PLANET
Networking & Communication

10/100/1000Mbps 16/24-port Web Smart Gigabit Ethernet Switch

GSW-1600S/GSW-2400S

User's Manual

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Revision

PLANET Web Smart Gigabit Ethernet Switch User's Manual

FOR MODELS: GSW-1600S/GSW-2400S

Part No.: EM_GSW1624Sv2

TABLE OF CONTENTS

1. INTRODUCTION

1.1 Package Contents

Check the contents of your package for following parts:

- Web Smart Gigabit Ethernet Switch x1
- CD-ROM user's manual x1
- Quick installation guide x1
- 19" rack mounting kit x1
- Power cord x1
- Rubber feet x 4

If any of these 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 Web Smart Gigabit Ethernet Switch User Manual is structured as follows:

- Section 2, **Installation**

  It explains the functions of GSW-1600S/2400S and how to physically install the GSW-1600S/2400S.

- Section 3, **Configuration**

  It contains information about the Smart function of GSW-1600S/2400S.

- Section 4, **Switch operation**

  It contains specifications of GSW-1600S/2400S.

- **Appendices**

  It contains cable information of GSW-1600S/2400S.

  In the following section, terms "**Switch**" with upper case means the two switches, i.e. GSW-1600S or GSW-2400S. Terms with lower case "switch" means any Ethernet switches.

1.3 Product Features

- Complies with IEEE802.3, 10Base-T, IEEE802.3u, 100Base-TX and IEEE802.3ab, 1000Base-T
- 16/24-port 10/100/1000 Mbps Ethernet ports
- Features Store-and-Forward mode with wire-speed filtering and forwarding rates
- Hardware based 10/100Mbps, half/full duplex and 1000Mbps full duplex mode, flow control and auto-negotiation
- IEEE802.3x flow control for full duplex operation and backpressure for half duplex operation
- Integrated address look-up engine, support 8K absolute MAC addresses
- Remote Web management interface
- System log, view trap, firmware upgrade, IP setting through the Web Switch utility
- Port-based VLAN, Trunk, Port Mirroring, QoS support
- Supports backup and restore current configuration
- Trap function for Switch events
- Automatic address learning and address aging
- Supports Auto-MDI/MDI-X function

- Support CSMA/CD protocol
- 100~240VAC, 50~60Hz universal Power input
- FCC, CE class A compliant

1.4 Product Specifications

Model	GSW-1600S	GSW-2400S
Hardware Specification		
Network ports	16	24
Switch architecture	Store-and-Forward	
Switch Fabric	32Gbps	48Gbps
Switch throughput	23.8Mpps	35.7Mpps
Address Table	8K entries	8K entries
Share data Buffer	512KB	512KB
Flow Control	Back pressure for half duplex, IEEE 802.3x Pause Frame for full duplex	
Dimensions (mm)	440 x 210 x 44 (1U height)	
Weight	2.83kg	2.93kg
Power Requirement	100-240V AC, 50-60 Hz	
Power Consumption	25 watts, 85 BTU	32 watts, 109 BTU
Standards Conformance		
Network Standards	IEEE 802.3 (Ethernet), IEEE 802.3u (Fast Ethernet) IEEE 802.3ab (Gigabit Ethernet) IEEE 802.3x (full-duplex flow control)	
Operating Temperature	0ºC ~ 50ºC	
Storage Temperature	-40ºC ~ 70ºC	
Humidity	5% to 95% (Non-condensing)	
Regulation Compliance	FCC Part 15 Class A, CE	

2. INSTALLATION

This section describes the functionalities of the Switch's components and guides how to install it on the desktop or shelf. Basic knowledge of networking is assumed. Please read this chapter completely before continuing.

2.1 Product Description

The PLANET GSW-1600S/GSW-2400S is a 16/24-port 10/100/1000 Mbps Web Smart with non-blocking wire-speed performance Ethernet Switch. With 32/48Gbps internal switching fabric, the Switch can handle extremely large amounts of data transmission in a secure topology linking to a backbone or high-power servers. The Switch could recognize up to 8K MAC Address table and provides 512 KB on-chip frame buffers. The Switch offers wire-speed packet transfer performance without risk of packet loss. With the high data throughput, it can provide the most convenient for user to upgrade their network to Gigabit environment.

The additional Web Switch utility allows access Web interface of the Switch. Smart functions, such as per port speed, duplex, flow-control and QoS settings, Trunking, port-based VLAN and port mirroring are supported.

2.1.1 Product Overview

The Switch is a Web Smart Gigabit Ethernet Switch with 16/24 RJ-45 10/100/1000Mbps ports for high-speed network connectivity. The Switch can also automatically identify and determine the correct transmission speed and half/full duplex mode of the attached devices with its 16/24 ports. The Gigabit port can handle large amounts of data transmission in a secure topology linking to a backbone or high-power servers.

This Switch also supports store-and-forward forwarding scheme to ensure low latency and high data integrity, eliminates unnecessary traffic and relieves congestion on critical network paths. With an intelligent address recognition algorithm, Switch could recognize up to 8K/8K different MAC address and enables filtering and forwarding at full wire speed.

2.1.2 Switch Front Panel

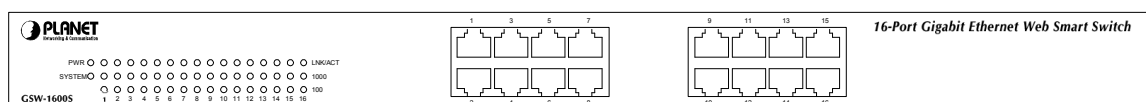Figure 2-1 & 2-2 shows a front panel of the Switch.
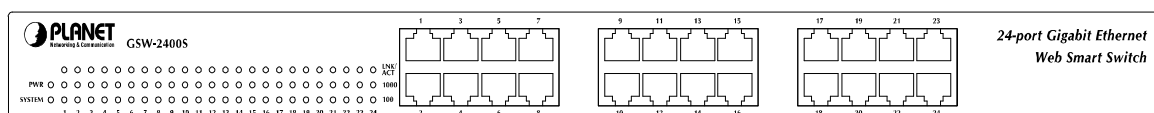

Figure 2-1 GSW-1600S front panel

Figure 2-2 GSW-2400S front panel

2.1.3 LED Indicators

LED	Color	Function
PWR	Green	Lights to indicate that the Switch has power.
SYSTEM	Green	Lights and blinking to indicate the CPU is working.
LNK/ACT	Green	Lights to indicate that the Switch is successfully connecting to the network. Blinks to indicate the Switch is actively receiving or sending the data over the port.
1000	Green	Lights to indicate that the port is operating at 1000 Mbps. Off to indicate that the port is operating at 100Mbps or 10 Mbps while the port's Link is on.
100	Green	Lights to indicate that the port is operating at 100 Mbps. Off to indicate that the port is operating at 1000 Mbps or 10 Mbps while the port's Link are on.

2.1.4 Switch Rear Panel

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

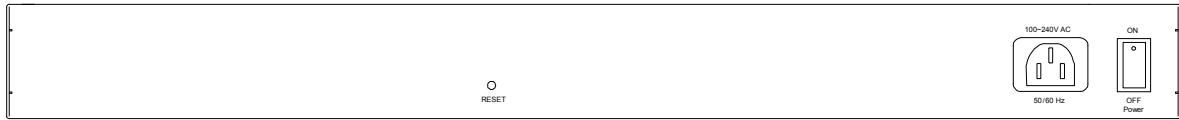**Figure 2-3** GSW-1600S Rear Panel

Figure 2-4 GSW-2400S Rear Panel

> ✎**Note:** To press and release the RESET button, the Switch will back to the factory default mode. Be sure that you'd backup the current configuration of the Switch otherwise the entire configuration will be erased when pressing the *"RESET"* button.

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 Installing the Switch

This section describes how to install your GSW-1600S/2400S Web Smart Gigabit Ethernet Switch and make connections to the Switch. Please read the following topics and perform the procedures in the order being presented. PLANET Web Smart Gigabit Ethernet Switch do not need software configuration. To install the Switch on a desktop or shelf, simply complete the following steps.

2.2.1 Desktop Installation

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

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

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

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

> ✎**Note:** When choosing a location, please keep in mind the environ mental restrictions discussed in Chapter 1, Section 4, in Specification.

Step4: Connect your Switch to network devices.
-   **A.** Connect one end of a standard network cable to the 10/100/1000 RJ-45 ports 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.

> ✎**Note:** 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 LED should remain solid Green.

2.2.2 Rack Mounting

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

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

Step2: Attach a rack-mount bracket to each side of the switch with supplied screws attached to the package. Figure 2-5 shows how to attach brackets to one side of the switch.
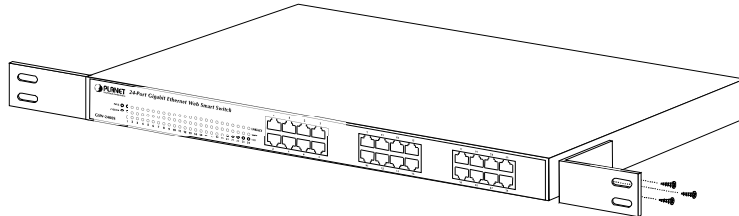
Figure 2-5 Attaching the brackets to the GSW-2400S

Caution:
You must use the screws supplied with the mounting brackets. Damage caused to the parts by using incorrect screws would invalidate your 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 2-6
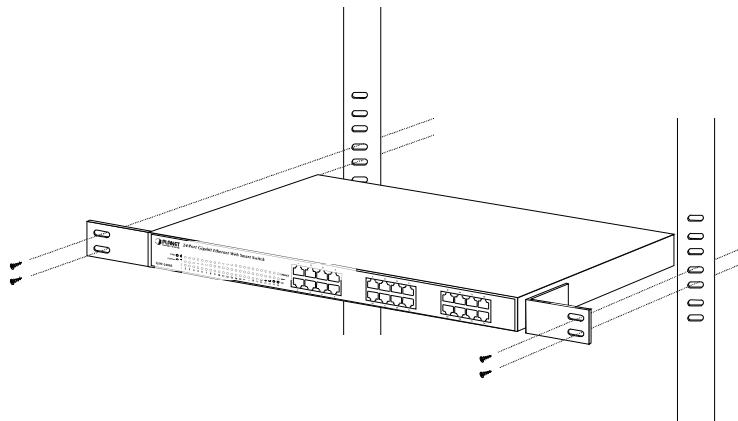

Figure 2-6 Mounting the Switch in a Rack

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 your switch.

3. CONFIGURATION

Unlike the unmanaged switch (Dumb switch), the Switch performs series smart functions that make the Switch operate more effectively. This Chapter describes the common usage of the Switch 's Smart Configuration.

3.1 Preparing for configuration

When you are ready to configure the smart functions of the Web Smart Gigabit Ethernet Switch, please install the Web Switch utility and it can easily list the Switch in your Ethernet environment.

This Web Switch Utility allows assigning an IP address or password change and firmware upgrade for the Switch. You can easily configure the Switch's Smart function through the Web browser. Such as per port speed, duplex, flow control, QoS settings, Trunking and port-based VLAN, port mirroring.

3.1.1 Install the Web Switch utility

The following installation instructions will guide you through the installations of the Web Switch Utility.

1. Insert the attached user's manual CD in the CD-ROM Drive.

2. The installation program in manual CD then auto run up an application window as in **Figure 3-1**.
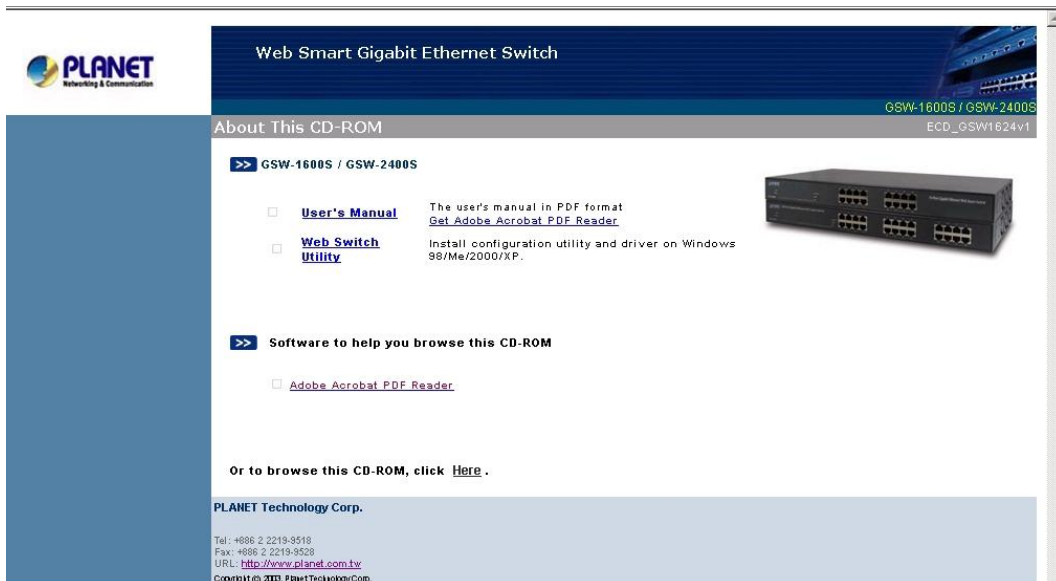

Figure 3-1 Auto run program in manual CD

3. Click on the "Web Switch Utility" link to run the installation program and follow the instructions to install the utility.
   Figure 3-2 shows the installation program message which the installation instructions start.
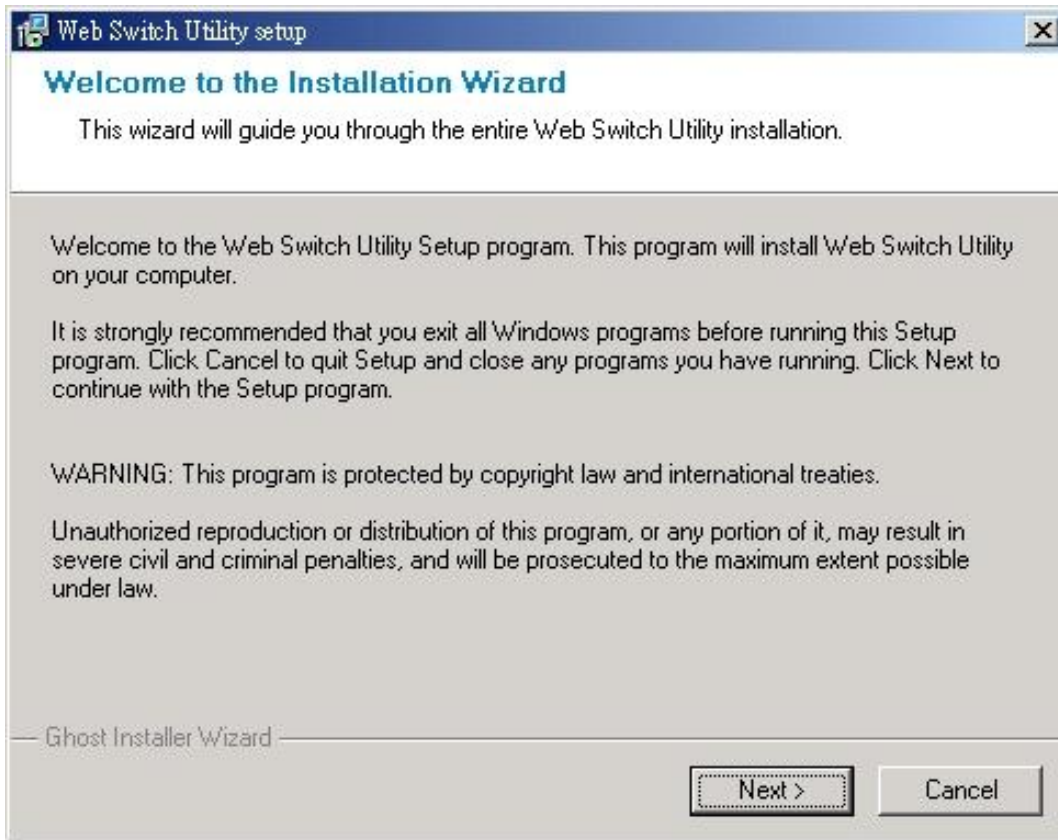
Figure 3-2 Web Switch Utility installation wizard

Press on "Next" button to install the Web Switch Utility to the default installation folder.
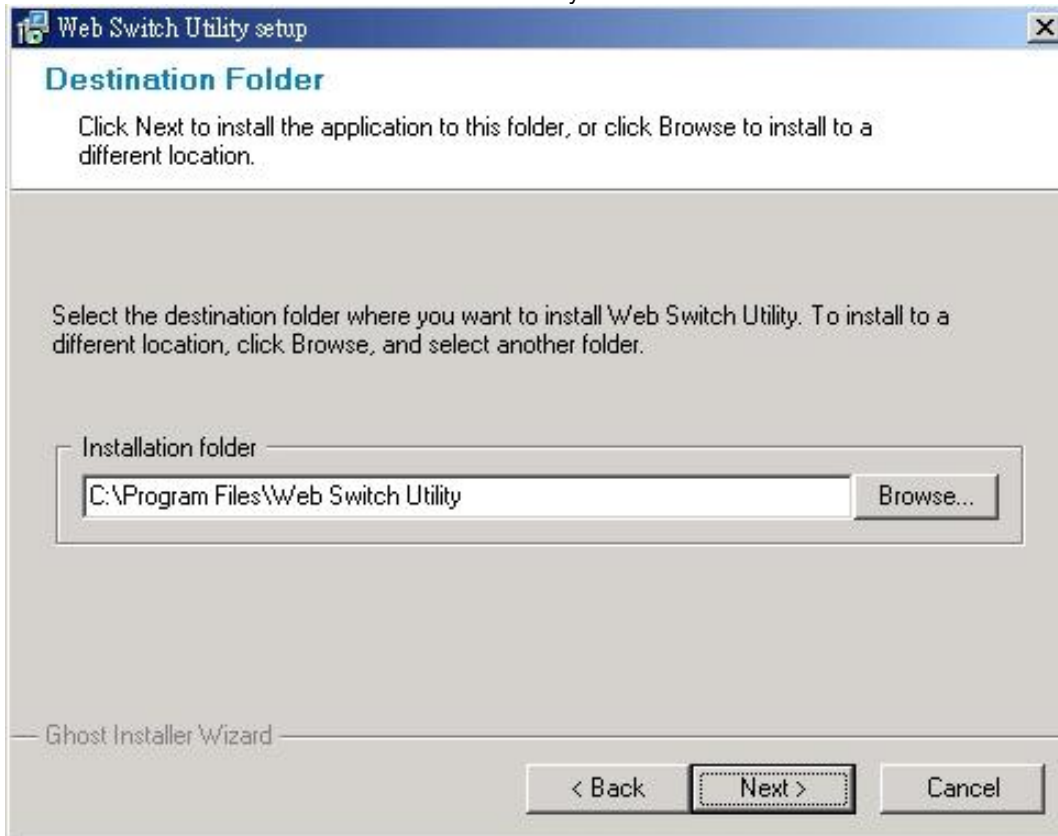

Figure 3-3 Web Switch Utility installation process
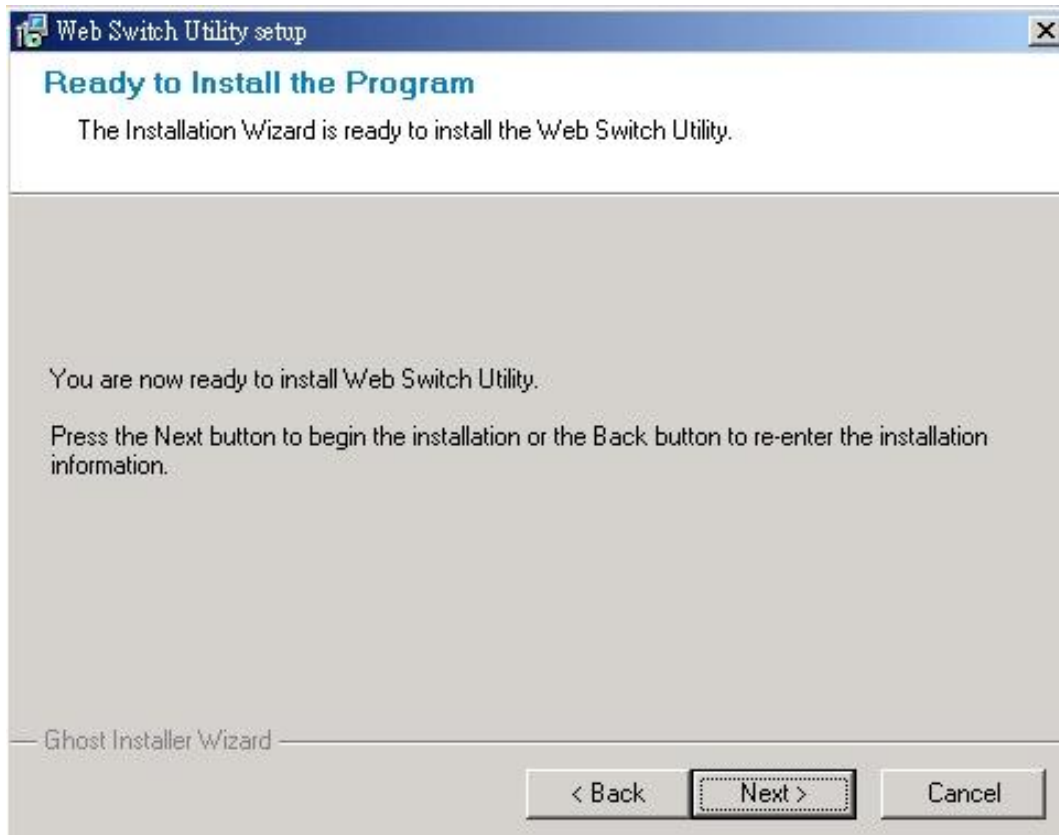
Figure 3-4 Web Switch Utility installation process

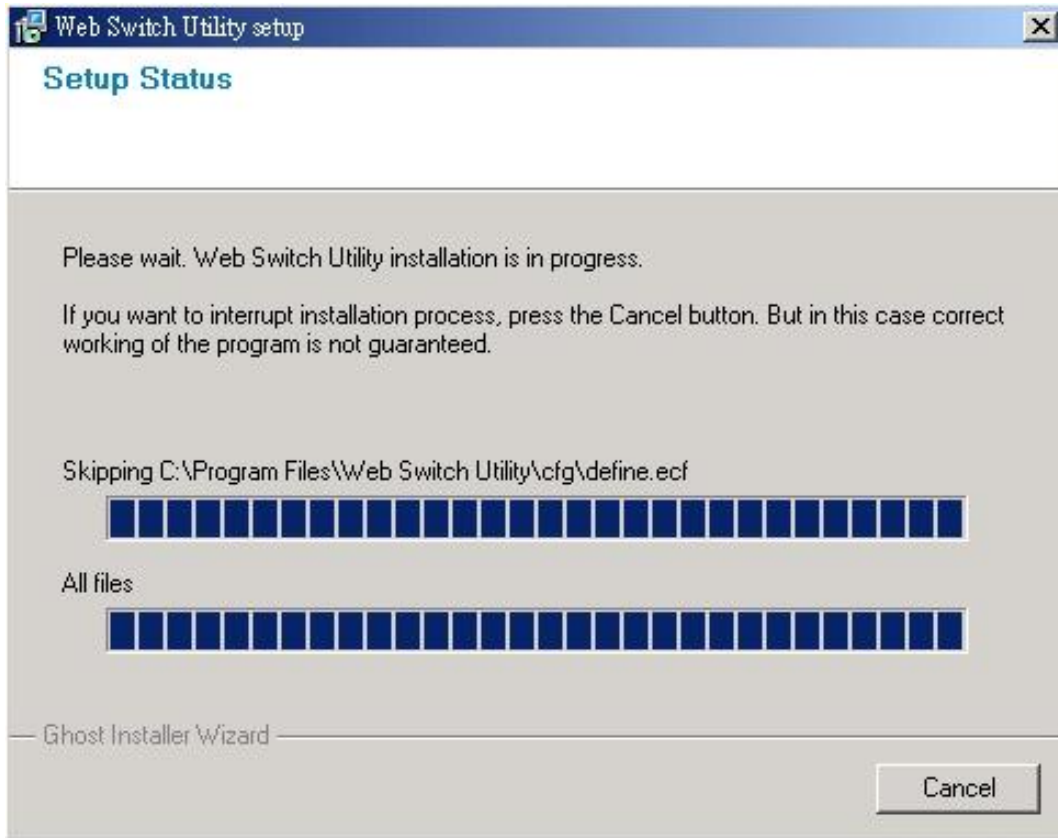**Figure 3-5** Web Switch Utility installation process

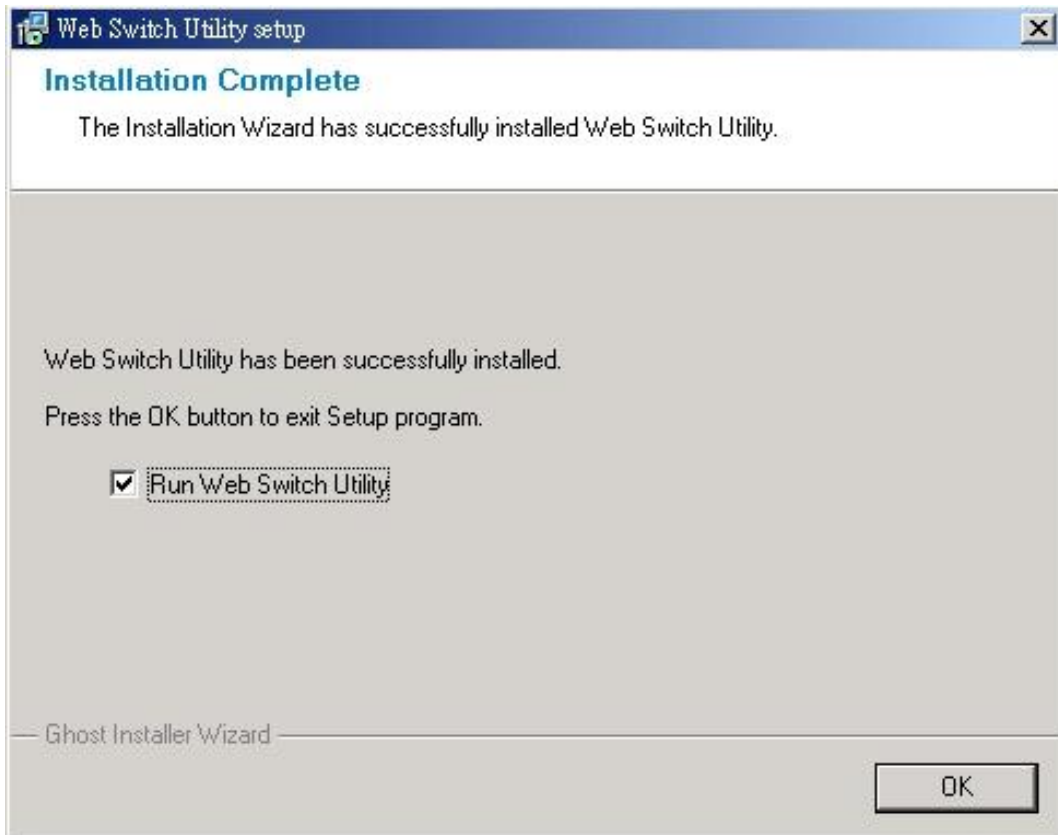**Figure 3-6** Web Switch Utility installation process

Figure 3-7 Web Switch Utility installation completed

3. After complete the installation, run "Web Switch Utility.exe" in default installation folder "C:\Program Files\Web Switch Utility" or run **start -> Program Files -> PLANET Web Switch -> Web Switch Utility** to start the management program.

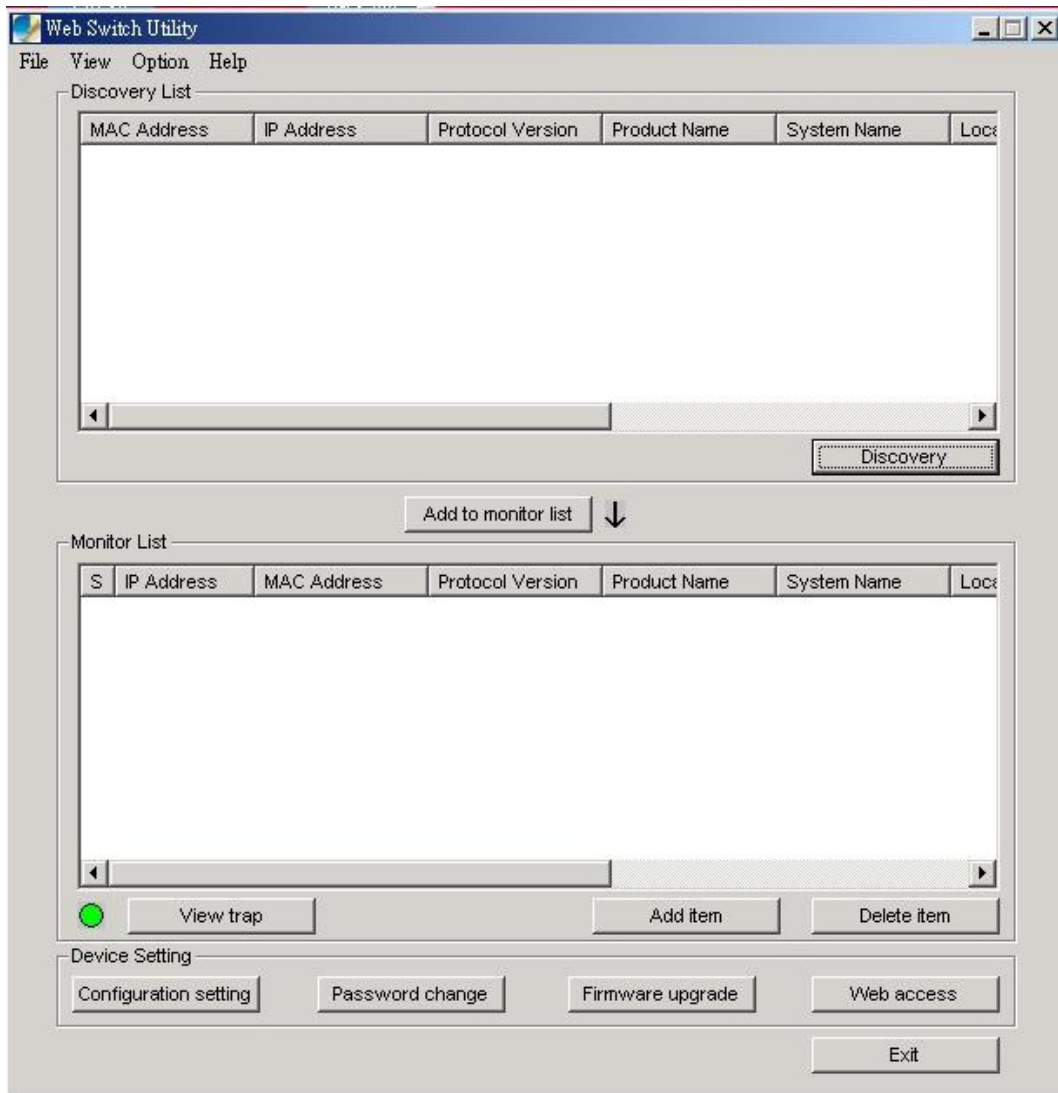The PLANET Web Switch Utility window then pops up as shown in **Figure 3-8**.

Figure 3-8 The Web Switch Utility application window

There are four main ports of the Web Switch Utility application, they are **Toolbar**, **Discovery List, Monitor List, and Device Setting,** please refer to the below section for details.

3.1.1.1 *Toolbar*

The toolbar include four categories of functions, they are File, View, Option, and Help.

3.1.1.1.1 *File*

The *"File"* function category contains Monitor Save, Monitor Save As, Monitor Load, and Exit items. The detail explanation of each item shows in the following:

Monitor Save: to save the current setting of the Monitor List as the Default mode, when user access the Web Switch Utility next time, it will load the default setting automatically.

Monitor Save As: to save the current setting of the Monitor List in a specific file path and file name.

Monitor Load: to load the saved setting file of the Monitor List.

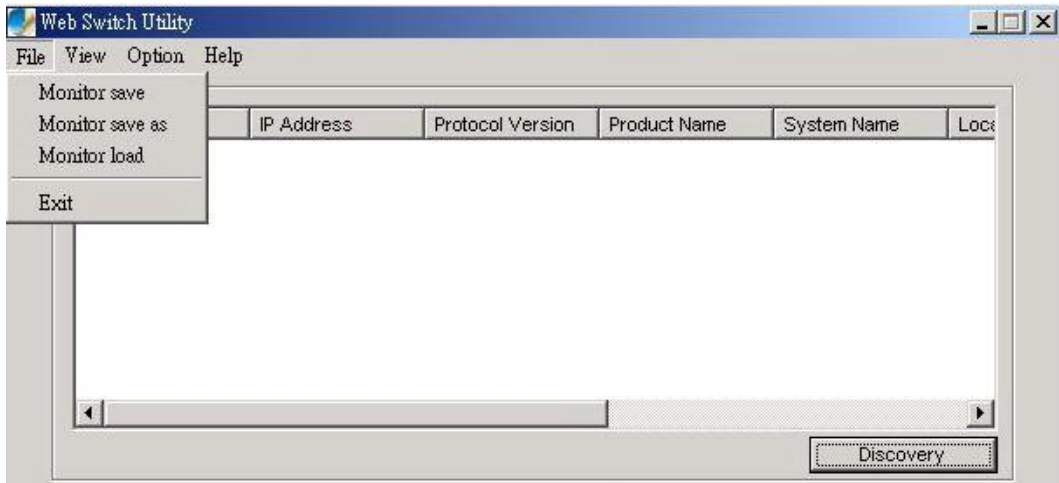*Exit:* to exit the Web Switch Utility.

Figure 3-9 File function category on Web Switch Utility

3.1.1.1.2 *View*

The *"View"* function category provides view log and clear log functions, these functions will help user to view and clear the trap messages. The detail explanation of each item is shown as below:

View Log: to display the events of the Switch.
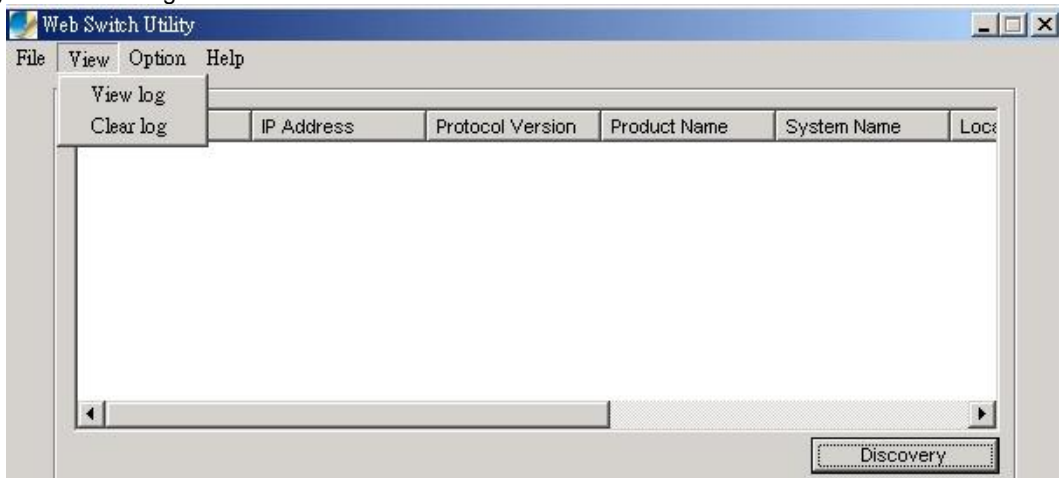
Clear Log: to clear the log of Switch.

Figure 3-10 View TAB on Web Switch Utility

3.1.1.1.3 *Option*

In the *"Option"* function category, it provides Refresh Time function, this function allow user to refresh the monitoring time of Web Switch Utility. The available ranges are *15 secs, 30 secs, 1 min, 2 min and 5 min*.
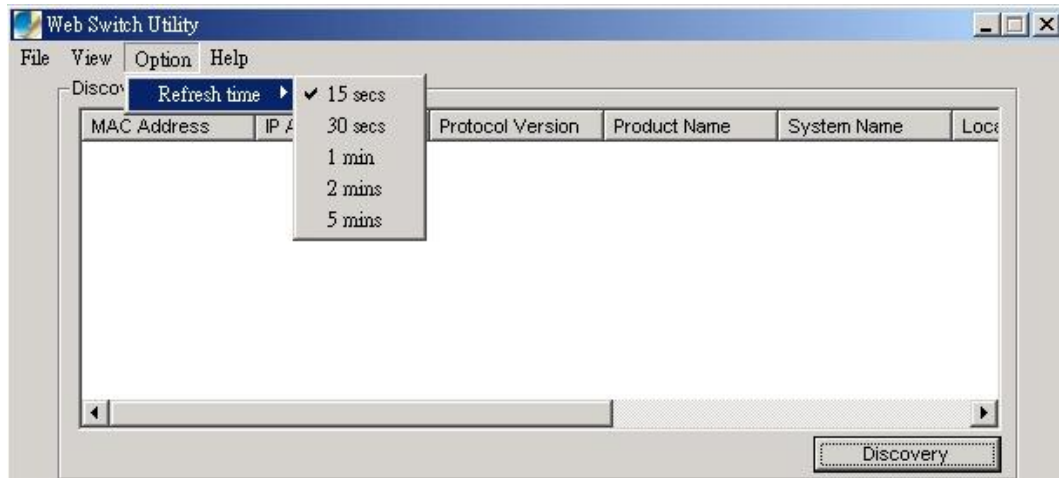

Figure 3-11 Option function category on Web Switch Utility'

3.1.1.1.4 *Help*

In the *"Help"* function category, it provides *"About"* function, it display the version of the Web Switch Utility.
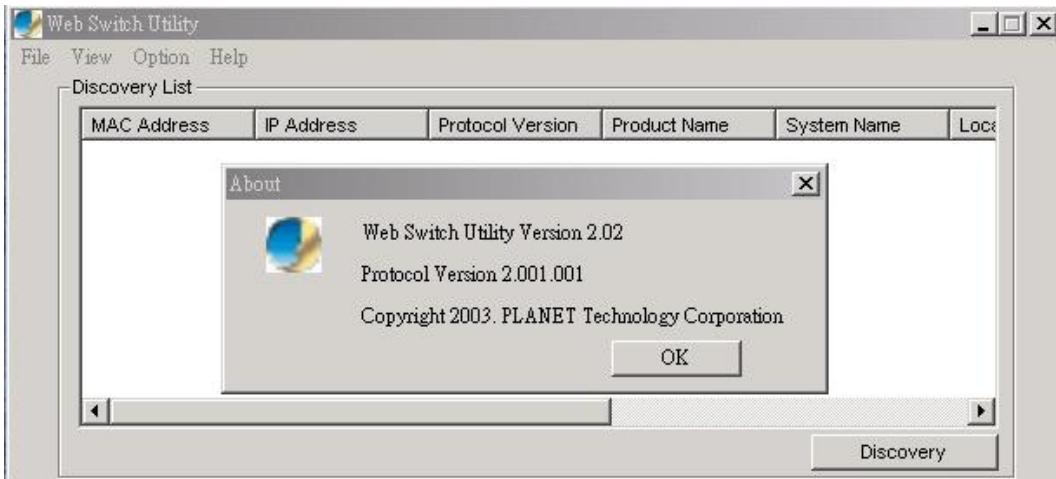

Figure 3-12 Help message on Web Switch Utility's

3.1.1.2 *Discovery List*

This function allows user to list the Switch in the entire network. By pressing the *"Discovery"* button, you can list all the Switch in the discovery list. Double click or press the *"Add to monitor list"* button to select a device from the Discovery List to the Monitor List. The screen in Figure 3-13 appears.
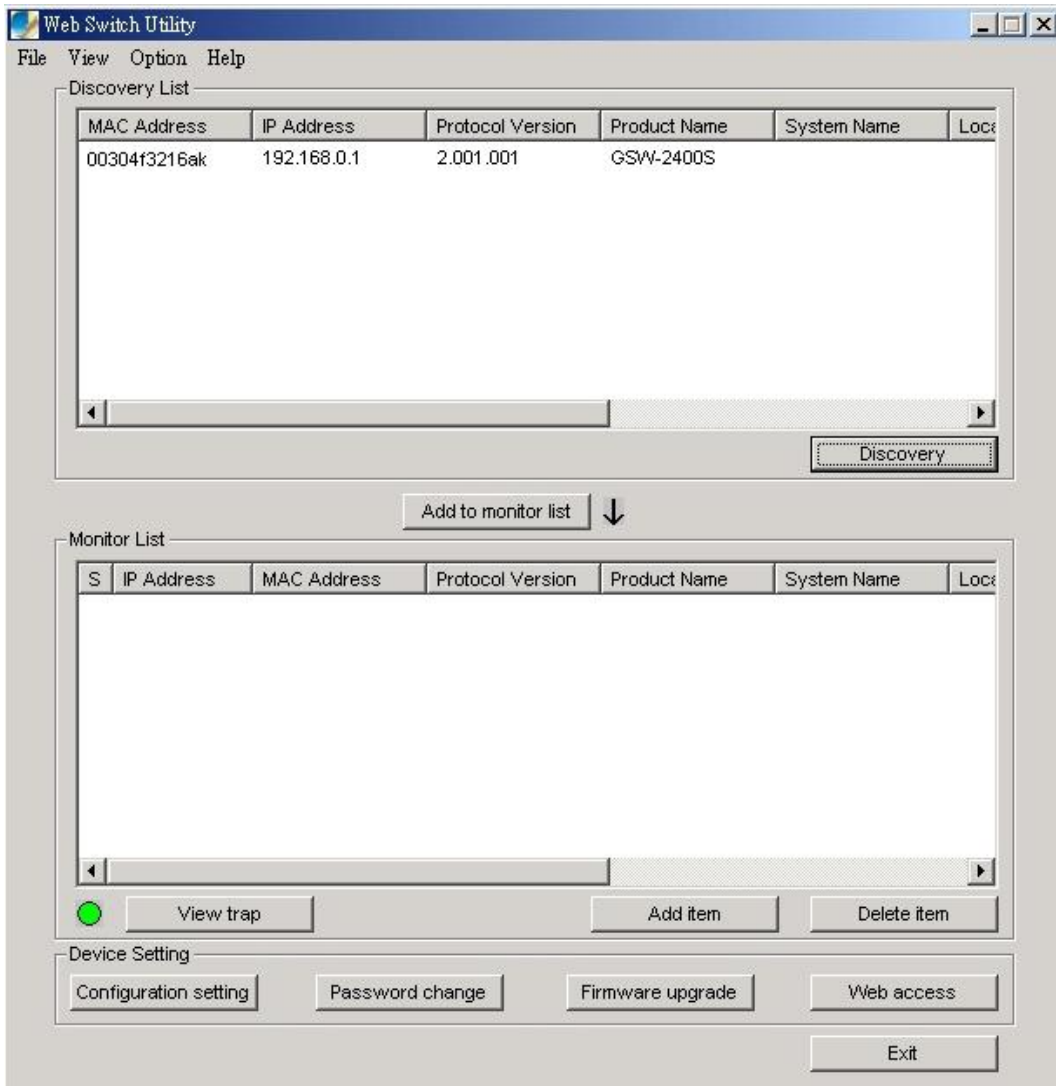

Figure 3-13 Discover list on Web Switch Utility

The Discovery List contains nine titles:

MAC Address: display the Switch MAC Address.

IP Address: display the current IP address of the Switch.

Protocol version: display the version of the Utility protocol.

Product Name: display the Switch model name.

System Name: display the appointed Switch system name.

Location: display where the Switch is located.

Trap IP: display the IP address where the Trap to be sent.

Subnet Mask: display the Subnet Mask set of Switch.

Gateway: display the Gateway set of the Switch.

3.1.1.3 *Monitor List*

All the Switch in the Monitor List can be monitored check the status of each Switch by viewing the received trap. The Figure 3-14 shows the operation.
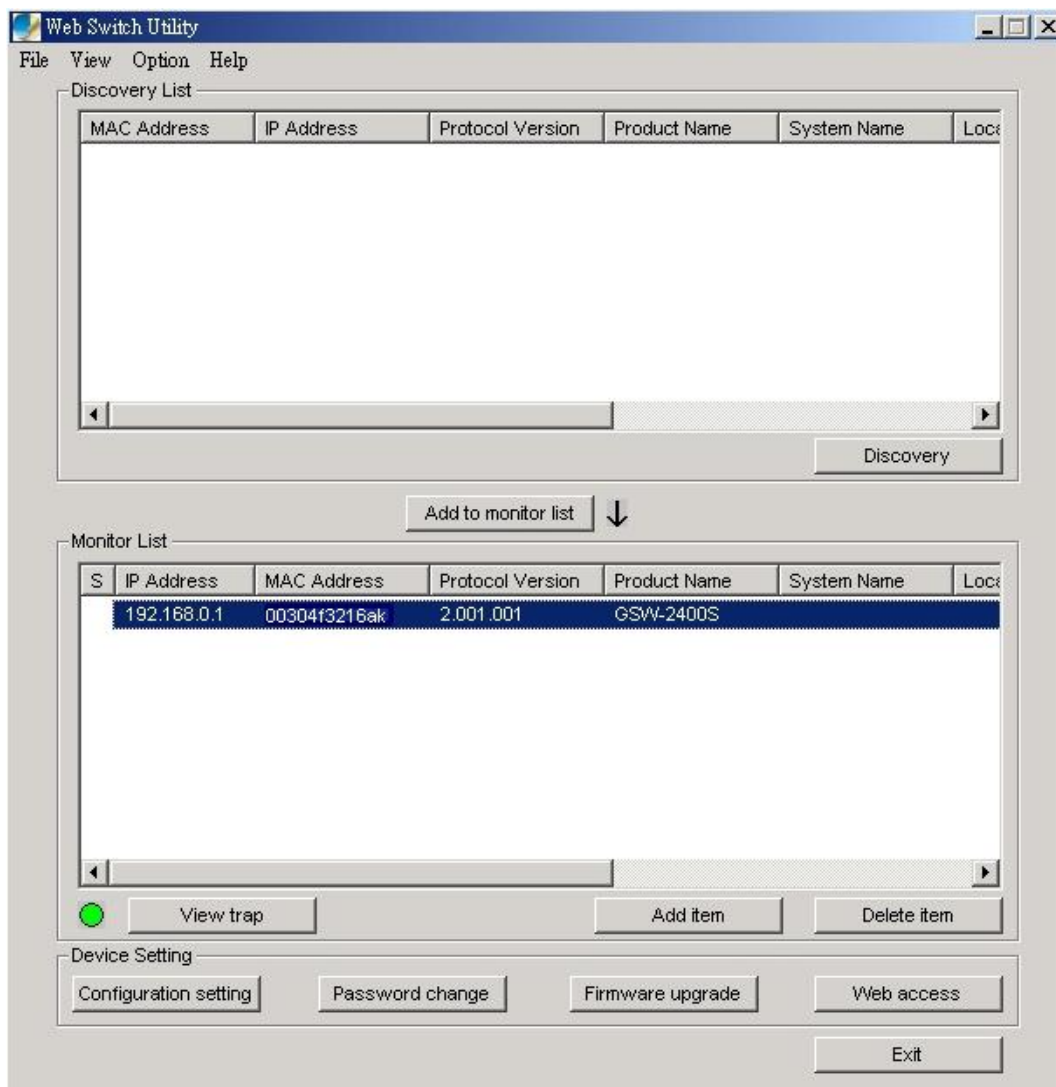

Figure 3-14 Monitor list on Web Switch Utility

The Monitor List contains nine items:

S: display the status of the Switch, marked to mean that the switch is not alive.

IP Address: display the current IP address of the Switch.

MAC Address: display the Switch MAC Address.

Protocol version: display the version of the Utility protocol.

Product Name: display the Switch model name.

System Name: display the appointed Switch system name.

Location: display where the Switch is located.

Trap IP: display the IP address where the Trap to be sent.

Subnet Mask: display the Subnet Mask configuration of the Switch.

Gateway: display the Gateway configuration of the Switch.

View Trap: The trap function receives the events from Switch in the Monitor List. A light indicator beside the **"View Trap"** button is to notice managers whether there are system events in the trap information box. Green to indicate that no event in the trap information box, while red indicates that system events received, as shows in Figure 3-15
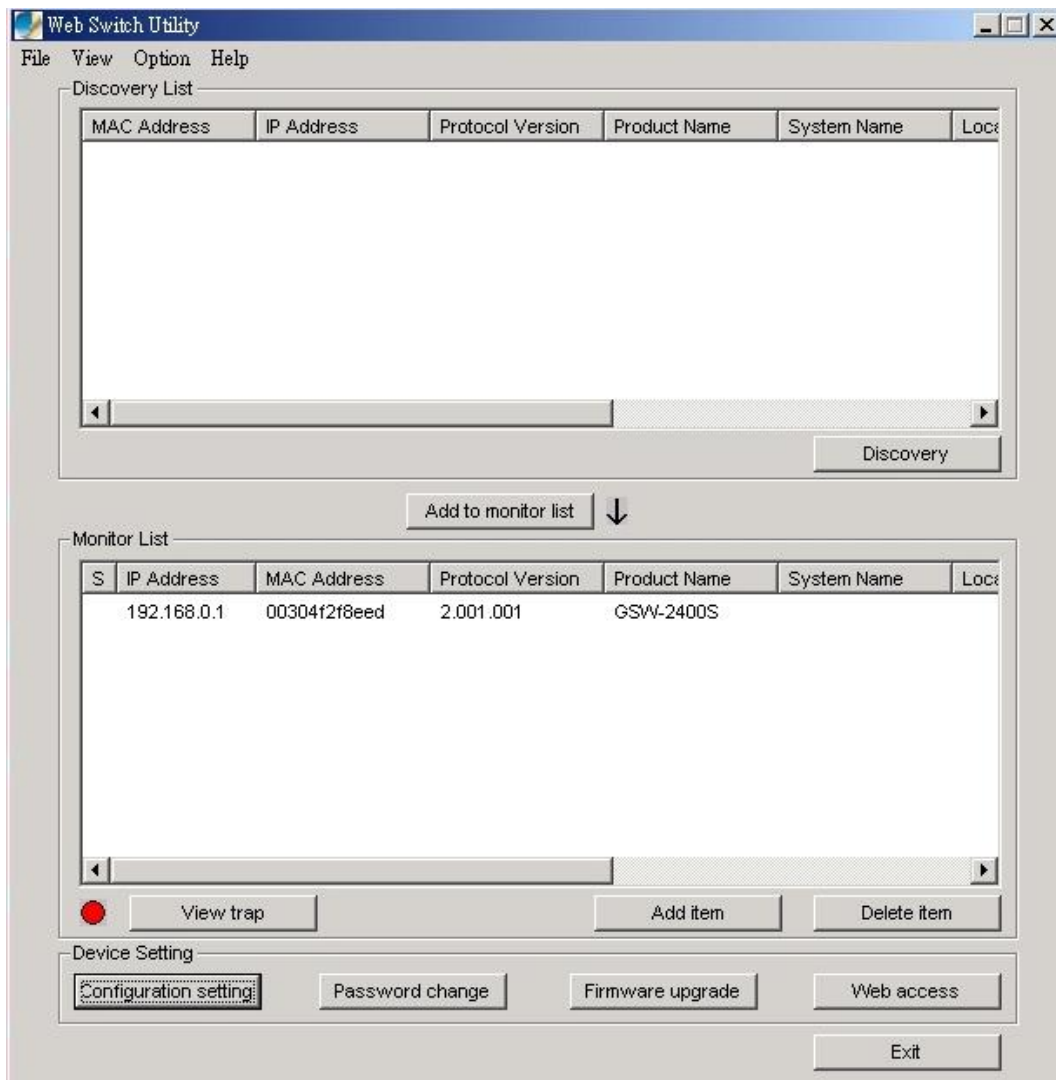

Figure 3-15 View Trap button on Web Switch Utility

To view the system events, press on the **"View Trap"** button, the trap information message box will pop up to show the system events, show in Figure 3-16.

The symbol "**!**" represents the trap signal arise, and will disappear after you review and click on the event information.
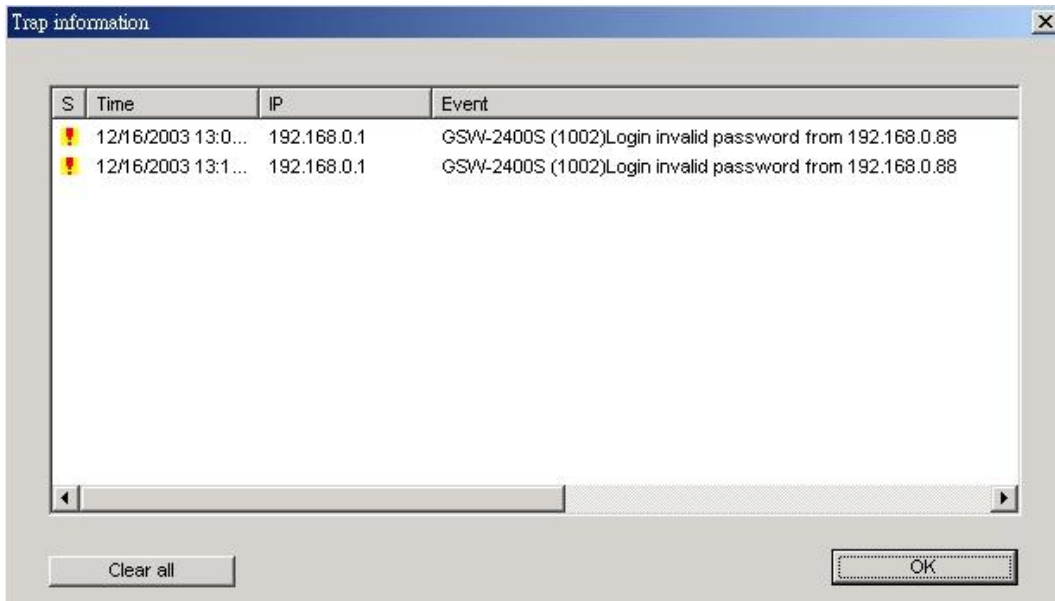
Figure 3-16 Trap information

🖎*Note:*   In order to receive Trap information, the Trap IP and Trap Events must be configured in the GSW -1600S /2400S Web management interface. Please refer to chapter 3.1.2.10 Trap for detail information.

Add Item: To add a device to the Monitor List manually, enter the IP Address of the device that want to monitor.

Delete Item: To delete the device from the Monitor List.

3.1.1.4 *Device Settings*

This function contains four items to configure the Switch .

Configuration Setting: this function is to assign IP Address, Subnet Mask, Gateway and Set Trap to (Trap IP Address), System name and Location. Select one device in the Discovery list or Monitor List and press this button, then the Configuration Setting message window pops up as Figure 3-17, after filling up the data that need to change and fill up the password, press the *"Set"* button to take effect.
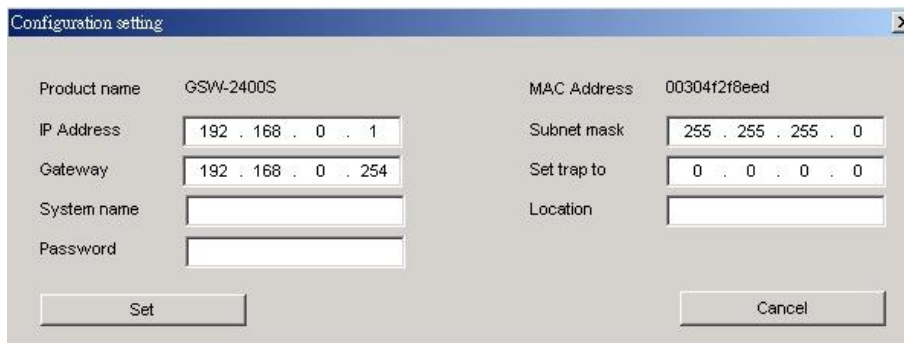

Figure 3-17 Configuration setting

Password Change: this function is to change password. Fill in the password needed in the dialog box and press *"Set"* button to take effect. The screen in Figure 3-18 appears.

Figure 3-18 Password Change

Firmware Upgrade: this function is to upgrade firmware of Switch. The screen in Figure 3-19 appears.
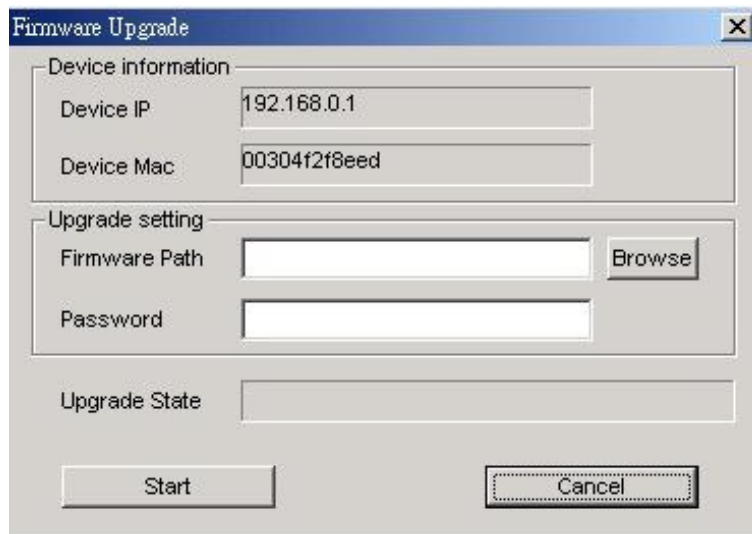

Figure 3-19 Firmware Upgrade

Web Access: Double click the device in the Monitor List or select a device in the Monitor List and press this *"Web Access"* button to access the Web interface of Switch.

3.1.2 Configure the Switch

The Switch Web Smart Gigabit Ethernet Switch provide Web interface for Switch smart function configuration. The GSW-1600S /2400S can be configured through the Web Browser. A network administrator can manage and monitor the GSW-1600S /2400S from the local LAN. This section indicates how to configure the Switch to enable its smart function. The smart functions are shown as below:

◆ Port Setting (Speed/Disable, Duplex mode, Flow Control and Port base QoS)

◆ Virtual LAN Group setting (VLAN)

◆ Trunking

◆ Port Mirroring

◆ System Setting

◆ Device status and Statistic

◆ Trap and Password

◆ Backup Setting

3.1.2.1 *Login the Switch*

Before you start configure the Switch, please note the Switch is configured through an Ethernet connection, make sure the manager PC must be set on same the **IP subnet address**. For example, the default IP address of the Switch is *192.168.0.1*, then the manager PC should be set at 192.168.0.x (where x is a number between 2 and 254), and the default subnet mask is 255.255.255.0. Use Internet Explorer 5.0 or above Web browser. Enter IP address *http://192.168.0.1* (the factory-default IP address) to access the Web interface.

Or through the Web Switch Utility, do not need to remember the IP Address, select the device in the Monitor List of the Web Switch Utility to settle the device through the Web Browser. When the following login screen appears, please enter the default password *"admin"* and press Login to enter the main screen of Switch. The login screen in Figure 3-20 appears.

Figure 3-20 Login page

3.1.2.2 *Main Menu*

After entering the password, the main screen appears, the main screen displays the Switch status. The screen in Figure 3-21 appears.
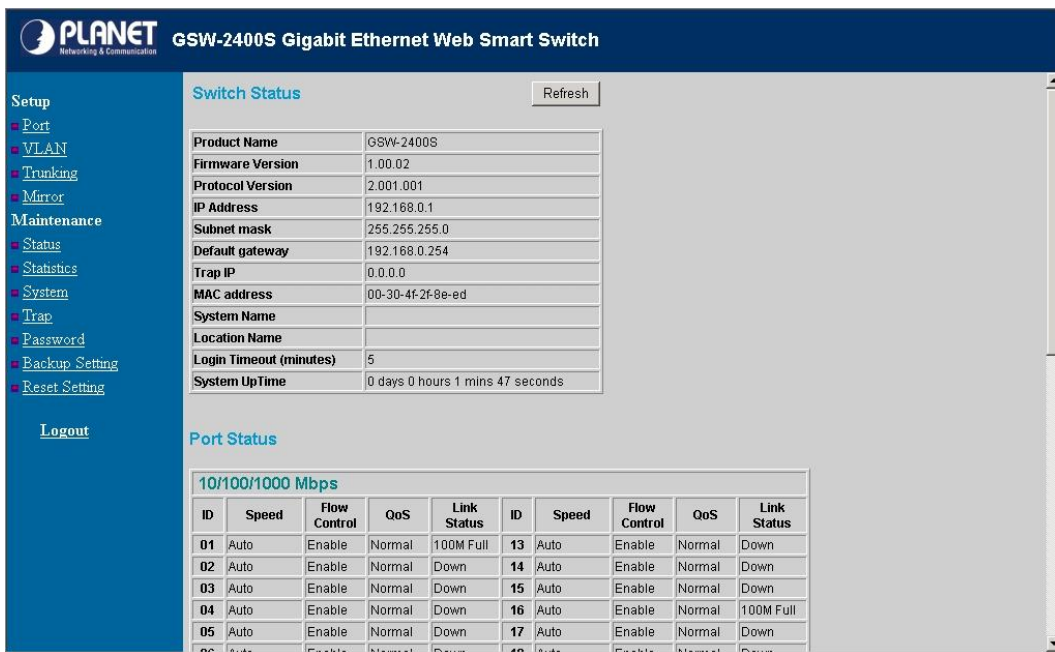

Figure 3-21 The Main page

3.1.2.3 *Port*

This function allows displaying each port's status. The Link Status in the screen displays the current connection speed and duplex mode; else this function will show *down* when the port is disconnected. Press the **"Refresh"** button to renew the screen. The screen in Figure 3-22 appears.
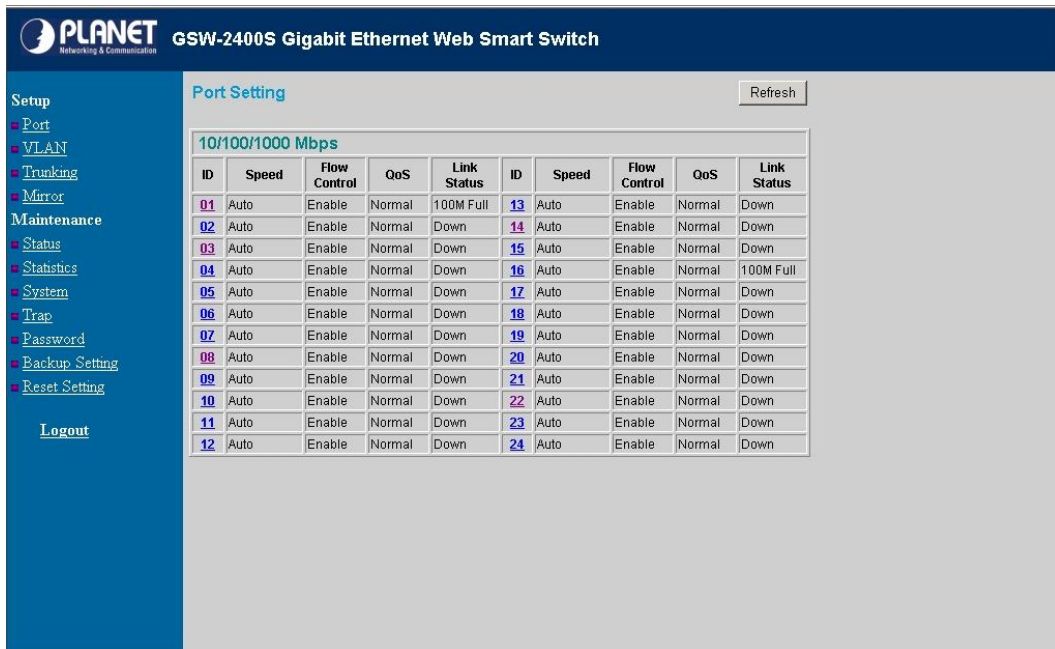
PLANET GSW-2400S Gigabit Ethernet Web Smart Switch

Setup
- Port
- VLAN
- Trunking
- Mirror

Maintenance
- Status
- Statistics
- System
- Trap
- Password
- Backup Setting
- Reset Setting

Logout

Port Setting   [Refresh]

10/100/1000 Mbps

ID	Speed	Flow Control	QoS	Link Status	ID	Speed	Flow Control	QoS	Link Status
01	Auto	Enable	Normal	100M Full	13	Auto	Enable	Normal	Down
02	Auto	Enable	Normal	Down	14	Auto	Enable	Normal	Down
03	Auto	Enable	Normal	Down	15	Auto	Enable	Normal	Down
04	Auto	Enable	Normal	Down	16	Auto	Enable	Normal	100M Full
05	Auto	Enable	Normal	Down	17	Auto	Enable	Normal	Down
06	Auto	Enable	Normal	Down	18	Auto	Enable	Normal	Down
07	Auto	Enable	Normal	Down	19	Auto	Enable	Normal	Down
08	Auto	Enable	Normal	Down	20	Auto	Enable	Normal	Down
09	Auto	Enable	Normal	Down	21	Auto	Enable	Normal	Down
10	Auto	Enable	Normal	Down	22	Auto	Enable	Normal	Down
11	Auto	Enable	Normal	Down	23	Auto	Enable	Normal	Down
12	Auto	Enable	Normal	Down	24	Auto	Enable	Normal	Down

Figure 3-22 The Port Setting page

Press the port ID to configure each port's speed, flow control, QoS priority and link status. The screen in Figure 3-23 appears.

PLANET GSW-2400S Gigabit Ethernet Web Smart Switch

Setup
- Port
- VLAN
- Trunking
- Mirror

Maintenance
- Status
- Statistics
- System
- Trap
- Password
- Backup Setting
- Reset Setting

Logout

Port Settings

Please be aware that speed must set as same as link parnter.
Otherwise, packet loss or link error might occur.

* Low Priority dispense only when High Priority is empty.

ID	Speed	Flow Control	QoS
01	Auto ▾	Enable ▾	Normal ▾

[Apply]

Figure 3-23 The Per Port Setting page

The options and descriptions of Port Settings show as below:

Speed: this function provides six modes—100M Full, 100M Half, 10M Full, 10M Half, Auto and Disable

Flow Control: this setting determines whether or not the Switch will be handling flow control. Set Flow Control to enable for avoiding data transfer overflow. Or it sets to disable; there is either no flow control or other hardware/software management. When the port is set to forced mode, then the flow control will automatically set to disable.

QoS: In some ports that need to have a high priority to deal with the data transfer, QoS should be change. The default setting of all port QoS is *Normal*, set the QoS to *High* where the ports have a high priority of transferring data.

✎ *Note*: *When set each port to run at 100M Full, 100M Half, 10M Full, and 10M Half-speed modes. The Auto-MDIX function will disable.*
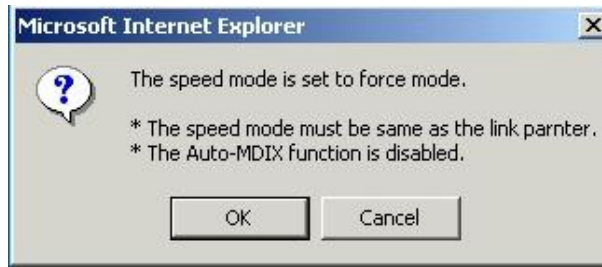
3.1.2.4 *VLAN*

This function group individual ports into a small "Virtual" network of their own to be independent of the other ports. The screen in Figure 3-24 appears.
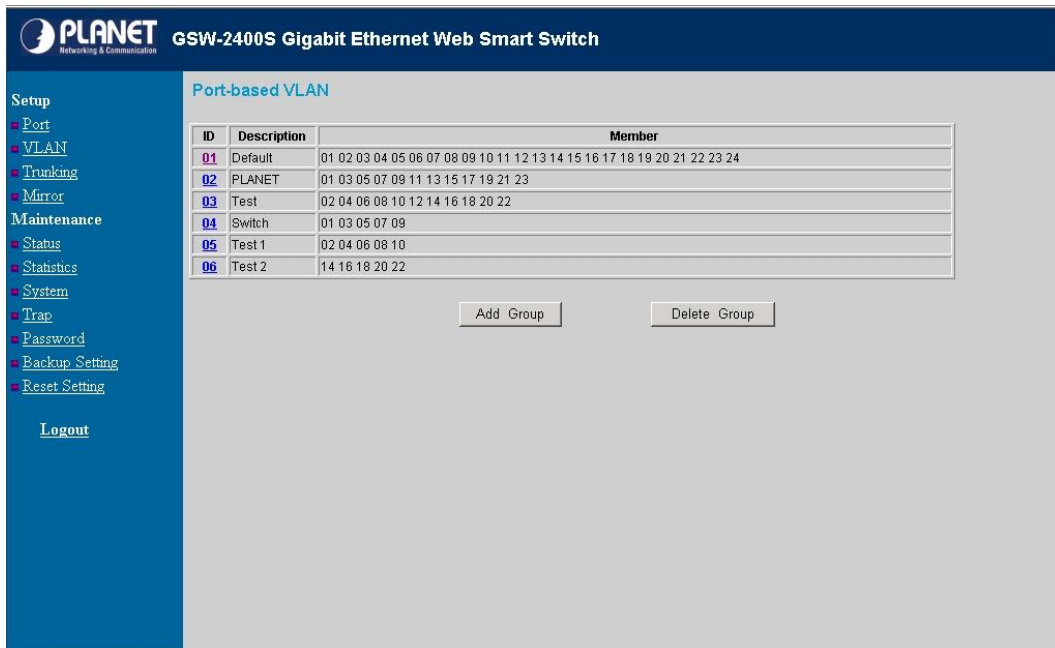

Figure 3-24 The VLAN Setting page

To add a VLAN group, please press **"Add Group"** button, the new VLAN configuration screen will pop out, you can fill in the description in order to describe this VLAN Group, check on the port to be a member to this VLAN Group, and press **"Apply"** button to take effect. Once you want to modify the existence VLAN Group, press the ID parameter, the ID VLAN configuration screen will pop out. The screen in Figure 3-25 appears. The GSW-1600S supports 16-port Based-VLAN groups and the GSW-2400S supports 24-port Based-VLAN groups
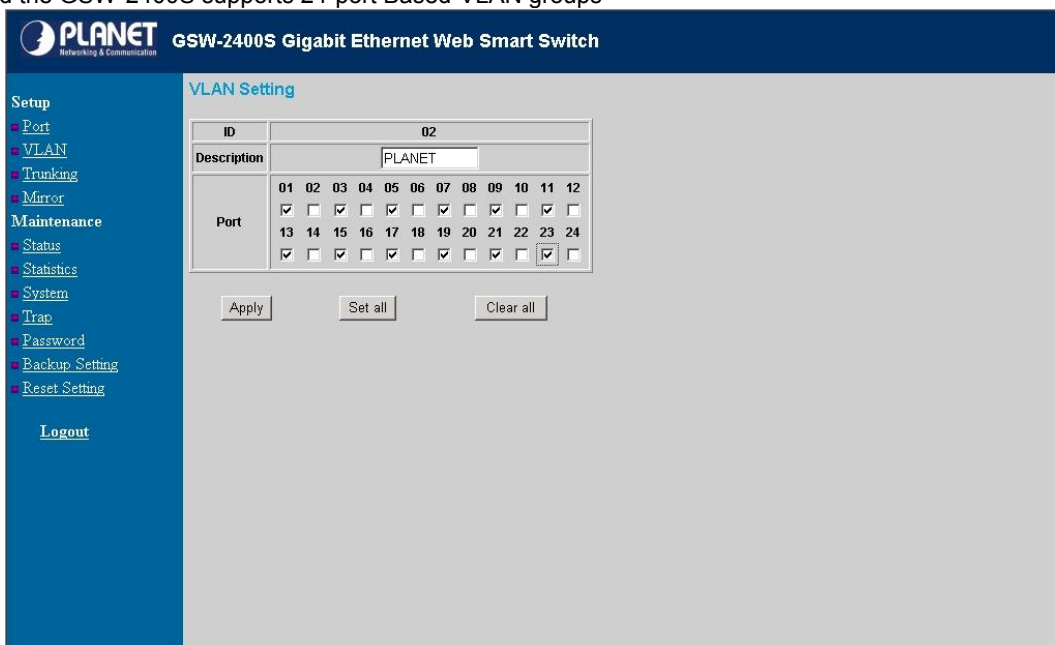
Figure 3-25 Per VLAN Setting page

3.1.2.5 *Trunking*

This function provides to cascade two Switch devices with a double bandwidth (maximum up to 1.6/2.4Gbps in full duplex mode). There are three selections in each trunk group setting as follow:

Group 1: Selection 1(Disable)

Selection 2(port 1, 2)

Selection 3(port 1, 2, 3, 4) (GSW-1600S/2400S)

Group 2: Selection 1(Disable),

Selection 2(port5, 6),

Selection 3(port 5, 6, 7, 8) (GSW-1600S/2400S)

Group 3: Selection 1(Disable),

Selection 2(port17, 18),

Selection 3(port 17, 18, 19, 20) (GSW-2400S only)

The trunking screen in Figure 3-26 appears.
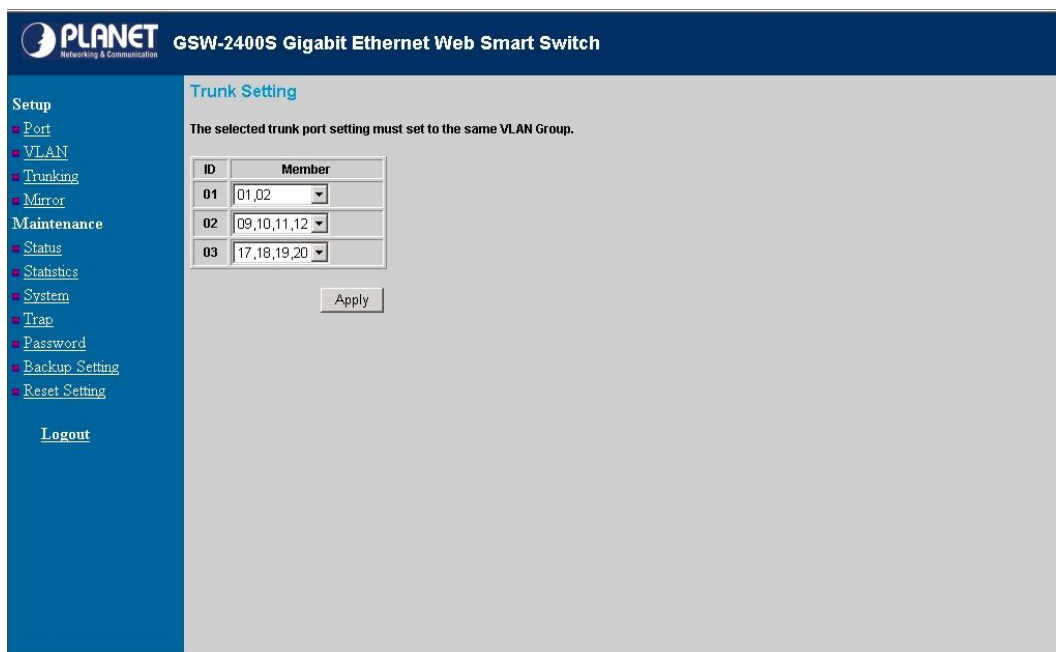
Figure 3-26 Trunking Setting page

✎*Note*: Be sure that the selected trunk port must connect to the Switch under the same VLAN group

3.1.2.6 *Mirror*

This function provide to monitoring network traffic that forwards a copy of each incoming 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 Mirror screen in Figure 3-27 appears. Configuring the port mirroring by assigning a source port from which to copy all packets and a sniffer port where those packets will be sent. The selection of the sniffer mode is as follow:

RX (receive) mode: this mode will duplicate the data which the source port received and forward to the sniffer port.

TX (transmit) mode: this mode will duplicate the data which the source port transmitted and forward to the sniffer port.

BOTH (receive and transmit) mode: this mode will duplicate the data which the source port transmitted and received and forward to the sniffer port.
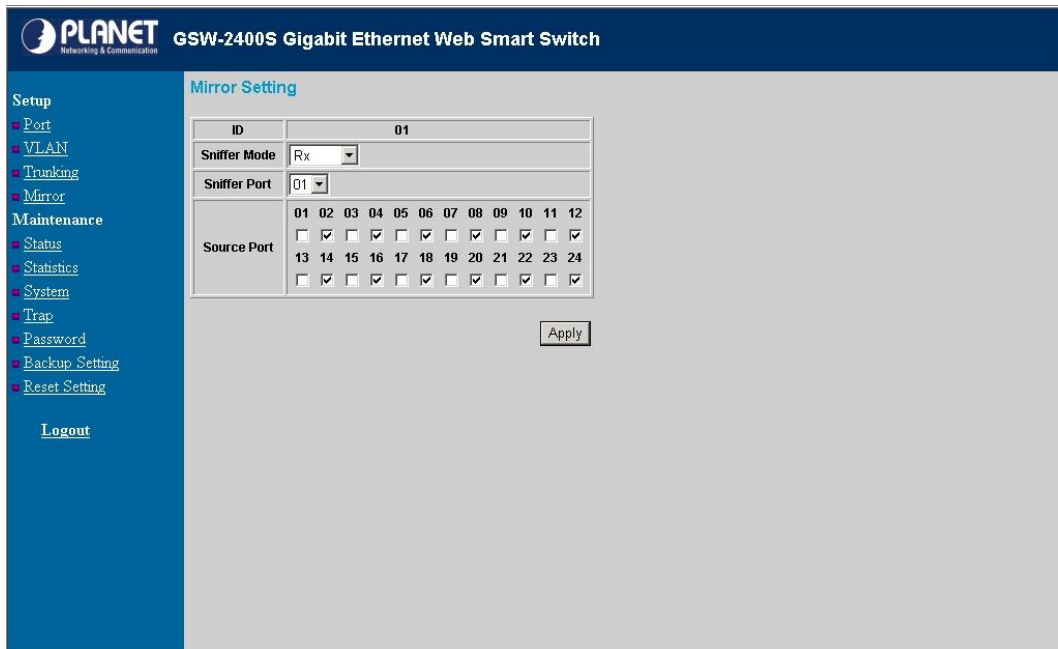
Figure 3-27 Mirror Setting page

3.1.2.7 *Status*

Click on the *"Status"* to present the Switch status on this screen, it display the Switch Status, Port Status, VLAN Status, Trunk Status and Mirror Status. Press *"Refresh"* to renew the posted information. The Status screen in Figure 3-28 appears.

Figure 3-28 Status page

3.1.2.8 *Statistics*

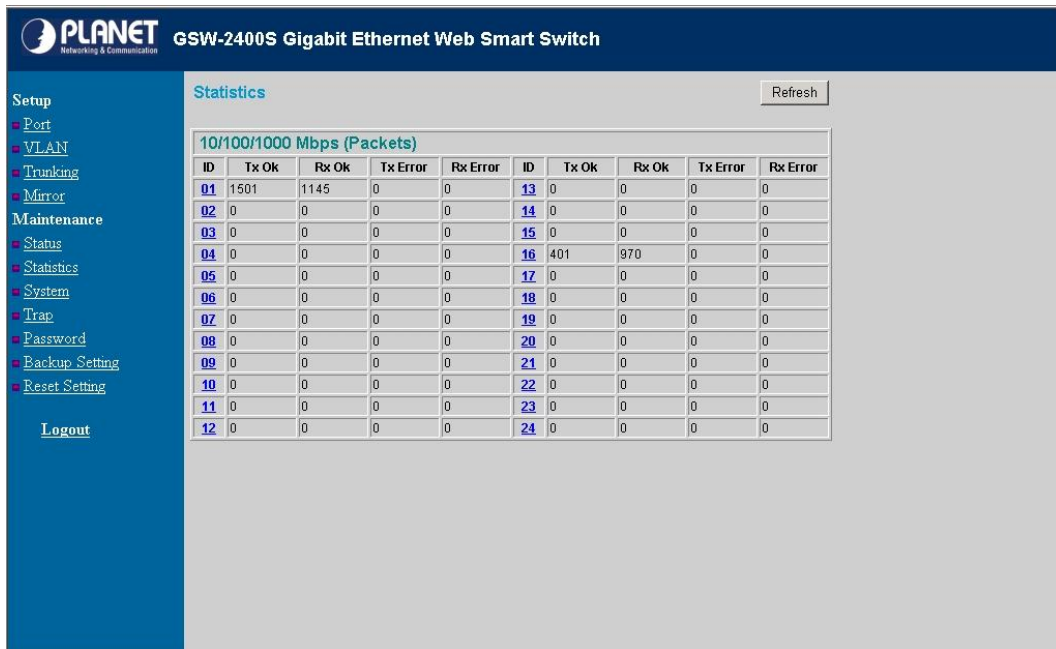The Statistic screen displays the status of packet count from each port. The statistics screen in Figure 3-29 appears.

Figure 3-29 Statistics page

Press the port ID for detail packet information on each port. The screen in Figure 3-30 appears.
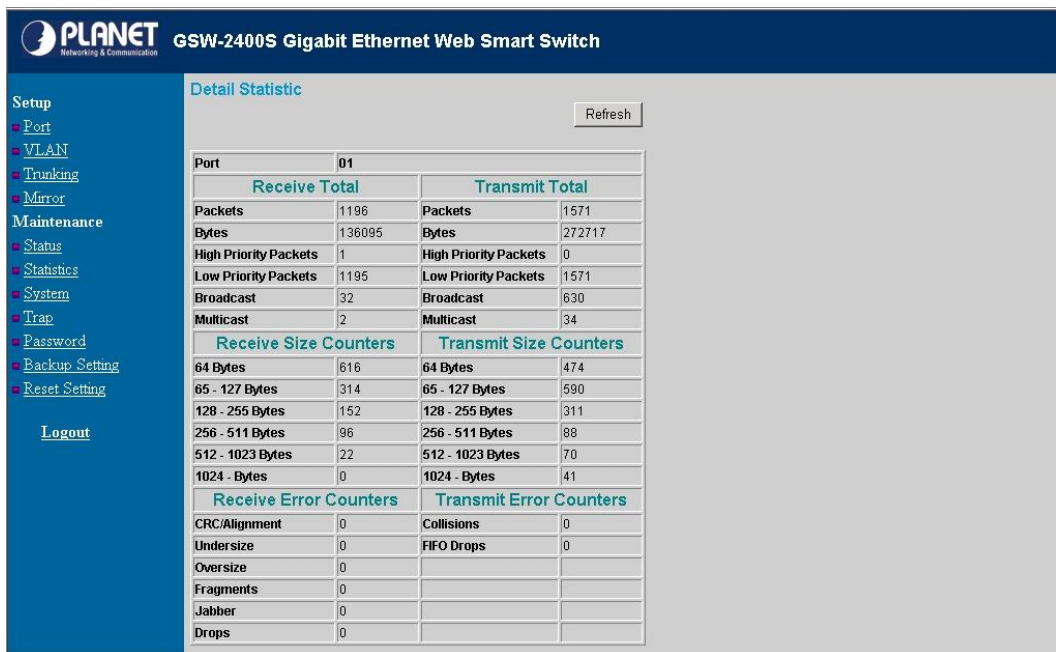
Figure 3-30 Per port Statistics page

3.1.2.9 System

The System Setting includes the System name, Location name, Login Timeout, IP Address, Subnet Mask and Gateway. Through the Web Switch Utility, you can easily recognize the device by using the System Name and the Location Name. The Login Timeout is to set the idle time-out for security issue, when there is no action in running the Web Switch Utility and the time is up, you must re-login to Web Switch Utility before you set the Utility. Fill up the IP Address, Subnet Mask and Gateway for the device. The screen in Figure 3-31 appears.
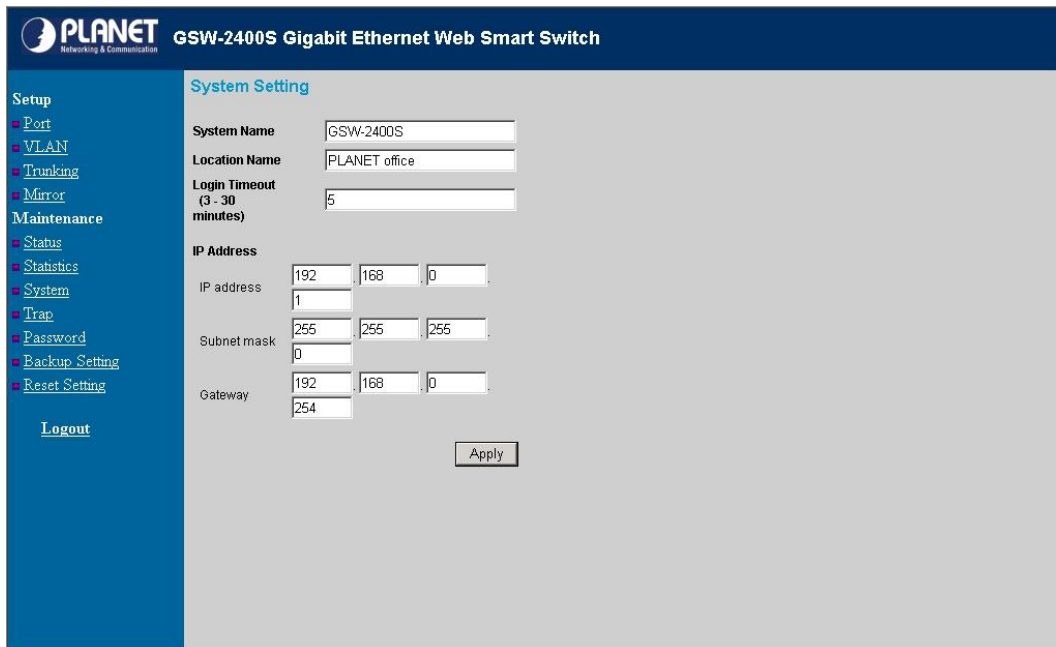
Figure 3-31 System Setting page

3.1.2.10 *Trap*

The Trap function enables the Switch to monitor the Trap through the Web Switch Utility, set the Trap IP Address of the manager workstation where the trap to be sent. The screen in Figure 3-32 appears
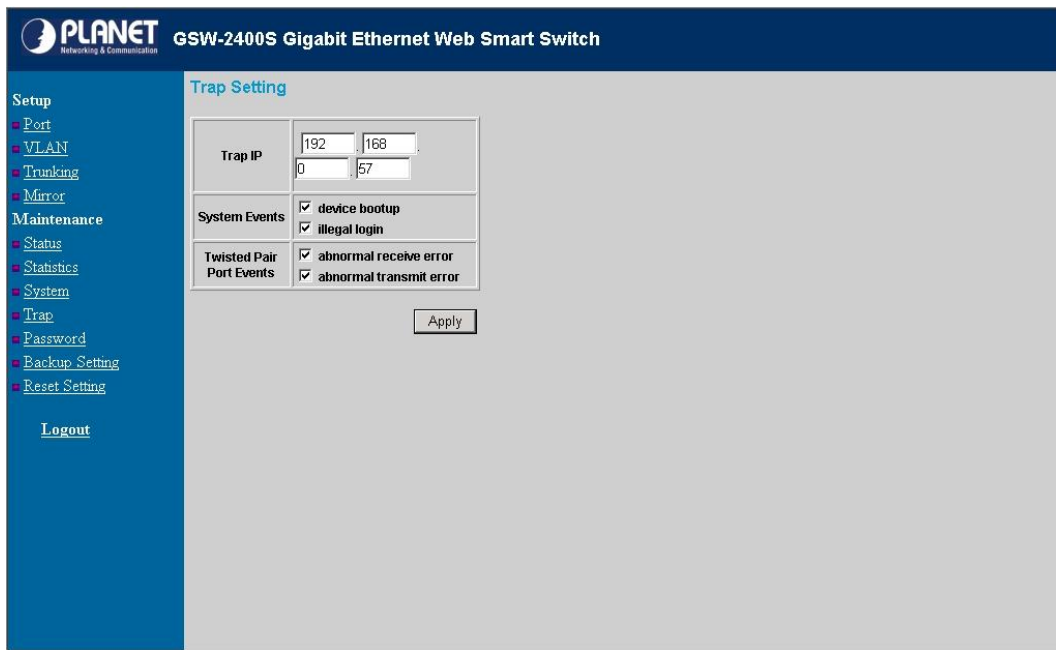

Figure 3-32 Trap Setting page

The description of each item is shown as below:

Events: Monitoring the Switch's trap.

Device Bootup: produce a trap when booting up the Switch.

Illegal Login: produce a trap when there is a wrong password login, and it will record from which IP login.

Twisted Pair Port Events: monitoring the Switch port status.

Abnormal* Receive Error: produce a trap when Switch receives error data

Abnormal* Transmit Error: produce a trap when Switch transmits error data

🖎*Note:* Abnormal*: 50-error packet count within 10 seconds.

3.1.2.11 *Password Setting*

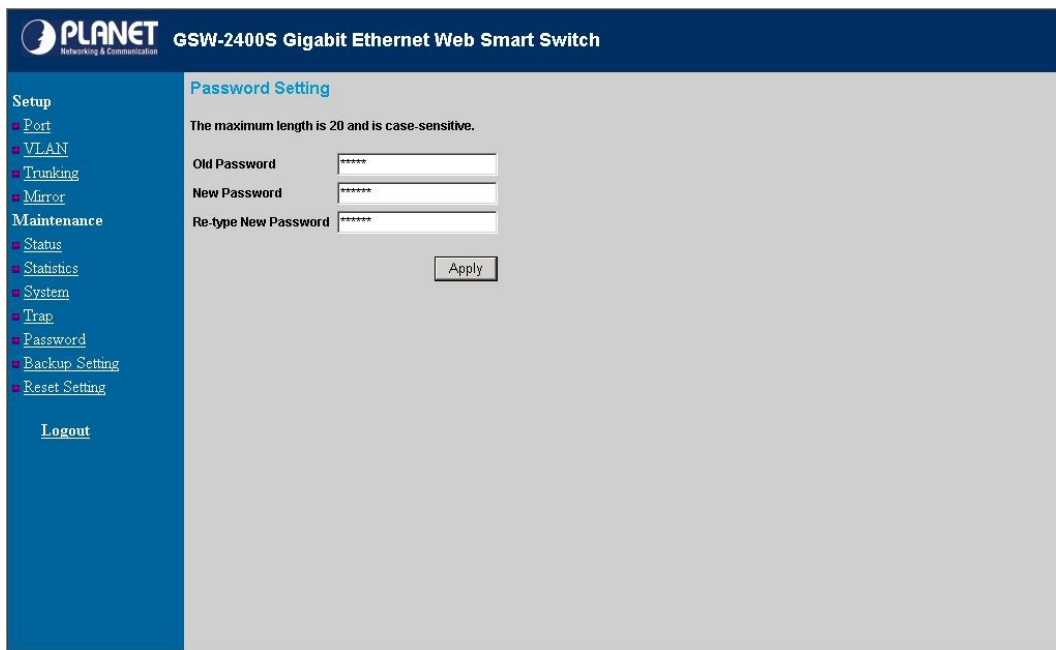This function provides administrator to secure GSW-1600S /2400S, the screen in Figure 3-33 appears.

Figure 3-33 Password Setting page

✍**Note:**   After change the default password, if you forget the password. Please press and release the **"Reset"** button in the rear panel of Switch, the current setting includes VLAN, will be lost and the Switch will restore to the default mode.

3.1.2.12 *Backup Setting*

This function allows backup the current configuration of GSW-1600S /2400S. The screen in Figure 3-34 appears.
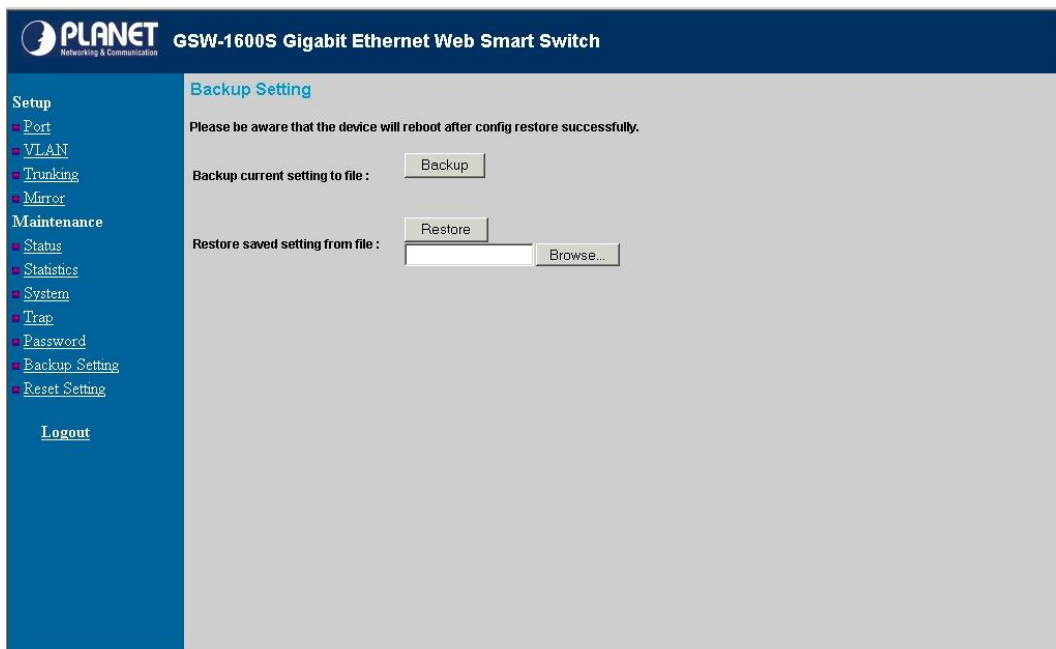

Figure 3-34 Backup Setting page

Press the **"Backup"** button to save the current configuration in manager workstation. The following screens in Figure 3-35 & 3-36 & 3-37 appear
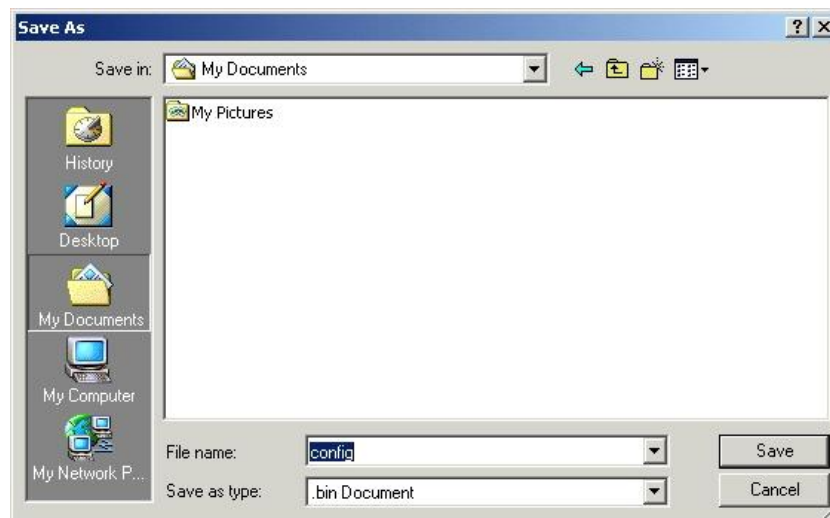
Figure 3-35 Backup Setting dialog box
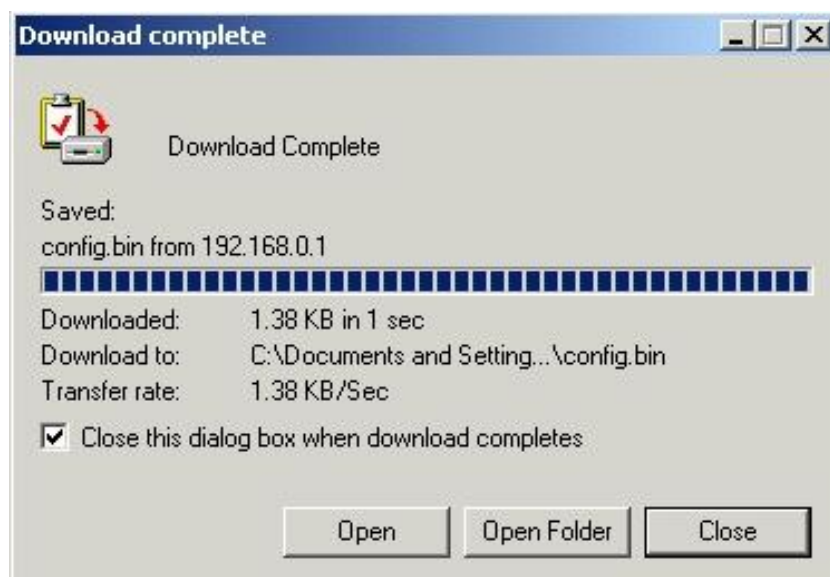

Figure 3-36 Backup Setting dialog box

Figure 3-37 Backup Setting message box

To restore a configuration file to the Switch, please specify the backup file and press the **"Restore"** button to continue, after restore completed, the Switch will reboot for the previous configuration. The screen in Figure 3-38 & 3-39 appears.
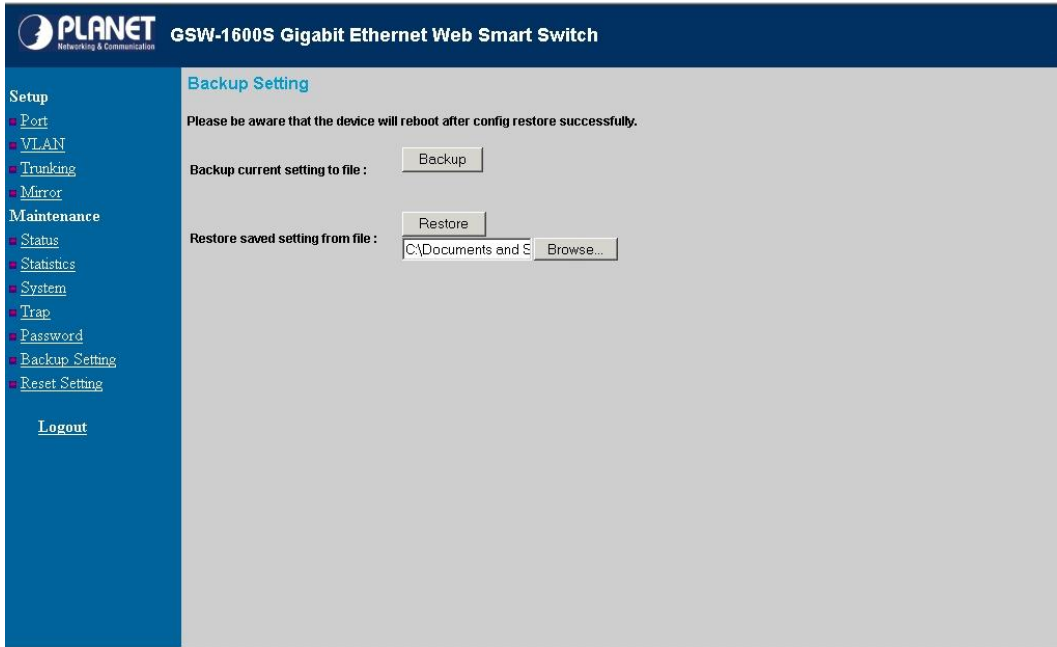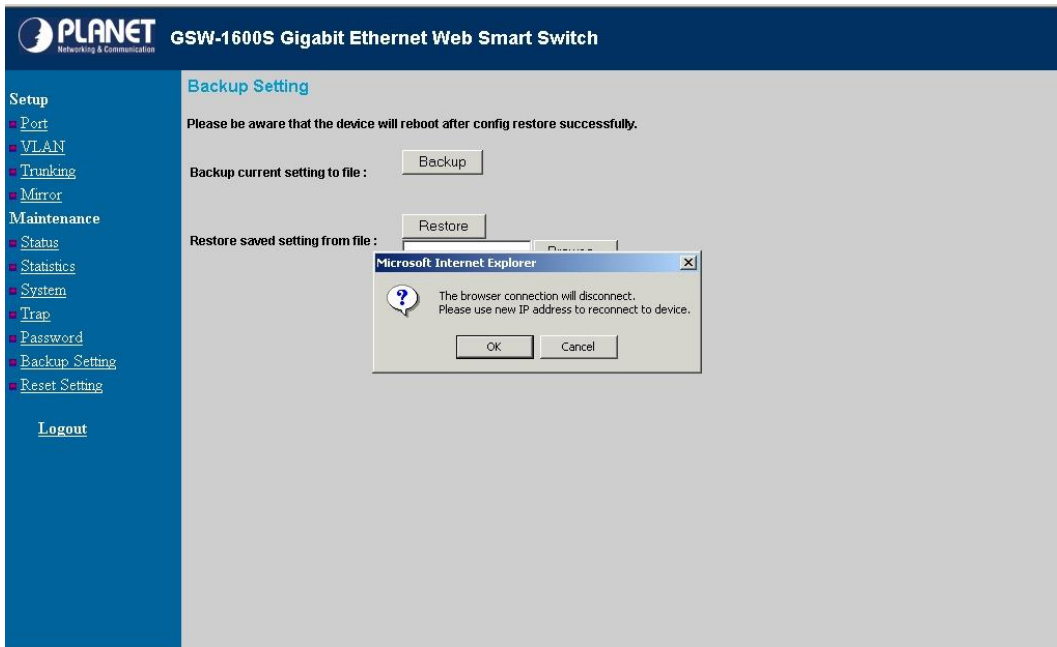

Figure 3-38 Restore Setting page

Figure 3-39 Restore Setting page

3.1.2.13 *Reset Setting*

The Factory Reset button can reset the Switch back to the factory default settings. Be aware that the entire configuration will be reset; the IP address of the Switch will be set to default setting 192.168.0.1. A message box in Figure 3-40 appears.
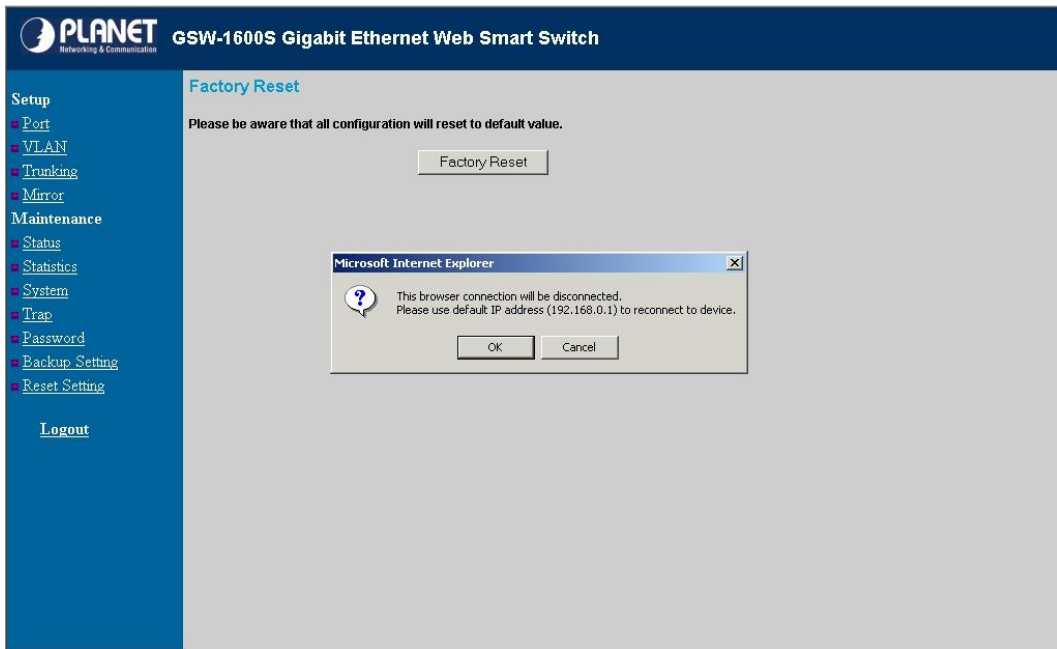
Figure 3-40 Reset Setting page

3.1.2.14 *Logout*

Click on this link; the web management interface logout immediately and login page appears.
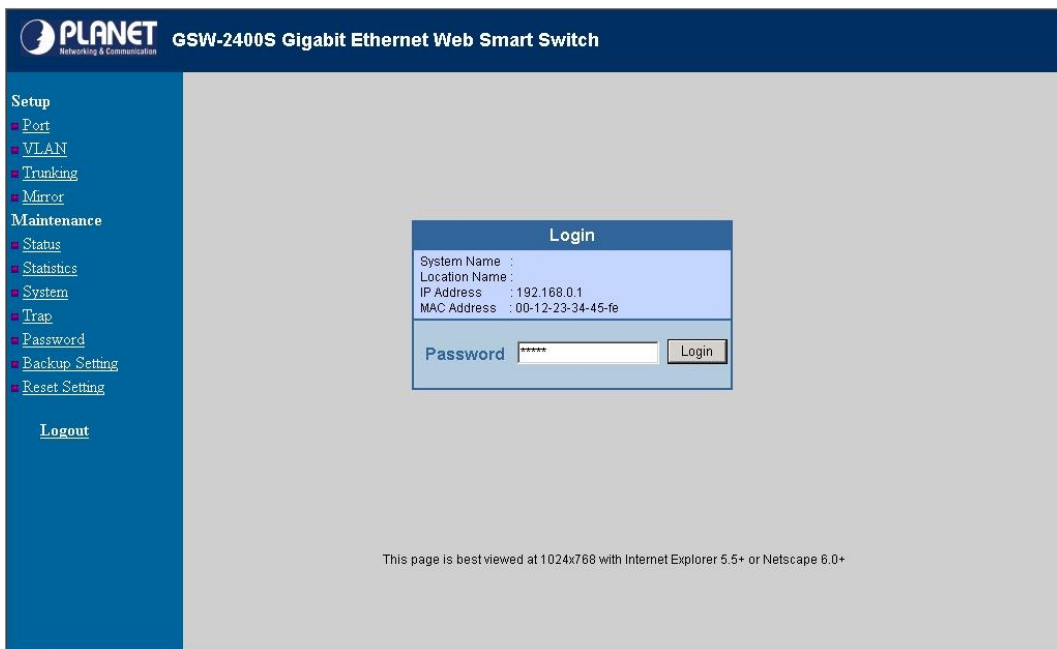

Figure 3-41 Login page appears after click on the Logout link

4. SWITCH OPERATION

4.1 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.

4.2 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.

4.3 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 increase the network throughput and availability.

4.4 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 the 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.

4.5 Auto-Negotiation

The STP ports on the Switch have built-in "Auto-negotiation" function. 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.

APPENDIX A

A.1 Switch's RJ-45 Pin Assignments

1000Mbps, 1000Base T

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 10/100Mbps, 10/100Base-TX

Contact	MDI	MDI-X
1	1	3
2	2	6
3	3	1
6	6	2