# LevelOne

# GES-1650

## 16 GE + 4GE SFP

## Web Smart Switch

# User Manual

Version 1.0-1109

# FCC Certifications

This Equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received; including interference that may cause undesired operation.

# CE Mark Warning

This equipment complies with the requirements relating to electromagnetic compatibility, EN 55022 class A for ITE, the essential protection requirement of Council Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility.

Company has an on-going policy of upgrading its products and it may be possible that information in this document is not up-to-date. Please check with your local distributors for the latest information. No part of this document can be copied or reproduced in any form without written consent from the company.

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# Table of Contents

# Chapter 1 Introduction to the Web Smart Switch

## 1.1 General Description

**High Performance**

GES-1650 is a powerful, high-performance Gigabit Ethernet switch with 16*10/100/1000Mbps ports and 4*SFP (mini GBIC) ports, providing you a cost-effective, space-saving solution for expanding your network. The gigabit ports can lead you to a real gigabit connection, making you be able to transfer high bandwidth-needed files larger and faster in an easy way. And the four mini gigabit ports allow you to add fiber-optic connectivity for connecting to other network switches to obtain long-distance communication.

This device provides the easy management function through the Ethernet Web. The network administrator can configure the status and the port function setting of the device through the Web-Based UI. When installing the auto-discovery management tool helps network managers to search and access those switches on LAN easily. Therefore, network managers can access switches that support auto-discovery on LAN without memorizing IP address.

**Smart Features**

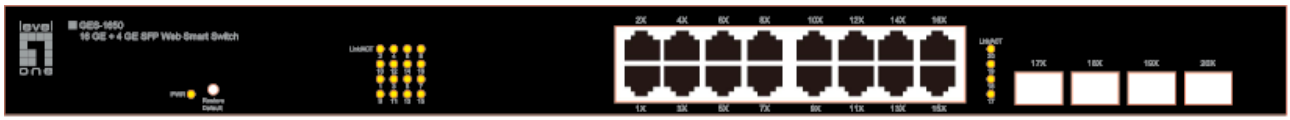
GES-1650 provides rich features including Link Aggregation, VLANs, IGMP Snooping, Port Trunking, Spanning Tree, Security (Port Security and 802.1x authentication) and other network management to meet the requirements evolving medium and small-sized enterprises. QoS secures the bandwidth for some bandwidth-demanded applications including VoIP or video conference. Additionally, IEEE 802.3az Energy Efficient Ethernet ability is supported to promise operation in Low Power Idle Mode and save power consumption.

**Easy Installation and Management**

This switch is plug & play and hassle-free in installation. Auto-MDI/MDI-X crossover on all ports eliminates the need for crossover cables for connection to another switch or hub. Auto-Negotiation on each port senses the link speed of a network device and intelligently adjusts for compatibility and optimal performance. This switch also features diagnostic LEDs, which display the status and activities of the LEDs, allowing you to quickly detect and correct problems on the network.

## 1.2 The Front Panel

The following figure shows the front panel of the switch.



The following table describes the port labels on the front panel.

| LABEL | DESCRIPTON |
|---|---|
| **16 10/100 RJ-45 Ethernet Ports** | Connect these ports to a computer, a hub, an Ethernet switch or router |
| **Four Mini-GBIC Slots:** | Use mini-GBIC transceivers in these slots for connections to backbone Ethernet switches. |

## 1.3 LEDs Definition

This device provides extensive leds to show the activities on power, system and ports.
See the following description for your reference:

| LED | Status | Operation |
|---|---|---|
| **Power** | Steady Green | The switch is powered on. |
| | Off | The switch is powered off. |
| **Link/ACT** | Steady Green | Valid port connection. |
| | Blinking Green | Valid port connection and there is data transmitting/ receiving. |
| | Off | Port disconnected. |

**The RESET Button**

Reset the switch to its factory default configuration via the RESET button. Press the RESET button for one second and release. The switch automatically reboots and reloads its factory configuration file. The RESET button is on the front panel of the switch.

## 1.4 The Rear Panel

The following figure shows the rear panel of the switch:


**Power Receptacle**

To be compatible with the electric service standards around the world, the switch is designed to afford the power supply in the range from 100 to 240 VAC, 50/60 Hz. Please make sure that your

outlet standard to be within this range.

To power on the switch, please plug the female end of the power cord firmly into the receptacle of the switch and the other end into an electric service outlet. After the power cord installation, please check if the power LED is lit for a normal power status.

## 1.5 Installation

This switch can be placed on your desktop directly, or mounted in a rack. Please refer to the instructions for installation.

Before installing the switch, we recommend:

1. The switch is placed with appropriate ventilation environment. A minimum 25 mm space around the unit is recommended.
2. The switch and the relevant components are away from sources of electrical noise such as radios, transmitters and broadband amplifiers
3. The switch is away from environments beyond recommend moisture

**Desktop Installation**

1. Install the switch on a level surface that can support the weight of the unit and the relevant components.
2. Plug the switch with the female end of the provided power cord and plug the male end to the power outlet.

**Rack-mount Installation**

The switch may be standalone, or mounted in a rack. Rack mounting facilitate to an orderly installation when you are going to install series of networking devices.

Procedures to Rack-mount the switch:

1. Disconnect all the cables from the switch before continuing.
2. Place the unit the right way up on a hard, flat surface with the front facing you.
3. Locate a mounting bracket over the mounting holes on one side of the unit.
4. Insert the screws and fully tighten with a suitable screwdriver.
5. Repeat the two previous steps for the other side of the unit.
6. Insert the unit into the rack and secure with suitable screws.
7. Reconnect all the cables.

**Installing Network Cables**

1. Crossover or straight-through cable: All the ports on the switch support Auto-MDI/MDI-X functionality. Both straight-through or crossover cables can be used as the media to connect the switch with PCs as well as other devices like switches, hubs or router.

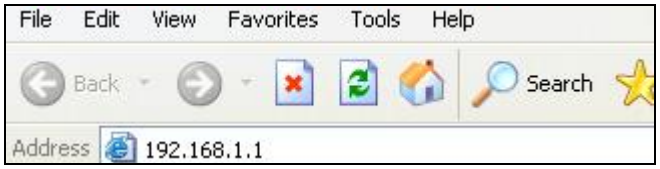
2. Category 3, 4, 5 or 5e, 6 UTP/STP cable: To make a valid connection and obtain the optimal performance, an appropriate cable that corresponds to different transmitting/receiving speed is required. To choose a suitable cable, please refer to the following table.

| Media | Speed | Wiring |
|---|---|---|
| **10/100/1000 Mbps copper** | 10 Mbps | Category 3,4,5 UTP/STP |
| | 100 Mbps | Category 5 UTP/STP |
| | 1000 Mbps | Category 5e, 6 UTP/STP |
| **1000 Mbps Fiber (mini-GBIC required)** | 1000 Mbps | The cable type differs from the mini-GBIC you choose. Please refer to the instruction came with your mini-GBIC. |

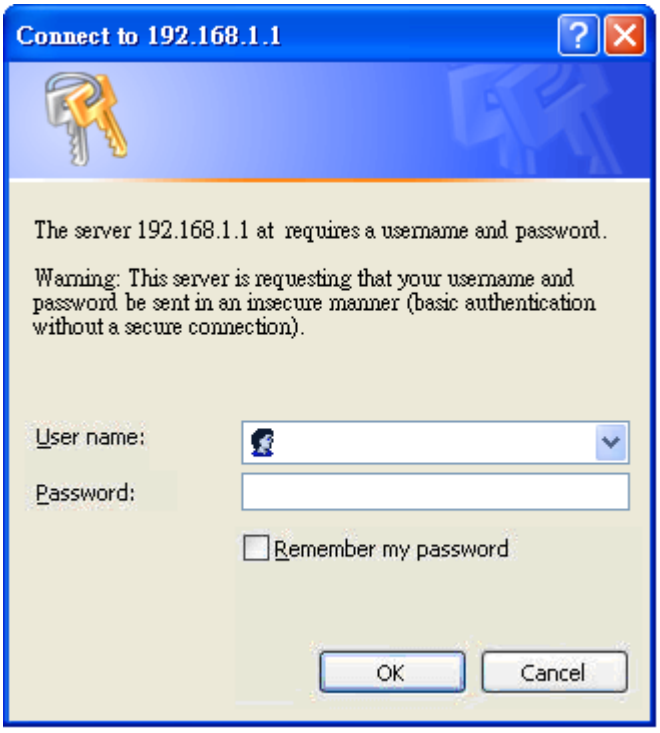
# Chapter 2 Basic Web Management Information

## 2.1 System login

1. Start your web browser.
2. Type “http://”and the IP address of the switch (for example, the default management IP address is 192.168.1.1) in the Location or Address field. Press **[ENTER]**.

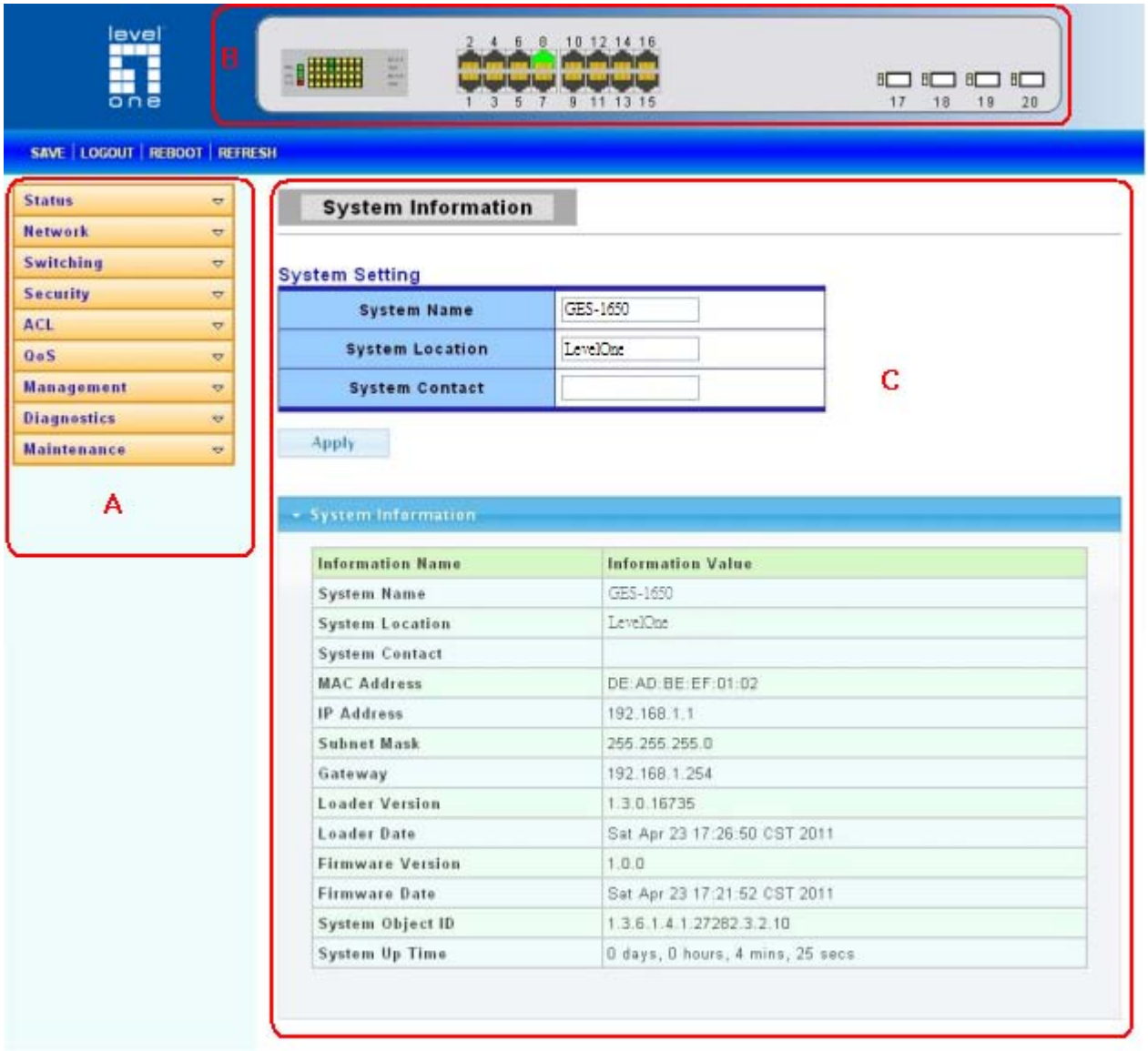



3. The login screen appears. The default username and password are **admin**, so you can click **OK** and go to the web configuration screen directly.



## 2.2 The Graphic User Interface

After the password authorization, the information page shows up. You may click on each folder on the left column of each page to get access to each configuration page. The Graphic User Interface is as follows:

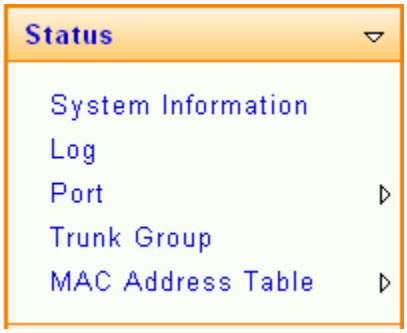
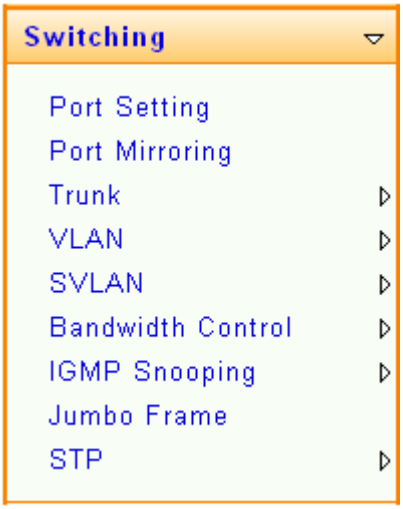
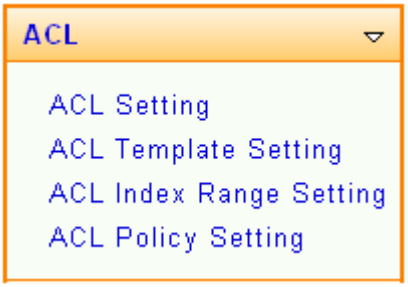
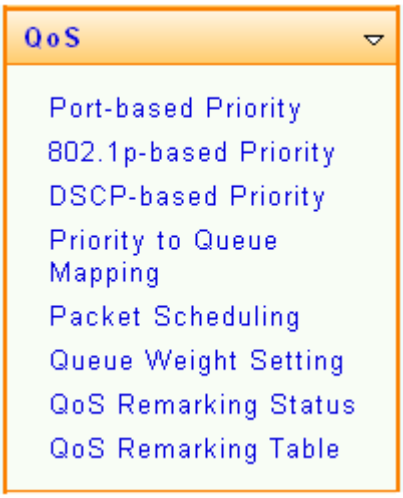



**A** –Click the menu items to open submenu links, and then click on a submenu link to open the screen in the main window.

**B** –It shows the switch's current link status. Green squares indicate the port link is up, while black squares indicate the port link is down.

**C** –Displays system information such as MAC address and firmware version.

In the navigation panel, click a main link to reveal a list of submenu links shown as the following:

| Status | Network | Switching |
|---|---|---|
|  |  |  |
| **Security** | **ACL** | **QoS** |
|  |  |  |
| **Management** | **Diagnostics** | **Maintenance** |
|  |  |  |

The following table describes the links in the navigation panel.

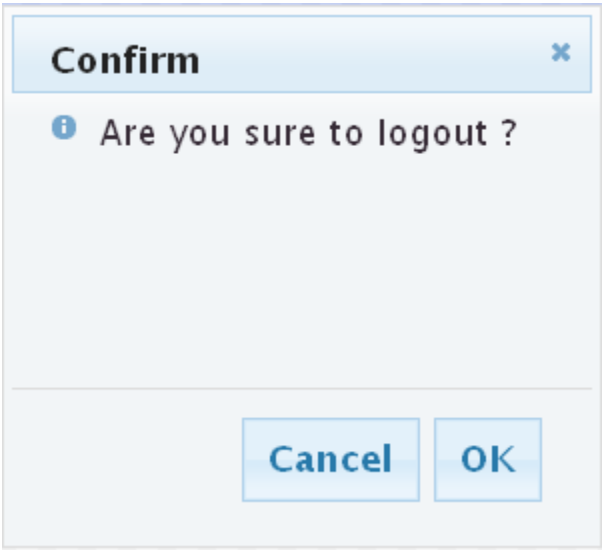
| LINKS | DESCRIPTION |
|---|---|
| **Status** | |
| System Information | This link takes you to a screen that displays general system information. |
| Log | This sub-menu takes you to screens where you can view and setup system logs. |
| Port | This link takes you to a screen where you can configure the port information. |
| Trunk Group | This link takes you to a screen where you can configure the trunk settings on a port. |
| MAC Address Table | This link takes you to screens where you can configure MAC address options. |
| **Network** | |
| IP Address | This link takes you to a screen where you can configure the IP information. |
| IPv6 Address | This link takes you to a screen where you can configure the IPv6 information. |
| Time | This link takes you to a screen where you can configure the switch's time settings. |
| **Switching** | |
| Port Setting | This link takes you to a screen where you can configure settings for individual switch ports. |
| Port Mirroring | This sub-menu takes you to screens where you can copy traffic from one port or ports to another port in order that you can examine the traffic from the first port without interference. |
| Trunk | This link takes you to a screen where you can configure the trunk settings on a port. |
| VLAN | This link takes you to a screen where you can configure the VLAN (IEEE 802.1Q) settings on a port. |
| SVLAN | This link takes you to a screen where you can configure the SVLAN settings on a port. |
| Bandwidth Control | This link takes you to a screen where you can configure bandwidth limits on the switch. |
| IGMP Snooping | This sub-menu takes you to screens where you can configure and revising the information of IGMP Snooping. |
| Jumbo Frame | This link takes you to a screen where you can configure the Jumbo Frame size. |
| STP | This sub-menu takes you to screens where you can configure the STP to prevent network loops. |
| **Security** | |
| Storm Control | This link takes you to a screen where you can limit the number of broadcast, multicast and unknown unicast and multicast packets the Switch receives per second on the |

| | |
|---|---|
| | ports. |
| MAC Filtering | This sub-menu takes you to screens where you can configure the accessed MAC address. |
| 802.1X | This sub-menu takes you to screens where you can configure IEEE 802.1x port authentication for clients communicating via the switch. |
| Port Security | This link takes you to a screen where you can configure the port security setting. |
| Protected Ports | This link takes you to a screen to setting and revising the protected ports. |
| Access | This link takes you a way to access the switch. |
| **ACL** | |
| ACL Setting | This link takes you to a screen to setting and revising the basic setting of ASL. |
| ACL Template Setting | This link takes you to a screen to setting and revising the template setting of ASL. |
| ACL Index Range Setting | This link takes you to a screen to setting and revising the index range setting of ASL. |
| ACL Policy Setting | This link takes you to a screen to setting and revising the policy setting of ASL. |
| **QoS** | |
| Port-based Priority | This link takes you to a screen where you can assign a IEEE 802.1p priority to packets based on the ingress (incoming) port of the packet. |
| 802.1p-based Priority | This link takes you to a screen where you can assign a IEEE 802.1p-based priority to packets based on the ingress (incoming) port of the packet. |
| DSCP-based Priority | This link takes you to a screen where you can assign priority to packets based on their Differentiated Services Code Points (DSCPs). |
| Priority to Queue Mapping | This link takes you to a screen where you can configure the priority level-to-physical queue mapping. |
| Packet Scheduling | Packet Scheduling is used to help solve performance degradation when there is network congestion. Use this screen to configure queuing algorithms for outgoing traffic. |
| Queue Weight Setting | This link takes you to a screen where you can assign a queue weight to packets based on the ingress (incoming) port of the packet. |
| QoS Remarking Status | This link takes you to a screen where you can assign a QoS remarking status to packets based on the ingress (incoming) port of the packet. |
| QoS Remarking Table | This link takes you to a screen where you can assign a QoS remarking table to packets based on the ingress (incoming) port of the packet. |
| **Management** | |
| SNMP | This link takes you to a screen where you can set and revise the SNMP. |
| **Diagnostics** | |
| Ping Test | This link takes you to a screen where you can do Ping test. |

| | |
|---|---|
| Ping6 Test | This link takes you to a screen where you can do Ping6 test. |
| Log Setting | This link takes you to a screen where you can configure log settings. |
| Factory Default | This link takes you back to the factory default configuration. |
| Reboot Switch | This link takes you to a screen where you can reboot the switch. |
| **Maintenance** | |
| Backup Manager | This link takes you to a screen where you can backup the settings you have made. |
| Upgrade Manager | This link takes you to a screen where you can upgrade the switch settings. |
| Configuration Manager | This link takes you to a screen where you can save all the configurations you have made to the switch. |
| Account Manager | This link takes you to a screen where you can change the web configurator login account. |
| Enable Password | This link takes you to a screen where you can change the login password. |

## 2.3 Logging Out of the Web Configurator

Click **Logout** in the navigation panel to exit the web configurator. You have to log in with your password again after you log out, if there is any. This is recommended after you finish a management session for security reasons.



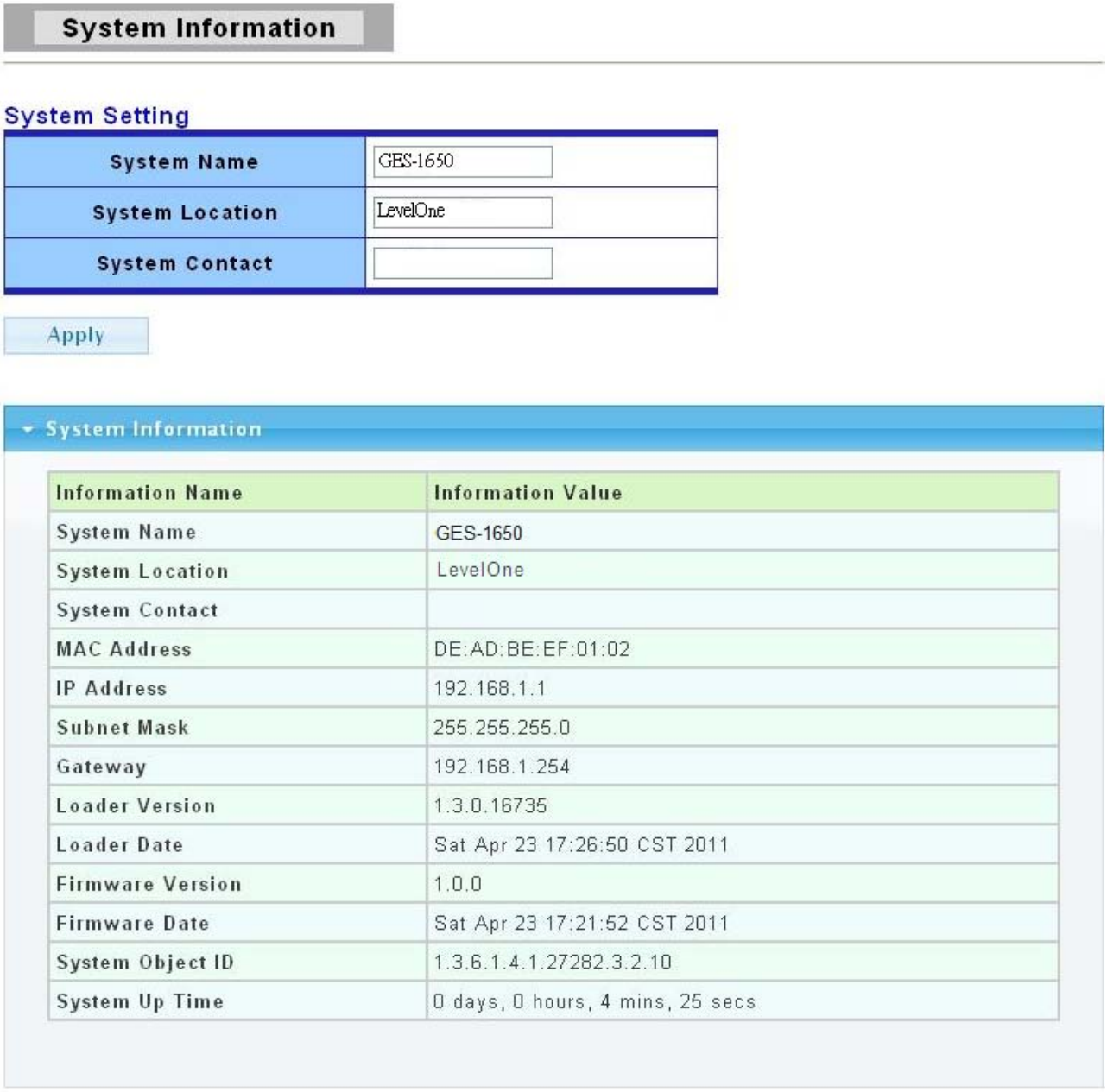
# Chapter 3 Web Management Configuration

## 3.1 Status

Use the Status pages to view system information and status.

### 3.1.1 System Information

In the navigation panel, click **Status** > **System Information** to display the screen as shown below. This page allow user to configure and browse some system information such as MAC address, IP address, loader version and firmware version and so on.




The following table describes the labels in this screen.

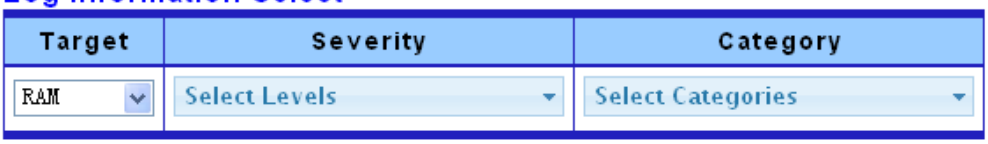
| LABEL | DESCRIPTION |
|---|---|
| **System Name** | This field displays the descriptive name of the switch for identification purposes. |
| **System Location** | This field displays the system location of the switch. |
| **System Contact** | This field displays the system contact of the switch. |
| **MAC Address** | This field refers to the Ethernet MAC (Media Access Control) address of the switch. |
| **IP Address** | This field displays the IP address of the switch. |
| **Subnet Mask** | This field displays the subnet mask of the switch. |
| **Gateway** | This field displays the IP address of the gateway. |
| **Loader Version** | This field displays the loader version of the switch. |
| **Loader Date** | This field displays the loader date of the switch. |
| **Firmware Version** | This field displays the version number of the switch's current firmware. |
| **Firmware Date** | This field displays the switch's firmware created date. |
| **System Object ID** | This field displays the system object ID of the switch. |
| **System Up Time** | This field displays the system up time. |

### 3.1.2 Log

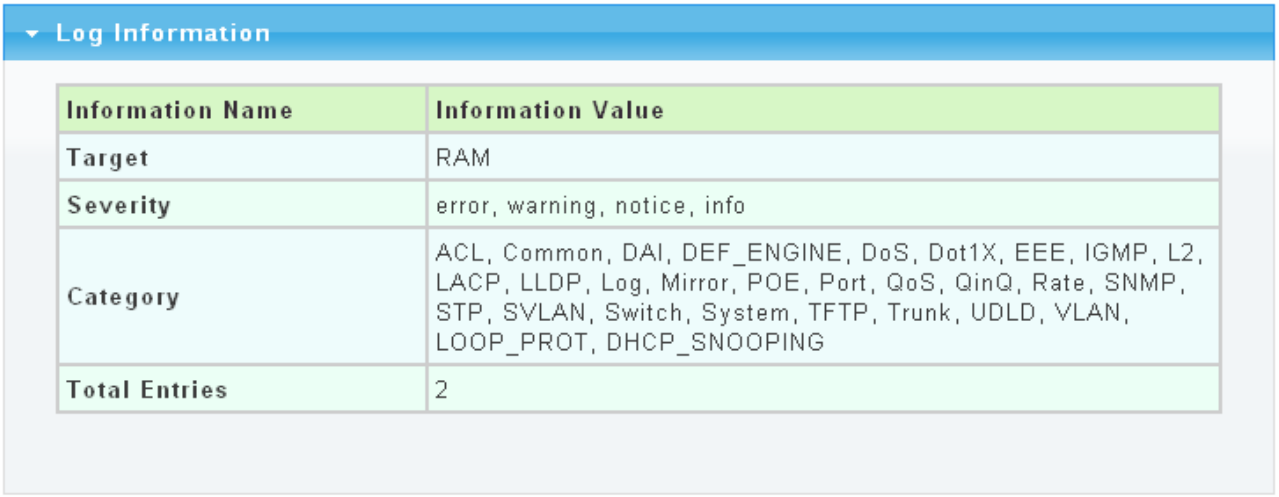
Use this screen to display the switch logs. Click **Status** > **Log** in the navigation panel to display the screen as shown below.

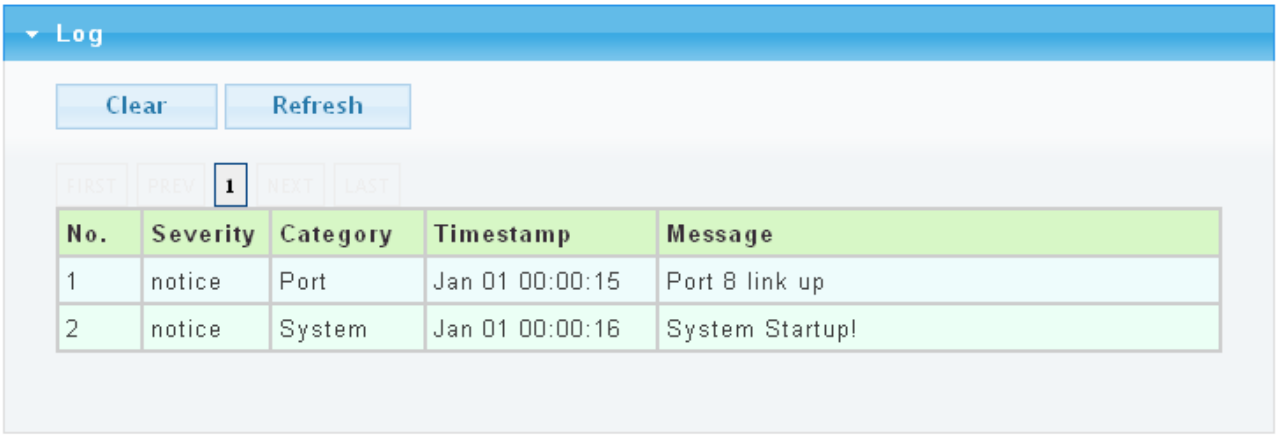
## Log

### Log Information Select




View




The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Target** | Select **RAM** to display only the logs stored in the RAM.<br>Select **Flash** to display only the logs stored in the Flash memory. |
| **Severity** | Select severity level(s) to filter log messages. The possible severity levels are:<br>· **Error** - to record system failures, such as events which will cause the switch to malfunction and events such as invalid user input in the web configurator.<br>· **Warning** - to record non critical errors on the Switch. The Switch will continue to function when warnings are recorded.<br>· **Info** - to record regular system events, such as configuration changes or logins. |

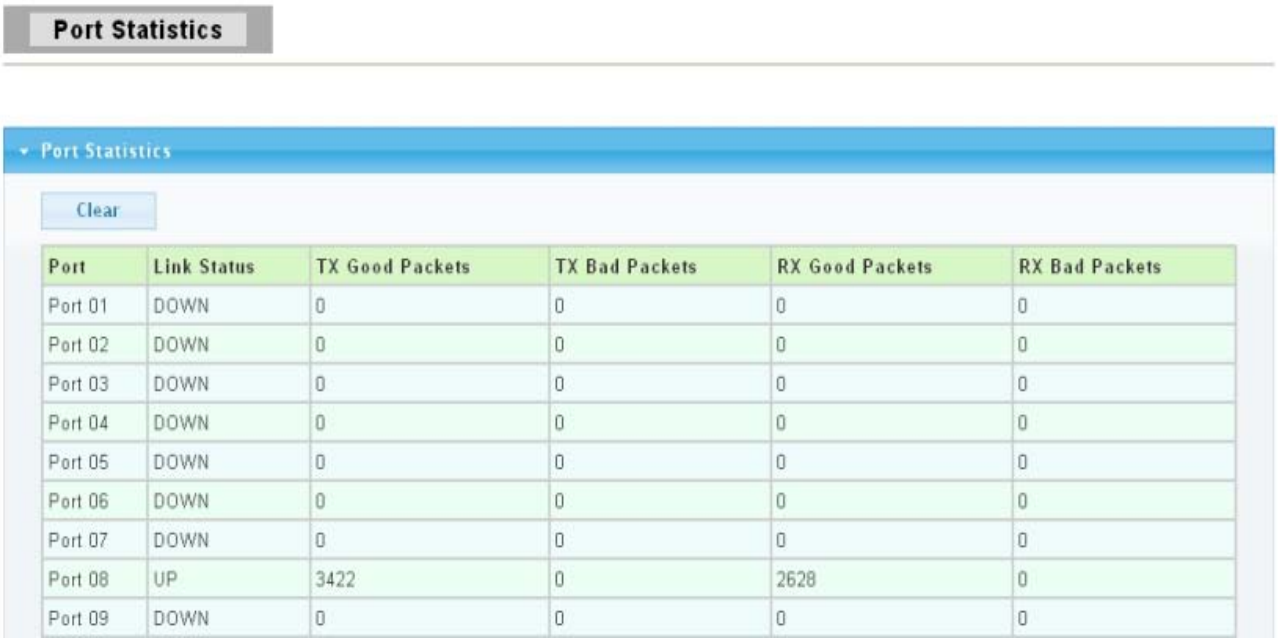
| | |
|---|---|
| | · **Notice**- to record the error which need to be noticed. |
| **Category** | Select category to filter log messages. The categories are based on software and hardware features of the switch. For example the category **MIRROR** records events which deal with the Port Mirroring features you set up and the category **SYSTEM** records events which deal with the overall operation of the switch. |
| **View** | Click the View button to display the logs according the criteria specified in the fields above. |
| **No.** | This is the index number for the log entry. |
| **Severity** | This field displays the severity level of the log entry. |
| **Category** | This field displays what category the log entry fits into. |
| **Timestamp** | This field specifies the time when the switch recorded the log event. The switch resets its internal clock when it is restarted. |
| **Message** | This field displays an explanation for the log entry. |

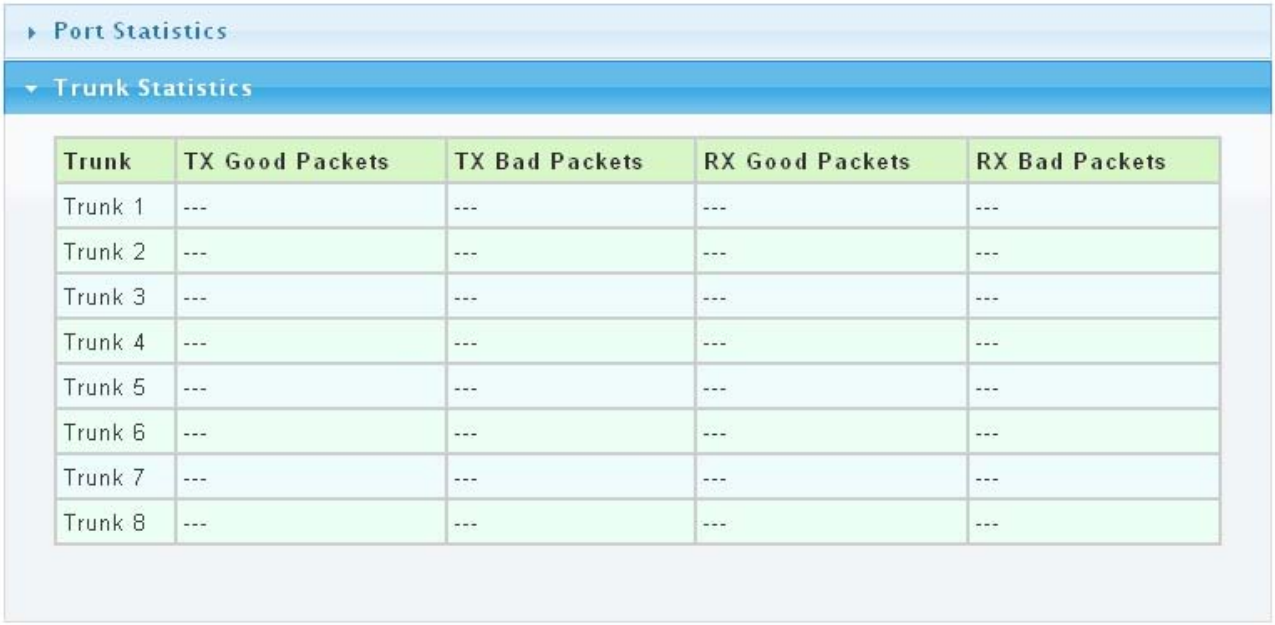
## 3.1.3 Port

The Port configuration page displays port summary and status information.

### 3.1.3.1 Port Statistics

Use this screen to display the Switch port statistics. Click **Status**->**Port** > **Port Statistics** to view the screen as shown next.






The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Port** | This identifies the Ethernet port. |
| **Link Status** | This field displays **Link Up** if the port is currently in use. Otherwise it displays **Link Down**. |
| **Tx Good Pkt** | This field shows the number of frames successfully transmitted on this port. |
| **Tx Bad Pkt** | This field shows the number of frames unsuccessfully transmitted on this port. |
| **Rx Good Pkt** | This field shows the number of frames successfully received on this port. |
| **Rx Bad Pkt** | This field shows the number of frames unsuccessfully received on this port. |
| **Clear** | Click the **Clear** button to reset the port statistics. |

### 3.1.3.2 Port Counters

Click **Status**->**Port** > **Port Counters** to view the screen as shown next.

This page displays standard counters on network traffic from the Interface, Etherlike and RMON MIB. Interface and Etherlike counters display errors on the traffic passing through each port. RMON counters provide a total count of different frame types and sizes passing through each port.

## Port Counters

### Port MIB Counters Settings

| Port | Mode |
|---|---|
| Port 1 | All / Interface / Etherlike / RMON |

### Port1 mib Counters

| IF mib Counter Name | mib Counter Value |
|---|---|
| ifInOctets | 0 |
| ifInUcastPkts | 0 |
| ifInNUcastPkts | 0 |
| ifInDiscards | 0 |
| ifOutOctets | 0 |
| ifOutUcastPkts | 0 |
| ifOutNUcastPkts | 0 |
| ifOutDiscards | 0 |
| ifInMulticastPkts | 0 |
| ifInBroadcastPkts | 0 |
| ifOutMulticastPkts | 0 |
| ifOutBroadcastPkts | 0 |

| Ether-Like mib Counter Name | mib Counter Value |
|---|---|
| dot3StatsAlignmentErrors | 0 |
| dot3StatsFCSErrors | 0 |
| dot3StatsSingleCollisionFrames | 0 |
| dot3StatsMultipleCollisionFrames | 0 |
| dot3StatsDeferredTransmissions | 0 |
| dot3StatsLateCollisions | 0 |
| dot3StatsExcessiveCollisions | 0 |
| dot3StatsFrameTooLongs | 0 |
| dot3StatsSymbolErrors | 0 |
| dot3ControlInUnknownOpcodes | 0 |
| dot3InPauseFrames | 0 |
| dot3OutPauseFrames | 0 |

| Rmon mib Counter Name | mib Counter Value |
|---|---|
| etherStatsDropEvents | 0 |
| etherStatsOctets | 0 |
| etherStatsPkts | 0 |
| etherStatsBroadcastPkts | 0 |
| etherStatsMulticastPkts | 0 |
| etherStatsCRCAlignErrors | 0 |
| etherStatsUnderSizePkts | 0 |
| etherStatsOverSizePkts | 0 |
| etherStatsFragments | 0 |
| etherStatsJabbers | 0 |
| etherStatsCollisions | 0 |
| etherStatsPkts64Octets | 0 |
| etherStatsPkts65to127Octets | 0 |
| etherStatsPkts128to255Octets | 0 |
| etherStatsPkts256to511Octets | 0 |
| etherStatsPkts512to1023Octets | 0 |
| etherStatsPkts1024to1518Octets | 0 |
| IngressLackPktBufDrop | 0 |

The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Port** | This identifies the Ethernet port. |
| **Mode** | You have four choices: All, Interface, Etherlike and RMON. |

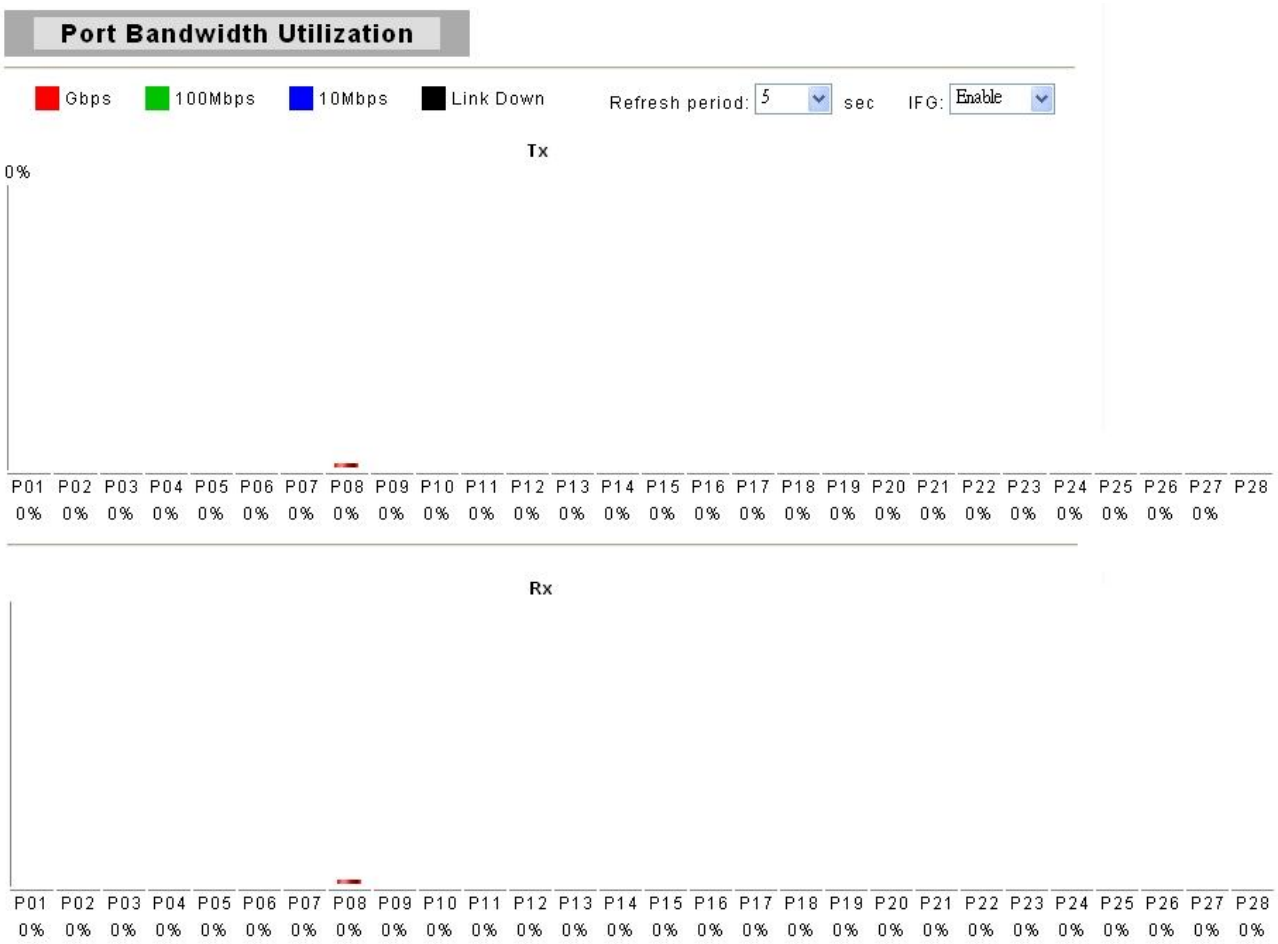
### 3.1.3.3 Port Error Disabled

This page allow user to browse ports which disabled by some protocols such as BPDU Guard, Loopback and UDLD.


The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Port Name** | This shows the disabled Ethernet port. |
| **Error Disabled Reason** | Here shows the reasons of these error. |
| **Recover** | Click this button to enable those error disabled ports. |

### 3.1.3.4 Bandwidth Utilization

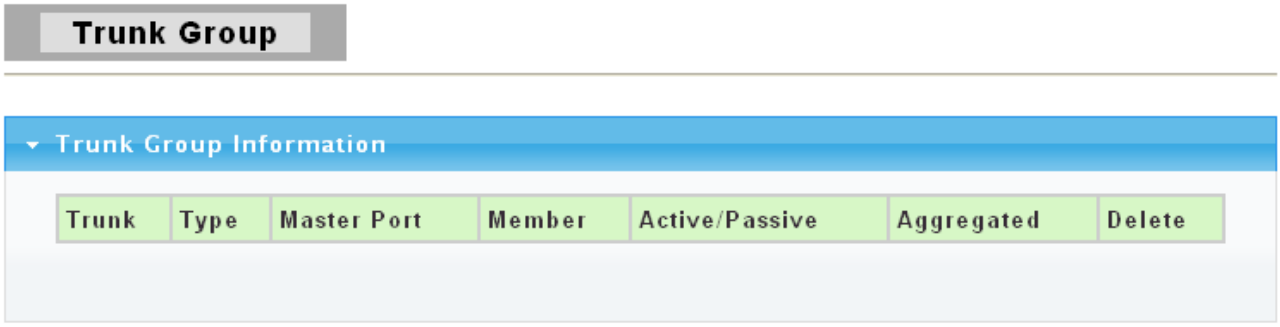



The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Refresh Period** | This shows the period interval between last and next refresh. You have three choices: 2 sec, 5 sec and 10 sec.. |
| **IFG** | You can **enable** or **disable** this function. |

## 3.1.4 Trunk Group

Click **Status** > **Trunk Group** in the navigation panel to view the screen as shown below.




The following table describes the labels in this screen.

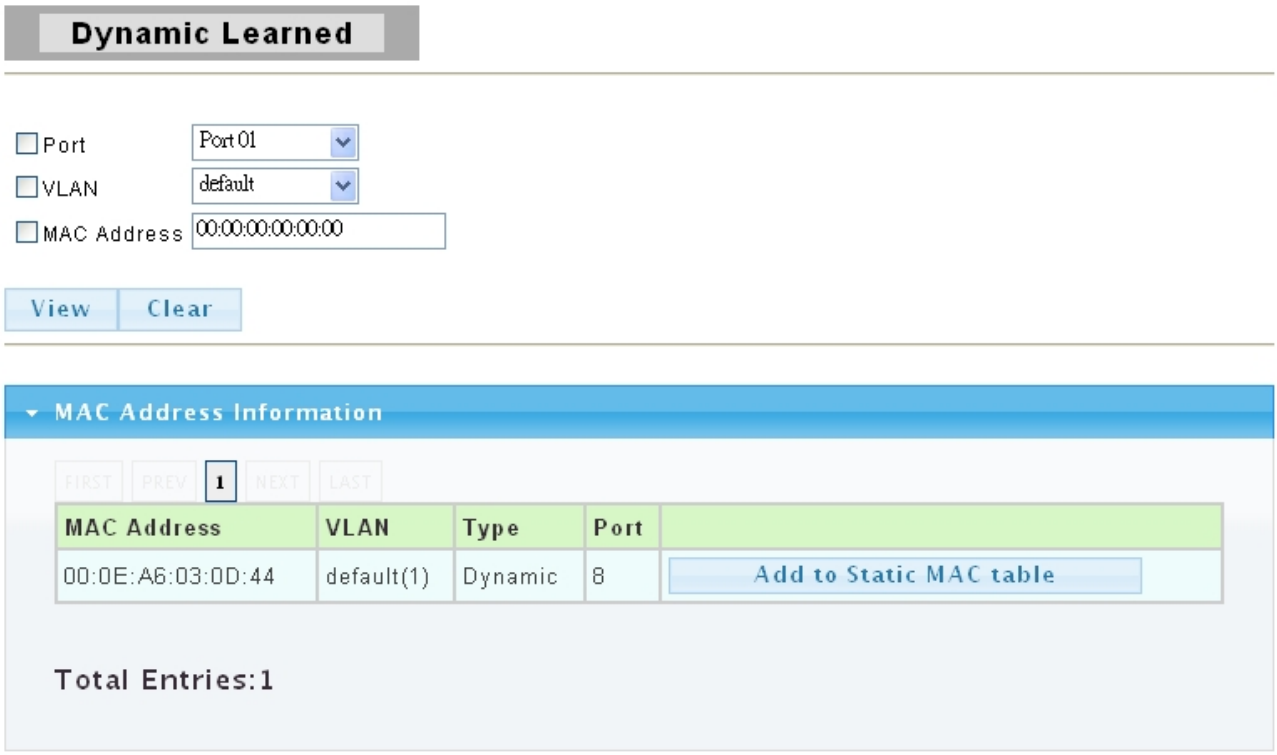
| LABEL | DESCRIPTION |
|---|---|
| **Trunk** | This field displays the trunk to identify a trunk group, that is, one logical link containing multiple ports. |
| **Type** | This field displays the type of the trunk group: a static trunk or an LACP trunk. |
| **Master port** | This field displays which ports are master ports of the trunk. The port with lowest port ID is choosed to be master port of the trunk. To synchronize the settings of trunk member ports, the configuration to trunk master port would be applied to all trunk member ports. Other member ports are slave ports that can not be configured individually in most settings (such as VLAN, port ability and so on.) but to follow the configuration of master port. |
| **Member** | This field shows the member ports of the trunk. |
| **Active/ Passive** | If the trunk is an LACP trunk, this field shows the LACP active and passive ports. The LACP active port would send LACP PDU periodically. |
| **Aggregated** | This field displays the ports that aggregated in a trunk group. A static trunk would be aggregated immediately; an LACP trunk exchanges LACP PDU to link partner to aggregate. |
| **Delete** | Click this button to delete the trunk. |

## 3.1.5 MAC Address Table

Use the MAC Address Table pages to show dynamic MAC table and configure settings for static MAC entries.

### 3.1.5.1 Dynamic Learned

Click **Status > MAC Address Table > Dynamic Learned** in the navigation panel to bring up the screen as shown next.

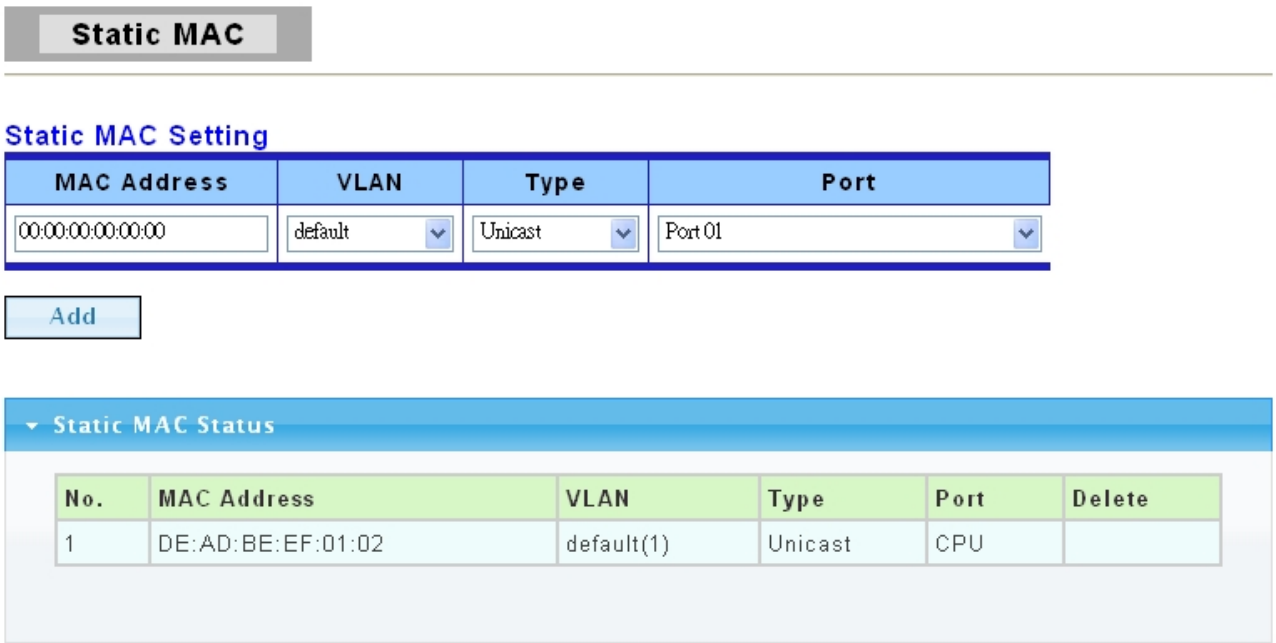


The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Port** | Select the port number to show or clear dynamic MAC entries. If not select any port, VLAN and MAC address, the whole dynamic MAC table will be displayed or cleared. |
| **VLAN** | This is the VLAN group to which the MAC address belongs. Select the VLAN to show or clear dynamic MAC entries. If not select any port, VLAN and MAC address, the whole dynamic MAC table will be displayed or cleared. |
| **MAC Address** | This field displays the MAC address that will be forwarded. Select the MAC address to show or clear dynamic MAC entries. If not select any port, VLAN and MAC address, the whole dynamic MAC table will be displayed or cleared. |
| **View** | Click the View button to display the logs according the criteria specified in the fields above. |
| **Clear** | Click this button to remove any dynamically learned MAC address forwarding entries. |
| **Type** | This shows whether the MAC address is **Dynamic** (learned by the Switch) or **Static Unicast** (manually entered in the **Static MAC Forwarding** screen). |
| **Port** | This field displays the port where the MAC address will be forwarded. |
| **Add to Static MAC table** | Click this button to add any port into the static MAC table. |

### 3.1.5.2 Static MAC

Click **Status > MAC Address Table > Static MAC** in the navigation panel to bring up the screen as shown next.




The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **MAC Address** | Enter the MAC address in valid MAC address format, that is, six hexadecimal character pairs. Static MAC addresses do not age out. |
| **VLAN** | Enter the VLAN identification number the MAC address belongs to. |
| **Type** | There are two types of MAC entry:<br>・ **Unicast:** add a unicast MAC entry.<br>・ **Multicast:** add a multicast MAC entry. |
| **Port** | If Type is unicast, select the port number of the MAC entry;<br>If Type is multicast, select the port list of the MAC entry. |
| **Add** | Click **Add** to add any port into the static MAC address table. |
| **No.** | This is the index number for the MAC address forwarding entries. |
| **Delete** | To delete any selected MAC address entries. |

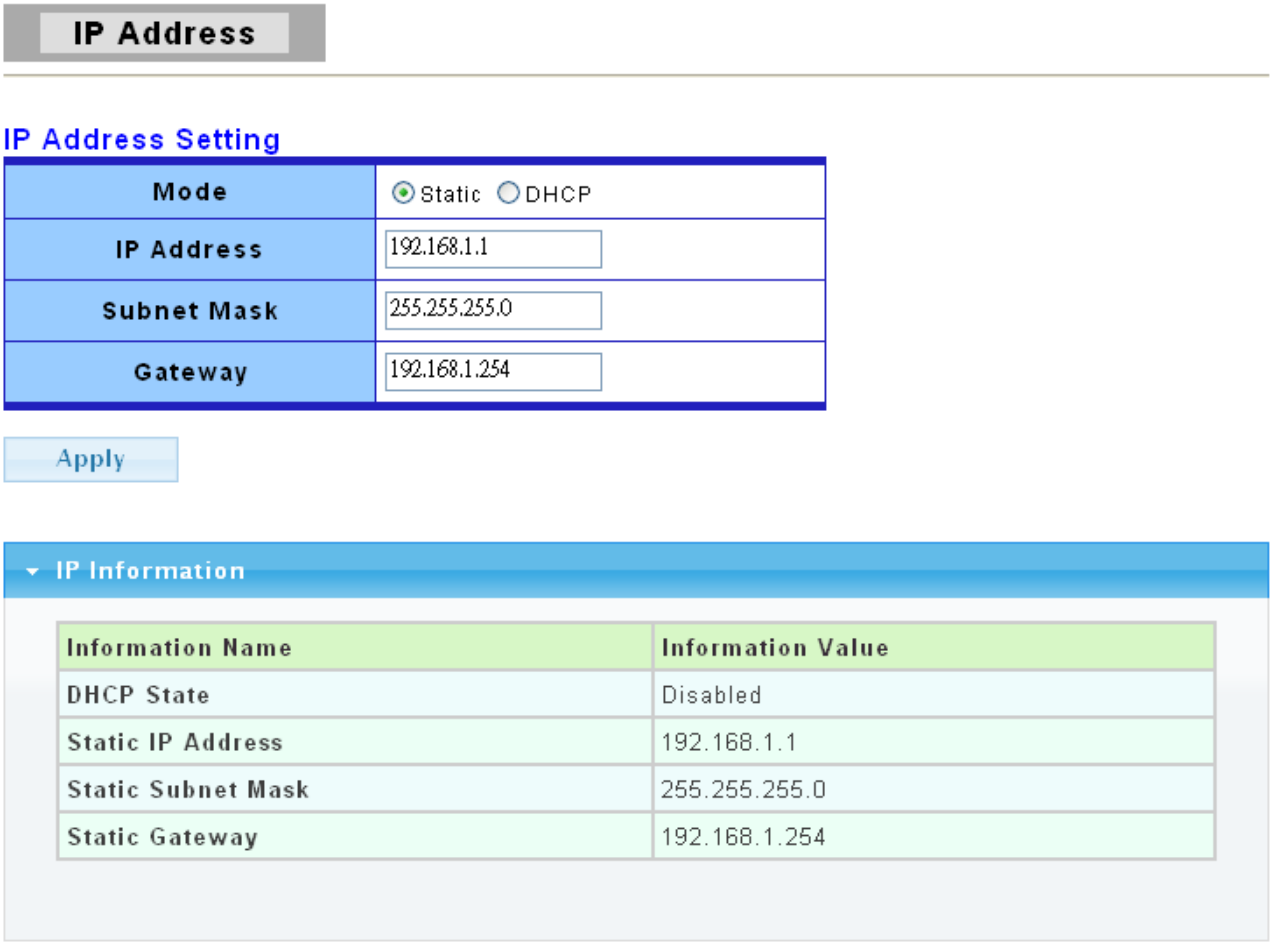
# 3.2 Network

Use the Network pages to configure settings for the switch network interface and how the switch connects to a remote server to get services.

## 3.2.1 IP Address

Use the IP Setting screen to configure the switch IP address and the default gateway device. The gateway field specifies the IP address of the gateway (next hop) for outgoing traffic.
The switch needs an IP address for it to be managed over the network. The factory default IP address is 192.168.1.1. The subnet mask specifies the network number portion of an IP address. The factory default subnet mask is 255.255.255.0.

Click **Network** > **IP Address** in the navigation panel to display the screen as shown below.

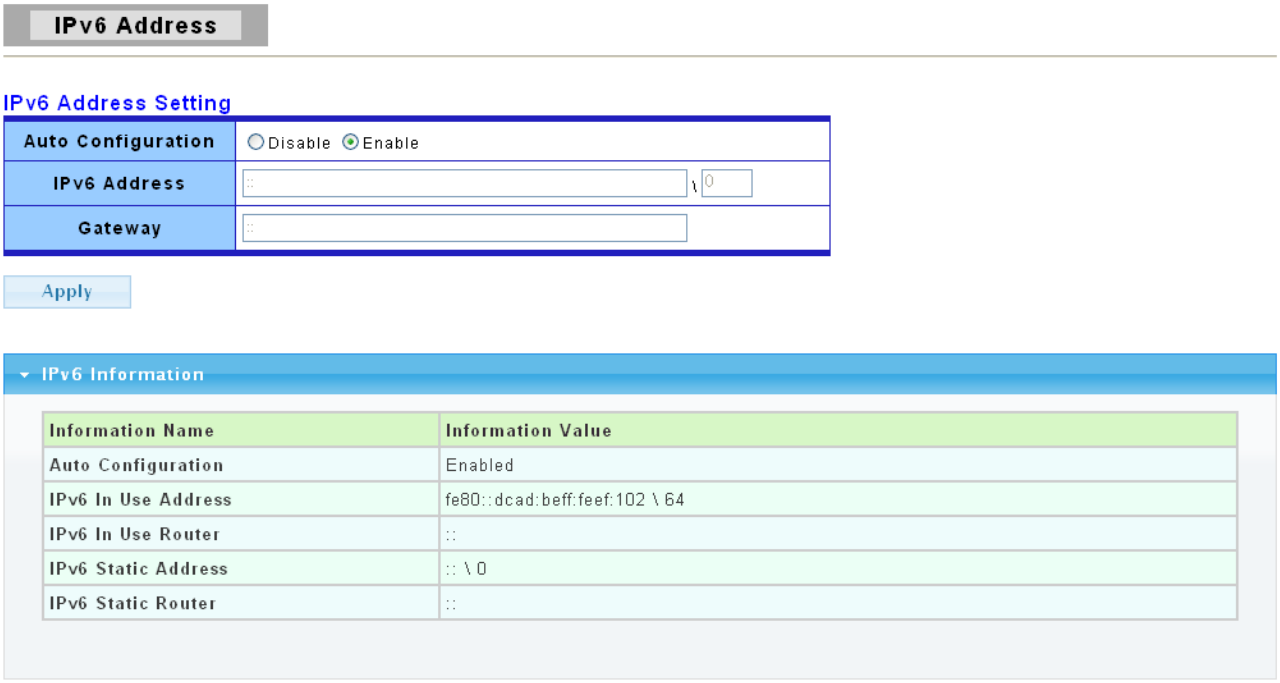



The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Mode** | Select **Static** from the drop-down box if you don't have a DHCP server or if you wish to assign static IP address information to the switch. You need to fill in the following fields when you select this option.<br>Select **DHCP** option if you have a DHCP server that can assign the switch an IP address, subnet mask and a gateway IP address automatically. |
| **IP Address** | Enter the IP address of your switch in dotted decimal notation for example 192.168.1.1. If static mode is enabled, enter IP address in this field. |
| **Subnet Mask** | Enter the IP subnet mask of your switch in dotted decimal notation for example 255.255.255.0. If static mode is enabled, enter subnet mask in this field. |
| **Gateway** | Enter the IP address of the gateway in dotted decimal notation. If static mode is enabled, enter gateway address in this field. |
| **Apply** | Click **Apply** to save your changes to the switch. |

## 3.2.2 IPv6 Address

Click **Network**> **IPv6 Address** in the navigation panel to display the screen as shown below.

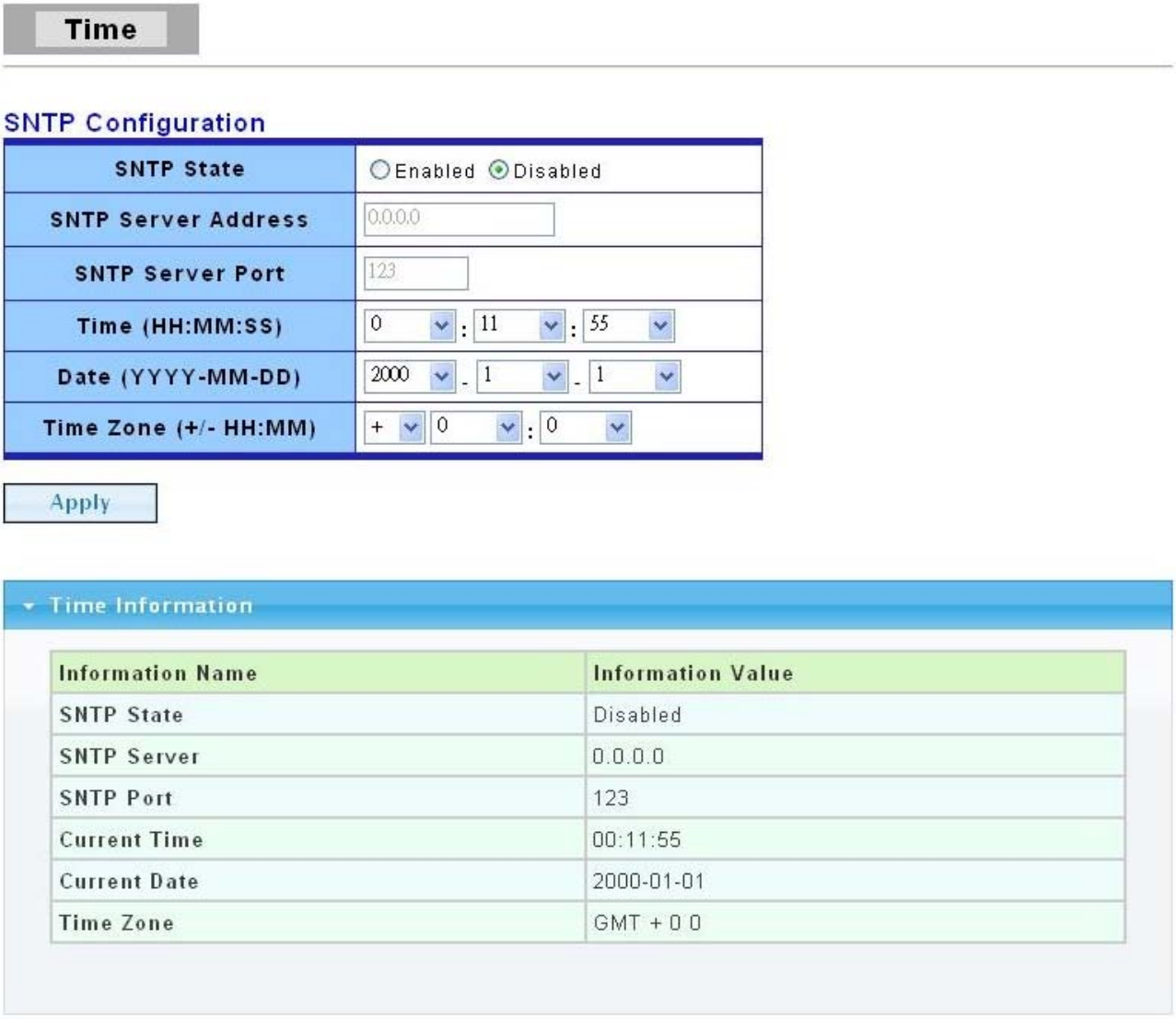



The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Auto Configuration** | Select **Enable** or **Disable** this function. |
| **IPv6 Address** | Enter the IPv6 address of your switch. If auto configuration mode is disabled, enter IPv6 address in this field. |
| **Gateway** | Enter the IP address of the gateway in dotted decimal notation. If auto configuration mode is disabled, enter IPv6 gateway address in this field. |
| **Apply** | Click **Apply** to save your changes to the switch. |
| **Auto Configuration** | It displays whether the auto configuration function is opened or not. |
| **IPv6 In Use Address** | It displays the in use address information of IPv6. |
| **IPv6 In Use Router** | It displays the in use router information of IPv6. |
| **IPv6 Static Address** | It displays the static address of IPv6. |
| **IPv6 Static router** | It displays the static router of IPv6. |

## 3.2.3 Time

Click **Network**> **Time** in the navigation panel to display the screen as shown below.




The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **SNTP State** | Select **Enable** to use Simple Network Time Protocol (SNTP) or **Disable** to set the time manually. |
| **SNTP Server Address** | If SNTP is enabled, enter the IP address of the time server you will use. |
| **SNTP Server Port** | It shows the Port Number of SNTP server. |
| **Time (HH:MM:SS)** | If SNTP is disabled, enter the new time in hour, minute and second format. |
| **Date (YYYY-MM-DD)** | If SNTP is disabled, enter the new date in year, month and day format. |
| **Time Zone** | Select system time zone by hours and minutes. “+” means after-UTC and “-” means before-UTC. |
| **Apply** | Click **Apply** to save your changes to the switch. |

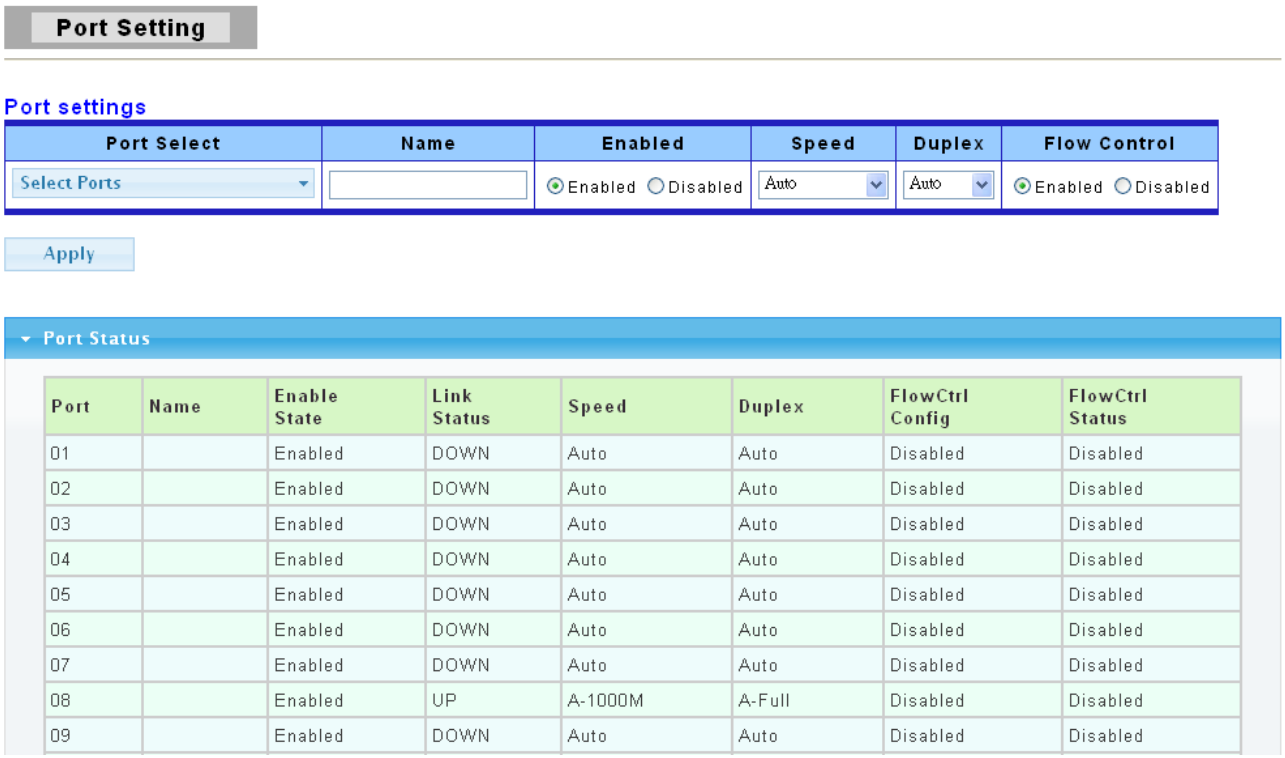
# 3.3 Switching

Use the Switching pages to configure settings for the switch ports, trunk and other switch features.

## 3.3.1 Port Setting

This page allow user to configure switch port settings and show port current status.

Click **Switching** > **Port Setting** in the navigation panel to display the screen as shown below.




The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Port Select** | Select the port(s) from the list box that you will change the port settings for. |
| **Name** | It allows you to give a description for the port. |
| **Enabled** | Select **Enable** from the drop-down box to enable a port. The factory default for all ports is enabled. A port must be enabled for data transmission to occur. Select **Disable** to not use a port. |
| **Speed** | Port speed capabilities:<br>· **Auto:** Auto speed with all capabilities.<br>· **Auto-10M:** Auto speed with 10M ability only.<br>· **Auto-100M:** Auto speed with 100M ability only.<br>· **Auto-1000M:** Auto speed with 1000M ability only.<br>· **Auto-10/100M:** Auto speed with 10/100M ability.<br>· **10M:** Force speed with 10M ability.<br>· **100M:** Force speed with 100M ability.<br>· **1000M:** Force speed with 1000M ability.<br>Selecting Auto (auto-negotiation) allows one port to negotiate with a peer port automatically to obtain the connection speed and duplex mode that |

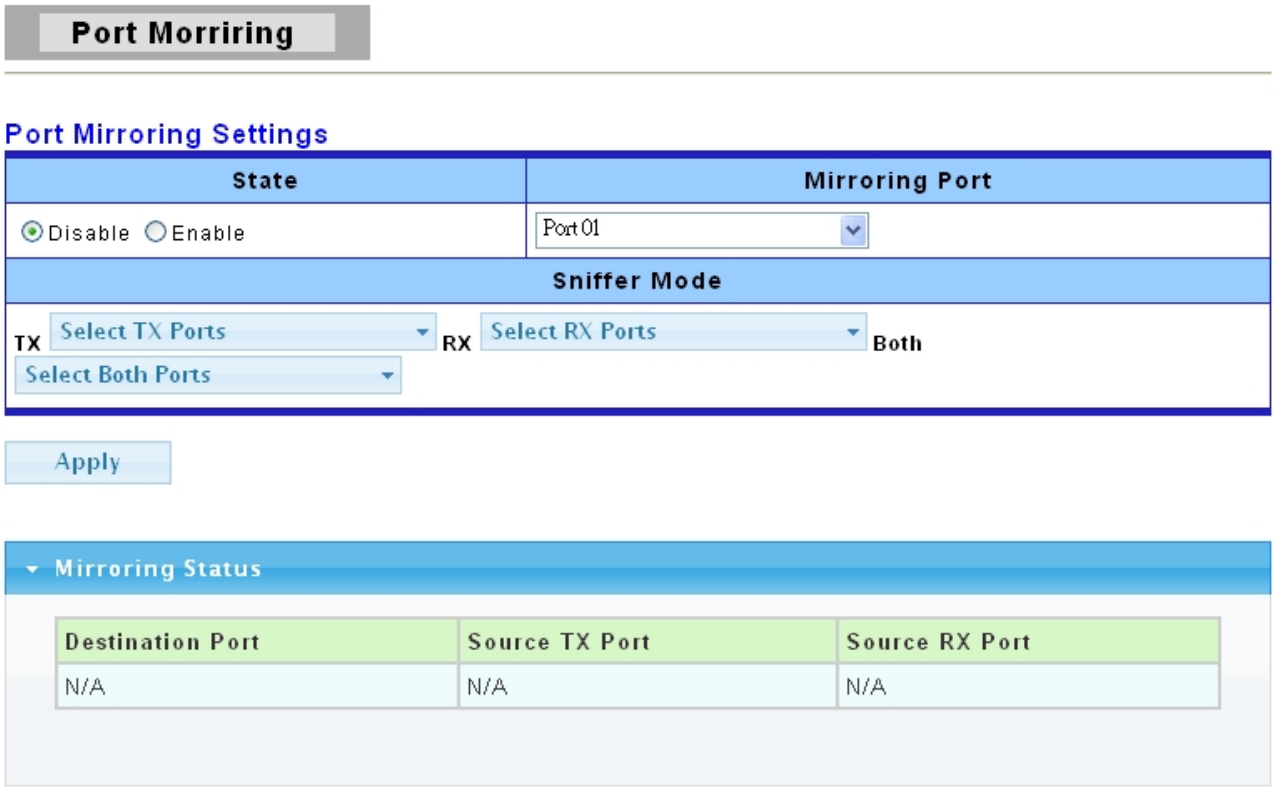
| | |
|---|---|
| | both ends support. When auto-negotiation is turned on, a port on the switch negotiates with the peer automatically to determine the connection speed and duplex mode. If the peer port does not support auto-negotiation or turns off this feature, the switch determines the connection speed by detecting the signal on the cable and using half duplex mode. When the switch's auto-negotiation is turned off, a port uses the pre-configured speed and duplex mode when making a connection, thus requiring you to make sure that the settings of the peer port are the same in order to connect. |
| **Duplex** | Port duplex capabilities:<br>· **Auto:** Auto duplex with all capabilities.<br>· **Half:** Auto speed with 10M ability only.<br>· **Full:** Auto speed with 100M ability only. |
| **Flow Control** | A concentration of traffic on a port decreases port bandwidth and overflows buffer memory causing packet discards and frame losses. Flow Control is used to regulate transmission of signals to match the bandwidth of the receiving port. The switch uses IEEE802.3x flow control in full duplex mode and backpressure flow control in half duplex mode. IEEE802.3x flow control is used in full duplex mode to send a pause signal to the sending port, causing it to temporarily stop sending signals when the receiving port memory buffers fill. Back Pressure flow control is typically used in half duplex mode to send a "collision" signal to the sending port (mimicking a state of packet collision) causing the sending port to temporarily stop sending signals and resend later.<br>Select "**Enabled**" to enable it. Or select "**Disabled**" to disable it. |
| **Apply** | Click **Apply** to save your changes to the switch. |
| **Flow Control Config** | The Config column displays if Flow Control has been configured to be turned On or Off for the port. |
| **Flow Control Status** | The column displays the port's current Flow Control status. |

## 3.3.2 Port Mirroring

The Mirror function copies all the packets that are transmitted by the source port to the destination port. It allows administrators to analyze and monitor the traffic of the monitored ports.

The Mirror Configuration steps are as follows:

1. Choose "**enable** " or "**disable**" this function in "**State"** column
2. Select those ports that are going to be monitored by marking the checkboxes in **"Monitoring Port"** column.
3. Click the "**TX"** or "**RX"** or **"Both"** in the drop list of **"Sniffer Mode"** column. Select the packet types that are going to be monitored (transferred or received packets or both).
4. Click **"Apply"** to activate.

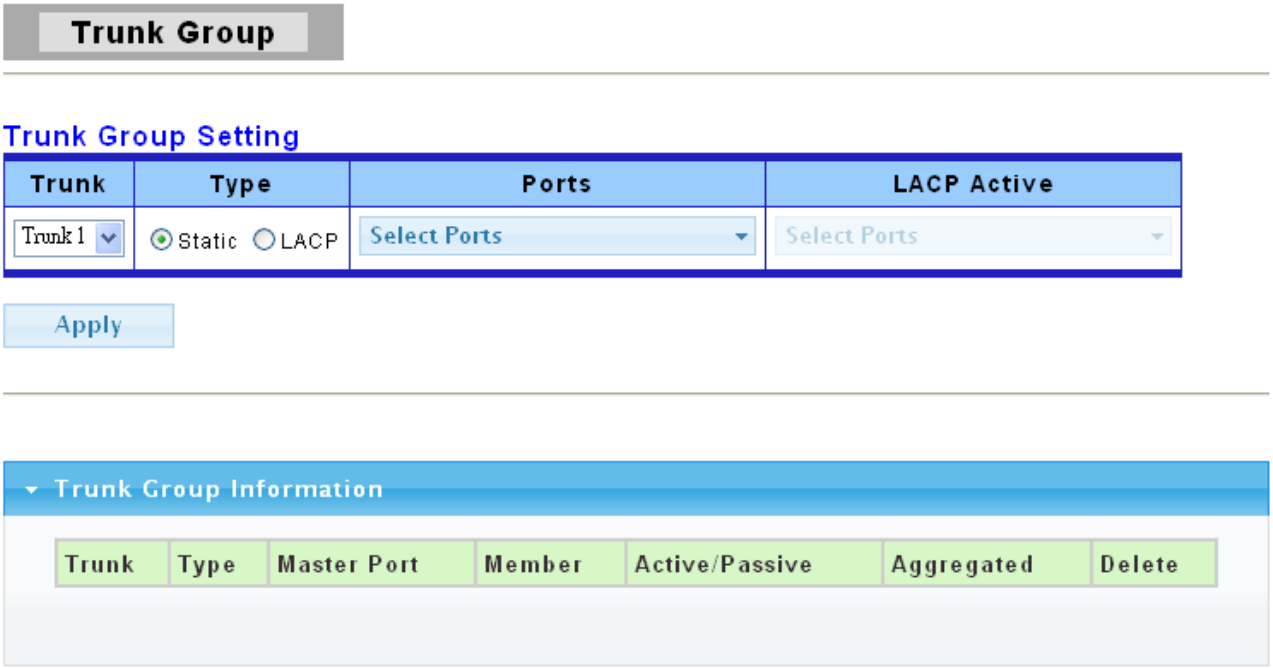



(a) Destination port: Theoretically it's possible to set more than one destination port in a network. Actually the port mirroring function will lower the network throughput, and therefore it's recommended to set "only one" destination port in a network.
(b) Mirroring Port: (1)RX: means copy the incoming packets of the selected source port to the selected destination port. (2)TX: means copy the outgoing packets of the selected source port to the selected destination port. (3)Rx & Tx: means the combination of Rx and Tx.
(c) Source port: the traffic source that will be copied to the destination port.

## 3.3.3 Trunk

### 3.3.3.1 Trunk Group

Click **Switching**> **Trunk** > **Trunk Group** in the navigation panel to view the screen as shown below.




The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Trunk** | This field displays the trunk group number to identify a trunk group, that is, one logical link containing multiple ports. |
| **Type** | Select the type of the trunk group: a static trunk or an LACP trunk. A static trunk would be aggregated immediately; an LACP trunk exchanges LACP PDU to link partner to aggregate. |
| **Ports** | Select the ports to be added to the trunk group. There are the following limitations for choosing the member ports:<br>· A member port can not be bandwidth limited.<br>· A member port can not be a mirroring port.<br>· Member ports should join the same VLANs.<br>· A member port can not join more than one trunk group.<br>· A member port can not be in 802.1x force-authed or auth mode.<br>· There could be at most 8 member ports in a trunk. |
| **LACP Active** | Select the LACP active ports to be added to the trunk group. This field is active when **LACP** is selected as the **Type**. |
| **Apply** | Click **Apply** to save your changes to the switch. |
| **Trunk** | This field displays the trunk number to identify a trunk group, that is, one logical link containing multiple ports. |
| **Type** | Here displays the type of the trunk group: a static trunk or an LACP trunk. |
| **Master Port** | This field displays the master port's information.<br>The port with lowest port ID is choosed to be master port of the trunk. To synchronize the settings of trunk member ports, the configuration to trunk master port would be applied to all trunk member ports. Other member ports are slave ports that can not be configured individually in most settings (such as VLAN, port ability and so on.) but to follow the configuration of master port. |
| **Member** | This field displays the ports that are part of the trunk group. |
| **Active/ Passive** | If the trunk is an LACP trunk, this field shows the LACP active and passive ports. The LACP active port would send LACP PDU periodically. |

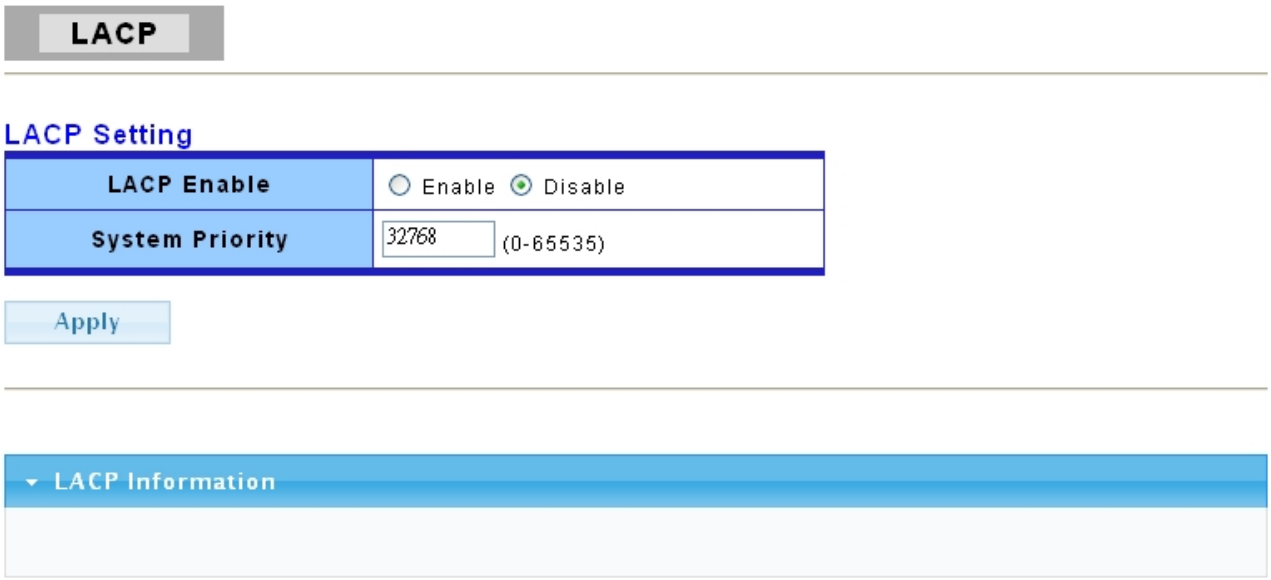
| | |
|---|---|
| **Aggregated** | This field displays the ports that aggregated in a trunk group.<br>A static trunk would be aggregated immediately; an LACP trunk exchanges LACP PDU to link partner to aggregate. |
| **Delete** | Click this button to delete the trunk. |

### 3.3.3.2 LACP

Click **Switching** > **Trunk** > **LACP** to display the screen shown next.

**LACP: Link Aggregation Control Protocol.**

Note: Do not configure this screen unless you want to enable dynamic link aggregation.




The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **LACP Enable** | Select **Enable** from the drop down box to enable Link Aggregation Control Protocol (LACP). Select **Disable** to not to use LACP. |
| **System Priority** | LACP system priority is a number between 0 and 65,535. The switch with the lowest system priority (and lowest port number if system priority is the same) becomes the LACP “server”. The LACP “server” controls the operation of LACP setup. Enter a number to set the priority of an active port using Link Aggregation Control Protocol (LACP). The smaller the number, the higher the priority level. |
| **Apply** | Click **Apply** to save your changes to the Switch. |

## 3.3.4 VLAN

Each VLAN in a network has a associated VLAN ID, which displays in the IEEE 802.1Q tag in the L2 header of packets transmitted on a VLAN.

### 3.3.4.1 VLAN Setting

This page allow user to add, edit or delete VLAN settings.

Click **Switching** > **VLAN** > **VLAN Setting** to access this screen below to configure and view VLAN parameters for the switch**.**


The following table describes the related labels in this screen.

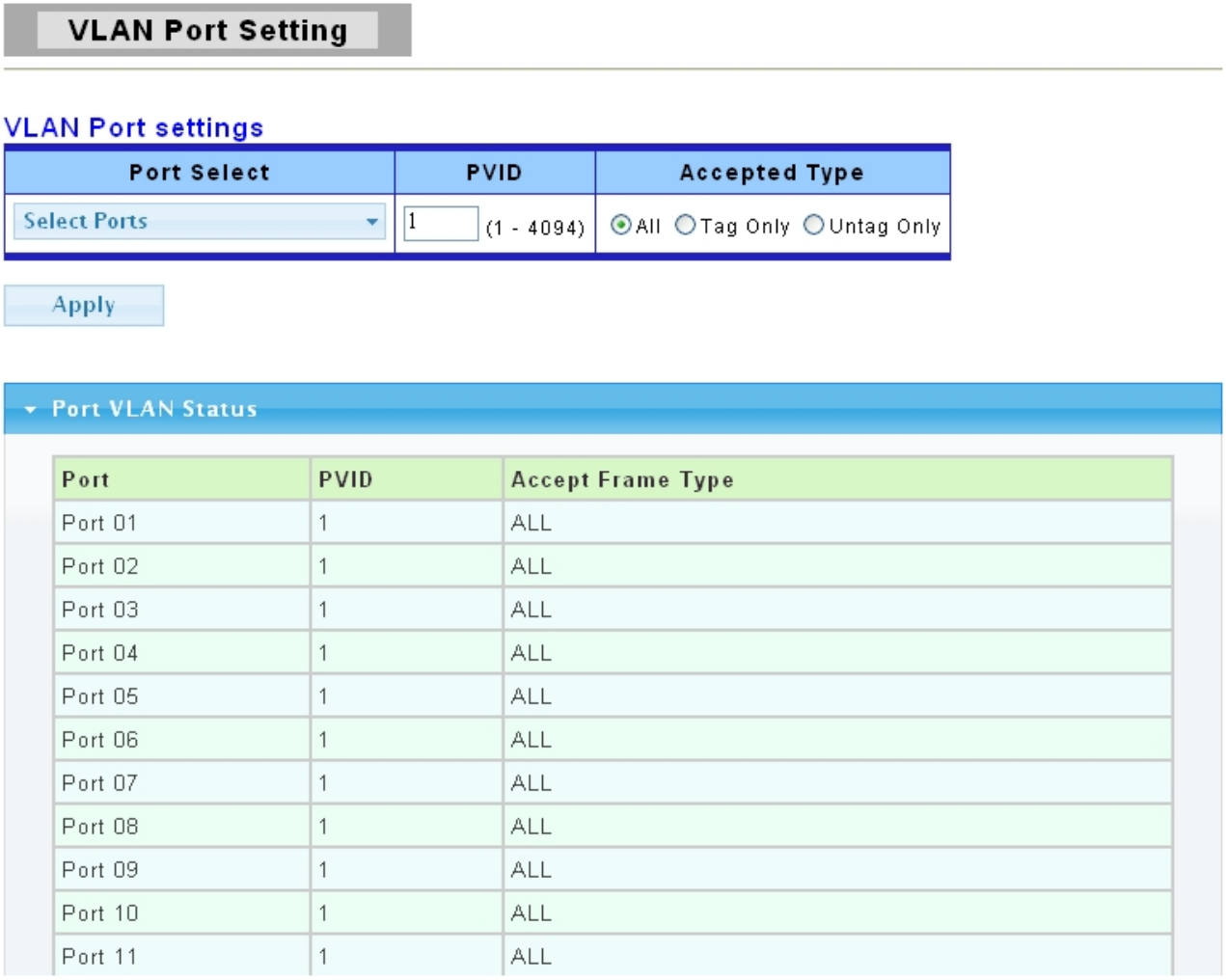
| LABEL | DESCRIPTION |
|---|---|
| **VLAN ID** | A unique number (between 1 and 4094) that identifies a particular VLAN. |
| **VLAN Name** | A 32-character alphanumeric name associated with a VLAN ID. The VLAN Name is intended to make user-defined VLANs easier to identify and remember. |
| **Untagged Ports Select** | Select Untagged to make the port a permanent member of this VLAN group. All outgoing frames will be transmitted without a VLAN Group ID tag. |
| **Tagged Ports Select** | Select Tagged to make the port a permanent member of this VLAN group. All outgoing frames will be transmitted with the VLAN Group ID tag. |
| **Add** | Click **Add** to save your changes to the Switch. |
| **VLAN ID** | This field displays the unique identification number of the VLAN group. |
| **VLAN Name** | This field displays the descriptive name for this VLAN group. |
| **Untagged Ports** | This field displays all the ports that will transmit outgoing frames without a VLAN group ID tag. |
| **Tagged Ports** | This field displays all the ports that will transmit outgoing frames with a VLAN group ID tag. |
| **Modify** | Click **Edit** to modify the tagged and untagged ports. |

### 3.3.4.2 VLAN Port Setting

This page allow user to configure VLAN port related settings.

Click **Switching** > **VLAN** > **VLAN Port Setting** to access the screen below.

A PVID (Port VLAN ID) is a tag that adds to incoming untagged frames received on a port so that the frames are forwarded to the VLAN group that the tag defines.




The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Port Select** | Select the ports to change the PVID for. |
| **PVID** | Enter a number between 1 and 4094 as the port VLAN ID (PVID). |
| **Accepted Type** | Select the accepted type of the VLAN port:<br>· **All:** Accept tagged and untagged frames.<br>· **Tag only:** Only accept tagged frame.<br>· **Untag only:** Only accept untagged frame. |
| **Apply** | Click **Apply** to save your changes to the switch. |
| **Port** | This field displays the port number. |
| **PVID** | This field displays the port VLAN ID (PVID). |

| | |
|---|---|
| **Accepted Frame Type** | This field displays the accepted frame type of the VLAN port. |

### 3.3.4.3 VLAN Port Mode Setting

This page allow user to configure VLAN port tag mode setting.

Click **Switching** > **VLAN** > **VLAN Port Mode Setting** to access the screen below.

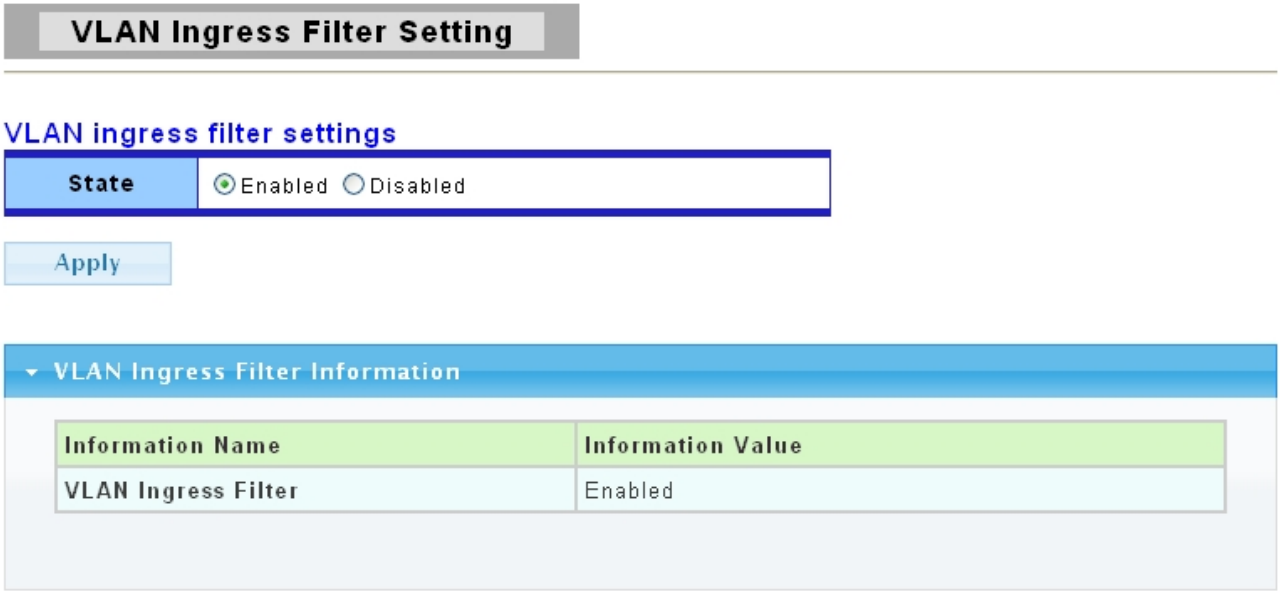

The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Port Select** | Select the ports to change this settings for. |
| **Tag Mode** | Port tag mode:<br>· **Original:** Tag depends on VLAN settings.<br>· **Keep-Format:** Keep tag as packet received.<br>· **Priority-Tag:** Always append priority-tag on packet. |
| **Apply** | Click **Apply** to save your changes to the switch. |
| **Port** | This field displays the port number. |
| **Tag Mode** | It displays the tag mode you have choosed. |

### 3.3.4.4 VLAN Ingress Filter

This page allow user to configure VLAN ingress filter setting.

Click **Switching** > **VLAN** > **VLAN Ingress Filter** to access the screen below.




The following table describes the labels in this screen.

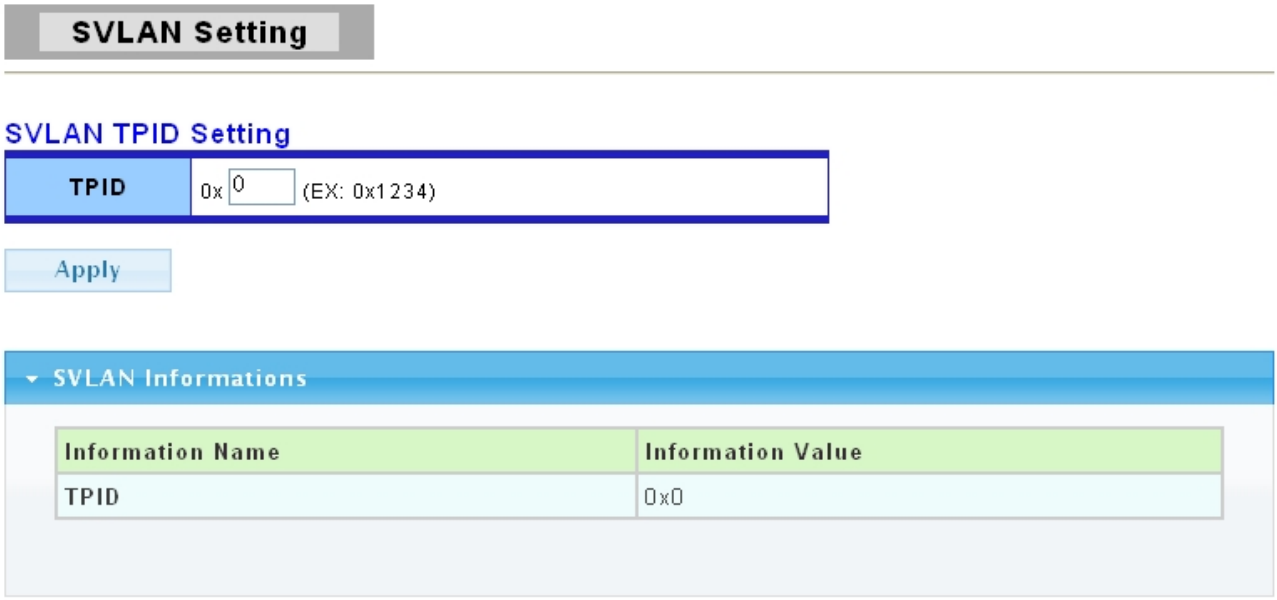
| LABEL | DESCRIPTION |
|---|---|
| **State** | Select **Enabled** from the drop down box to enable VLAN Ingress Filter.<br>Select **Disabled** to not to use VLAN Ingress Filter. |
| **Apply** | Click **Apply** to save your changes to the switch. |

## 3.3.5 SVLAN

### 3.3.5.1 SVLAN Setting

This page allow user to configure VLAN stacking tag protocol identifier.

Click **Switching->SVLAN->SVLAN Setting** to access the screen below.



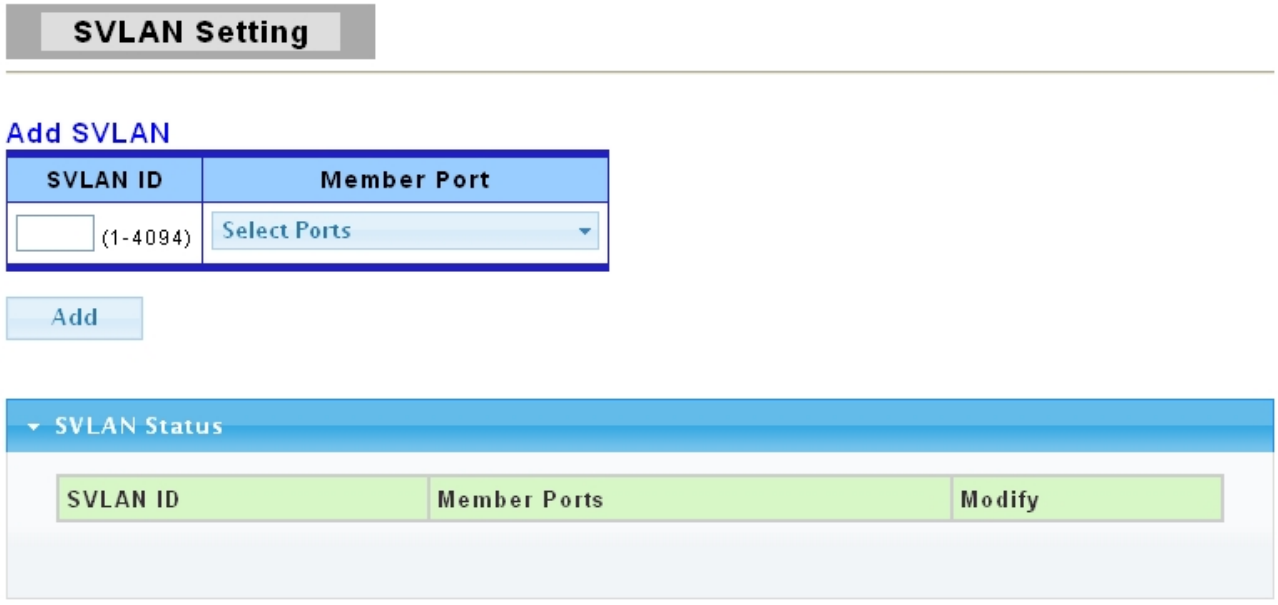

The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **TPID** | VLAN stacking tag protocol identifier (0x0000~0xFFFF). |
| **Apply** | Click **Apply** to save your changes to the switch. |

### 3.3.5.2 SVLAN Member Setting

This page allow user to configure VLAN stacking members.

Click **Switching->SVLAN->SVLAN Member Setting** to access the screen below.



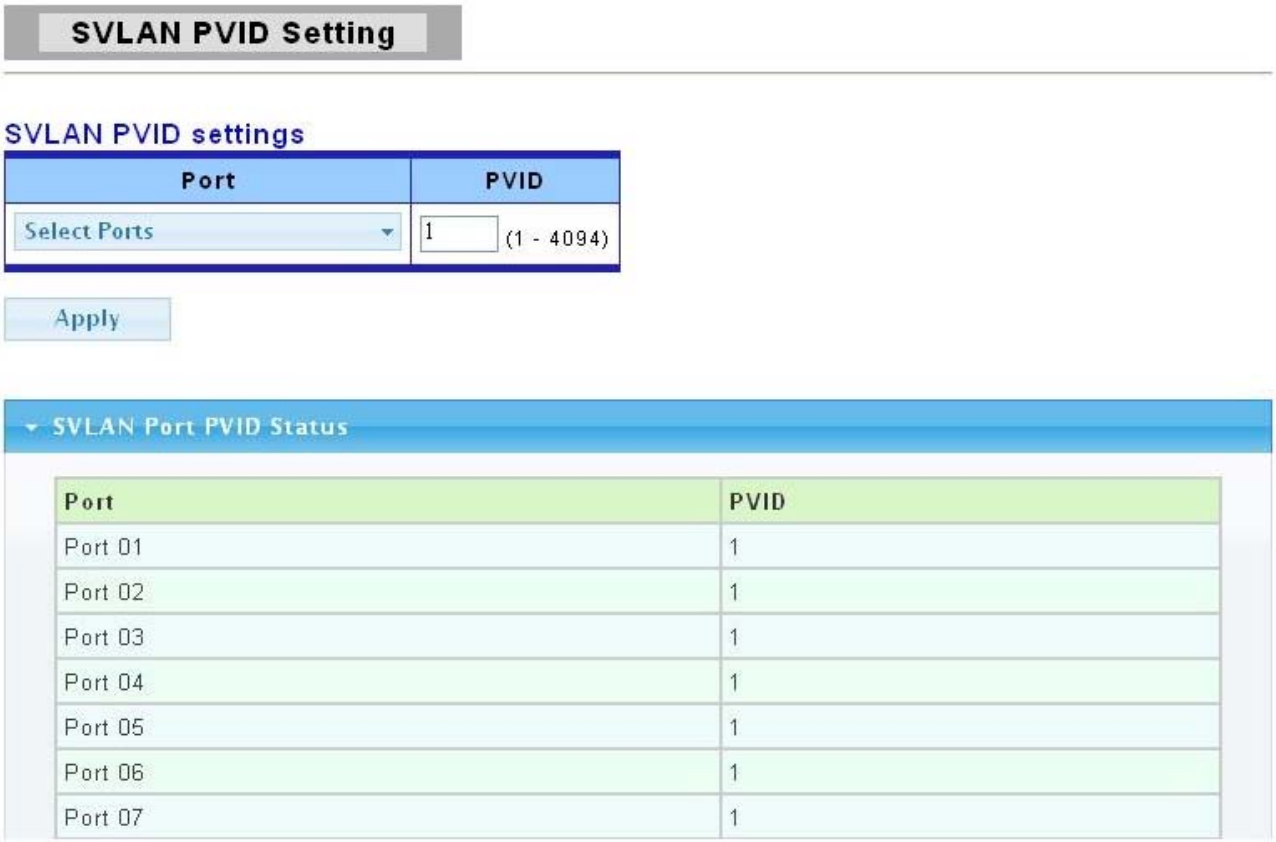

The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **SVLAN ID** | Stacking VLAN ID. |
| **Member Port** | Select one or multiple ports as member ports of the SVLAN. |
| **Add** | Click **Add** to add any member port into the SVLAN . |

### 3.3.5.3 SVLAN PVID Setting

This page allow user to add or set port VLAN stacking entry in the VLAN stacking table.

Click **Switching->SVLAN->SVLAN PVID Setting** to access the screen below.



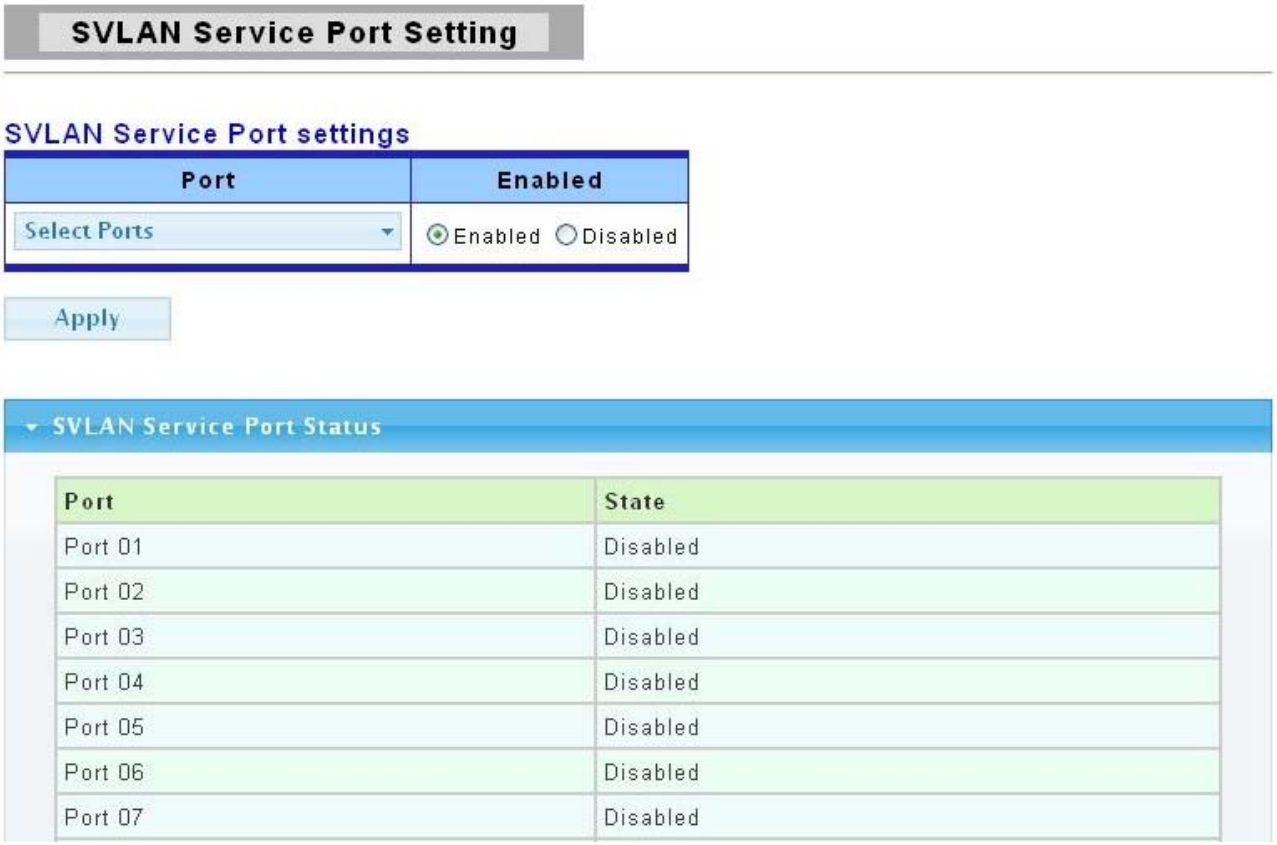

The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Port** | Select the port(s) to configure the SVLAN PVID settings for. |
| **PVID** | Set VLAN ID for selected ports. |
| **Apply** | Click **Apply** to save your changes to the switch. |

### 3.3.5.4 SVLAN Service Port

This page allow user to configure VLAN stacking-aware ports.

Click **Switching->SVLAN->SVLAN Service Port** to access the screen below.



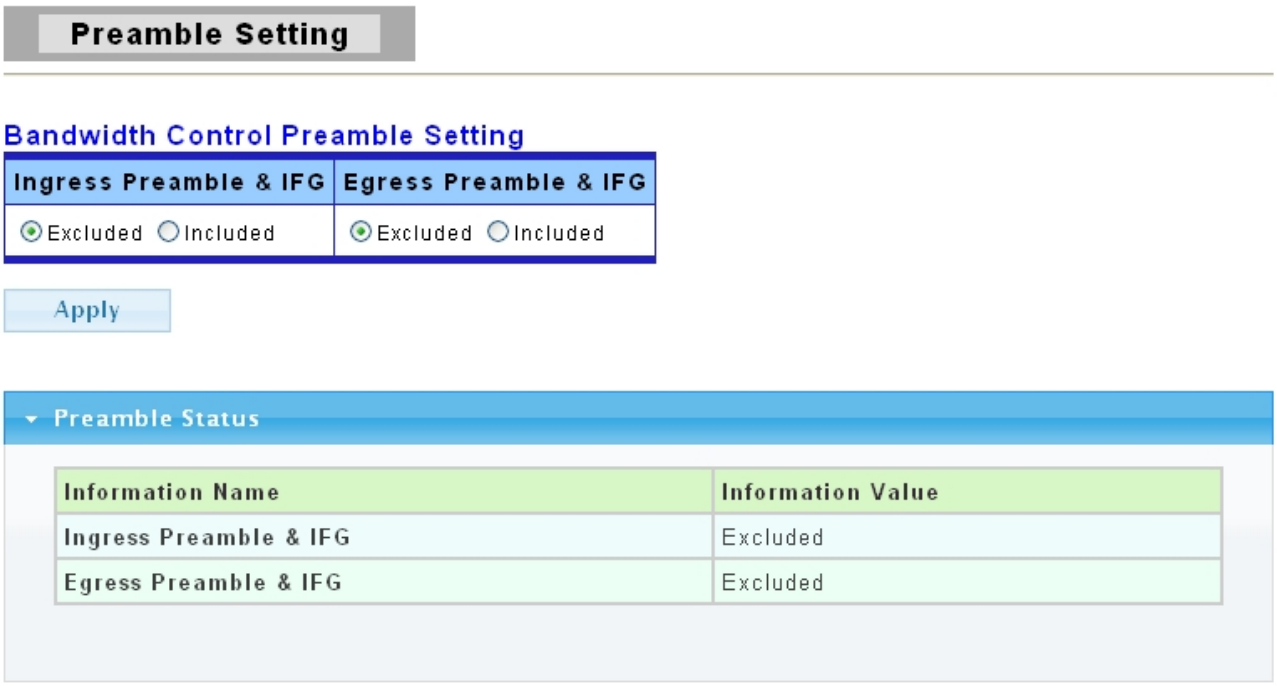

The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Port** | Select the port(s) to configure this settings for. |
| **Enabled** | Set VLAN stacking aware state:<br>· **Enabled:** Set as VLAN stacking aware.<br>· **Disabled:** Set as VLAN stacking unaware. |
| **Apply** | Click **Apply** to save your changes to the switch. |

## 3.3.6 Bandwidth Control

### 3.3.6.1 Preamble Setting

Click **Switching** > **Bandwidth Control**->**Preamble Setting** in the navigation panel to bring up the screen as shown next.

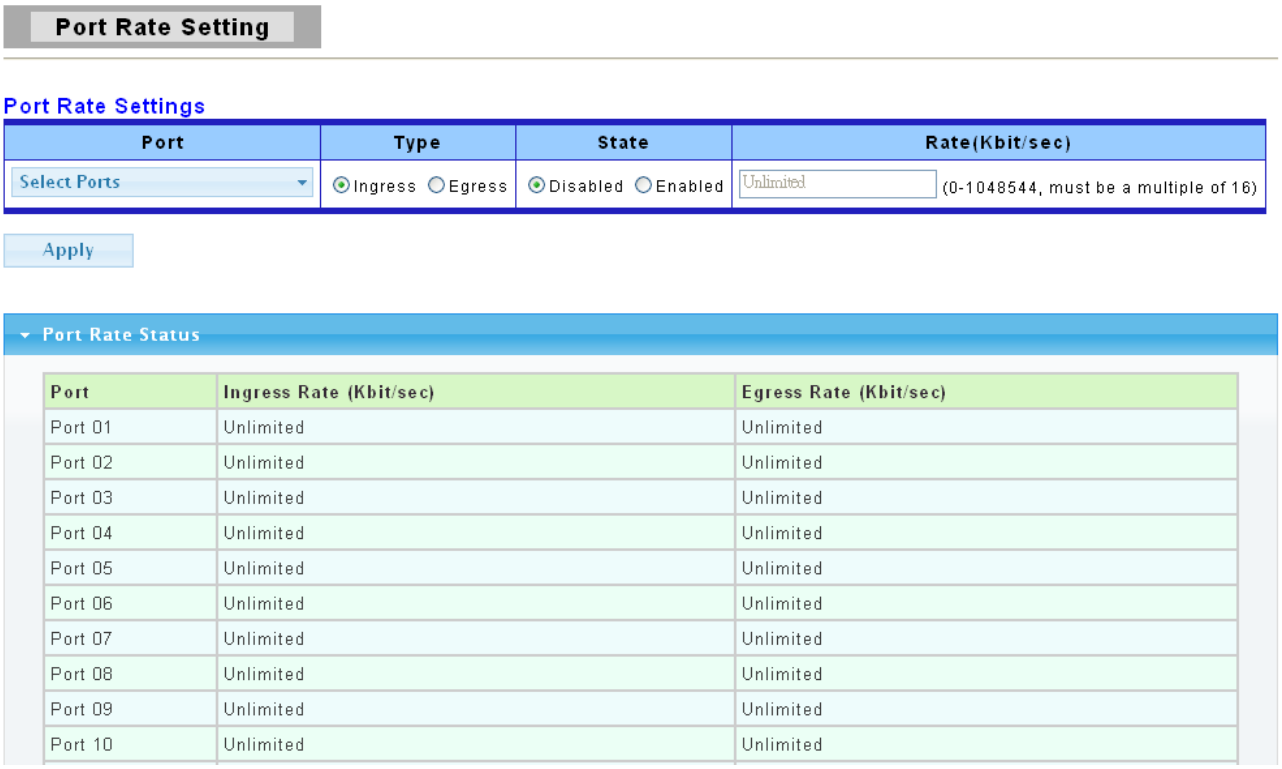



The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Ingress Preamble & IFG** | Select the mode of ingress preamble & IFG:<br>· **Excluded:** exclude preamble & IFG (20 bytes) when count ingress bandwidth rate.<br>· **Included:** include preamble & IFG (20 bytes) when count ingress bandwidth rate. |
| **Egress Preamble & IFG** | Select the mode of egress preamble & IFG:<br>· **Excluded:** exclude preamble & IFG (20 bytes) when count egress bandwidth rate.<br>· **Included:** include preamble & IFG (20 bytes) when count egress bandwidth rate. |
| **Apply** | Click **Apply** to save your changes to the switch. |

### 3.3.6.2 Port Rate Setting

Click **Switching** > **Bandwidth Control**-> **Port Rate Setting** in the navigation panel to bring up the screen as shown next.




The following table describes the labels in this screen.

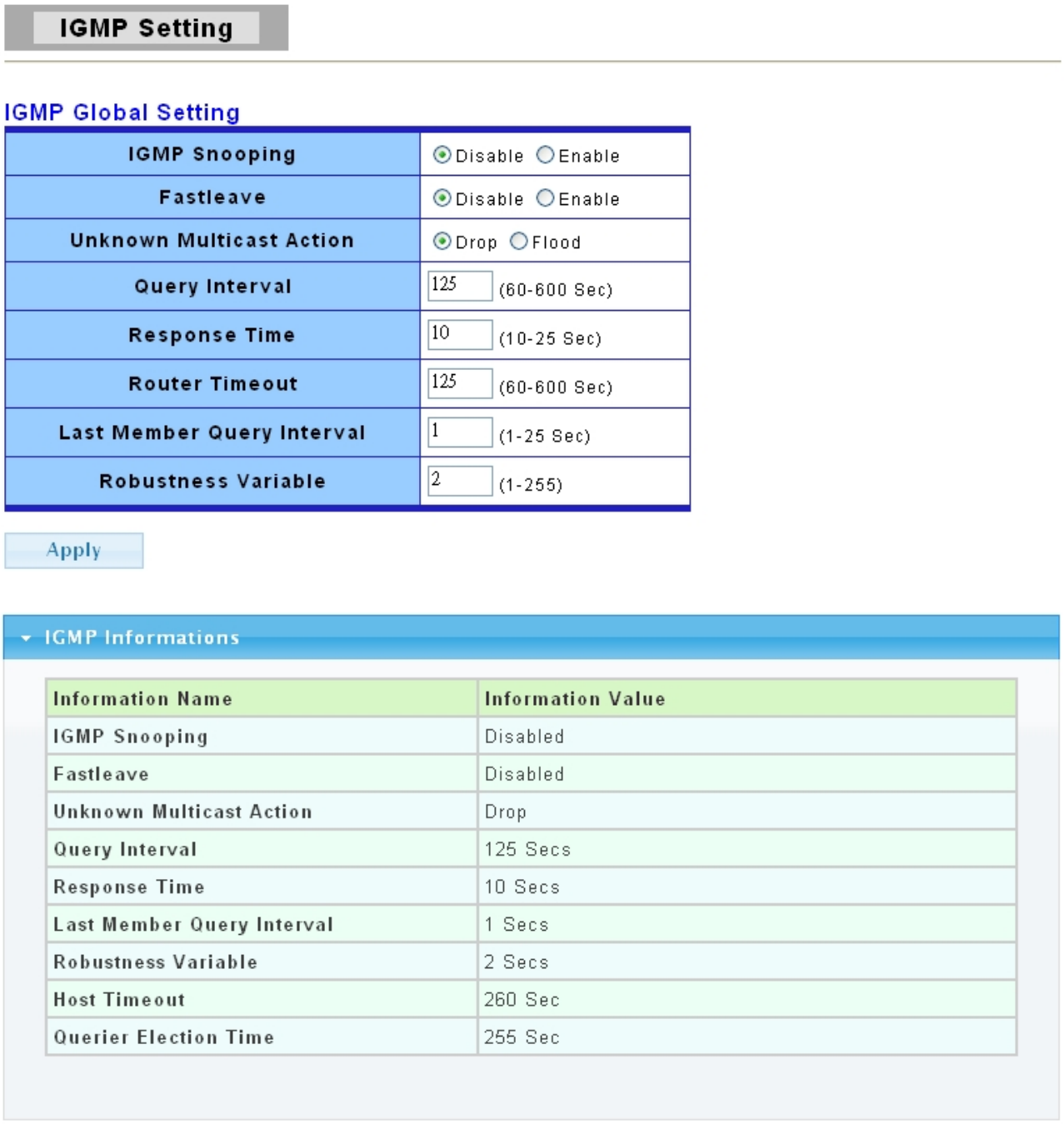
| LABEL | DESCRIPTION |
|---|---|
| **Port** | Select the ports to enable bandwidth control on. |
| **Type** | Select the type of traffic to control, **Ingress** (incoming) or **Egress** (outgoing). |
| **State** | Select **Enable** to activate bandwidth control on the selected ports.<br>Select **Disable** to turn off bandwidth control on the selected ports. |
| **Rate (Kbit/sec)** | Configure the desired bandwidth available to the port's traffic flow. Traffic that exceeds the maximum bandwidth allocated (in cases where the network is congested) is dropped. Specify the bandwidth in kilobit per second (Kbps). Enter a number between 0 and 1048544. The number must be a multiple of 16. |
| **Apply** | Click **Apply** to save your changes to the switch. |
| **Port** | This field displays the port number. |
| **Ingress Rate (Kbit/sec)** | This field displays the maximum bandwidth allowed for incoming traffic on the port in kilobits per second (Kbps). The default setting is **Unlimited**. |
| **Egress Rate (Kbit/sec)** | This field displays the maximum bandwidth allowed for outgoing traffic on the port in kilobits per second (Kbps). The default setting is **Unlimited**. |

## 3.3.7 IGMP Snooping

Use the Switching pages to configure settings for the switch network interface and how the switch connects to a remote server to get services.

### 3.3.7.1 IGMP Setting

Click **Switching** > **IGMP Snooping** > **IGMP Setting** to access the screen below.

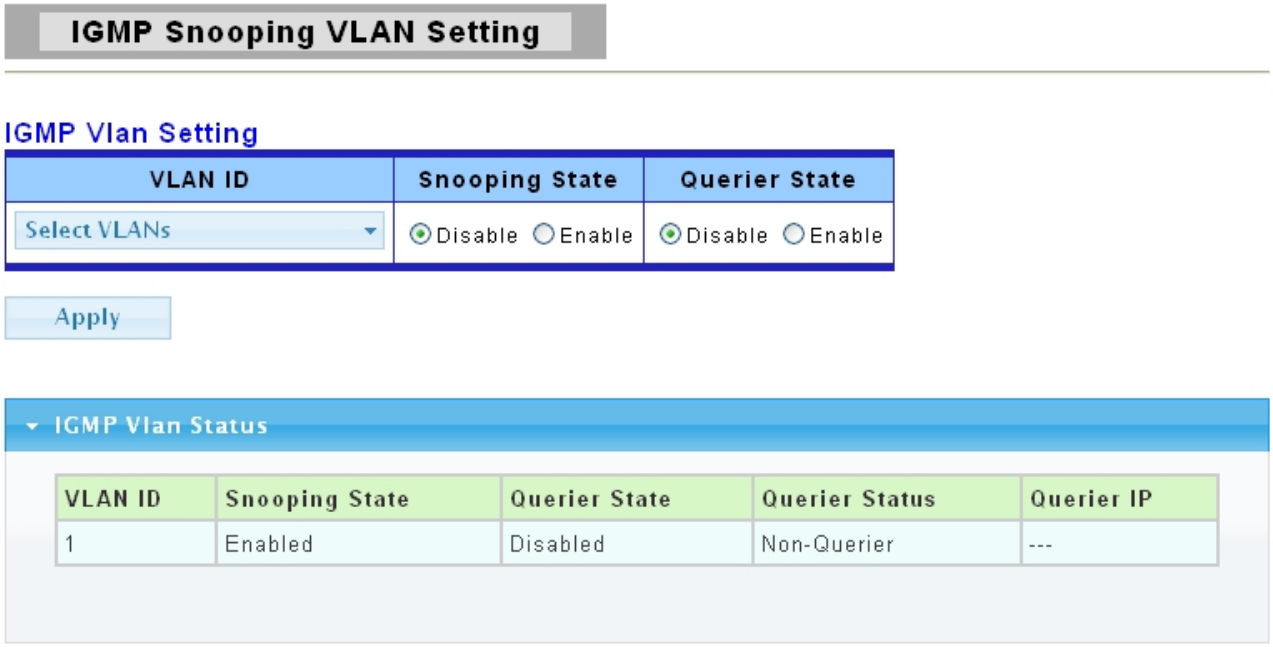



The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **IGMP Snooping** | Select **Enable** from the drop down box to enable IGMP Snooping. Select **Disable** to not to use IGMP Snooping.<br>When enabled, it simply monitors the IGMP packets passing through it, picks out the group registration information, and configures the multicast filters accordingly. |
| **Fastleave** | Select **Enable** from the drop down box to enable IGMP Fast-Leave. Select **Disable** to not to use IGMP Fast-Leave. |
| **Unknown Multicast Action** | Unknown multicast message to the switch. Enable **Drop** will throw away the unknown multicast message. Enable **Flood** will flood the packets. |
| **Query Interval** | The query interval is the amount of time in seconds between IGMP General Query messages sent by the router (if the router is the querier on this subnet). You can also click the scroll arrows to select a new setting. The default query interval is 125 seconds. |
| **Response Time** | The time a generic system or functional unit takes to react to a given input. The default value is 10s. |
| **Router Timeout** | Save the time of the router port timer in the form. The default value is 125s. |
| **Last Member Query Interval** | The interval that Querier-switch sends Group-Specific Queriers when it receives a Leave Group message for a group. |
| **Robustness Variable** | The robustness variable is a way of indicating how susceptible the subnet is to lost packets. IGMP can recover from robustness variable minus 1 lost IGMP packets. You can also click the scroll arrows to select a new setting. The robustness variable should be set to a value of 2 or greater. The default robustness variable value is 2. |
| **Apply** | Click **Apply** to save your changes to the switch. |
| **Host Timeout** | Save the timer related the host and its member. The default value is 260s. |
| **Querier Election Time** | It displays the querier election time. |

### 3.3.7.2 IGMP VLAN Setting

Click **Switching** > **IGMP Snooping** > **IGMP VLAN Setting** to access the screen below.

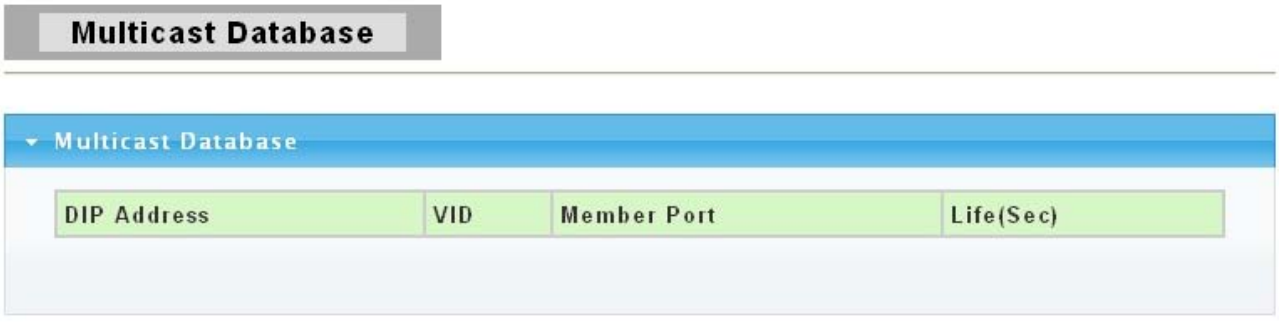



The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **VLAN ID** | Select the VLANs to configure. |
| **Snooping State** | Select **Enable** from the drop down box to enable IGMP.<br>Select **Disable** to not to use IGMP. |
| **Querier State** | Select **Enable** from the drop down box to enable IGMP Querier Election.<br>Select **Disable** to not to use IGMP Querier Election. |
| **Apply** | Click **Apply** to save your changes to the switch. |
| **Querier Status** | It displays the status of querier. |
| **Querier IP** | It shows the Querier IP of IGMP VLAN. |

### 3.3.7.3 Multicast Database

Click **Switching** > **IGMP Snooping** > **Multicast Database** to access the screen below.

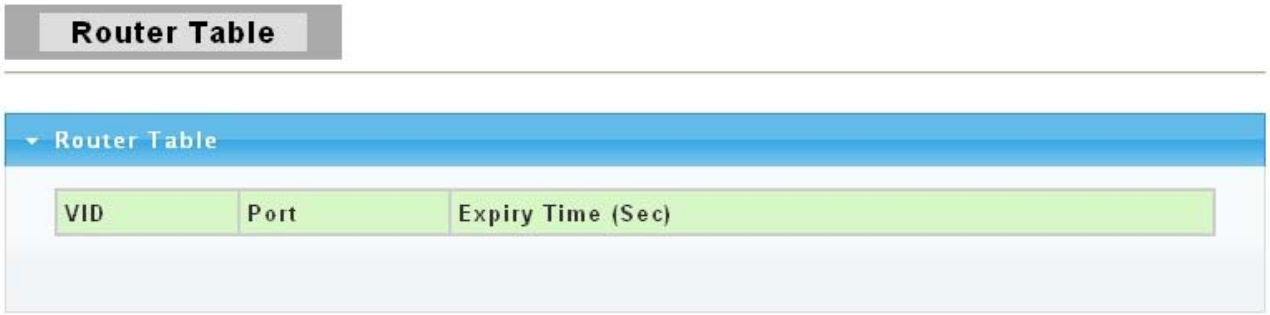



The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **DIP Address** | This field displays IP address of this group. |
| **VID** | This field displays ID of configured VLAN (1~4094). |
| **Member Port** | This field displays the ports that selected in the group address. |
| **Life(Sec)** | This field displays the life time of this group. |

### 3.3.7.4 Router Table

Click **Switching** > **IGMP Snooping** > **Router Table** to access the screen below.



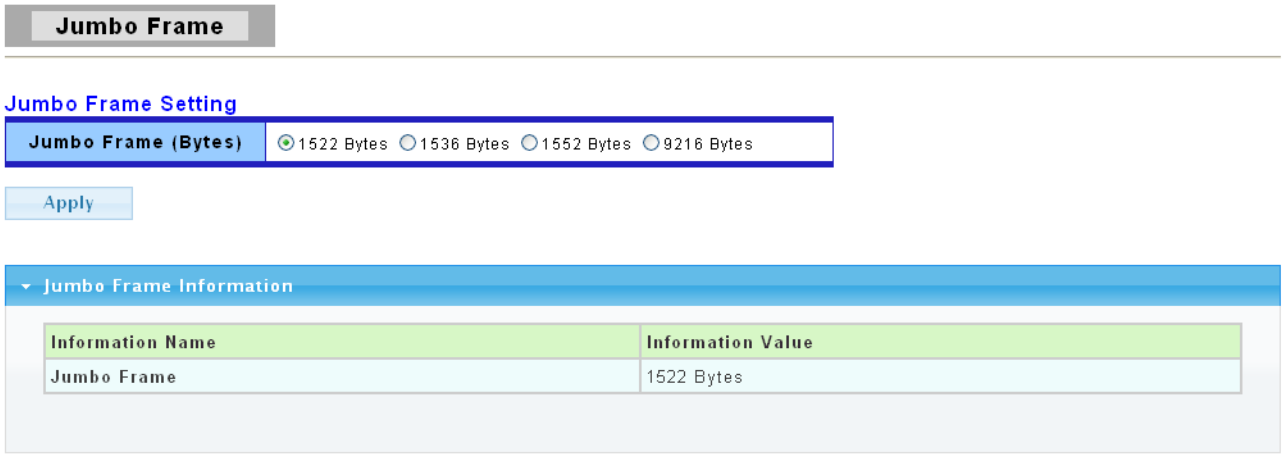

The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **VID** | The VLAN ID that has router port. |
| **Port** | Router port (i.e. the port ID where IGMP Query message received ). |
| **Expiry Time(Sec)** | This field displays the expiry time of the router port. |

## 3.3.8 Jumbo Frame

This page allow user to configure switch port jumbo frame settings.

Click **Switching** > **Jumbo Frame** in the navigation panel to bring up the screen as shown next.




The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Jumbo Frame (Bytes)** | Specify the maximum Jumbo Frame size in bytes from **0~9216**. |
| **Apply** | Click **Apply** to save any changes to the switch. |

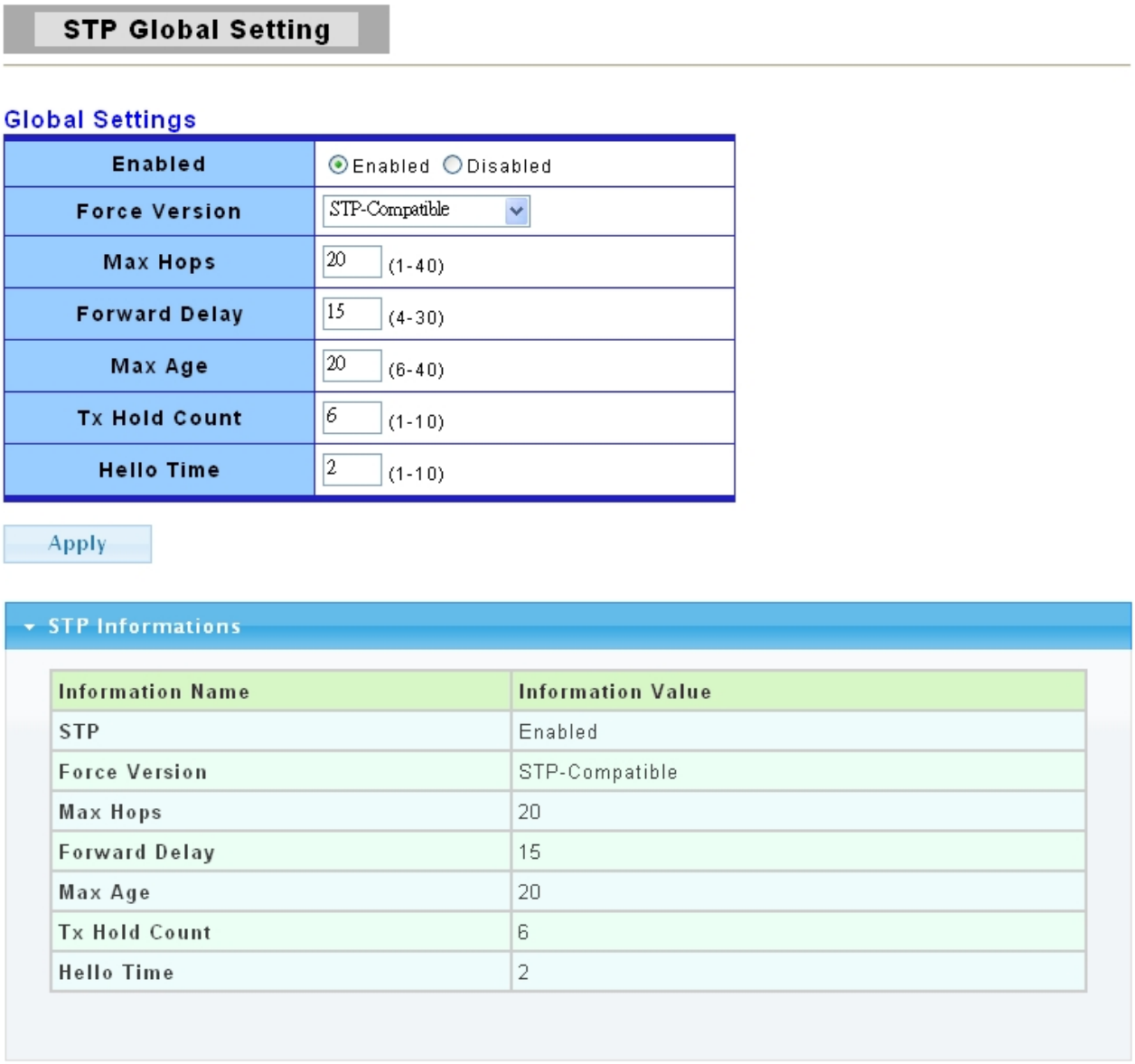
## 3.3.9 STP

The Spanning Tree Protocol (STP) is a network protocol that ensures a loop-free topology for any bridged Ethernet local area network.

### 3.3.9.1 STP Global Setting

Use the **SPT Global Setting** screen to activate one of the STP modes on the switch.

Click **Switching** > **STP** > **STP Global Setting**.




The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Enabled** | Select **Enabled** to use Spanning Tree Protocol (STP) or Rapid Spanning Tree Protocol (RSTP). Select **Disabled** to not use STP or RSTP. |
| **Force Version** | Select the operating mode of STP.<br>· **STP-Compatible:** 802.1D STP operation.<br>· **RSTP-Operation:** 802.1w operation.<br>· **MSTP-Operation:** 802.1s operation. |
| **Max Hops** | Set the value of the maximum number of hops in the region. Enter a number between 1 and 40 as the max hops. |
| **Forward Delay** | Set the delay time an interface takes to coverage from blocking state to forwarding state.<br>This is the maximum time (in seconds) the switch will wait before changing states. This delay is required because every switch must receive information about topology changes before it starts to forward frames. In addition, each port needs time to listen for conflicting information that would make it return to a blocking state; otherwise, temporary data loops might result. The allowed range is 4 to 30 seconds. |

| | |
|---|---|
| | As a general rule:<br>Note: 2 * (Forward Delay – 1) >= Max Age >= 2 * (Hello Time + 1) |
| **Max Age** | Set the time any switch should wait before trying to change the STP topology after unhearing Hello BPDU. |
| **Tx Hold Count** | Set the Transmit Hold Count used to limit BPDU transmission rate. Enter a number between 1 and 10 as the Tx hold count. |
| **Hello Time** | Set the interval between periodic transmissions of BPDU by Designated Ports.<br>This is the time interval (in seconds) at which the root switch transmits a configuration message. The root bridge determines Hello Time, Max Age and Forward Delay. |
| **Apply** | Click **Apply** to save your changes to the switch. |

### 3.3.9.2 STP Port Setting

Click **Switching** > **STP** > **STP Port Setting**.


The following table describes the labels in this screen.

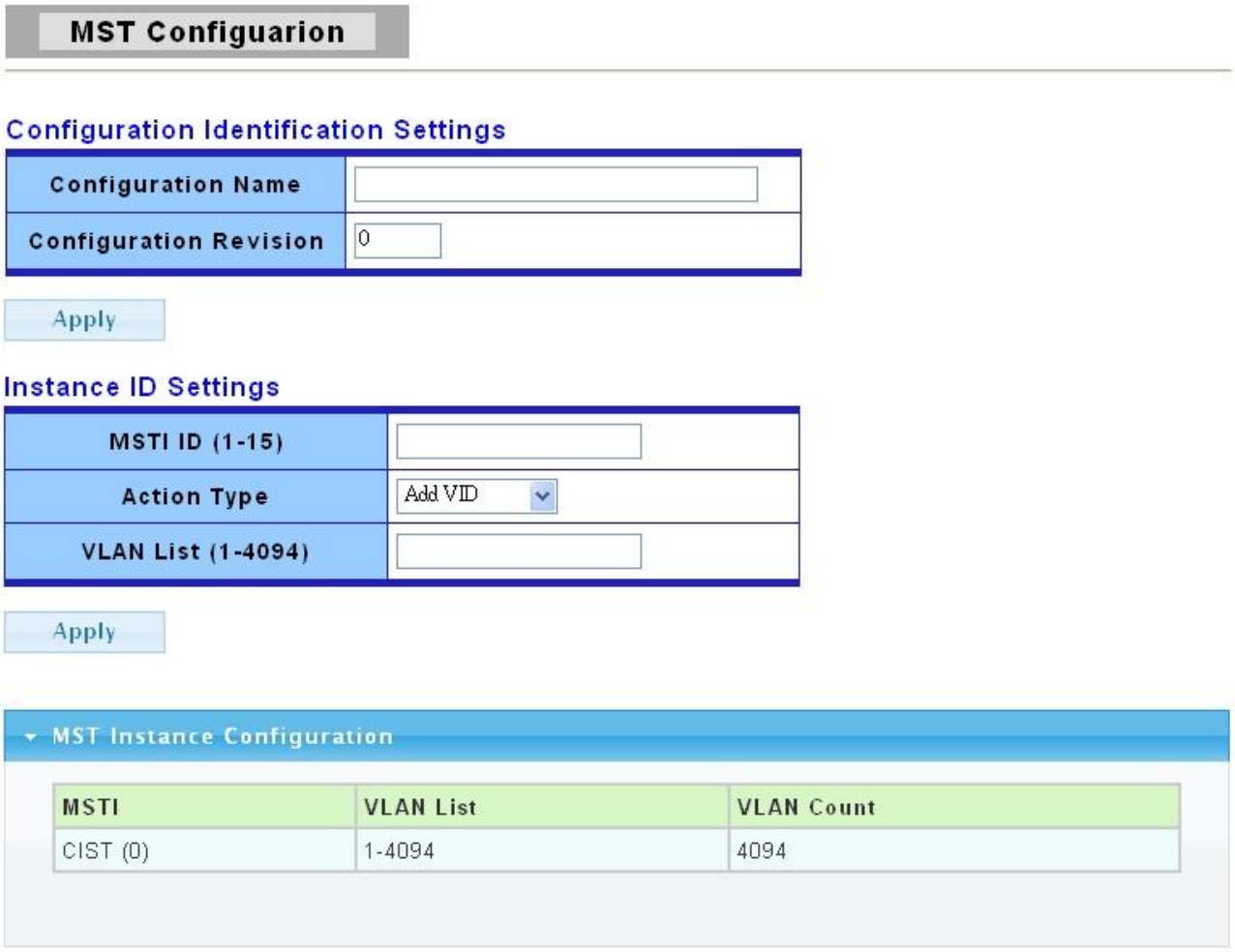
| LABEL | DESCRIPTION |
|---|---|
| **Port Select** | Select the port(s) to change spanning tree protocol settings for. |
| **External** | Path cost is the cost of transmitting a frame on to a LAN through that port. It is |

| | |
|---|---|
| **Cost** | recommended to assign this value according to the speed of the bridge. The slower the media, the higher the cost. Entering 0 means the switch will automatically assign a value. |
| **Edge Port** | Set the edge port configuration:<br>· **No:** Force to false state ( as link to a bridge).<br>· **Yes:** Force to true state ( as link to a host).<br>· **Auto:** Auto detect. |
| **BPDU Filter** | Set the BPDU Filter configuration:<br>· **No:** Disable BPDU Filter function.<br>· **Yes:** Enable BPDU Filter function.<br>To avoid transmitting BPDU from the specified ports |
| **BPDU Guard** | Set the BPDU Guard configuration:<br>· **No:** Disable BPDU Guard function.<br>· **Yes:** Enable BPDU Guard function.<br>To drop directly the received BPDU from the specified ports |
| **P2P MAC** | Set the Point-to-Point port configuration:<br>· **No:** Force to false state.<br>· **Yes:** Force to true state.<br>· **Auto:** Auto detect ( according to duplex). |
| **Migrate** | Click the square choice box to enable this function.<br>Force to try to use the new MST/RST BPDUs, and hence to test the hypothesis that all legacy systems that do not understand the new BPDU formats have been removed from the LAN segment on the port(s). |
| **Apply** | Click **Apply** to save your changes to the switch. |

### 3.3.9.3 MST Configuration

MST is the acronym of Minimum Spanning Tree.

Click **Switching** > **STP** > **MST Configuration**.

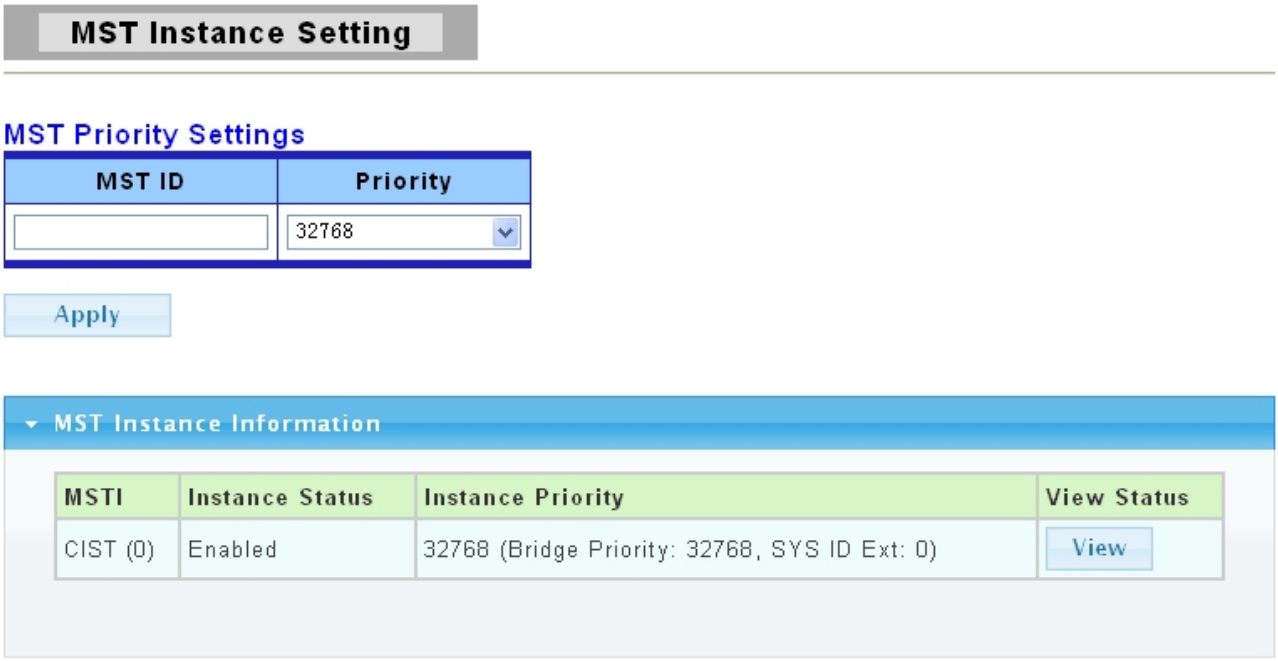



The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Configuration Name** | You can manually set the configuration name for identification. |
| **Configuration Revision** | You can manually set the configuration revision for identification. (Range: 0-65535) |
| **Apply** | Click **Apply** to save your changes to the switch. |
| **MSTI ID** | MSTI is MST Configuration ID. Enter a number between 1 and 15 as the MSTI ID. |
| **Action Type** | Select the action type:<br>· **Add VID:** Add the VLANs in VLAN list to the specified MST instance.<br>· **Remove VID:** Remove the VLANs in VLAN list from the specified MST instance. |
| **VLAN List** | Enter a number between 1 and 4094 as the VLAN List.. |
| **MSTI** | It displays the CIST's number. |
| **VLAN List** | It displays the list of VLAN. |
| **VLAN Count** | It displays the count number of VLAN. |

### 3.3.9.4 MST Instance Setting

Click **Switching** > **STP** > **MST Instance Setting**.

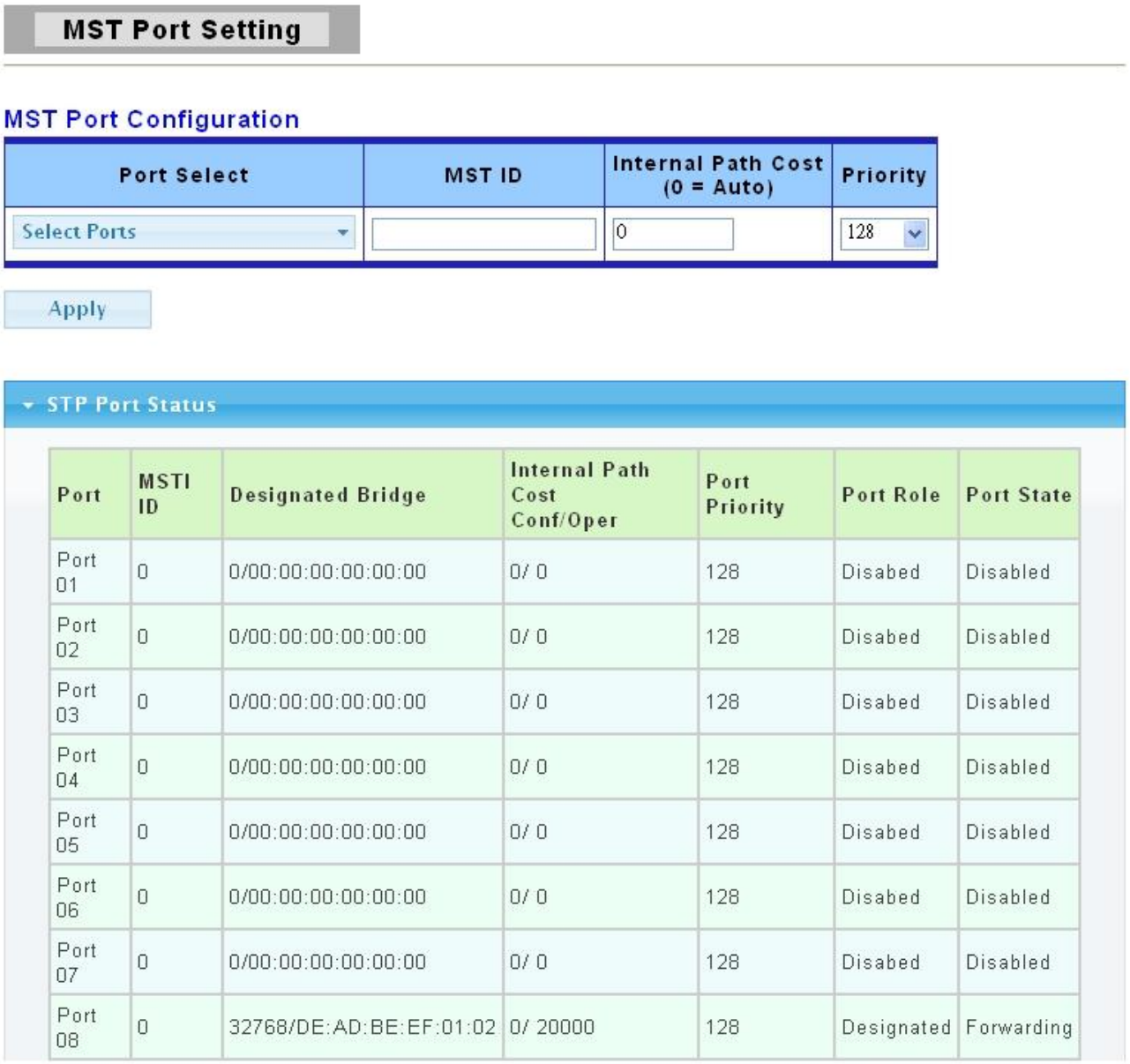



The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **MST ID** | You can manually set the MST ID to specify MST instance. |
| **Priority** | You can manually set the Bridge Priority in the specified MST instance. |
| **Apply** | Click **Apply** to save your changes to the switch. |
| **MSTI** | It displays the CIST's number. |
| **Instance Status** | It displays the status of MST instance. |
| **Instance Priority** | It displays the priority of MST instance. |
| **View Status** | Click **View** to view the status of MST instance. |

### 3.3.9.5 MST Port Setting

Click **Switching** > **STP** > **MST Port Setting**.



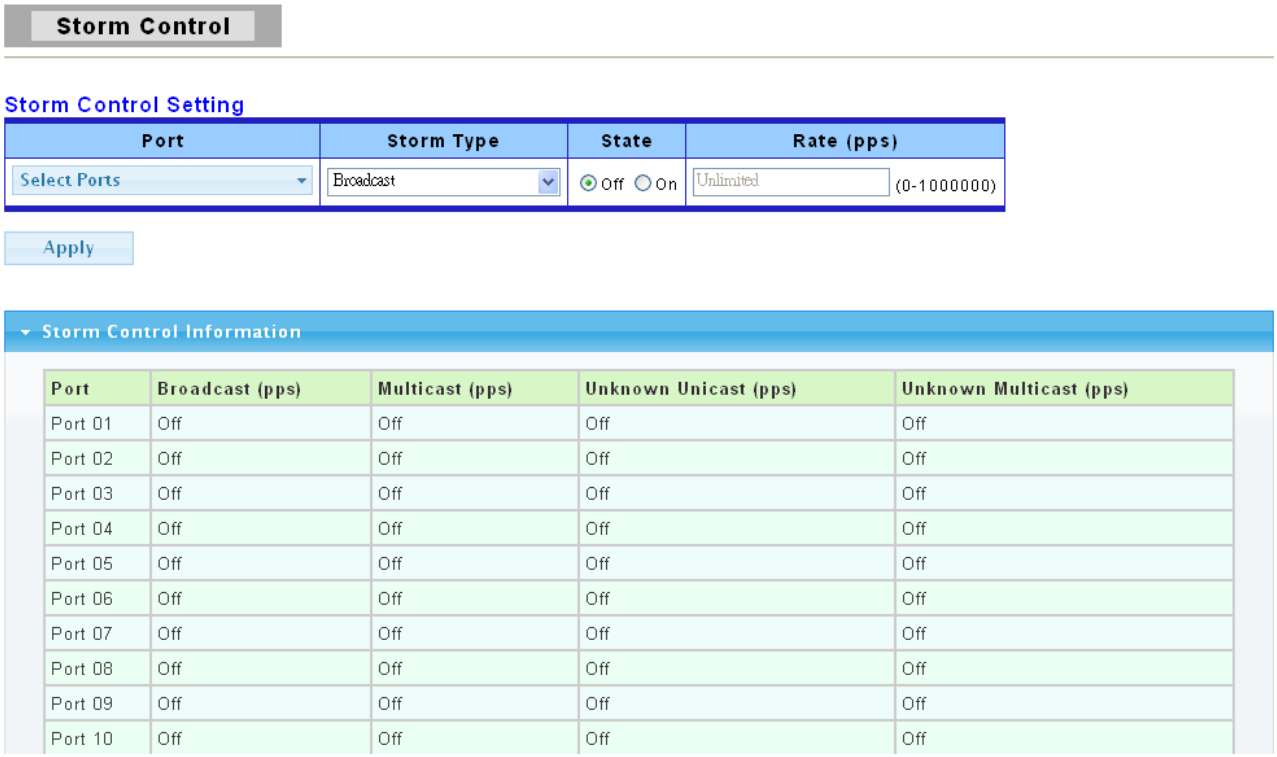

The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Port Select** | Select the port(s) which will use MST setting. |
| **MST ID** | You can manually set the MST ID to specify MST instance. |
| **Internal Path Cost** | You can manually set the internal path cost to the selected ports in the specified MST instance. (0 means “Auto”) |
| **Priority** | You can manually set the priority to the selected ports in the specified MST instance. |
| **Apply** | Click **Apply** to save your changes to the switch. |
| **Port** | It displays the port which you have choosed. |
| **MSTI ID** | It displays the MSTI ID of the choosed port. |
| **Designed Bridge** | It displays the designed bridge of the choosed port. |

| | |
|---|---|
| **Internal Path Cost** | It displays the internal path cost of the choosed port. |
| **Port Priority** | It displays the port priority you have set. |
| **Port Role** | It displays the port role of the choosed port. |
| **Port State** | It displays the port state of the choosed port. |

# 3.4 Security

## 3.4.1 Storm Control




The following table describes the labels in this screen.

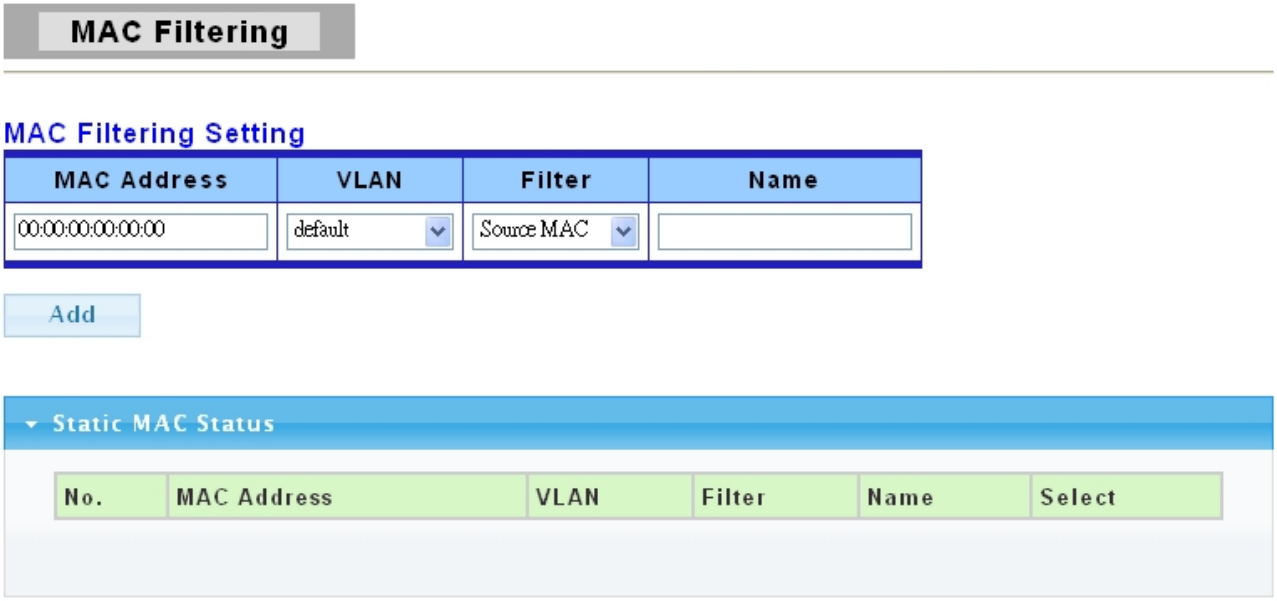
| LABEL | DESCRIPTION |
|---|---|
| **Port** | Select the port(s) which will use storm control. |
| **Storm Type** | Select the type of packets to be limited with the Storm Control feature.<br>· **Broadcast:** Broadcast packet<br>· **Multicast:** All multicast packet, include known and unknown multicast.,<br>· **Unknown Unicast:** Unknown unicast packet.<br>· **Unknown Multicast:** Unknown multicast packet. |
| **State** | Select **On** to enable traffic storm control on the Switch.<br>Select **Off** to disable this feature. |
| **Rate (pps)** | Type a packet per second (pps) rate between 0 and 1000000. This is the maximum amount of packets of the type selected previously that are allowed to be transferred to the Switch per second. Any subsequent packets are discarded. |

| | |
|---|---|
| **Apply** | Click **Apply** to save your changes to the Switch. |
| **Port** | This field displays the port number. |
| **Broadcast (pps)** | This field displays how many broadcast packets can the port receive per second. |
| **Multicast (pps)** | This field displays how many multicast packets can the port receive per second. |
| **Unknown Unicast (pps)** | This field displays how many unknown unicast packets can the port receive per second. |
| **Unknown Multicast (pps)** | This field displays how many unknown multicast packets can the port receive per second. |

## 3.4.2 MAC Filtering

Use this screen to create rules for traffic going through the switch.

Click **Security**> **MAC Filtering** in the navigation panel to display the screen as shown.




The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **MAC Address** | Type a MAC address to which packets will be filtered in valid MAC address format, that is, six hexadecimal character pairs. And this must be a unicast MAC address. |
| **VLAN** | The VLAN ID number of the VLAN on which the above MAC address resides..<br>This function is set default in this switch. |
| **Filter** | Select **Source MAC** to drop the frames with the source MAC address (specified in the MAC Address field).<br>Select **Destination MAC** to drop the frames with the destination MAC address (specified in the MAC Address field).<br>Select **Both** to drop frames with the source MAC address and destination MAC address which specified in the MAC Address field. |

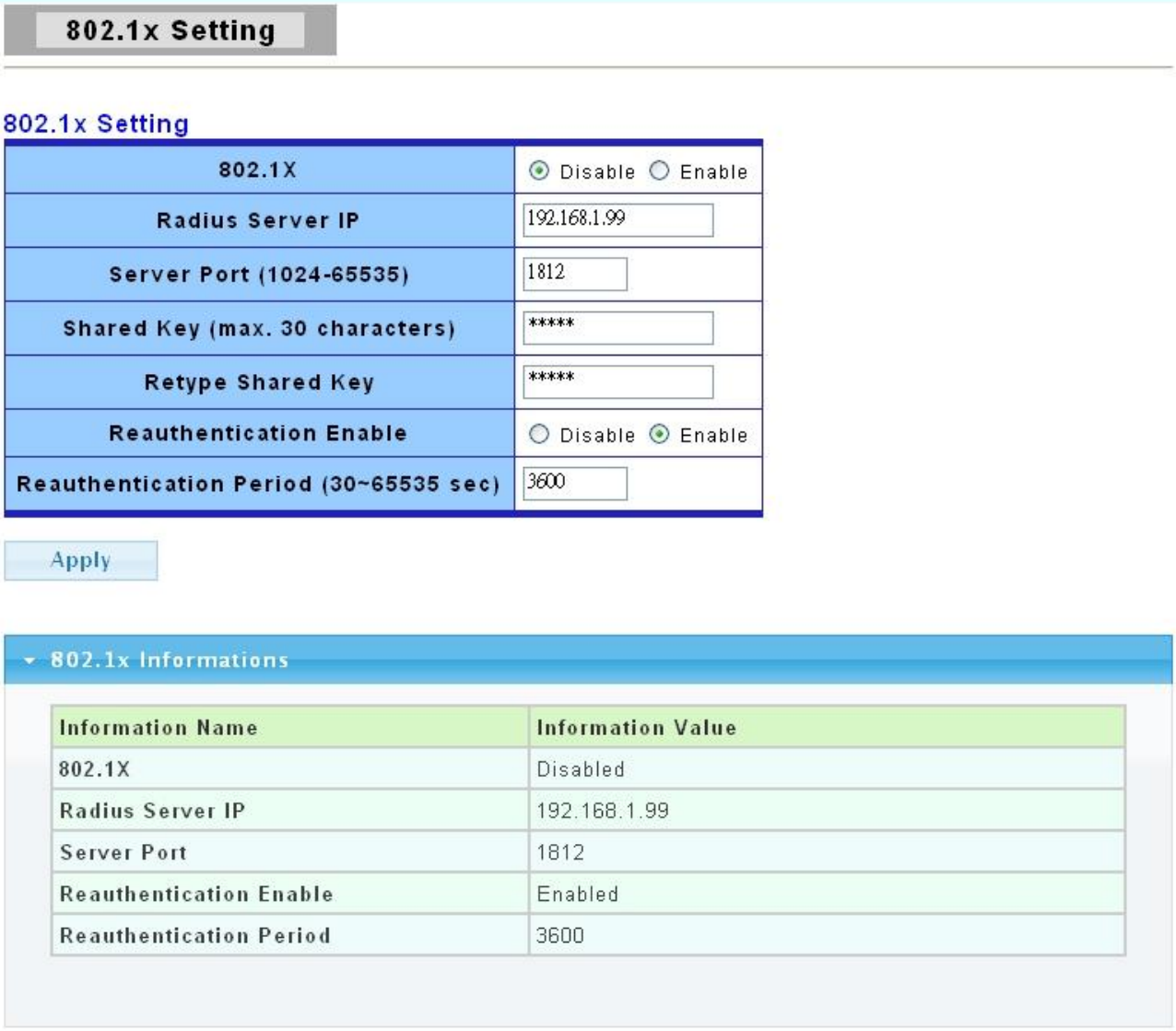
| | |
|---|---|
| **Name** | Type a descriptive name (up to 32 printable ASCII characters) for this filtering rule. This is for identification only. |
| **Add** | Click **Add** to add any port into the MAC filtering table. |
| **No.** | This is the index number for the MAC filtering rules. |
| **MAC Address** | This field displays the MAC address that will be filtered. |
| **VLAN** | This is the VLAN group to which the MAC address belongs. |
| **Filter** | This field displays the action of the filter. |
| **Name** | This field displays the descriptive name for this rule. This is for identification purpose only. |
| **Select** | Click on the checkbox for the MAC filtering rule you want to delete. |

## 3.4.3 802.1X

### 3.4.3.1 802.1X Setting

Use this screen to activate IEEE 802.1x security and configure RADIUS server settings.

Click **Security** > **802.1x** > **802.1x Setting** to display the configuration screen as shown



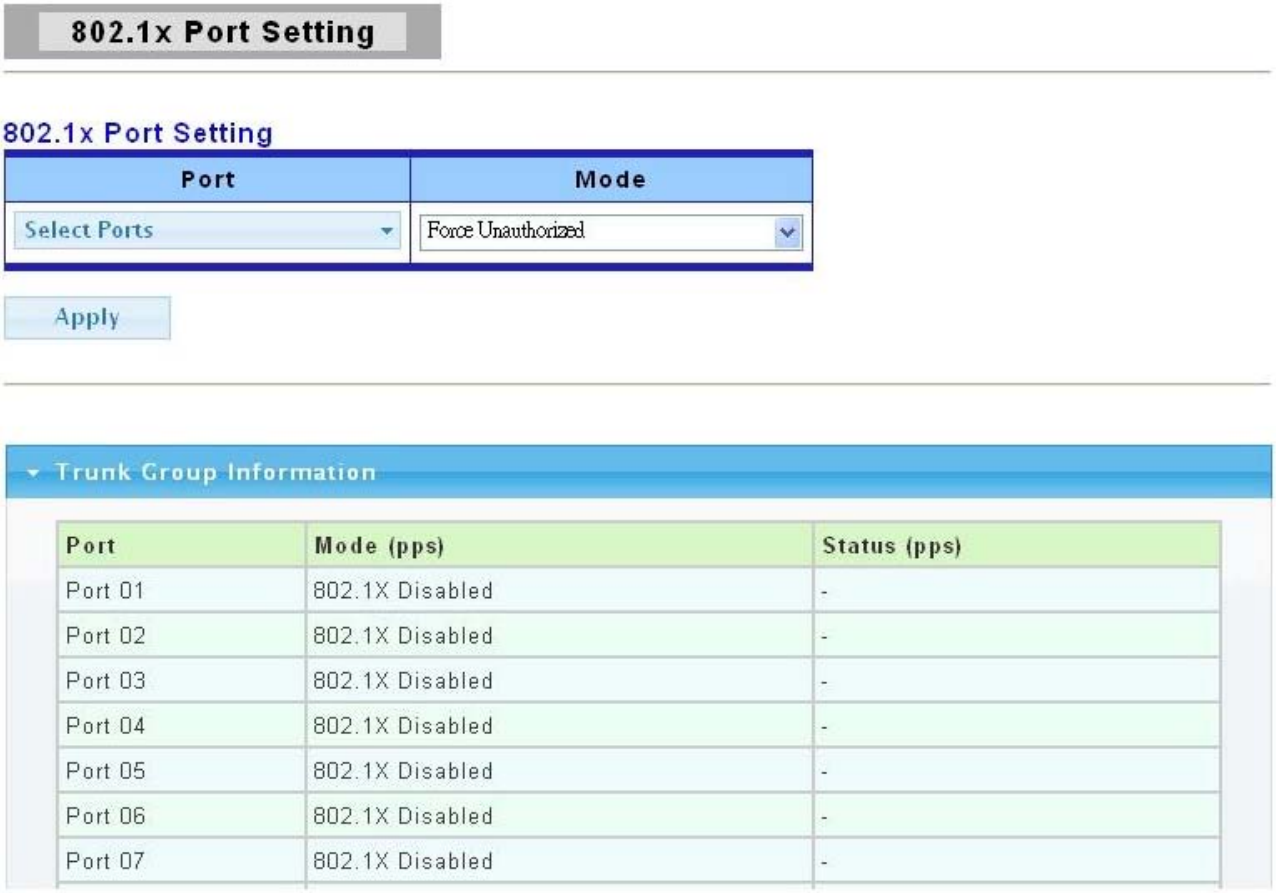

The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **802.1X** | Select **Enable** from the drop-down list box to activate IEEE 802.1x port authentication.<br>Select **Disable** to disable this function. |
| **Radius Server IP** | Enter the IP address of an external RADIUS server in dotted decimal notation. |
| **Server Port (1024-65535)** | The default port of a RADIUS server for authentication is **1812**. You need not change this value unless your network administrator instructs you to do so. |
| **Shared Key (max. 30 characters)** | Specify a password (up to 32 alphanumeric characters) as the key to be shared between the external RADIUS server and the Switch. This key is not sent over the network. This key must be the same on the external RADIUS server and the Switch. |
| **Retype Shared Key** | Retype the key specified above to ensure it has been entered correctly. |
| **Reauthentication enable** | Specify if a subscriber has to periodically re-enter his or her username and password to stay connected to the port.<br>Select **Enable** means the user has to re-enter his/her username and |

| | |
|---|---|
| | password. |
| **Reauthentication Period (30-65535 sec)** | Specify how often a client has to re-enter his or her username and password to stay connected to the port.<br>Set the reauthentication period of 802.1X if reauthentication is enabled. |
| **Apply** | Click **Apply** to save your changes to the switch. |

### 3.4.3.2 802.1X Port Setting

Click **Security** > **802.1x** > **802.1x Port Setting** to display the configuration screen as shown.

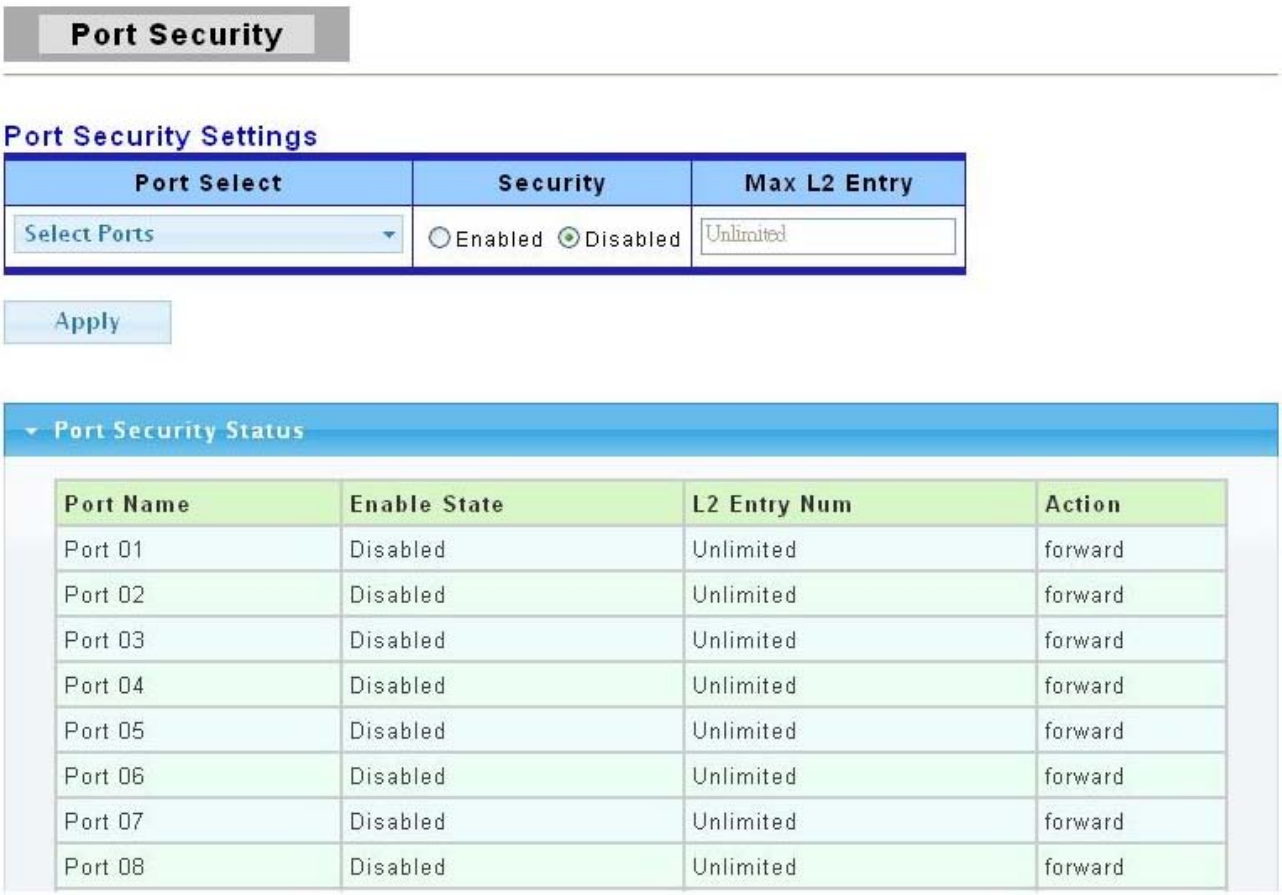



The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Port** | Specify the ports to activate IEEE 802.1x port authentication on. |
| **Mode** | Select **Force Unauthorized** to always force this port to be unauthorized.<br>Select **Force Authorized** to always force this port to be authorized.<br>Select **Authorization** to enable 802.1x port authentication.<br>Select **No Authorization** to disable 802.1x port authentication. |
| **Apply** | Click **Apply** to save your changes to the Switch. |
| **Port** | This field displays the port number. |
| **Mode** | This field displays the port's current 802.1x setting. |
| **Status** | This field displays the current stage of the 802.1x port authentication procedure. |

## 3.4.4 Port Security

Click **Security** > **Port Security** to display the configuration screen as shown.



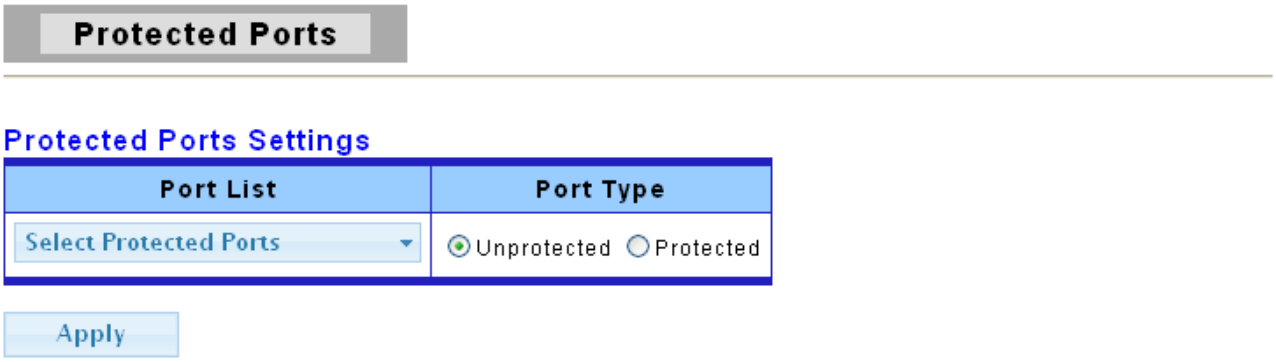

The following table describes the labels in this screen.

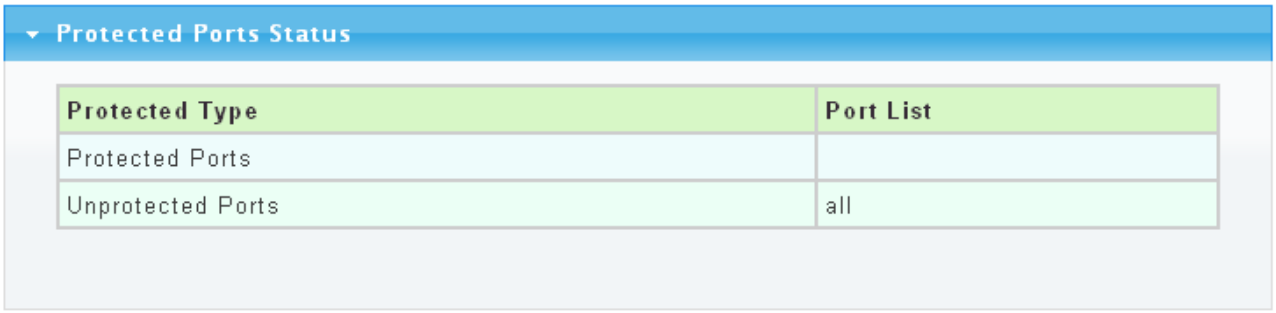
| LABEL | DESCRIPTION |
|---|---|
| **Port Select** | Select the port(s) to configure this setting |
| **Security** | Port security function. It constraint how many MAC addresses can be learned by a port and drop new one when reach the limitation.<br>・ **Enable:** Enable port security function.<br>・ **Disable:** Disable port security function. |
| **Max L2 Entry** | Maximum number of Layer 2 entries that assign the MAC address to the port. |
| **Apply** | Click **Apply** to save your changes to the Switch. |
| **Port Name** | This field displays the port number. |
| **Enable State** | This field displays the state of this function whether it has been enabled or not. |
| **L2 Entry Num** | This field displays the status of maximum number of Layer 2 entries of the MAC addresses. |
| **Action** | This field displays the action of the port. |

## 3.4.5 Protected Ports

This page allow user to configure protected port setting to prevent the selected ports from communicate with each other.

Click **Security** > **Protected Ports** to display the configuration screen as shown.



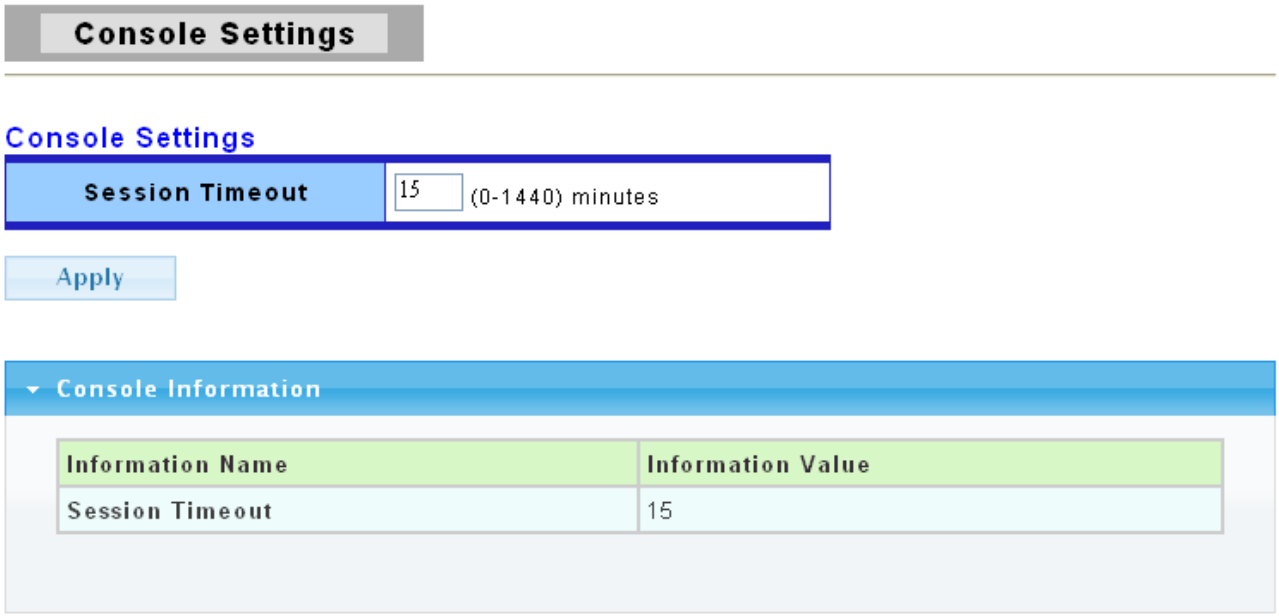




The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Port List** | To select the port to be protected. |
| **Port Type** | Configure port protect type:<br>· **Unprotected:** Unprotected port can communicate with all ports.<br>· **Protected:** Prevent protected ports from communicate with each other. |
| **Apply** | Click **Apply** to save your changes to the Switch. |

## 3.4.6 Access

### 3.4.6.1 Console

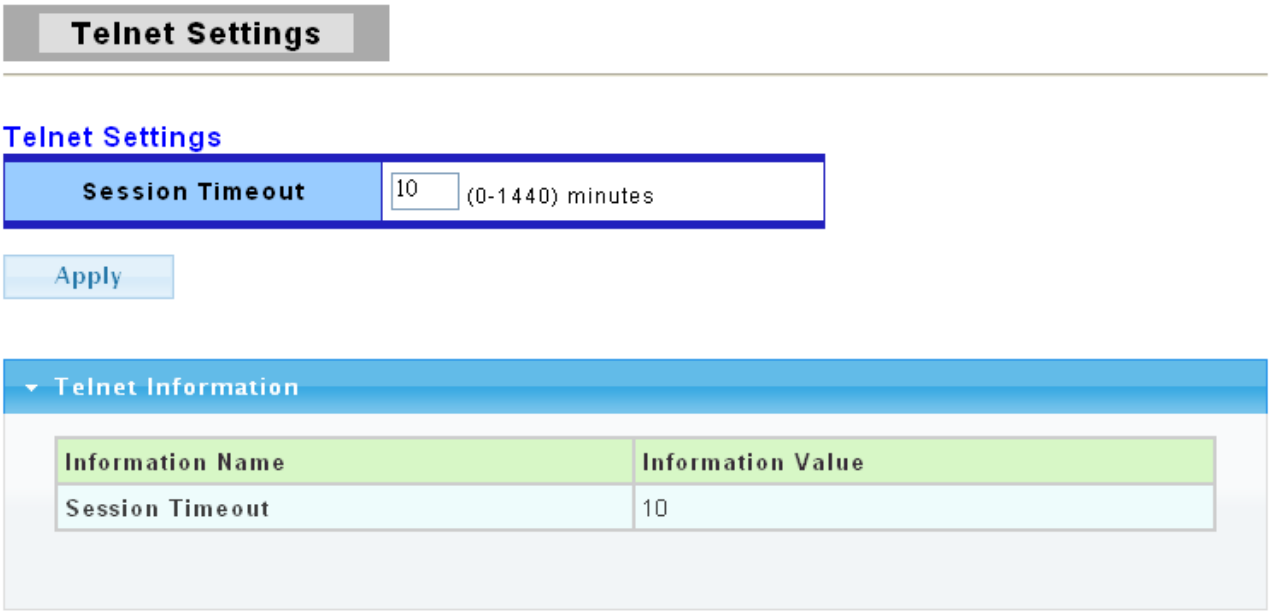



The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Session Timeout** | Set session timeout minutes for user access CLI from console line. If user doesn't response after session timeout minute, CLI will logout automatically.<br>Enter a number between 0 and 1440 as the session timeout. 0 minutes means never timeout. |
| **Apply** | Click **Apply** to save your changes to the Switch. |

### 3.4.6.2 Telnet

Telnet is the TCP/IP standard protocol for remote terminal service. TELNET allows a user at one site to interact with a remote timesharing system at another site as if the user's keyboard and display connected directly to the remote machine.

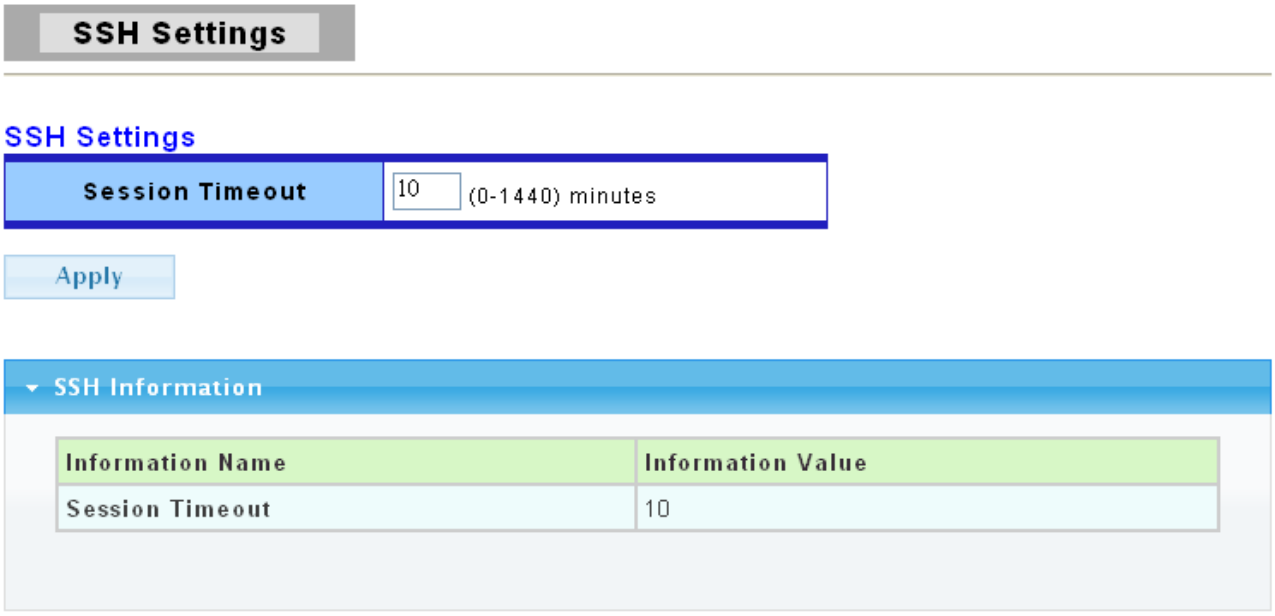



The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Session Timeout** | Set session timeout minutes for user access CLI from telnet line. If user doesn't response after session timeout minute, CLI will logout automatically.<br>Enter a number between 0 and 1440 as the session timeout. 0 minutes means never timeout. |
| **Apply** | Click **Apply** to save your changes to the Switch. |

### 3.4.6.3 SSH

SSH is the acronym of Secure Shell.

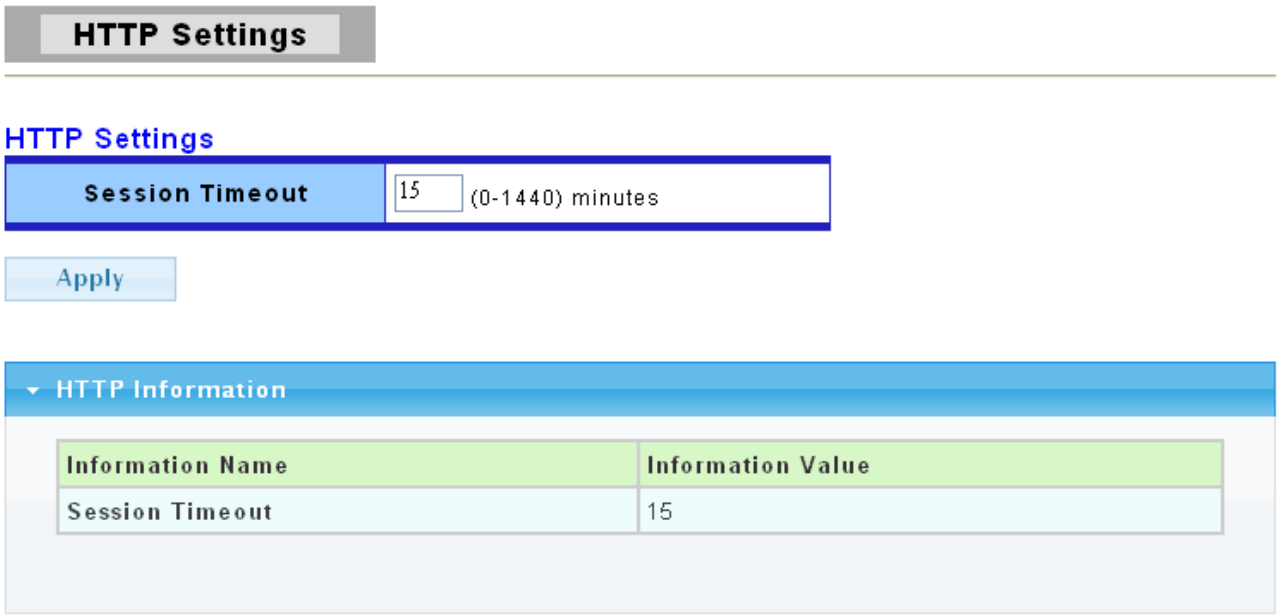


The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Session Timeout** | Set session timeout minutes for user access CLI from SSH line. If user doesn't response after session timeout minute, CLI will logout automatically.<br>Enter a number between 0 and 1440 as the session timeout. 0 minutes means never timeout. |
| **Apply** | Click **Apply** to save your changes to the Switch. |

### 3.4.6.4 HTTP

HTTP is the acronym of Hyper Text Transfer Protocol.

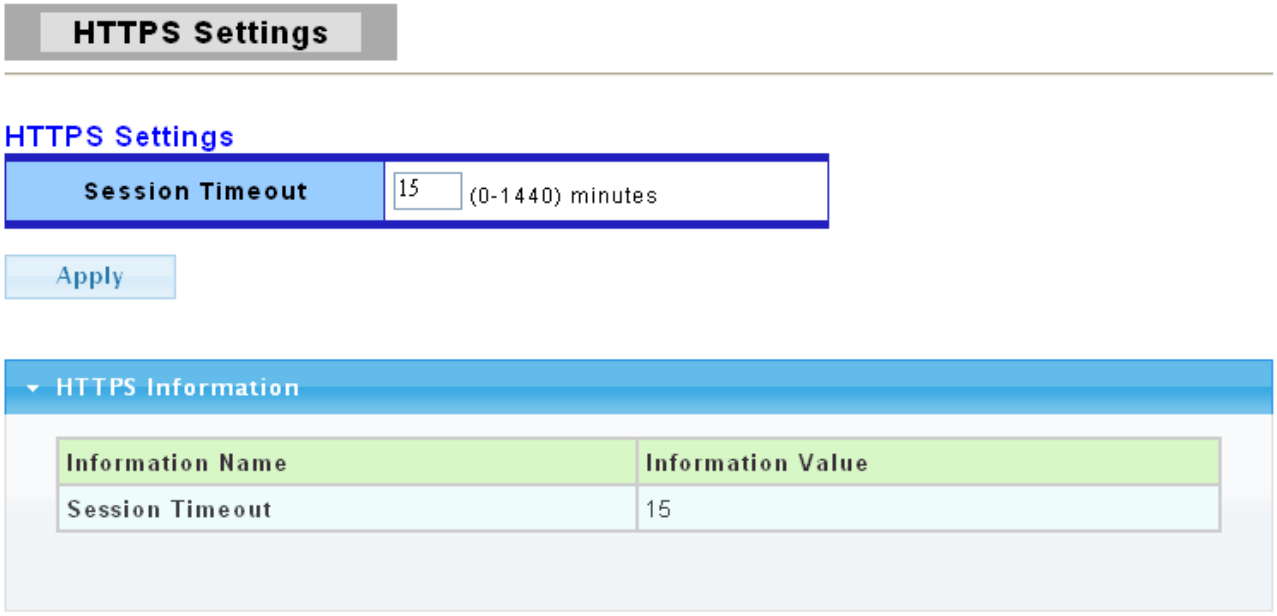



The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Session Timeout** | Set session timeout minutes for user access WEB from HTTP protocol. If user doesn't response after session timeout minute, WEB UI will logout automatically.<br>Enter a number between 0 and 1440 as the session timeout. 0 minutes means never timeout. |
| **Apply** | Click **Apply** to save your changes to the Switch. |

### 3.4.6.5 HTTPS

HTTPS is the acronym of Hypertext Transfer Protocol over Secure Socket Layer.



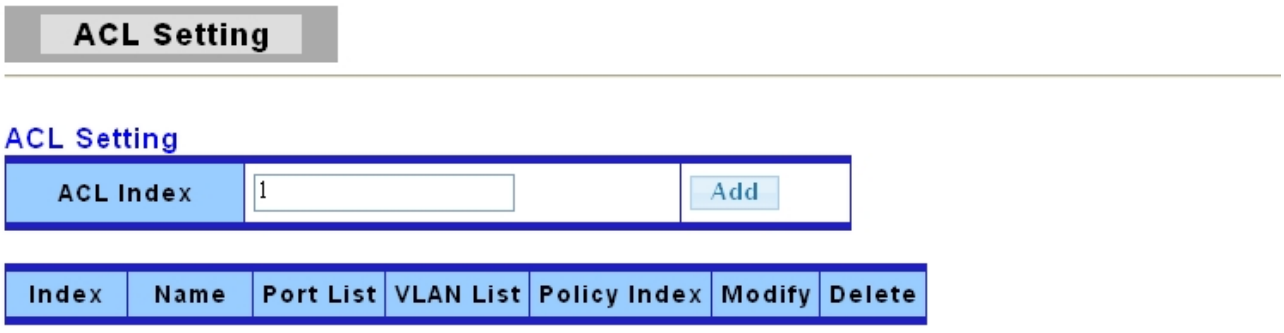

The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Session Timeout** | Set session timeout minutes for user access WEB from HTTPS protocol. If user doesn't response after session timeout minute, WEB UI will logout automatically.<br>Enter a number between 0 and 1440 as the session timeout. 0 minutes means never timeout. |
| **Apply** | Click **Apply** to save your changes to the Switch. |

## 3.5 ACL

Use the ACL pages to configure settings for the Access Control List.

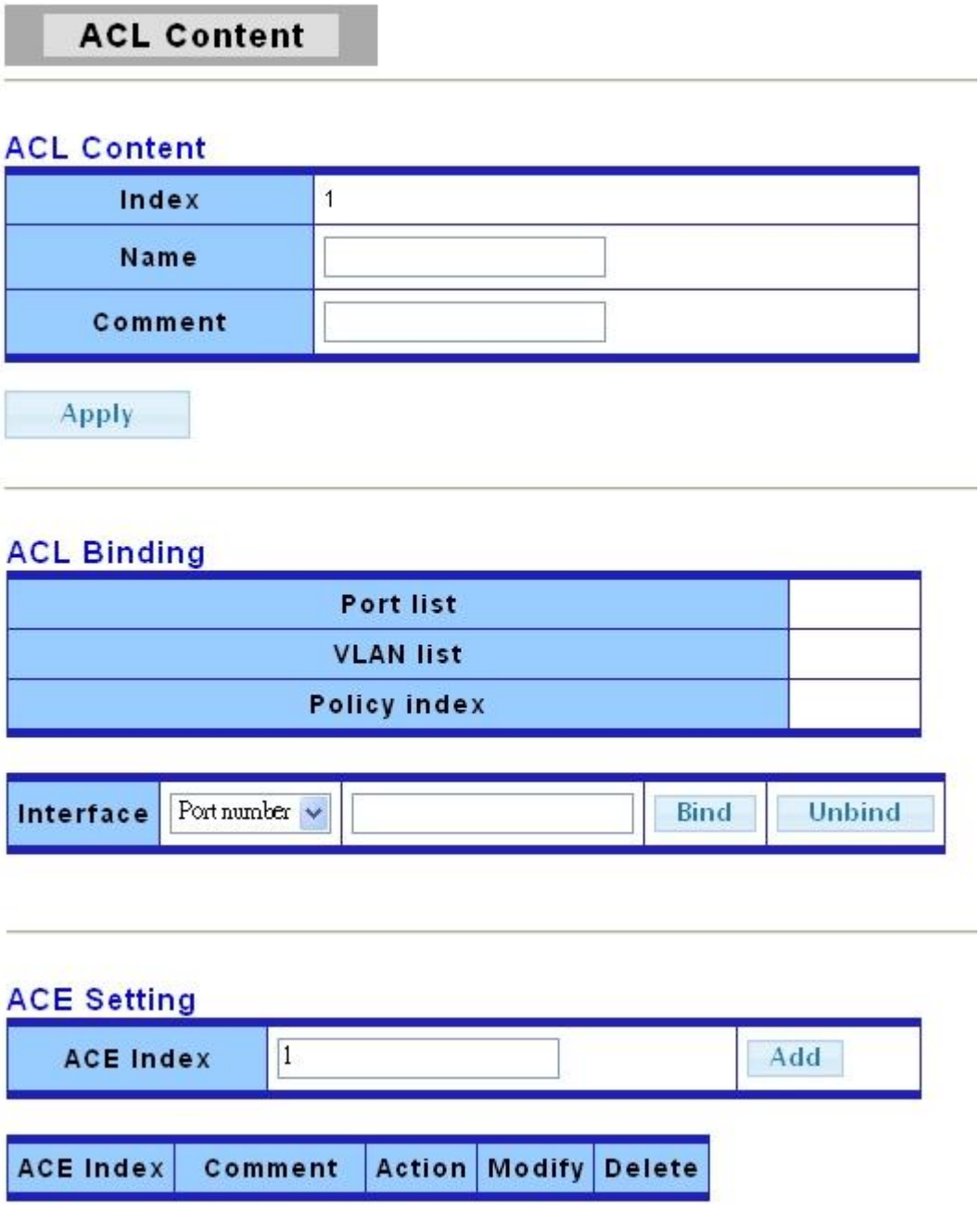
### 3.5.1 ACL Setting




The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **ACL Index** | You can manually set the ACL Index. |
| **Add** | Click **Add** to add the basic information of ACL Index. |
| **Index** | It displays the index information. |
| **Name** | It displays the name of the index. |
| **Port List** | It displays the list of the port. |
| **VLAN List** | It displays the list of the VLAN. |
| **Policy Index** | It displays the policy index. |
| **Modify** | Click **Modify** to modify any setting. |
| **Delete** | Click **Delete** to delete any setting. |

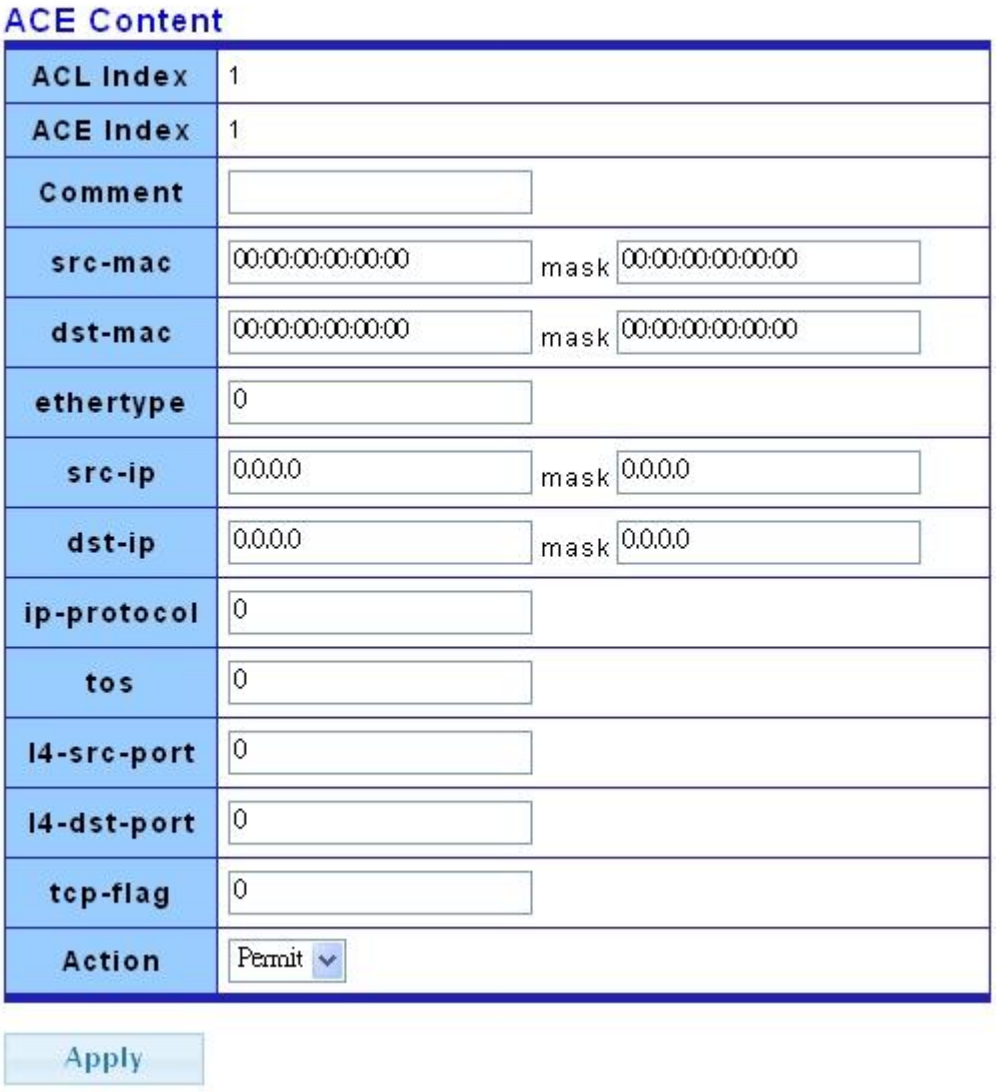
Click **ACL**->**ACL Setting**->**Add** button, the ACL Content web page pops out.




| LABEL | DESCRIPTION |
|---|---|

| | |
|---|---|
| **Name** | Enter ACL name in this field |
| **Comment** | Enter ACL comment in this field. |
| **Interface** | Select the interface to bind:<br>· **Port number:** Enter port number.<br>· **VLAN ID:** Enter VLAN ID.<br>· **Policy:** Enter policy index. |
| **ACE Index** | Enter ACE index in this field to configure ACE. |

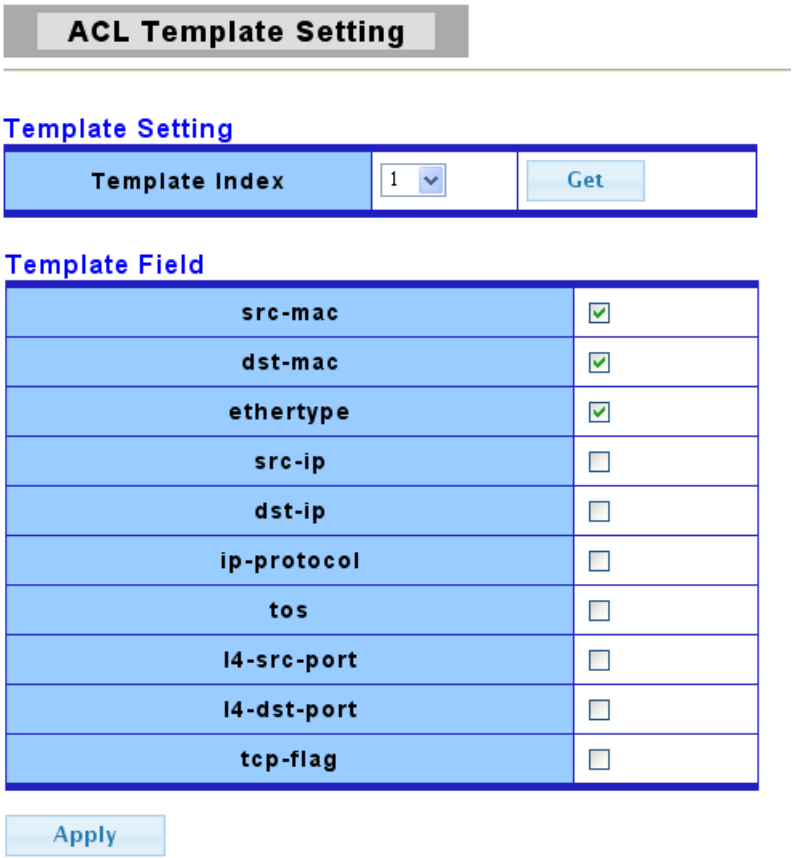
Click **ACL**->**ACL Setting**->**Add**->**Add (in ACE Setting)** button, the ACE Content web page pops out.




| LABEL | DESCRIPTION |
|---|---|
| **Comment** | Enter ACE comment in this field. |
| **src-mac** | Enter source MAC data and mask in this field. |
| **dst-mac** | Enter destination MAC data and mask in this field. |
| **ethertype** | Enter ethernet type in this field. |
| **src-ip** | Enter source IP data and mask in this field. |
| **dst-ip** | Enter destination IP data and mask in this field. |
| **ip-protocol** | Enter IP protocol in this field. |

| | |
|---|---|
| **tos** | Enter ToS in this field. |
| **14-src-port** | Enter Layer 4 source port in this field. |
| **14-dst-port** | Enter Layer 4 destination port in this field. |
| **tcp-flag** | Enter TCP flag in this field. |
| **Action** | Select the action to take:<br>· **Permit:** permit packet to pass through.<br>· **Deny:** drop packet.<br>Note: system will automatically add one “deny any any” rule in the last rule of this ACL. |

## 3.5.2 ACL Template Setting

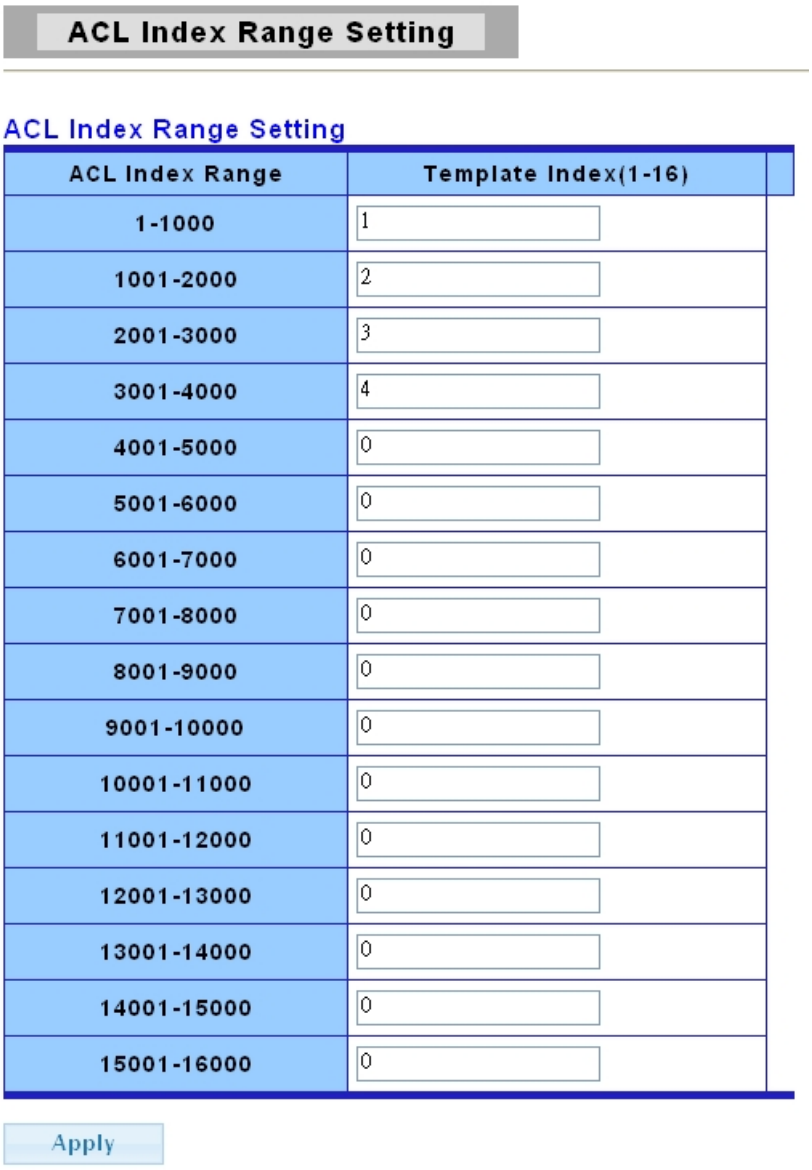



The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Template Index** | You can choose the template index. |
| **Get** | To get the basic information of the policy index. |
| **src-mac** | Click in the square box to set source MAC into Template. |
| **dst-mac** | Click in the square box to set destination MAC into Template. |
| **ethertype** | Click in the square box to set ethernet type into Template. |
| **src-ip** | Click in the square box to set source IP into Template. |
| **dst-ip** | Click in the square box to set destination IP into Template. |
| **ip-protocol** | Click in the square box to set IP protocol into Template. |
| **tos** | Click in the square box to set ToS into Template. |

| | |
|---|---|
| **14-src-port** | Click in the square box to set Layer 4 source port into Template. |
| **14-dst-port** | Click in the square box to set Layer 4 destination port into Template. |
| **tcp-flag** | Click in the square box to set TCP flag into Template. |
| **Apply** | Click **Apply** to save your changes to the switch. |

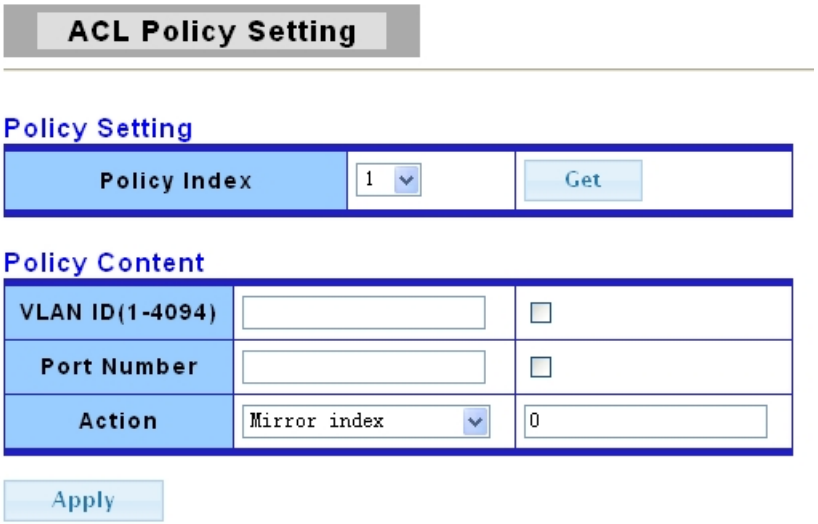
### 3.5.3 ACL Index Range Setting




The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **ACL Index Range** | It displays the 16 types of ACL index range. |
| **Template Index** | Enter Template index mapping to specify range of ACL index in this field.<br>Enter a number between 1 and 16 as the template index. |

### 3.5.4 ACL Policy Setting




The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Policy Index** | You can choose the policy index. |
| **Get** | To get the basic information of the policy index. |
| **VLAN ID** | Enter VLAN ID and check it to care specified VLAN ID. |
| **Port Number** | Enter port number and check it to care specified port number. |
| **Action** | Select the action to take:<br>· **Mirror Index:** mirror packet via the configuration of specified mirror index.<br>· **Rate Limit:** limit packet rate, the unit is 16kbps.<br>· **Priority:** change packet priority. |
| **Apply** | Click **Apply** to save your changes to the switch. |

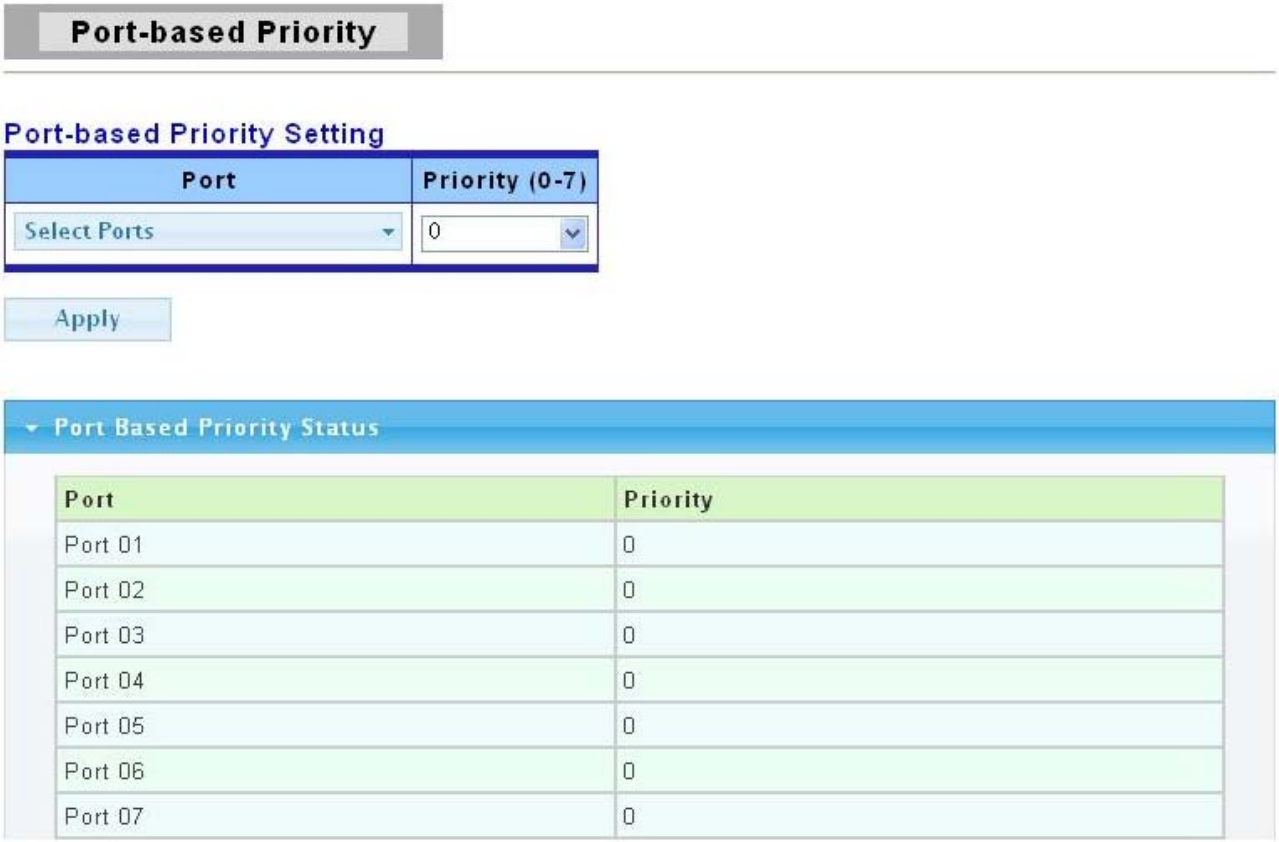
## 3.6 QoS

Use the QoS pages to configure settings for the switch QoS interface and how the switch connects to a remote server to get services.

### 3.6.1 Port-based Priority

You can configure the switch to assign an IEEE 802.1p priority to packets based on the ingress (incoming) port of the packet.

Click **QoS > Port-based Priority** in the navigation panel to display the screen as shown below.

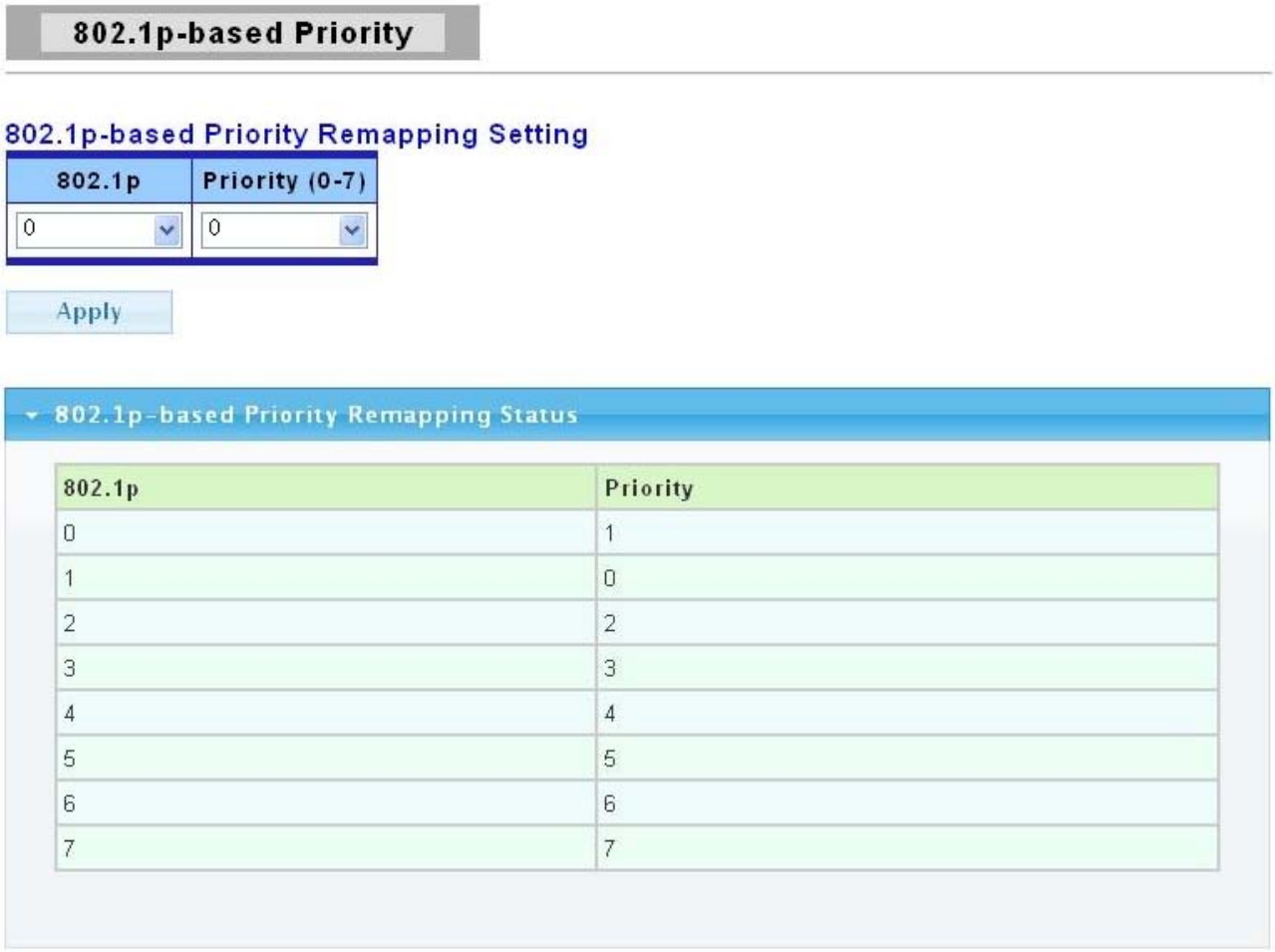



The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Port** | Select the number of the port for which you want to assign IEEE 802.1p priority to incoming frames. |
| **Priority** | Select the QoS port-based priority you want to assign to the packets coming into the switch on the ports specified in the port field. |
| **Apply** | Click **Apply** to save your changes to the switch. |
| **Port** | This field displays the port number. |
| **Priority** | This field indicates what IEEE 802.1p priority is assigned to the incoming packets from the port. |

## 3.6.2 802.1 p- based Priority

Click **QoS > 802.1 p-based Priority** in the navigation panel to display the screen as shown below.



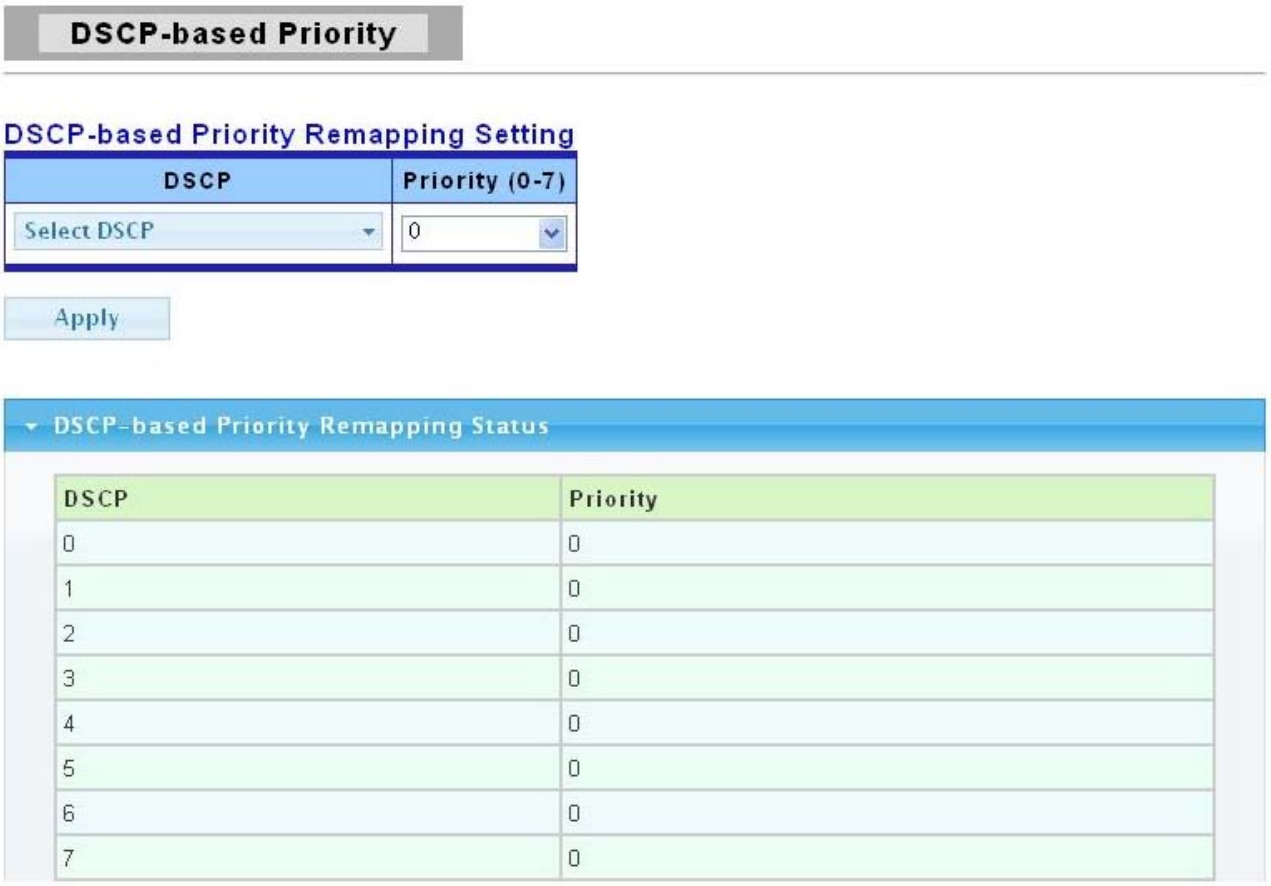

The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **802.1 p** | Select the 802.1p value to mapping to the priority and drop precedence. The 802.1p range is 0 to 7. |
| **Priority** | Select the IEEE 802.1p priority you want to assign to the packets coming into the switch on the ports specified in the port field. The priority range is 0 to 7. |
| **Apply** | Click **Apply** to save your changes to the switch. |
| **802.1 p** | This field displays the 802.1p priority level which you've choosed.. |
| **Priority** | This field indicates what IEEE 802.1p priority is assigned to the incoming packets from the port. |

## 3.6.3 DSCP - based Priority

You can configure the switch to assign an IEEE 802.1p priority to packets coming into the switch with DSCPs assigned to them.

Click **QoS** > **DSCP-based Priority** to display the screen as shown next.




The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **DSCP** | Select the DSCP value to mapping to the priority and drop precedence. The DSCP range is 0 to 63. |
| **Priority** | Select the priority value that the DSCP mapped to. The priority range is 0 to 7. |
| **Apply** | Click **Apply** to save your changes to the switch. |
| **DSCP** | This field displays the DSCP classification identification numbers. |
| **Priority** | This field displays the DSCP classification identification number's IEEE 802.1p Priority. |

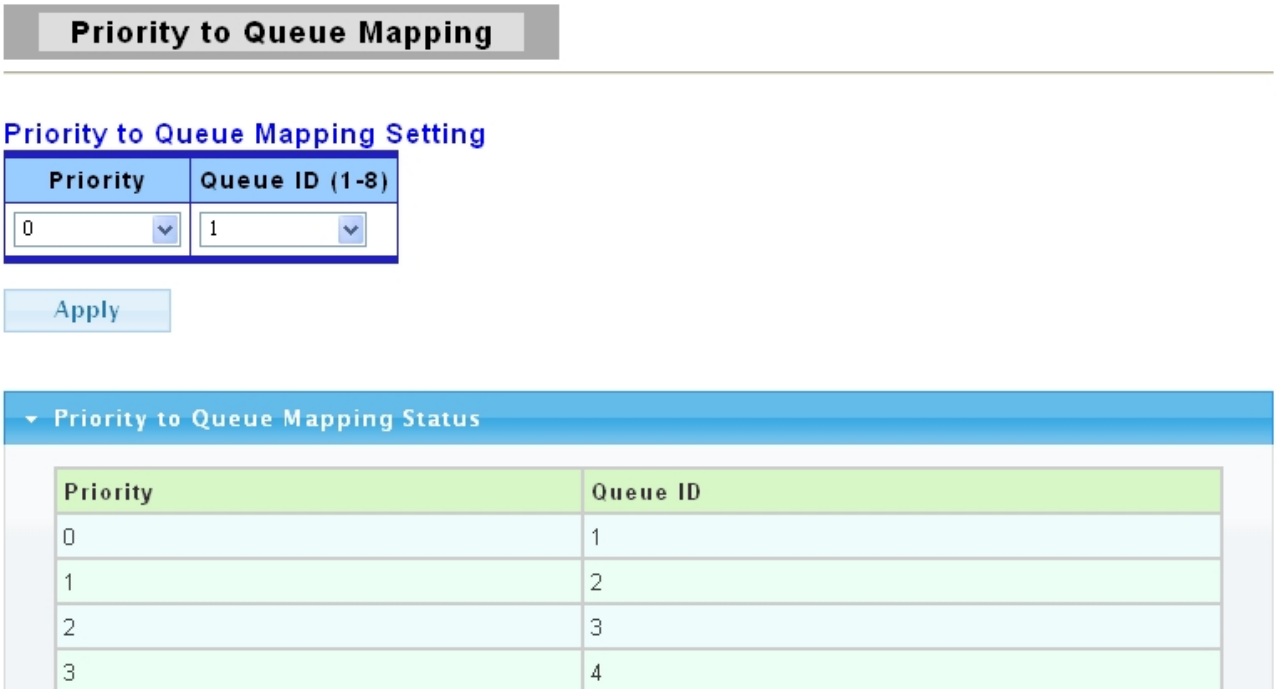
## 3.6.4 Priority to Queue Mapping

Click **QoS** > **Priority to Queue Mapping** to display the screen as shown next.

IEEE 802.1p defines up to eight separate traffic types by inserting a tag into a MAC-layer frame that contains bits to define class of service. Frames without an explicit priority tag are given the default priority of the ingress port. Use the next screen to configure the priority level-to-physical queue mapping.

The Switch has eight physical queues that you can map to the 8 priority levels. On the Switch,

traffic assigned to higher index queues gets through faster while traffic in lower index queues is dropped if the network is congested.



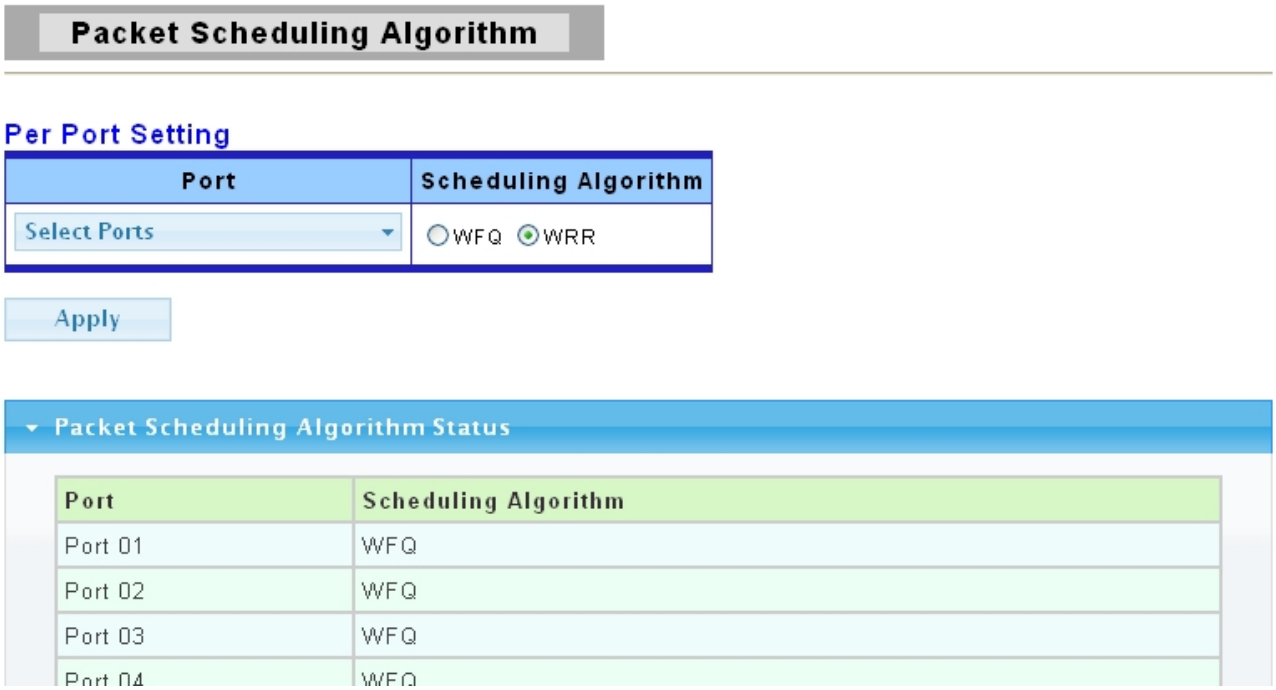

The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Priority** | Select the priority value to mapping to the Queue ID. The priority range is 0 to 7. |
| **0** | Typically used for best-effort traffic. |
| **1** | This is typically used for non-critical “background” traffic such as bulk transfers that are allowed but that should not affect other applications and users. |
| **2** | This is for “spare bandwidth”. |
| **3** | Typically used for “excellent effort” or better than best effort and would include important business traffic that can tolerate some delay. |
| **4** | Typically used for controlled load, latency-sensitive traffic such as SNA (Systems Network Architecture) transactions. |
| **5** | Typically used for video that consumes high bandwidth and is sensitive to jitter. |
| **6** | Typically used for voice traffic that is especially sensitive to jitter (jitter is the variations in delay). |
| **7** | Typically used for network control traffic such as router configuration messages. |
| **Queue ID** | Select the Queue ID for which the Priority should be applied. The Queue ID range is 1 to 8. |
| **Apply** | Click Apply to save your changes to the Switch. |
| **Priority** | This field displays the priority for each Queue ID. |
| **Queue ID** | This field displays the Queue ID. |

## 3.6.5 Packet Scheduling

Click **QoS** > **Packet Scheduling** to display the screen as shown next.

Packet Scheduling is used to help solve performance degradation when there is network congestion. Use this screen to configure queuing algorithms for outgoing traffic.

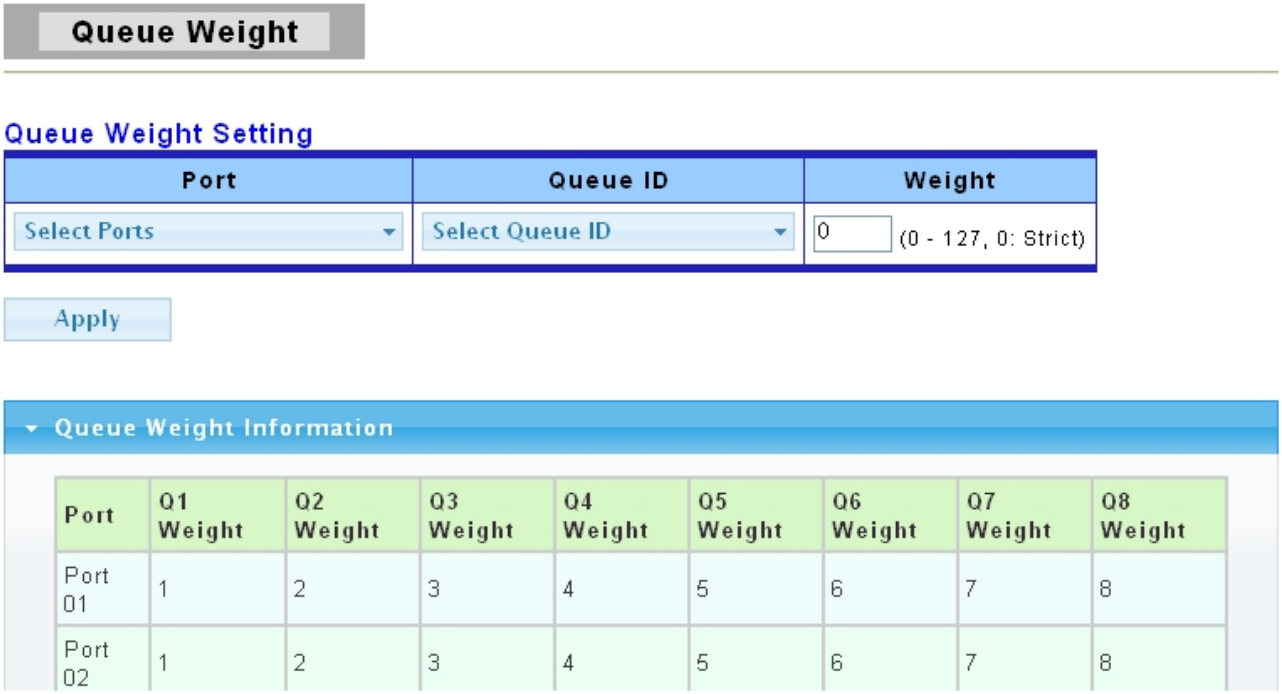



The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Port** | Select the number of the port for which you want to assign IEEE 802.1p priority to incoming frames. |
| **Scheduling Algorithm** | Select the algorithm of packet scheduling:<br>· **WFQ:** Weighted Fair Queuing, octet-based egress scheduling method depend on queue weighted.<br>· **WRR:** Weighted Round Robin, packet-based egress scheduling method depend on queue weighted.<br>Note: Weighted Fair Queuing is used to guarantee each queue's minimum bandwidth based on their bandwidth portion (weight) (the number you configure in the weight field). Queues with larger weights get more guaranteed bandwidth than queues with smaller weights. Weighted Round Robin Scheduling services queues on a rotating basis based on their queue weight (the number you configure in the queue weight field). Queues with larger weights get more service than queues with smaller weights. |
| **Apply** | Click **Apply** to save your changes to the switch. |

## 3.6.6 Queue Weight Setting

Click **QoS** > **Queue Weight Setting** to display the screen as shown next.

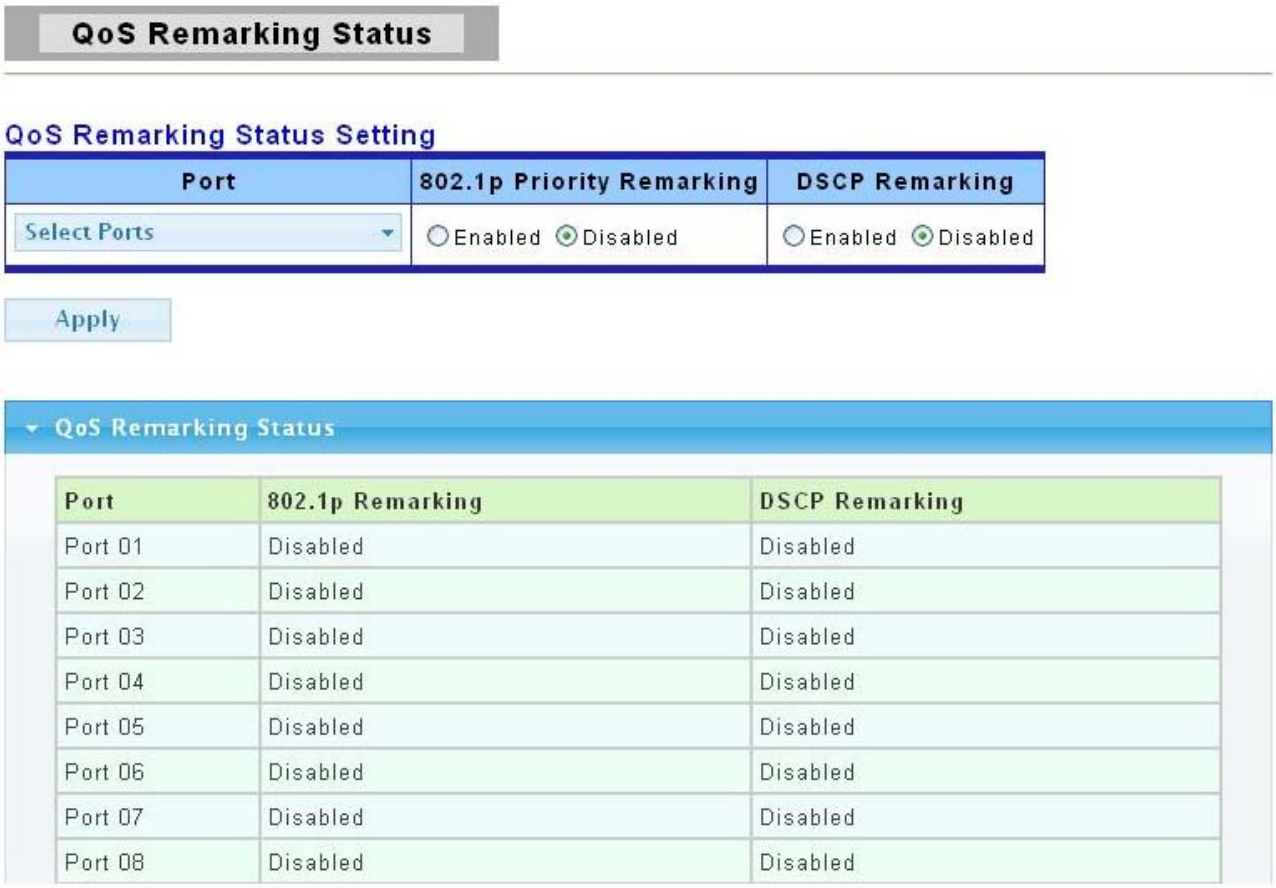



The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Port** | Select the number of the port for which you want to assign IEEE 802.1p priority to incoming frames. |
| **Queue ID** | Select the Queue ID for configuration it's weighted. The Queue ID range is 1 to 8. |
| **Weight** | Configure the queue scheduling weight of specified ports. Range is valid as following:<br>・ **0:** mean the queue is strict mode.<br>・ **1~127:** mean the queue weight of the scheduling. |
| **Apply** | Click **Apply** to save your changes to the switch. |
| **Weight** | This field displays the weight of the queue. |

## 3.6.7 Queue Remarking Status

Click **QoS** > **Queue Remarking Status** to display the screen as shown next.

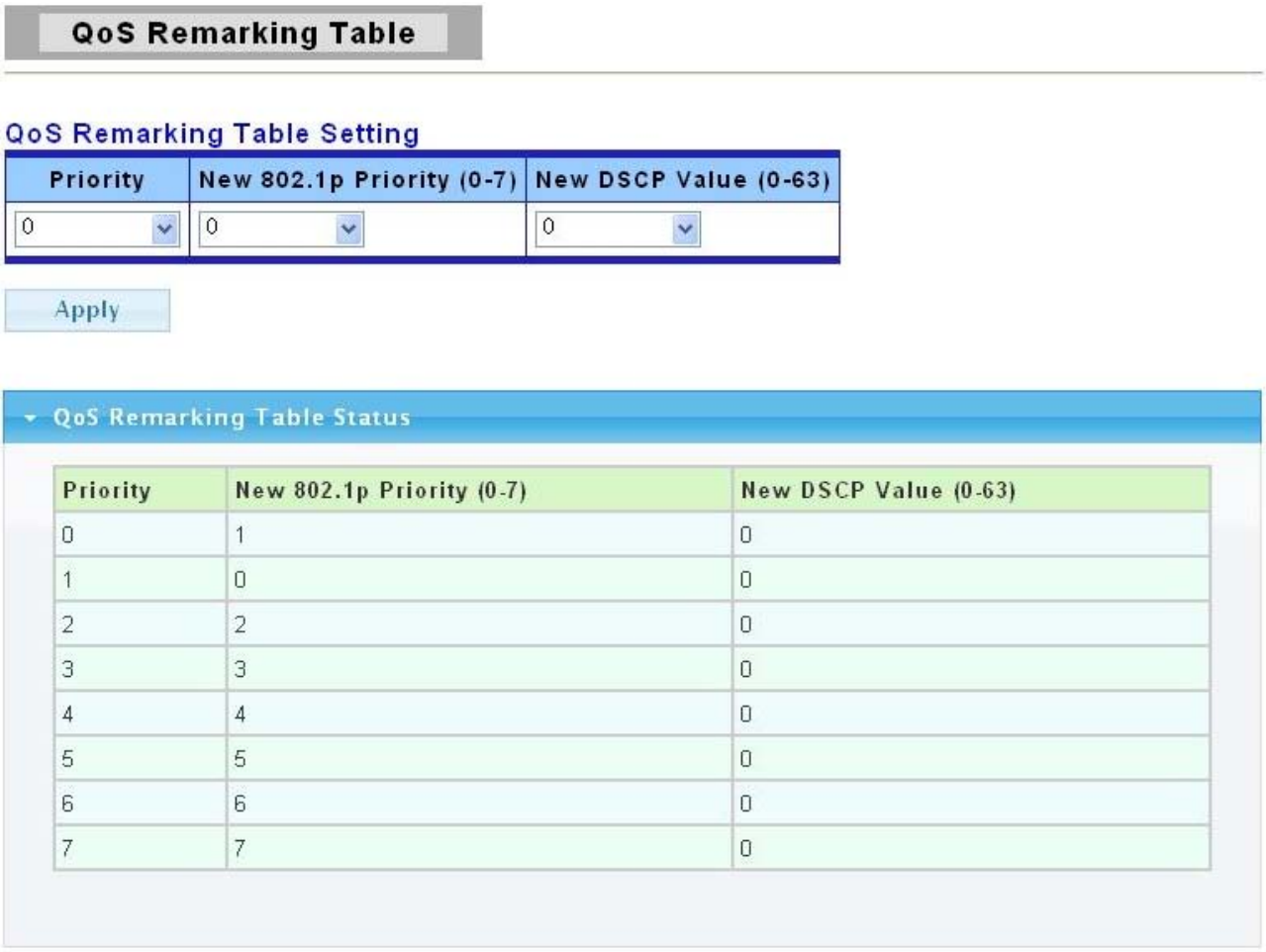



The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Port** | Select the number of the port for which you want to assign IEEE 802.1p priority to incoming frames. |
| **802.1 p Priority Remarking** | Click **Enabled** to enable this function in specified ports.<br>Click **Disabled** to disable this function in specified ports. |
| **DSCP Remarking** | Click **Enabled** to enable this function in specified ports.<br>Click **Disabled** to disable this function in specified ports. |
| **Apply** | Click **Apply** to save your changes to the switch. |

## 3.6.8 Queue Remarking Table

Click **QoS** > **Queue Remarking Table** to display the screen as shown next.




The following table describes the labels in this screen.

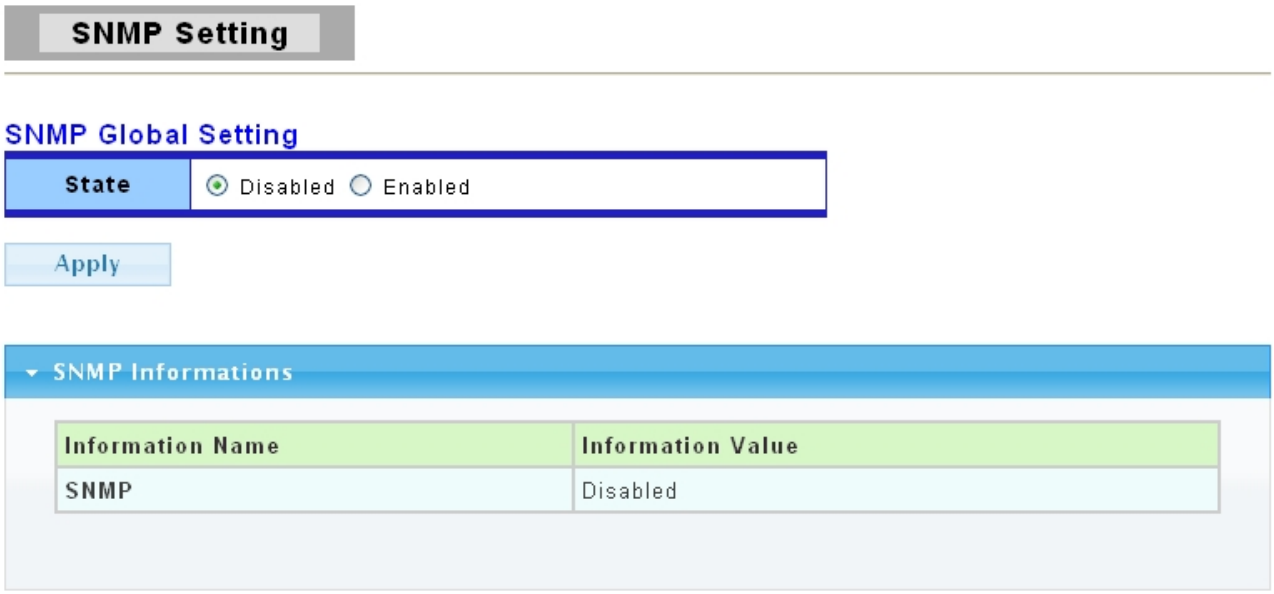
| LABEL | DESCRIPTION |
|---|---|
| **Priority** | Select the priority value to mapping to new 802.1p, new 802.1ad and DSCP value. The priority range is 0 to 7. |
| **New 802.1 p Priority** | Remark to the new 802.1p priority that the priority and drop precedence mapped to. The new 802.1p priority is 0 to 7. |
| **New DSCP Value** | Remark to the new DSCP priority that the priority and drop precedence mapped to. The new DSCP priority is 0 to 63. |
| **Apply** | Click **Apply** to save your changes to the switch. |

# 3.7 Management

## 3.7.1 SNMP

### 3.7.1.1 SNMP Setting

Click **Management** > **SNMP**->**SNMP Setting** to display the screen as shown next.




The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **State** | SNMP daemon state:<br>Select **Enabled** to activate SNMP daemon.<br>Select **Disabled** to not use SNMP daemon. |

### 3.7.1.2 SNMP Community

Click **Management** > **SNMP->SNMP Community** to display the screen as shown next.

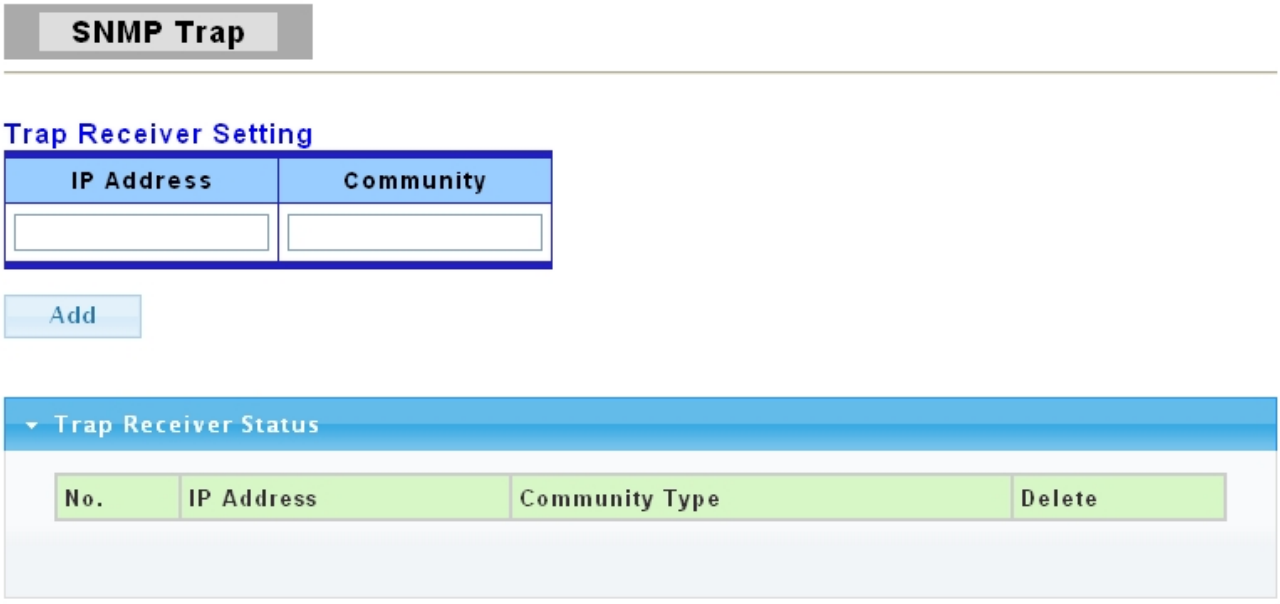
The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Community** | Enter a Community string, this will act as a password for requests from the management station. |
| **Type** | SNMP community type:<br>· **Read-Only:** Read all objects only, it can allow the SNMP manager using this string to collect information from the switch.<br>· **Read-Write:** Read and write all objects, it can allow the SNMP manager using this string to create or edit MIBs (configure settings on the switch). |
| **Add** | Click **Add** to add any other community. |
| **No** | It displays the port number which in the community. |
| **Community** | This field displays the community strings. |
| **Access Type** | This field displays the community string's type. This will either be read-only or read-write. |
| **Delete** | Click **Delete** to remove any selected community strings. |

### 3.7.1.3 SNMP Trap

This page allow user to add or delete SNMP trap receiver IP address and community name.

Click **Management** > **SNMP**->**SNMP Trap** to display the screen as shown next.




The following table describes the labels in this screen.

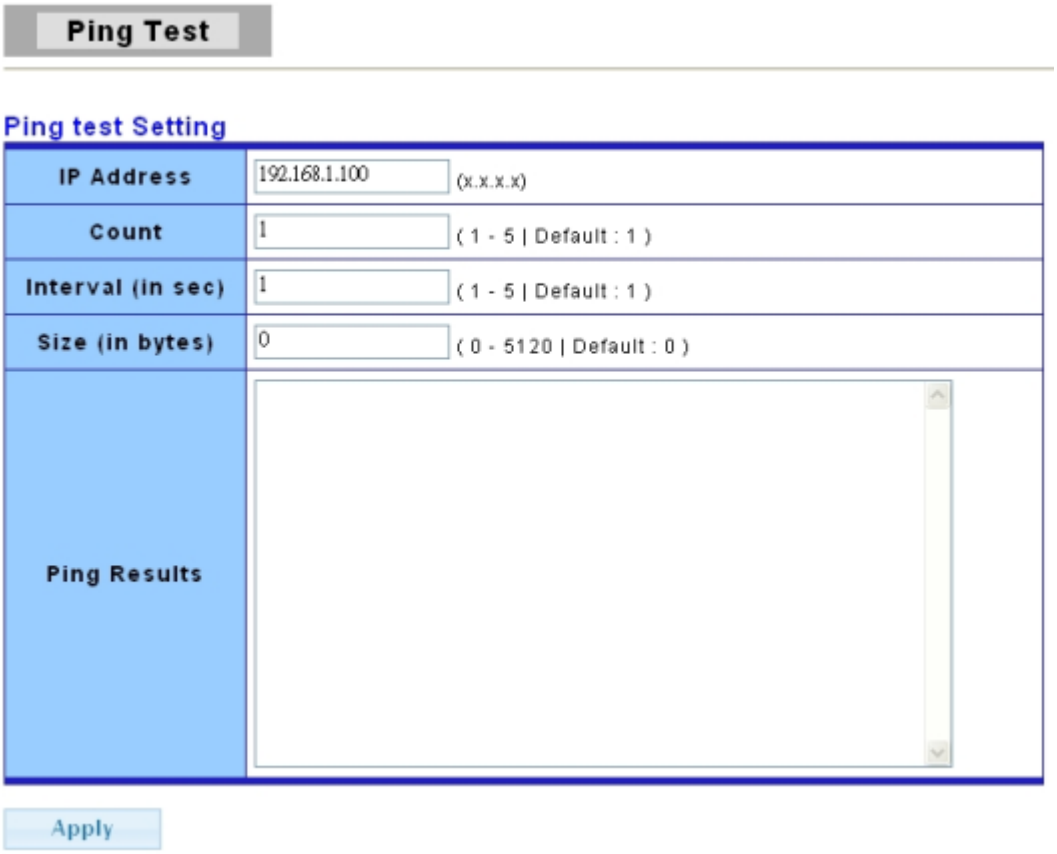
| LABEL | DESCRIPTION |
|---|---|
| **IP Address** | Enter the IP addresses to send your SNMP traps to. |
| **Community** | Enter a Community string, which is the password sent with each trap to |

| | |
|---|---|
| | the SNMP manager. |
| **Add** | Click **Add** to add any trap receiver. |
| **IP Address** | This field displays the IP address where the traps from the switch are sent. |
| **Community Type** | This field displays the password which is sent with each trap to the SNMP manager. |
| **Delete** | Click **Delete** to remove any selected trap receiver entries. |

## 3.8 Diagnostics

Use the Diagnostics pages to configure settings for the switch diagnostics feature or operating diagnostic utilities.

### 3.8.1 Ping Test

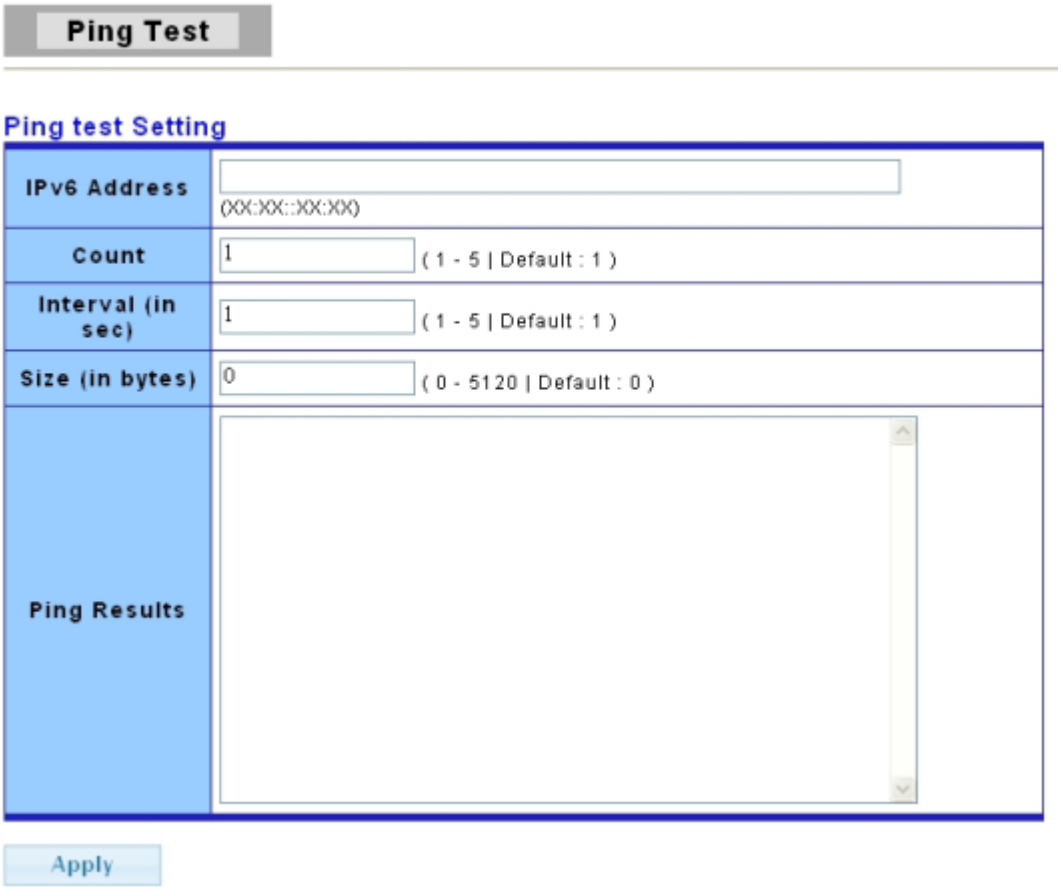



The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **IP Address** | Enter the IP addresses of the test destination. |
| **Count** | It displays how many times to send ping request packet. |

| | |
|---|---|
| | Enter a number between 1 and 5 as the count and the default configuration is 1. |
| **Interval** | It displays time interval between each ping request packet.<br>Enter a number between 1 and 5 as the interval and the default configuration is 1. |
| **Size** | It displays the size of ping packet.<br>Enter a number between 0 and 5120 as the size and the default configuration is 0. |
| **Ping Results** | After ping finished, results will show in this field. |
| **Apply** | Click **Apply** to save your changes to the switch. |

## 3.8.2 Ping6 Test




The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **IPv6 Address** | Enter the IPv6 addresses of the test destination. |
| **Count** | It displays how many times to send ping request packet.<br>Enter a number between 1 and 5 as the count and the default configuration is 1. |
| **Interval** | It displays time interval between each ping request packet.<br>Enter a number between 1 and 5 as the interval and the default configuration is 1. |

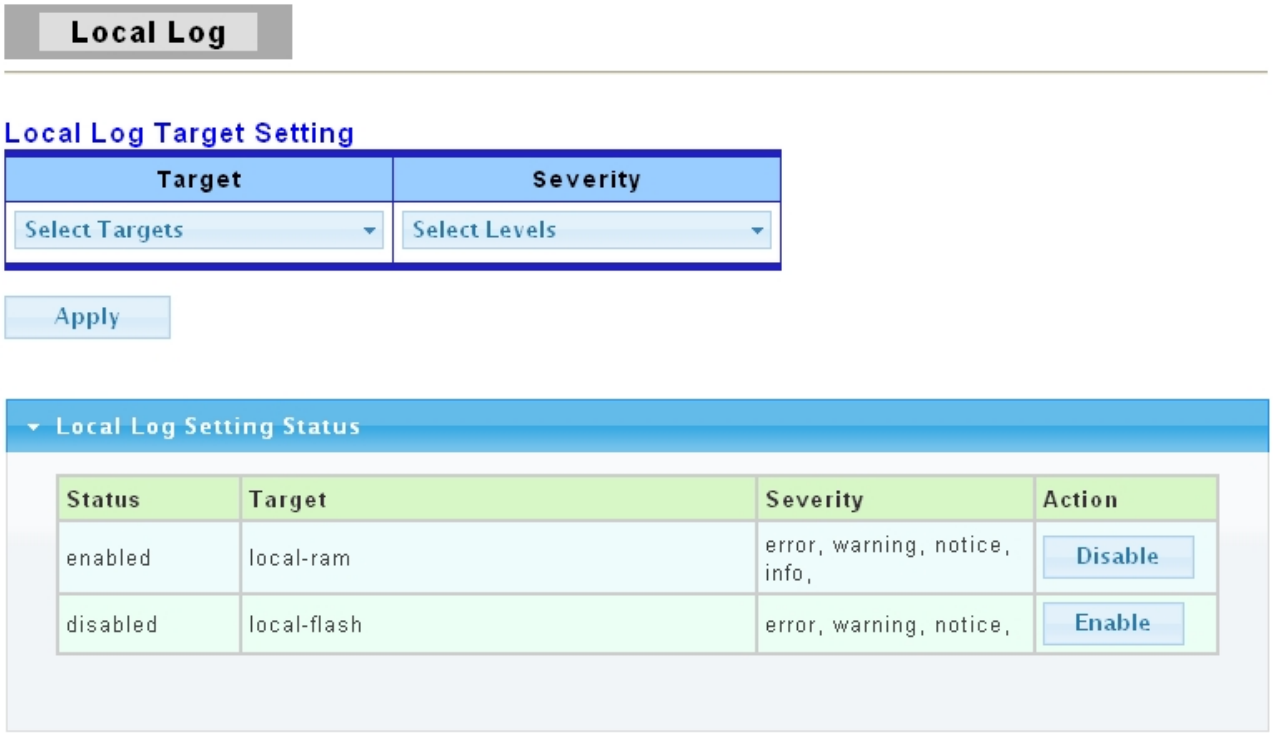
| | |
|---|---|
| **Size** | It displays the size of ping packet.<br>Enter a number between 0 and 5120 as the size and the default configuration is 0. |
| **Ping Results** | After ping finished, results will show in this field. |
| **Apply** | Click **Apply** to save your changes to the switch. |

## 3.8.3 Log Setting

### 3.8.3.1 Local Log

Use this screen to display the switch logs.

Click **Diagnostics** > **Log Setting** > **Local Log** to view the screen as shown next.



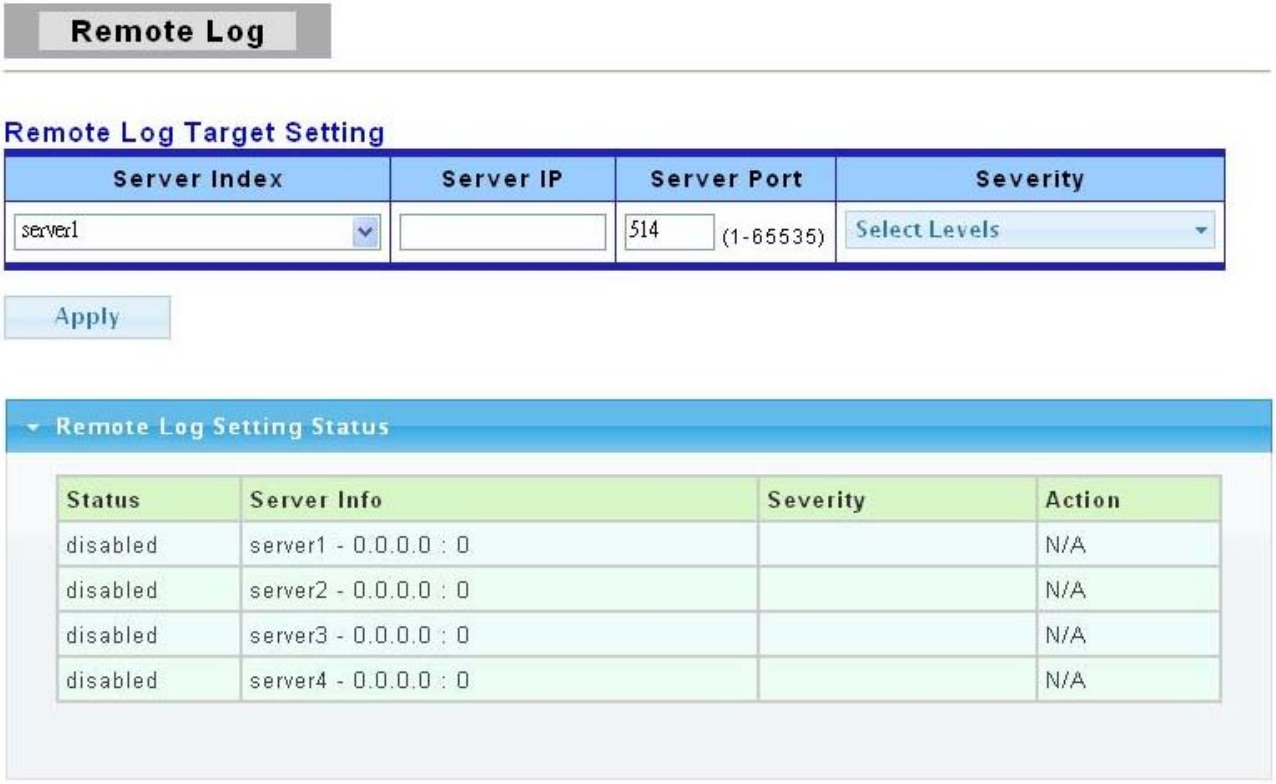

The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Target** | Select the target to store log message:<br>· **RAM:** store the log messages in the RAM disk. All log messages will disappear after system reboot.<br>· **Flash:** store the log messages in the Flash memory. All log messages will not disappear after system reboot. |
| **Severity** | Select the severity level(s) of the log entries you want to display. The possible severity levels are:<br>· **Error** - to record system failures, such as events which will cause the switch to malfunction and events such as invalid user input in the web configurator.<br>· **Warning** - to record non critical errors on the Switch. The Switch will continue to function when warnings are recorded.<br>· **Info -** to record regular system events, such as configuration changes or |

| | |
|---|---|
| | logins.<br>· **Debug -** to record events which can be helpful for engineering debugging of the switch's function. This field is not recommended to track as it creates many messages not helpful to typical users.<br>· **Notice-** to record the error which need to be noticed. |
| **Apply** | Click **Apply** to save your changes to the switch. |
| **Status** | It displays the status of local log settings. |
| **Target** | It displays the target you've choosed. |
| **Severity** | It displays the severity status. |
| **Action** | Click **enable** to enable this function.<br>Click **disable** to disable this function. |

### 3.8.3.2 Remote Log

Click **Diagnostics** > **Log Setting** > **Remote Log** to view the screen as shown next.




The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Server Index** | Select the index of remote log server. System supports 4 remote log servers. When a server is set and enabled, log messages will send to this server. |
| **Server IP** | The IP address of remote log server. |
| **Server Port** | Enter a number between 1 and 65535 as the server port. |
| **Severity** | Select the severity level(s) of the log entries you want to display. The possible severity levels are: |

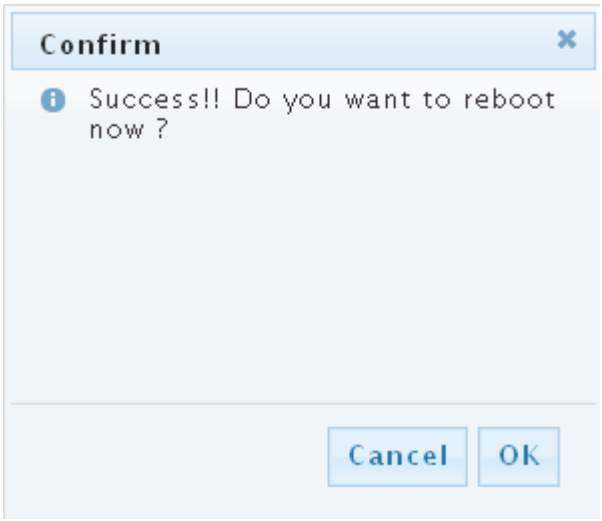
| | |
|---|---|
| | · **Error** - to record system failures, such as events which will cause the switch to malfunction and events such as invalid user input in the web configurator.<br>· **Warning** - to record non critical errors on the Switch. The Switch will continue to function when warnings are recorded.<br>· **Info** - to record regular system events, such as configuration changes or logins.<br>· **Debug** - to record events which can be helpful for engineering debugging of the switch's function. This field is not recommended to track as it creates many messages not helpful to typical users.<br>· **Notice**- to record the error which need to be noticed. |
| **Apply** | Click **Apply** to save your changes to the switch. |
| **Status** | It displays the status of local log settings. |
| **Server Information** | It displays the server information. |
| **Severity** | It displays the severity status. |
| **Action** | It displays the action status. |

## 3.8.4 Factory Default

Follow the steps below to restore the switch back to the factory defaults.

1. Click **Diagnostics**->**Factory Default** to view the screen as shown next.


2. Click the **Restore** button, then the **confirm** interface pops up.




3. Click **OK** to restore all switch configurations to the factory defaults and the switch will reboot.

## 3.8.5 Reboot Switch

**Reboot** allows you to restart the switch without physically turning the power off.

Follow the steps below to reboot the switch.

1. Click **Diagnostics**->**Reboot Switch** to view the screen as shown next.


2. Click **Reboot** button, then the following interface pops up.

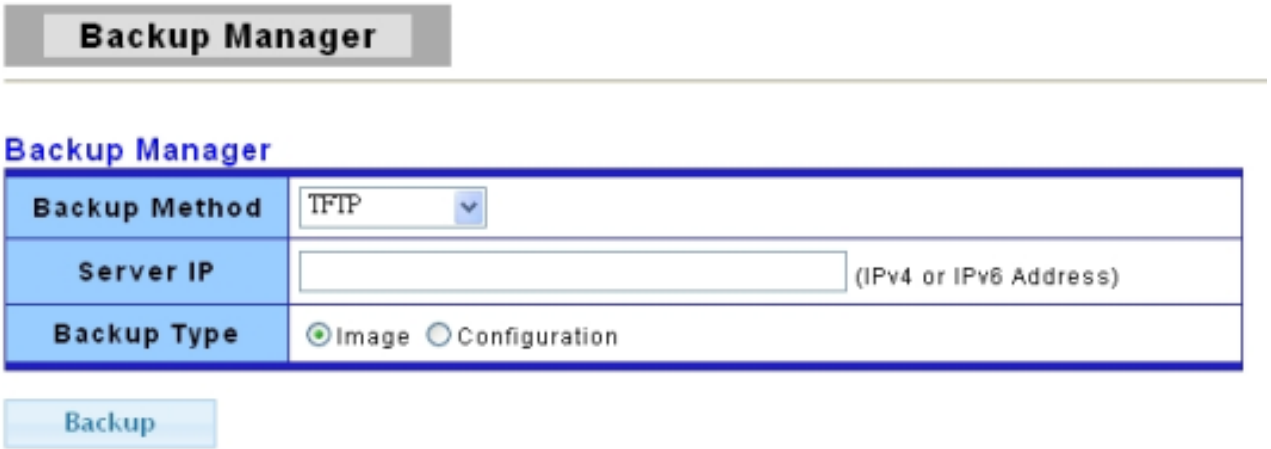

3. When it finished, the switch has been restarted.

## 3.9 Maintenance

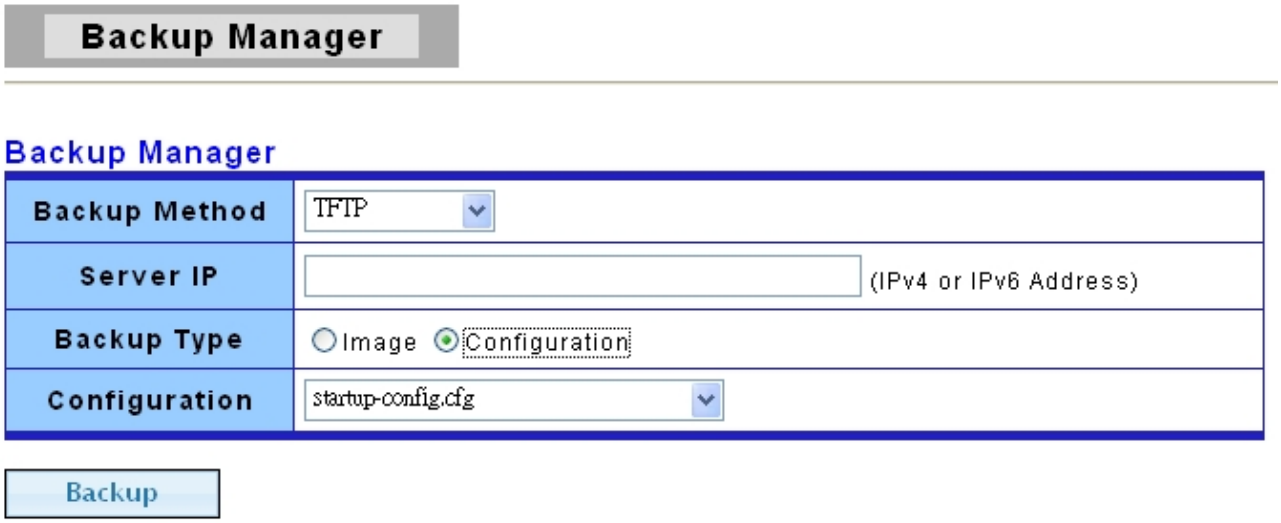
### 3.9.1 Backup Manager

This page allow user to backup the firmware image or configuration file on the switch to remote TFTP server or host file system through HTTP protocol.

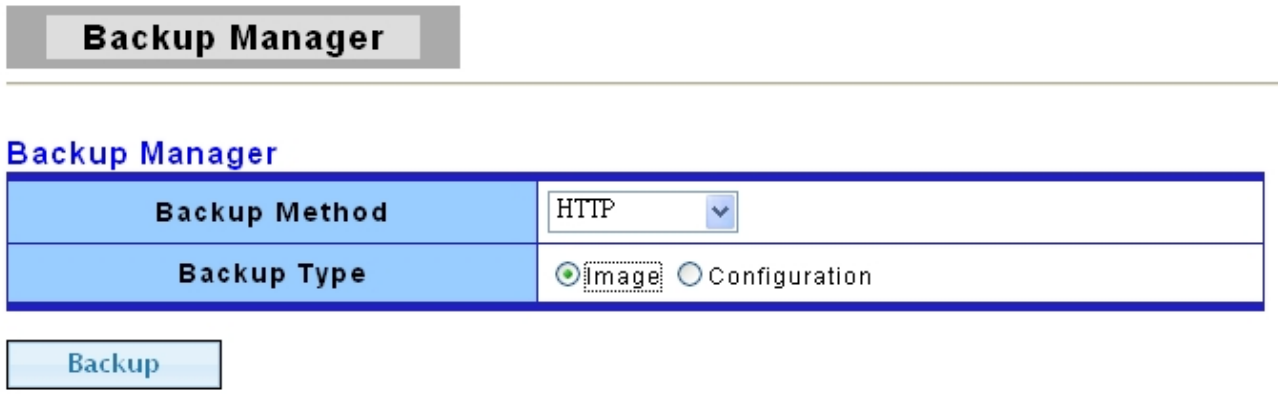
Click **Maintenance**->**Backup Manager** to view the screen as shown next.



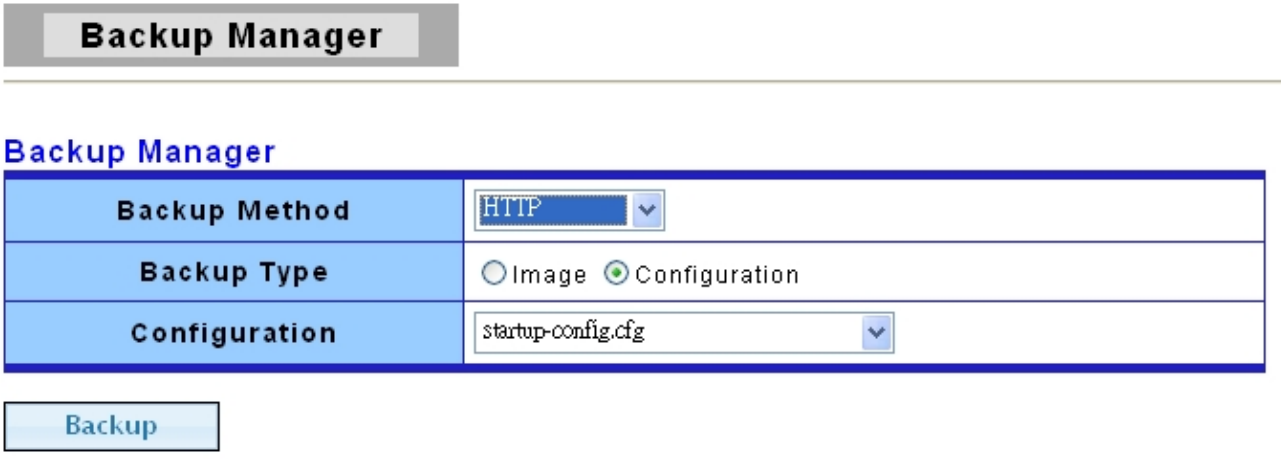

**Backup Image with TFTP Page**




**Backup Config with TFTP Page**




**Backup Image with HTTP Page**




**Backup Config with HTTP Page**

The following table describes the labels in this screen.

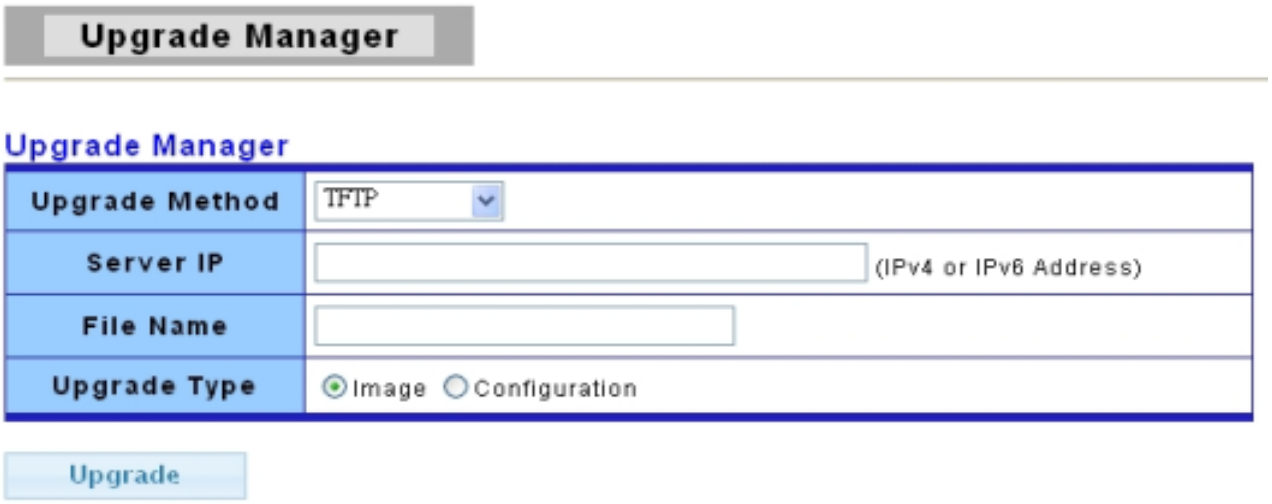
| LABEL | DESCRIPTION |
|---|---|
| **Backup** | Select backup method: |

| | |
|---|---|
| **Method** | · **TFTP:** Use TFTP to backup.<br>· **HTTP:** Use HTTP to backup**.** |
| **Server IP** | IP address of the TFTP server. If the TFTP backup method is selected, the IP address of the TFTP server must be assigned. |
| **Backup Type** | Select backup type:<br>· **Image:** Firmware image of current system.<br>· **Configuration:** Configuration file. |
| **Configuration** | If the Configuration backup type is selected, one of the configuration file in current system can select to backup. |
| **Backup** | Click **Backup** to save the current switch configuration to the local address specified. |

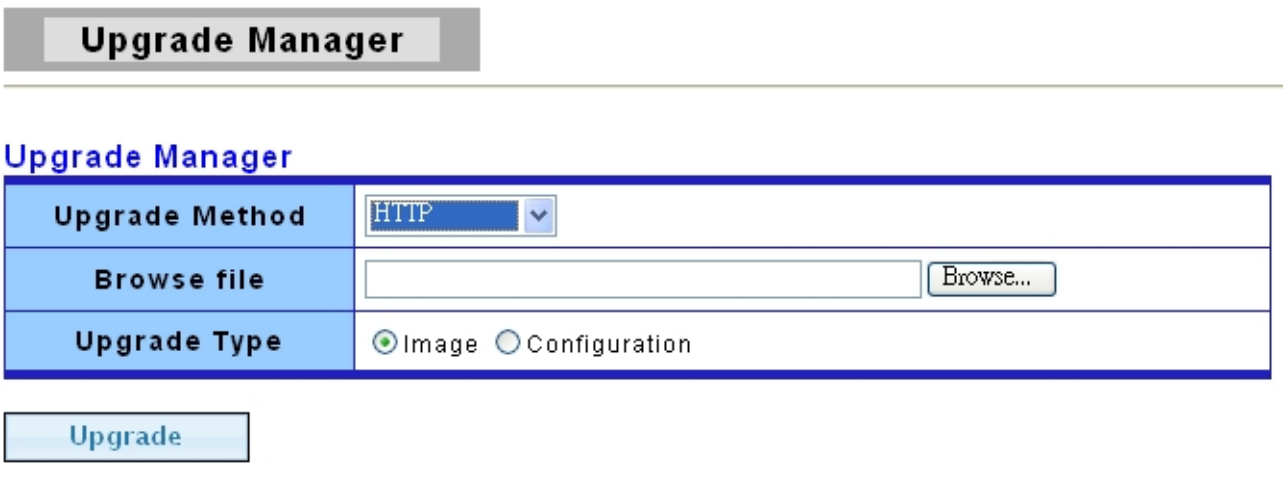
## 3.9.2 Upgrade Manager

This page allow user to upgrade new firmware image or configuration file to the switch from remote TFTP server or select file from web browser.

Click **Maintenance**->**Upgrade Manager** to view the screen as shown next.




**Upgrade with TFTP Page**




**Upgrade with HTTP Page**

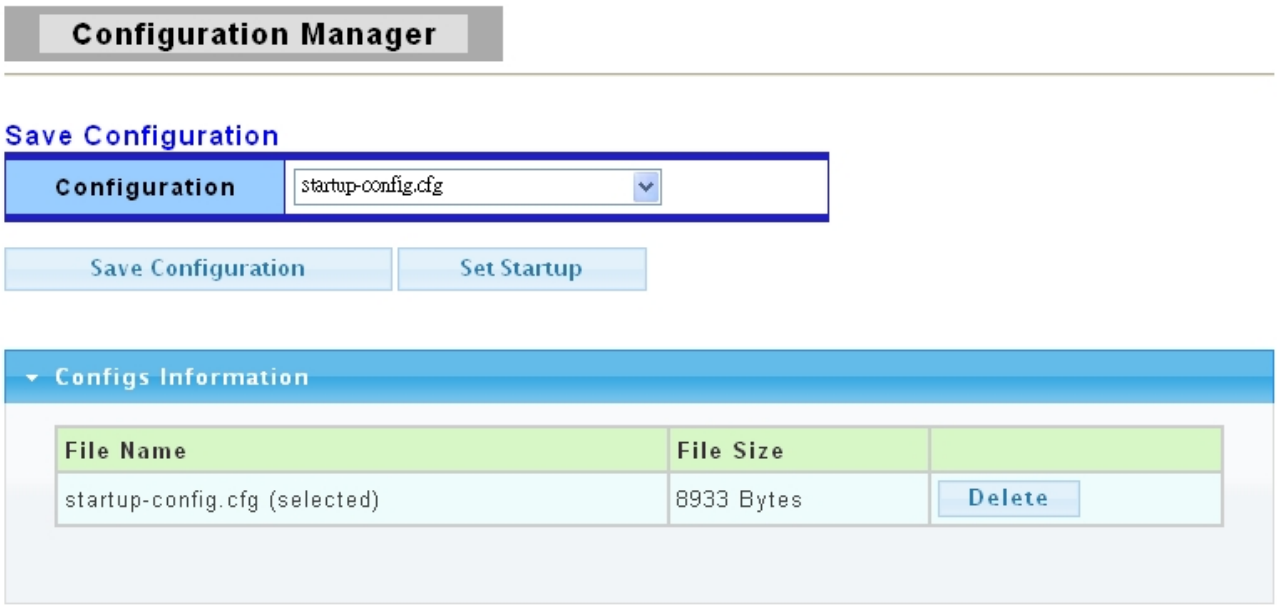
The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Upgrade Method** | Select upgrade method:<br>· **TFTP:** Use TFTP to upgrade.<br>· **HTTP:** Use HTTP to upgrade**.** |
| **Server IP** | IP address of the TFTP server. If the TFTP upgrade method is selected, the IP address of the TFTP server must be assigned. |
| **File Name** | Firmware image or configuration file name on remote TFTP server. If the TFTP upgrade method is selected, the file name must be specified. |
| **Browse File** | If the HTTP upgrade method is selected, the browse file field allow you to select any file on host operating system. |
| **Upgrade Type** | Select upgrade type:<br>· **Image:** Firmware image of current system.<br>· **Configuration:** Configuration file. |
| **Upgrade** | Click **Upgrade** to update the file specified above and install the new firmware. |

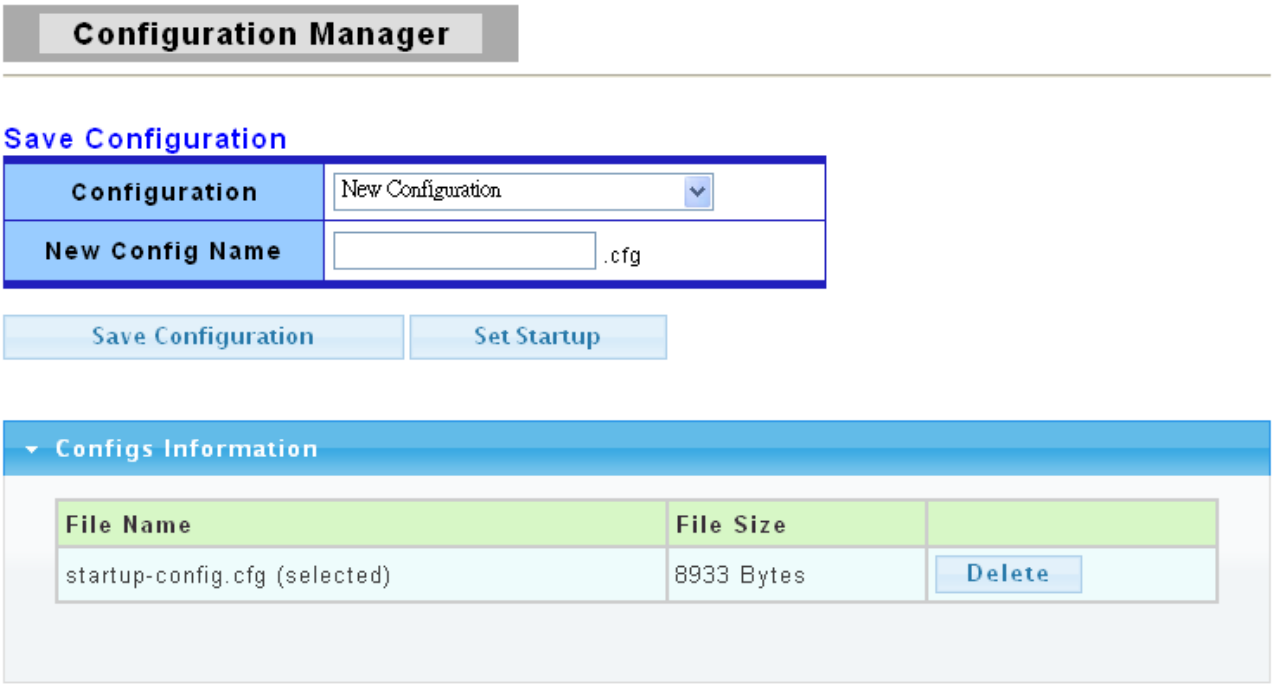
## 3.9.3 Configuration Manager

This page allow user to save running configurations to any file which user specified by pushing the “Save Configuration” button. And use “Set Startup” button to select any existing configuration file as startup configuration. The “Delete” button allow user to delete the selected configuration file.

Click **Maintenance**-> **Configuration Manager** to view the screen as shown next.




**Configuration Manager Page**



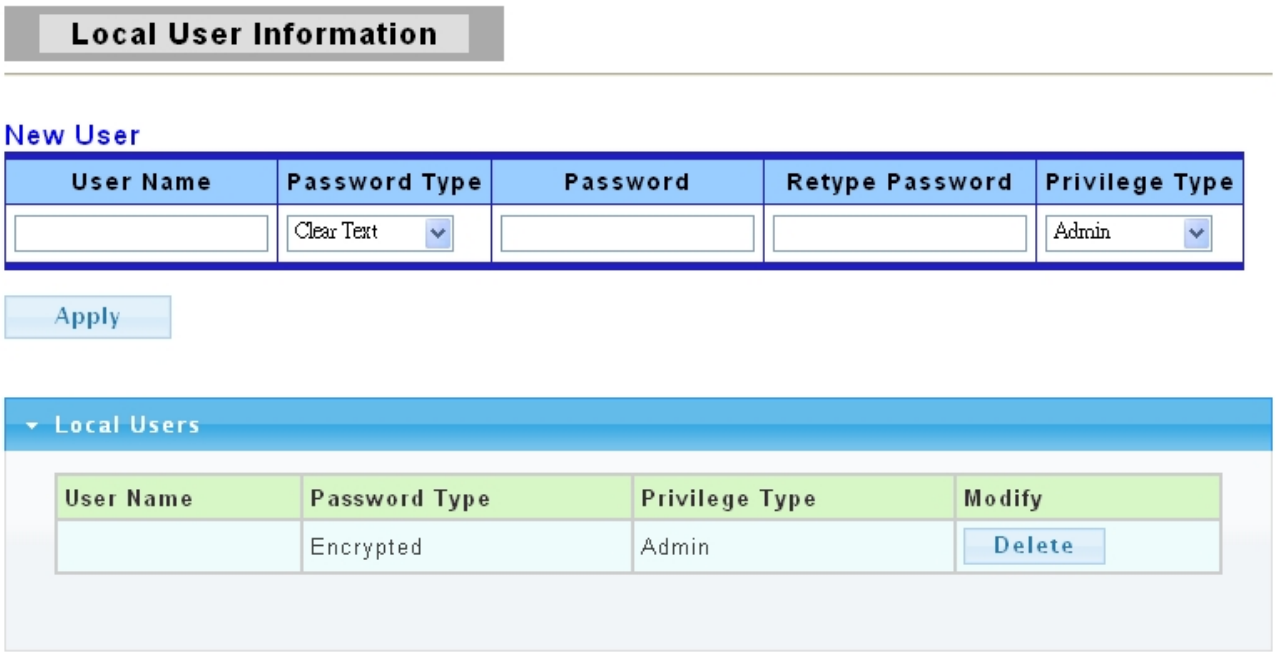

**Configuration Manager with new file name Page**

| LABEL | DESCRIPTION |
|---|---|
| **Configuration** | You have two choice: **startup-config.cfg** and **New Configuration** |
| **New Config Name** | Configuration file name. Our system will save it with sub file name .cfg automatically. |
| **Save Configuration** | Click **Save Configuration** to save running configurations to any file which user specified |
| **Set Startup** | Click **Set startup** to select any existing configuration file as startup configuration. |
| **File Name** | It displays the name of the file. |
| **File Size** | It displays the size of the file. |
| **Delete** | Click **Delete** to delete the selected configuration file. |

## 3.9.4 Account Manager

This page allow user to add or delete switch local user database for authenticating.

Click **Maintenance** > **Account Manager** in the navigation panel to display the screen as shown below.




The following table describes the labels in this screen.

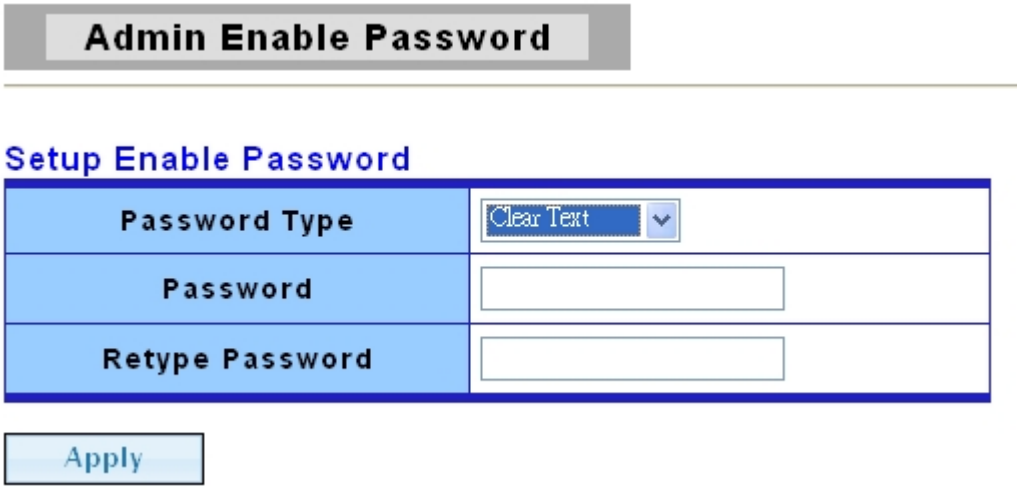
| LABEL | DESCRIPTION |
|---|---|
| **User name** | Enter your user name for new account. |
| **Password Type** | Select password type for new account:<br>· **Clear Text:** Password without encryption.<br>· **Encrypted:** Password with encryption.<br>· **No Password:** No password for new account. |
| **Password** | If the password type is not “No Password”, the password must be specified. |
| **Retype Password** | Retype password to make sure the password is exactly you typed before in “Password” field. |
| **Privilege Type** | Select privilege level for new account:<br>· **Admin:** Allow to change switch settings.<br>· **User:** See switch settings only. Not allow to change it. |
| **Apply** | Click **Apply** to save your changes to the switch. |
| **Modify** | Click **Delete** to modify any configuration. |

## 3.9.5 Enable Password

This page allow user to modify the enable password. In command line interface, user can use “enable” command to change their privilege level to “Admin”. After “enable” command is issued, user need to type the enable password to change their privilege level.

Click **Maintenance** > **Enable Password** in the navigation panel to display the screen as shown below.

**Note**: It is highly recommended that you change the default password.




The following table describes the labels in this screen.

| LABEL | DESCRIPTION |
|---|---|
| **Password Type** | Select password type for enable password:<br>· **Clear Text:** Password without encryption.<br>· **Encrypted:** Password with encryption. |
| **Password** | Enter your new system password. |
| **Retype Password** | Retype password to make sure the password is exactly you typed before in “Password” field. |
| **Apply** | Click **Apply** to save your changes to the switch. |

# Product Specifications

| | |
|---|---|
| **Standard** | IEEE 802.3/802.3u/802.3ab<br>IEEE 802.3x flow control<br>IEEE 802.3az Energy Efficient Ethernet<br>IEEE 802.1D spanning tree protocol<br>IEEE 802.1p class of service, priority protocols<br>IEEE 802.1Q VLAN tagging<br>IEEE 802.1x port authentication<br>IEEE 802.3ad VLAN stacking<br>IEEE 802.3ad LACP aggregation |
| **Interface** | 16* 10/100/1000Mbps ports<br>4* SFP ports |
| **Transmission Mode** | 10/100Mbps: Full-duplex, Half-duplex<br>1000Mbps: Full-duplex |
| **MAC Address Table** | 16K |
| **Jumbo Frame** | 9K Bytes |
| **Buffer Memory** | 448K Bytes |
| **Temperature** | Operating: 0°C ~ 40°C (32°F ~104°F)<br>Storage: -40°C ~ 70°C (-40°F ~158°F) |
| **Humidity** | Operating: 10% ~ 90% RH, non-condensing<br>Storage: 5%~90% RH, non-condensing |
| **LED Indications** | 1*Power LED(Green)<br>16*Gigabit port LEDs(Link/Act: Green)<br>4*SFP port LEDs(Link/Act: Green) |
| **Power Supply** | Internal power supply 5V/6A |
| **Dimensions** | 441*130*44 mm |
| **Case Material** | Metal |
| **Certification** | FCC, CE, VCCI Class A |