4-83** appears and **Table 4-39** describes the Host Security Defense object of the Switch.

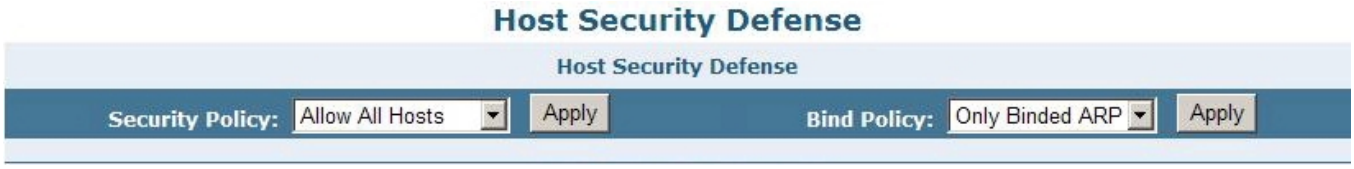


Figure 4-83 Host Security Defense Web Screen

Object	Description
Host Security Defense	
Security Policy:	Provide 3 various security policy and the available options are **"Allow All Hosts"**, **"Only List Hosts"** and **"Only binded Hosts"**. **The default is Allow All Hosts**.
Bind Policy:	Provide 2 various bind policy and the available options are **"Only Binded ATP"** and **"ARP And IP"**. **The default is "Only Binded ATP".**

Table 4-39 Descriptions of the Host Security Defense Web Screen Objects

Add Network Equipment

This section provide Add Network Equipment configuration, there are two methods to add the Network equipment, such as **Auto Search** and **Manual Add**, please refer to following detail information.

Auto Search

This section provide Auto search the network equipment during one specific IP address range and VLAN, the screen in **Figure 4-84** appears and **Table 4-40** describes the Auto Search object from the Add Network Equipment of the Switch.

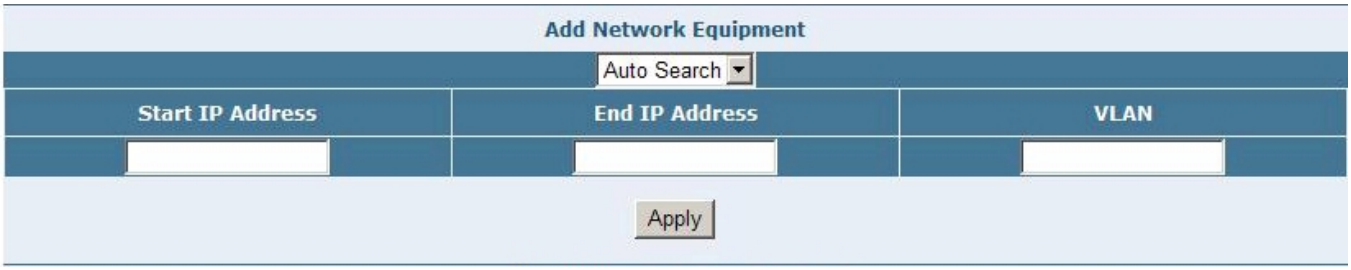


Figure 4-84 Auto Search Web Screen

Object	Description
Auto Serach	
Start IP Address	Allow input a start IP address for Auto search IP address range.
End IP Address	Allow input an end IP address for Auto search IP address range.
VLAN	Allow input one specific VLAN ID for Auto search IP address range.
Apply button	Press this button to take affect.

Table 4-40 Descriptions of the Auto Search Web Screen Objects

Manual Add

This section provide manual add the network equipment by input its IP address, MAC address, VLAN, connected port, Device Type, Device Name, Bandwidth Restrictions(Kbps) and Router IP. The screen in **Figure 4-85** appears and **Table 4-41** describes the Manual Add object from the Add Network Equipment of the Switch.

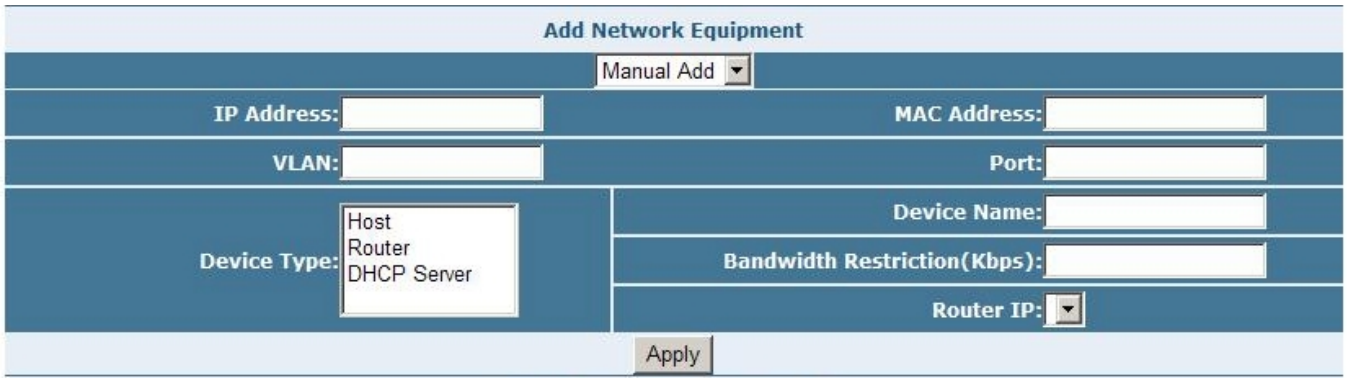


Figure 4-85 Manual Add Web Screen

Object	Description
Manual Add	
IP Address:	Allow input one specific IP address of the equipment.
MAC Address:	Allow input one specific MAC address of the equipment.
VLAN:	Allow input one specific VLAN group includes the port that equipment connected.
Port:	Allow input one specific port that equipment connected.
Device Type:	Provide three various device types and the available options are **"Host"**, **"Router"** and **"DHCP Server"**.
Device Name:	Allow input the device name and maximum up to 10 characters.
Bandwidth Restriction(Kbps):	Allow input the bandwidth restriction value in kbps.
Router IP:	Allow choose Router IP address.
Apply button	Press this button to take affect.

Table 4-41 Descriptions of the Manual Add Web Screen Objects

View Network Device Attribute

This section provide View Network Device Attribute configuration, the screen in **Figure 4-86** appears and **Table 4-42** describes the View Network Device Attribute object of the Switch.

Figure 4-86 View Network Device Attribute Web Screen

Object	Description
View Network Device Attribute	
Device IP:	Allow input one specific IP address of the equipment.
VLAN:	Allow input one specific VLAN group ID includes the port that equipment connected.
Query button	Press this button to view the Network Device Attribute.

Table 4-42 Descriptions of the View Network Device Attribute Web Screen Objects

Network Device List

This section provide Network Device List configuration, the screen in **Figure 4-87** appears and **Table 4-43** describes the Network Device List object of the Switch.

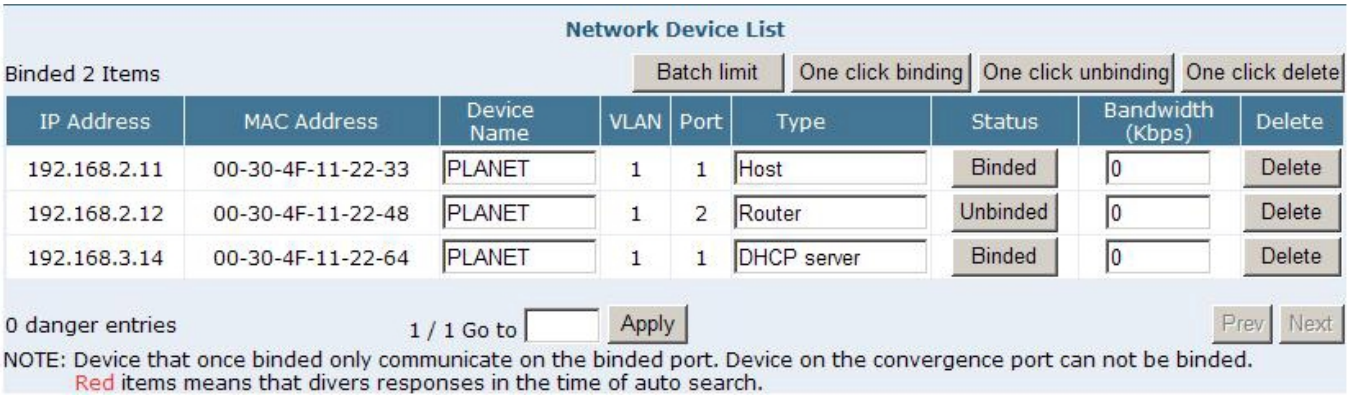


Figure 4-87 Network Device List Web Screen

Object	Description
Network Device List	
Binded 0 Items	Display the numbers of binded items.
Batch limit	Provide Limited Quantities Flow Setup and the screen in **Figure 4-88** appear and **Table 4-44** describes the Batch limit object of the Switch.
One click binding button	Press this button to bind all devices and the pop screen in **Figure 4-89** appears, click **"OK"** to complete this procedure.
One click unbinding button	Press this button to unbind all devices and the pop screen in **Figure 4-90** appears, click **"OK"** to complete this procedure.
One click delete button	Press this button to delete all bind devices and the pop screen in **Figure 4-91** appears, click **"OK"** to complete this procedure.
IP Address	Display the IP Address of one specific bind item.
MAC Address	Display the MAC Address of one specific bind item.
Device Name	Display the Device Name of one specific bind item.
VLAN	Display the VLAN group infromation of one specific bind item.
Port	Display the port that connects to one specific bind item.
Type	Display the type of **"Host"**, **"Router"** or **"DHCP Server"**.
Status	Display the bind / unbind status of one specific bind item.
Bandwidth(kbps)	Display the bandwidth value (kbps) of one specific bind item.
Delete button	Press this button to delete one specific bind item.
0 danger entries	Display the numbers of danger entries.
1 / 1 Go to Apply	If there are 2 pages or more, please input the number of the page that need to check and press **"Apply"** button for go to this page.
Prev	If there are 2 pages or more, please press this button for go to previous page.
Next	If there are 2 pages or more, please press this button for go to next page.

Table 4-43 Descriptions of the Network Device List Web Screen Objects

Figure 4-88 Batch Limit Web Screen

Object	Description
Limited Quantities Flow Setup	
Start-up IP Address	Allow input a start IP address for Limited Quantities Flow Setup.
End up IP Address	Allow input an end IP address for Limited Quantities Flow Setup.
VLAN	Allow input one specific VLAN ID for Limited Quantities Flow Setup.
Router IP	Allow choose one specific Router IP for Limited Quantities Flow Setup
Bandwidth Restriction(kbps)	Allow input bandwidth restriction value for Limited Quantities Flow Setup
Apply button	Press this button to take affect.

Table 4-44 Descriptions of the Batch Limit Web Screen Objects

Figure 4-89 One click binding Web Screen

Figure 4-90 One click unbinding Web Screen

Figure 4-91 One click delete Web Screen

4.9.2 Facility Protection

This section provides Facility Protection configuration and the screen in **Figure 4-92** appears. **Table 4-45** describes the Facility Protection object of the Switch.

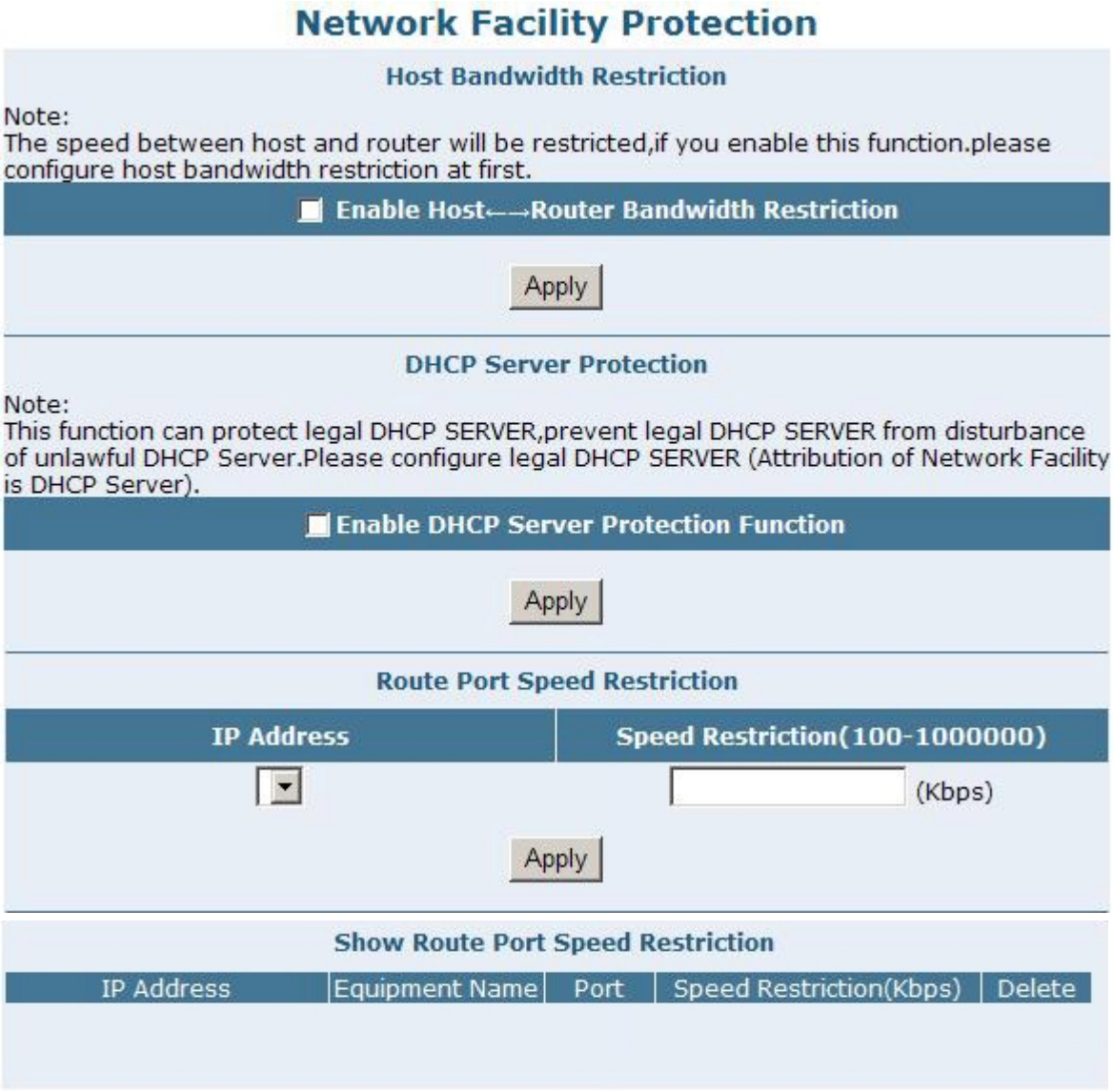


Figure 4-92 Facility Protection Web Screen

Object	Description
Host Bandwidth Restriction	
Enable Host←→Router Bandwidth Restriction	Allow Disable or Enable the Router Bandwidth Restriction, **default is Disable**.
Apply button	Press this button to take affect.
DHCP Server Protection	
Enable DHCP Server Protection Function	Allow Disable or enable the DHCP Server Protection Function, **default is Disable**.
Apply button	Press this button to take affect.
Route Port Speed Restriction	
IP Address	Allow input one router IP address for speed restriction.
Speed Restriction(100-1000000)	Allow assign value for speed restriction and the available range is 100-1000000 kbps.
Apply button	Press this button to take affect.
Show Route Port Speed Restriction	
IP Address	Display the router IP Address.
Equipment Name	Display the equipment name of the router.
Port	Display the port that connected to the router.
Speed Restriction(Kbps)	Display the value of speed restriction in Kbps.
Delete button	Press this button to delete one specific choose item.

Table 4-45 Descriptions of the Facility Protection Web Screen Objects

4.9.3 Programme Priority

This section provides Programme Priority configuration and the screen in **Figure 4-93** appears. **Table 4-46** describes the Programme Priority object of the Switch.

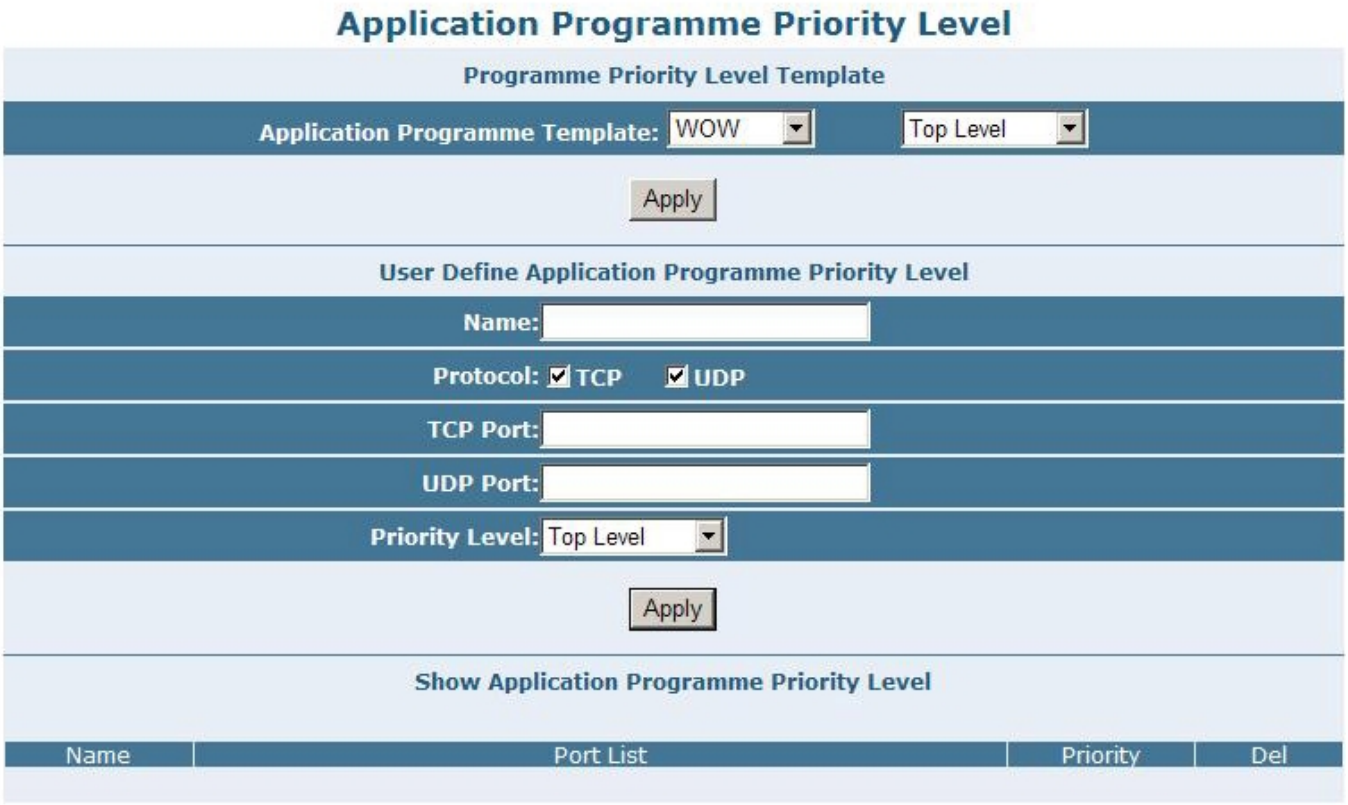


Figure 4-93 Programme Priority Web Screen

Object	Description
Programme Priority Level Template	
Application Programme Template:	Provide six various Programme Template application and available options are WOW. CGL. POPO.QQ Voice. Lineagell. CS. **Default is WOW**. Also provide three various level, such as Top Level, Medium Leve, Low Level.
Apply button	Press this button to take affect.
User Define Application Programme Priority Level	
Name:	Allow user define the name for new Application Programme Priority Level.
Protocol:	Provide TCP and UDP protocol options for choose.
TCP Port:	Allow input TCP port when the TCP Protocol has been choosed.
UDP Port:	Allow input UDP port when the UDP Protocol has been choosed.
Priority Level:	Press this button to take affect.
Apply button	Provide TCP and UDP protocol options for choose.
Show Application Programme Priority Level	
Name	Display the Application Programme Priority Level.
Port List	Display the TCP Port and UDP Port information from each Application Programme Priority Level.
Priority	Display the priority information from each Application Programme Priority Level.
Delete button	Press this button to remove the Application Programme Priority Level from this table list.

Table 4-46 Descriptions of the Programme Priority Web Screen Objects

5. SWITCH OPERATION

5.1 Address Table

The Switch is implemented with an address table. This address table 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 no. 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 lookup 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 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 address table. But, if the destination address is located at the same port with this packet 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 occurrence, 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 overall performance. An Ethernet Switching can be easily configured in any Ethernet network environment to significantly boost bandwidth using 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 detect the modes and speeds at the second of both device is connected and capable of, 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 was set up according to instructions in this manual.

The LNK/ACT 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, Link Aggregation function that may introduce this kind of issue.

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.

1000Base-T port link LED is lit, but the traffic is irregular

Solution:

Check that the attached device is not set to dedicate 1000 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 power again.

How to deal forgotten password situation of Switch?

Solution:

Please refer chapter 3.3 Reset to Factory Default Mode under Console Interface for reset Switch to factory default mode

Factory-default IP Address and username / password are shown as following:

Default IP address: **192.168.0.100**

Default User Name: **admin**

Default Password: **admin**

APPENDIX A

A.1 Switch's RJ-45 Pin Assignments

When connecting your 10/100Mbps Ethernet Switch to another switch, a bridge or a hub, a straight or crossover cable is necessary. Each port of the Switch supports auto-MDI/MDI-X detection. That means you can directly connect the Switch to any Ethernet devices without making a crossover cable. The following table and diagram show the standard RJ-45 receptacle/ connector and their pin assignments:

- **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	

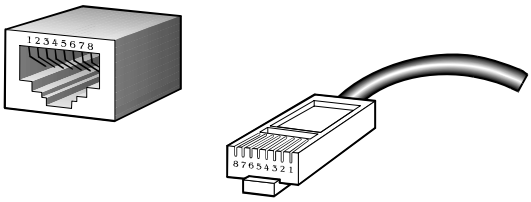
- 1000Mbps, 1000Base T

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-

Implicit implementation of the crossover function within a twisted-pair cable, or at a wiring panel, while not expressly forbidden, is beyond the scope of this standard.

A.2 RJ-45 cable pin assignment

The standard cable, RJ-45 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:

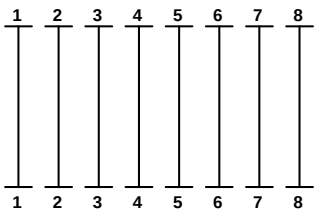
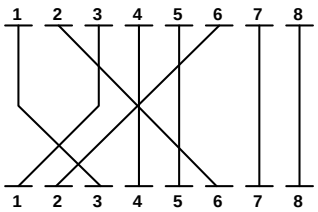
Straight Cable		SIDE 1	SIDE2
	SIDE 1	1 = White / Orange	1 = White / Orange
		2 = Orange	2 = Orange
		3 = White / Green	3 = White / Green
		4 = Blue	4 = Blue
		5 = White / Blue	5 = White / Blue
		6 = Green	6 = Green
		7 = White / Brown	7 = White / Brown
	SIDE 2	8 = Brown	8 = Brown
Straight Cable		SIDE 1	SIDE2
	SIDE 1	1 = White / Orange	1 = White / Orange
		2 = Orange	2 = Green
		3 = White / Green	3 = White / Orange
		4 = Blue	4 = Blue
		5 = White / Blue	5 = White / Blue
		6 = Green	6 = Orange
		7 = White / Brown	7 = White / Brown
	SIDE 2	8 = Brown	8 = Brown

Figure A-1: Straight-Through and Crossover Cable

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

A.3 Available Modules

The following list the available Modules for GSW-4804SF

MGB-GT	SFP-Port 1000Base-T Module
MGB-SX	SFP-Port 1000Base-SX mini-GBIC module
MGB-LX	SFP-Port 1000Base-LX mini-GBIC module
MGB-L30	SFP-Port 1000Base-LX mini-GBIC module-30km
MGB-L50	SFP-Port 1000Base-LX mini-GBIC module-50km
MGB-L70	SFP-Port 1000Base-LX mini-GBIC module-70km
MGB-L120	SFP-Port 1000Base-LX mini-GBIC module-120km
MGB-LA10	SFP-Port 1000Base-LX (WDM,TX:1310nm) mini-GBIC module-10km
MGB-LB10	SFP-Port 1000Base-LX (WDM,TX:1550nm) mini-GBIC module-10km
MGB-LA20	SFP-Port 1000Base-LX (WDM,TX:1310nm) mini-GBIC module-20km
MGB-LB20	SFP-Port 1000Base-LX (WDM,TX:1550nm) mini-GBIC module-20km
MGB-LA40	SFP-Port 1000Base-LX (WDM,TX:1310nm) mini-GBIC module-40km
MGB-LB40	SFP-Port 1000Base-LX (WDM,TX:1550nm) mini-GBIC module-40km

APPENDIX B

■ 802.1Q VLAN Multi-Untagged VLAN setting sample 1

GSW-4804SF had added the multiple untagged VLAN function on a port. The function could be applied at if the members of two or more different VLAN groups all have to access the same server/AP/Printer. But the two VLAN groups are separated and can't access to each other. The graphic in **Figure B-1** appears.

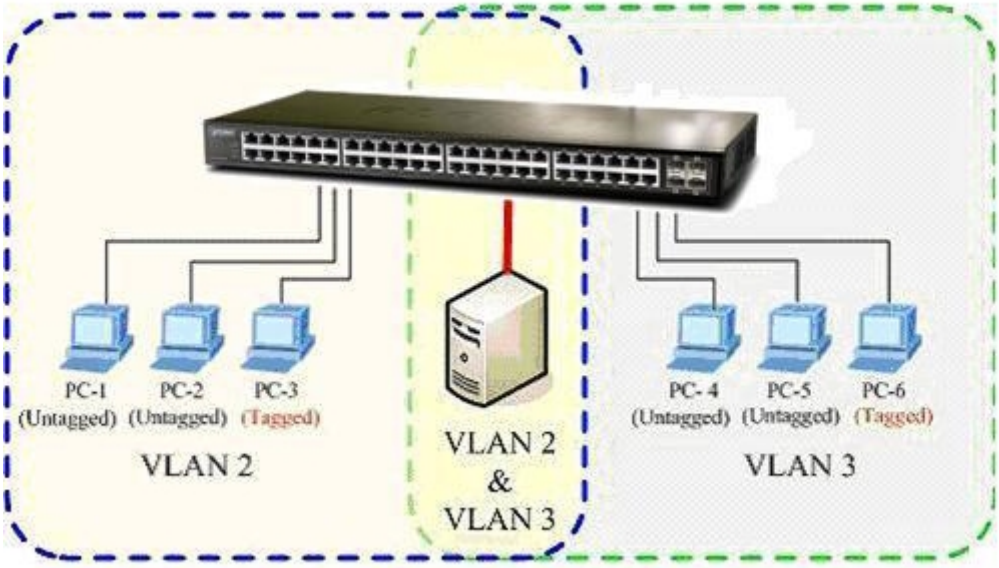


Figure B-1 Overlap VLAN graphic

The next will be a configure sample- how to setup the GSW-4804SF 802.1Q VLAN with a multiple untagged port.

At the menu bar ,click "**Security**" > " **VLAN**"

1. After the VLAN configuration page appear, select "**802.1Q VALN**" and clink "**OK**" to apply. Then the following screen in **Figure B-2** appears.

802.1Q VLAN

Port	Link Type	PVID	Egress Policy
Port1	Access	1	Untagged=1
Port2	Access	1	Untagged=1
Port3	Access	1	Untagged=1
Port4	Access	1	Untagged=1
Port5	Access	1	Untagged=1
Port6	Access	1	Untagged=1
Port7	Access	1	Untagged=1
Port8	Access	1	Untagged=1

Figure B-2 802.1Q VLAN page screen

2. Move the mouse course to the port, which had be assigned to be connect to the server/AP/printer, then click on the port. For this case, we set the Port-1 to be the multiple untagged port. The screen in **Figure B-3** appears.
3. At the Link Type, select "**Always Untag**" at the draw bar. Click **"Apply"** button to take affect.

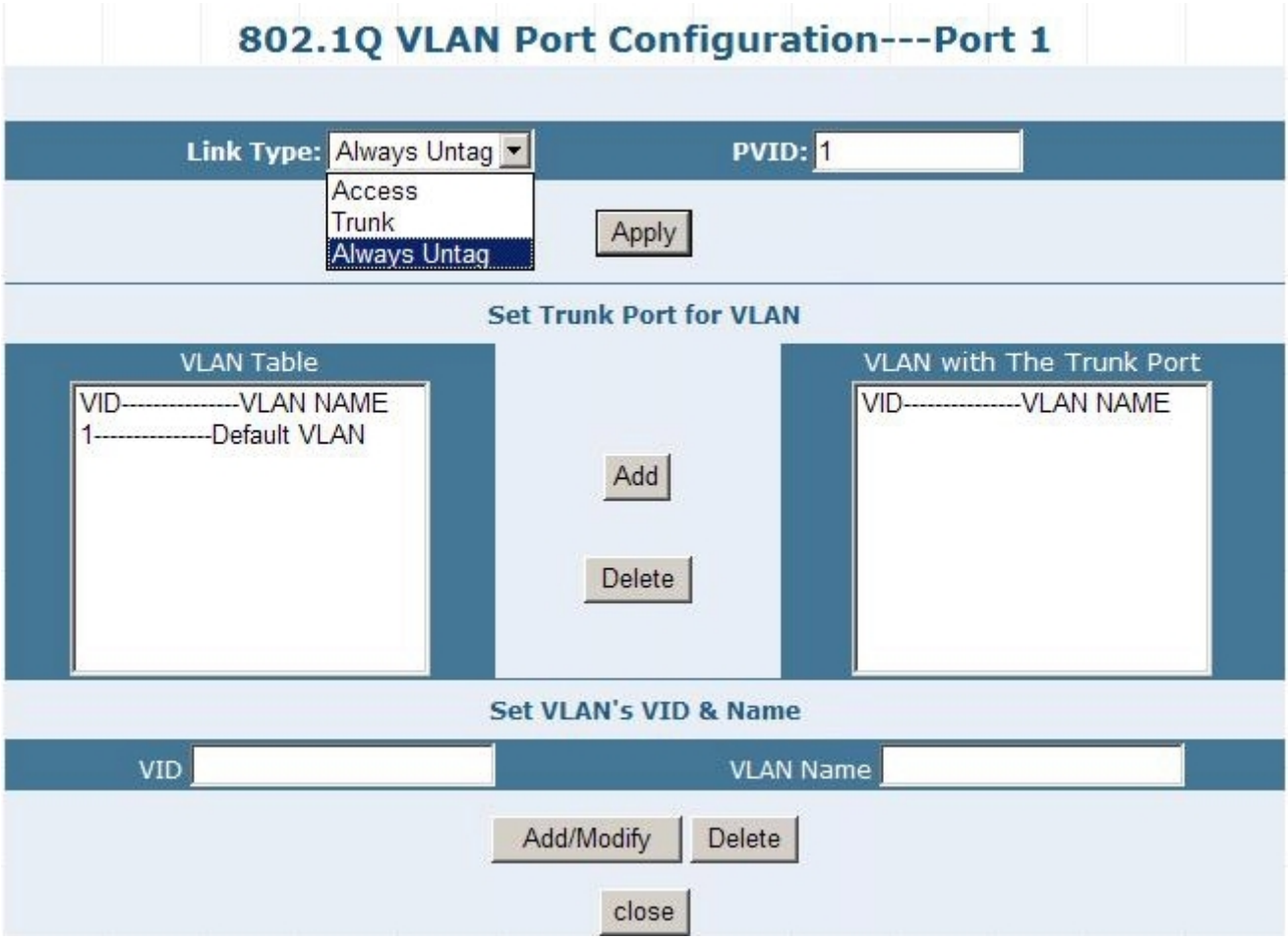


Figure B-3 802.1Q VLAN Port Configuration – Port1 screen

4. Click the "**Add/Modify**" button to create new VLAN groups with VID=2 and VID=3.

5. At the **Port 1-**VLAN Port configuration page, select **VLAN 2** and **VLAN 3** to **add** to the **Port 1**. The right information window at this table shows the status. The screen in **Figure B-4** appears.

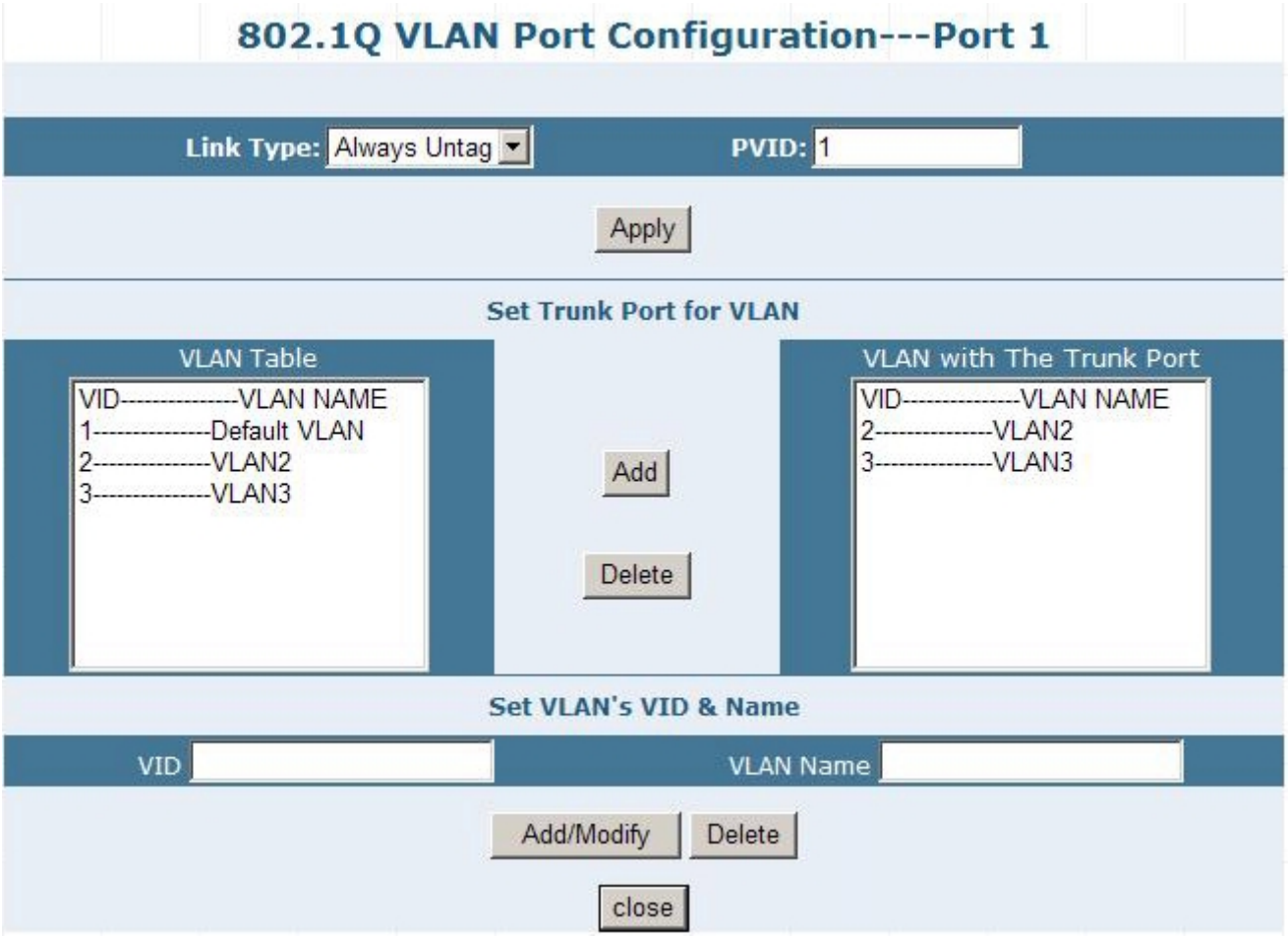
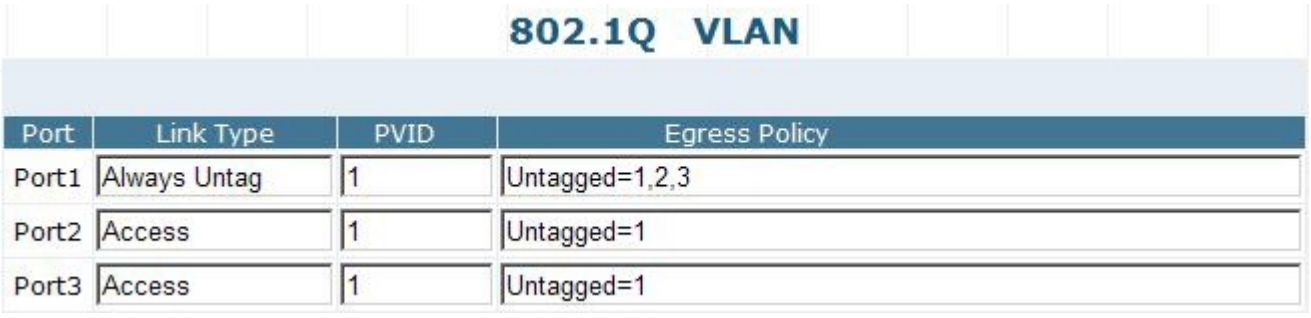


Figure B-4 Assign Port-1 to be VLAN 2 and VLAN 3 member.

6. After the down the Port 1 VLAN configuration, press "**close**" to back to the 802.1Q VLAN main screen. And check if the setting be applied to Port 1 at the "**Egress Policy**" column. The screen in **Figure B-5** appears.



Port	Link Type	PVID	Egress Policy
Port1	Always Untag	1	Untagged=1,2,3
Port2	Access	1	Untagged=1
Port3	Access	1	Untagged=1

Figure B-5 Port 1 VLA N status

7. Assign the **VLAN 2** and **VLAN 3** group member. At this case, **Port 2** had been assigned to as **VLAN 2** group member and **Port 3** be assigned to as **VLAN 3** group member.

8. Repeat step 2 to step 7, expect that :

   - Configure the Port 2 with **PVID=2**, Port 3 with **PVID=3**.
   - The link type of both Port-2 and Port 3 are "**Always Untag**".
   - And both Port 2 and Port 3 are **VLAN 1** members.

9. After properly configure the 802.1Q VLAN per port setting, it should be as the screen in **Figure B-6** appears.

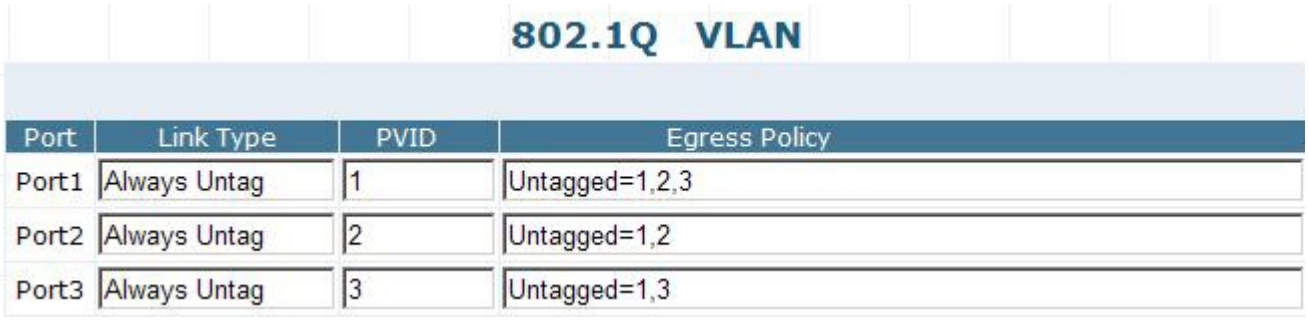
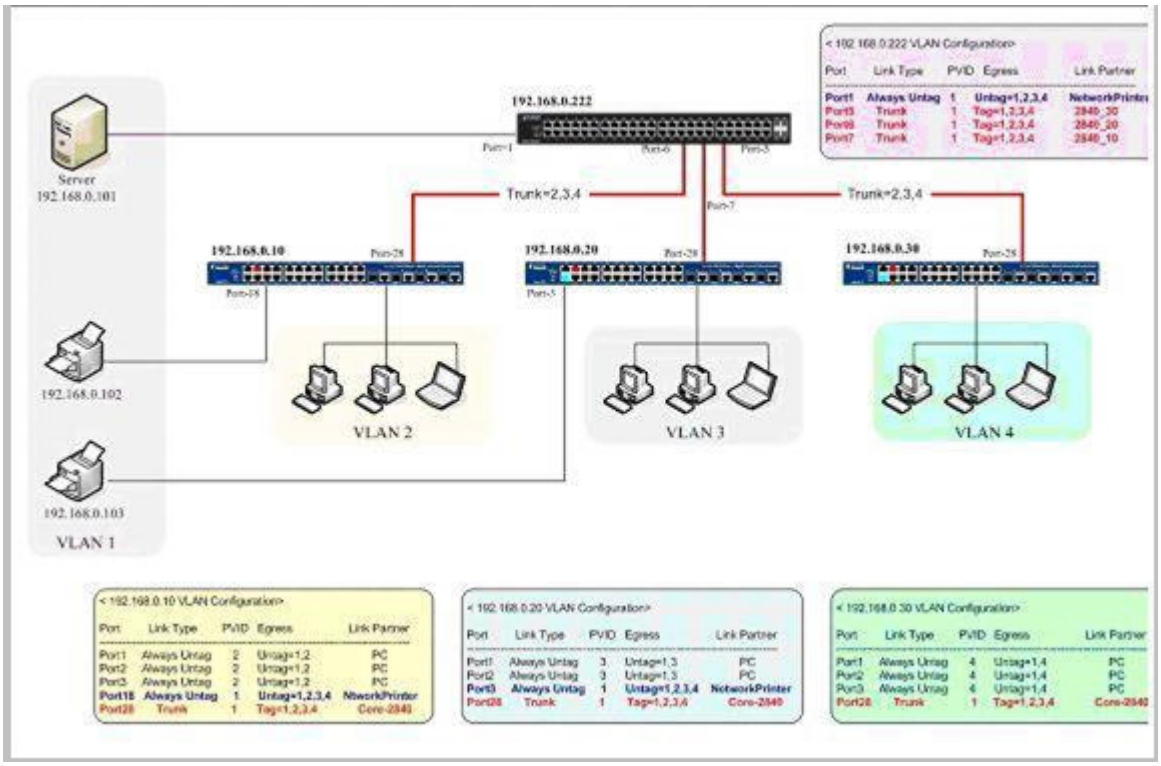


Figure B-6 Port 1, Port 2 and Port 3 VLAN configuration

Although **Port 2** and **Port 3** are VLAN 1 members, with different PVID setting, the two ports are not able to access each other. But they all can access with the server/AP/Printer which connect to the Port 1 now.

■ 802.1Q VLAN Multi-Untagged VLAN setting sample 2



■ VLAN Group Membership

VLAN ID	VLAN Define	Major Member
VLAN 1	Public VLAN	GSW-4804SF_220 WGSW-2840_10 WGSW-2840_20 WGSW-2840_30 Server Network_Printer_1 Network_Printer_2
VLAN 2		Clinets connect to [192.168.0.10]
VLAN 3		Clinets connect to [192.168.0.20]
VLAN 4		Clinets connect to [192.168.0.30]

- GSW-4804SF_**192.168.0.222** Core-Switch VLAN Configuration

192.168.0.222 VLAN Configuration				
Port	Link Type	PVID	Egress	Link Partner
Port1	Always Untag	1	Untag=1,2,3,4	Server
Port5	Trunk	1	Tag=1,2,3,4	192.168.0.30
Port6	Trunk	1	Tag=1,2,3,4	192.168.0.20
Port7	Trunk	1	Tag=1,2,3,4	192.168.0.10

- WGSW-2840_**192.168.0.10** Edge-Switch VLAN Configuration

192.168.0.10 VLAN Configuration				
Port	Link Type	PVID	Egress	Link Partner
Port1	Always Untag	2	Untag=1,2	PC
Port2	Always Untag	2	Untag=1,2	PC
Port3	Always Untag	2	Untag=1,2	PC
Port18	**Always Untag**	**1**	**Untag=1,2,3,4**	**NtworkPrinter**
Port28	Trunk	1	Tag=1,2,3,4	Core-GSW-4804SF

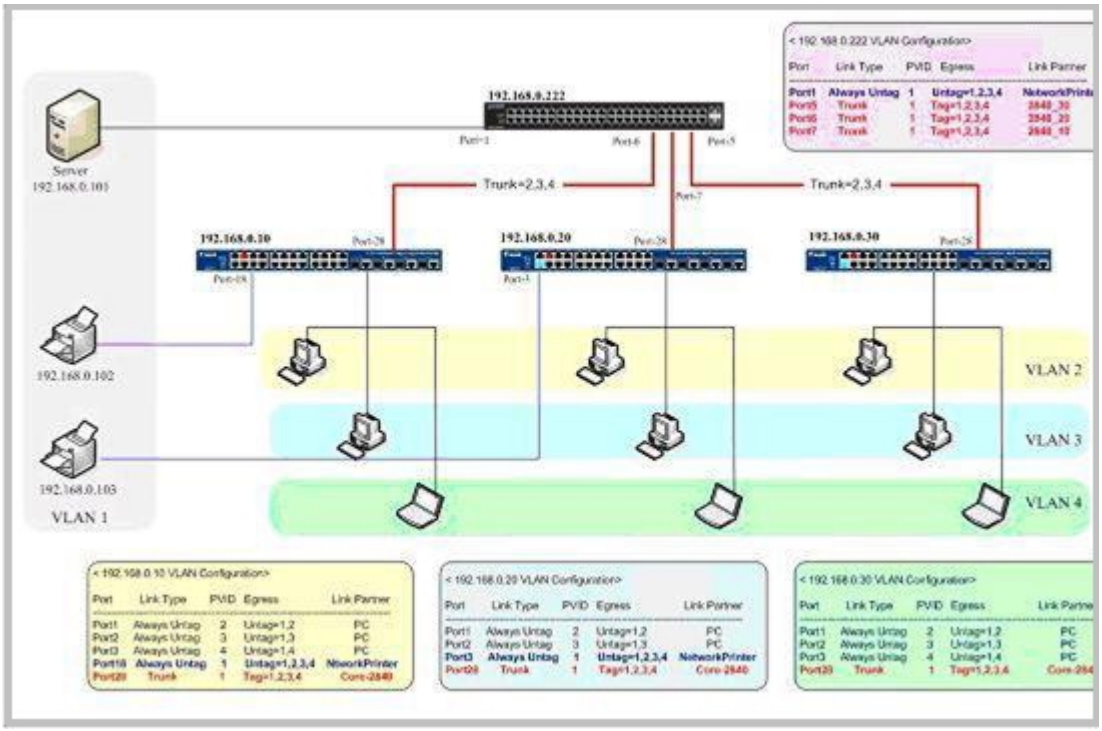
- WGSW-2840_**192.168.0.20** Edge-Switch VLAN Configuration

192.168.0.20 VLAN Configuration				
Port	Link Type	PVID	Egress	Link Partner
Port1	Always Untag	3	Untag=1,3	PC
Port2	Always Untag	3	Untag=1,3	PC
Port3	**Always Untag**	**1**	**Untag=1,2,3,4**	**NtworkPrinter**
Port28	Trunk	1	Tag=1,2,3,4	Core-GSW-4804SF

- WGSW-2840_**192.168.0.30** Edge-Switch VLAN Configuration

192.168.0.30 VLAN Configuration				
Port	Link Type	PVID	Egress	Link Partner
Port1	Always Untag	4	Untag=1,4	PC
Port2	Always Untag	4	Untag=1,4	PC
Port3	Always Untag	4	Untag=1,4	PC
Port28	Trunk	1	Tag=1,2,3,4	Core-GSW-4804SF

■ 802.1Q VLAN Multi-Untagged VLAN setting sample 3



■ **VLAN Group Membership**

VLAN ID	VLAN Define	Major Member
VLAN 1	Public VLAN	GSW-4804SF_220 WGSW-2840_10 WGSW-2840_20 WGSW-2840_30 Server Network_Printer_1 Network_Printer_2
VLAN 2		Client connect to Ports those be assigned to VLAN 2 ,at [192.168.0.10] switch Client connect to Ports those be assigned to VLAN 2 ,at [192.168.0.20] switch Client connect to Ports those be assigned to VLAN 2 ,at [192.168.0.30] switch
VLAN 3		Client connect to Ports those be assigned to VLAN 3 ,at [192.168.0.10] switch Client connect to Ports those be assigned to VLAN 3 ,at [192.168.0.20] switch Client connect to Ports those be assigned to VLAN 3 ,at [192.168.0.30] switch
VLAN 4		Client connect to Ports those be assigned to VLAN 4 ,at [192.168.0.10] switch Client connect to Ports those be assigned to VLAN 4 ,at [192.168.0.20] switch Client connect to Ports those be assigned to VLAN 4 ,at [192.168.0.30] switch

- GSW-4804SF_**192.168.0.222** Core-Switch VLAN Configuration

192.168.0.222 VLAN Configuration				
Port	Link Type	PVID	Egress	Link Partner
Port1	Always Untag	1	Untag=1,2,3,4	Server
Port5	Trunk	1	Tag=1,2,3,4	192.168.0.30
Port6	Trunk	1	Tag=1,2,3,4	192.168.0.20
Port7	Trunk	1	Tag=1,2,3,4	192.168.0.10

- WGSW-2840_**192.168.0.10** Edge-Switch VLAN Configuration

192.168.0.10 VLAN Configuration				
Port	Link Type	PVID	Egress	Link Partner
Port1	Always Untag	2	Untag=1,2	PC
Port2	Always Untag	3	Untag=1,3	PC
Port3	Always Untag	4	Untag=1,4	PC
Port18	**Always Untag**	**1**	**Untag=1,2,3,4**	**NtworkPrinter**
Port28	Trunk	1	Tag=1,2,3,4	Core-GSW-4804SF

- WGSW-2840_**192.168.0.20** Edge-Switch VLAN Configuration

192.168.0.20 VLAN Configuration				
Port	Link Type	PVID	Egress	Link Partner
Port1	Always Untag	2	Untag=1,2	PC
Port2	Always Untag	3	Untag=1,3	PC
Port3	**Always Untag**	**1**	**Untag=1,2,3,4**	**NtworkPrinter**
Port28	Trunk	1	Tag=1,2,3,4	Core-GSW-4804SF

- WGSW-2840_**192.168.0.30** Edge-Switch VLAN Configuration

192.168.0.30 VLAN Configuration				
Port	Link Type	PVID	Egress	Link Partner
Port1	Always Untag	2	Untag=1,2	PC
Port2	Always Untag	3	Untag=1,3	PC
Port3	Always Untag	4	Untag=1,4	PC
Port28	Trunk	1	Tag=1,2,3,4	Core-GSW-4804SF

EC Declaration of Conformity

For the following equipment:

*Type of Product : 48-Port 10/100/1000Mbps with 4-Port Shared SFP Web Smart Switch
*Model Number : GSW-4804SF

* Produced by:
Manufacturer's Name : **Planet Technology Corp.**
Manufacturer's Address : 11F, No. 96, Min Chuan Road, Hsin Tien
Taipei, 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 (89/336/EEC, 92/31/EEC, 93/68/EEC).
For the evaluation regarding the Electromagnetic Compatibility, the following standards were applied:

Emission	EN 55022	(1998 + A1:2000 Class A)
Harmonic	EN 61000-3-2	(2000)
Flicker	EN 61000-3-3	(1995 + A1:2001)
Immunity	EN 55024	(1998 + A1:2001)
ESD	EN 61000-4-2	(2001)
RS	EN 61000-4-3	(2002)
EFT/ Burst	EN 61000-4-4	(1995 + A1:2000 + A2:2001)
Surge	EN 61000-4-5	(2001)
CS	EN 61000-4-6	(2001)
Magnetic Field	EN 61000-4-8	(2001)
Voltage Disp	EN 61000-4-11	(2001)

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: **11F, No.96, Min Chuan Road, Hsin Tien, Taipei, Taiwan, R.O.C**

Person responsible for making this declaration

Name, Surname **Kent Kang**

Position / Title : **Product Manager**

Taiwan	**25 April, 2008**	Kent Kang
Place	*Date*	*Legal Signature*