User's Guide

TRENDnet®

48-Port Gigabit Web Smart PoE+ Switch

TPE-4840WS

Contents

Product Overview

TPE-4840WS

Features

TRENDnet's 48-Port Gigabit Web Smart PoE+ Switch, model TPE-4840WS, offers 24 x Gigabit PoE+ ports (Ports 1-24 802.3at), 24 x Gigabit ports (Ports 25-48), 4 x shared SFP slots (shared with ports 45-48), and a PoE Power budget of 370 Watts. This IPv6 ready switch offers advanced traffic management, troubleshooting, access control, energy saving GREENnet, and monitoring features at a reduced cost.

Hardware Design

Provides 24 x Gigabit PoE+ ports (Ports 1-24 802.3at), 24 x Gigabit ports (Ports 25-48), 4 x shared SFP slots (shared with ports 45-48), a PoE Power budget of 370 Watts, and includes rackmount brackets.

Smart Fan

Smart fan saves energy by varying fan speed and use based on cooling needs.

IPv6 Ready

This switch supports IPv6 configuration and IPv6 neighbor discovery.

Traffic Management

A broad range of network configurations are supported by: 802.3ad link aggregation, Asymmetric VLAN, 802.1Q VLAN, Voice VLAN, Private VLAN, Bandwidth Controls, GVRP, IGMP v1-v3, 802.1p Class of Service (CoS), Spanning Tree (STP, RSTP, and MSTP), and QoS queue scheduling.

Troubleshooting

Real time traffic comparison charts, error group charts, and a convenient cable diagnostic test aid in rapid troubleshooting.

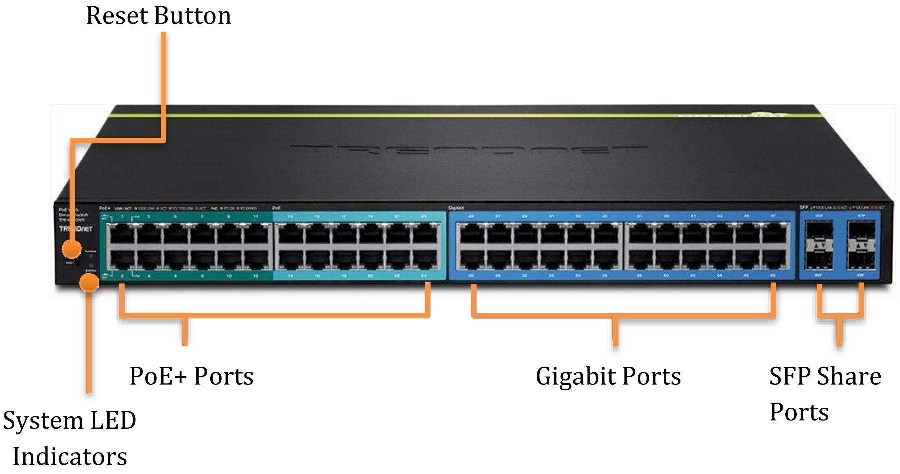
Access Controls

Features such as ACL, SSL, MAC/port filtering, Denial of Service controls, 802.1X, TACACS+, and RADIUS are compatible with layered network access controls.

Monitoring

RMON, SNMP, SNMP Trap, and Port Mirroring support administrator monitoring solutions.

Front View



Interfaces

Reset Button	Press and hold this button for 10 seconds and release to reset the switch to factory defaults.
PoE+ Gigabit Ethernet Ports (1-24)	Connect 802.3at (PoE+, 30W Max.), 802.3af (PoE, 15.4W Max.) or regular non PoE network devices.
Gigabit Ethernet Ports (25-48)	Connect 802.3af (PoE, 15.4W Max.) or regular non PoE network devices.
SFP slots (45F-48F)	Connect network devices and can be used for uplink or downlink connections. Ports 45 to 48 are shared with SFP slots 45F, 46F, 47F and 48F and will be disabled when SFP slots (45F, 46F, 47F and 48F) are in used. Supports optional 100 or 1000BASE-SX/LX mini-GBIC modules.

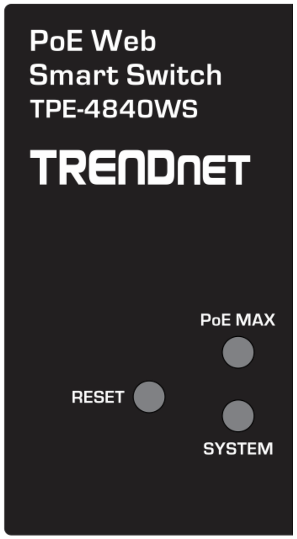
LED Indicators

System LED

Green	The TPE-4840WS is powered on and working properly.
Red	The TPE-4840WS had system failure.
Off	The TPE-4840WS is not powered.

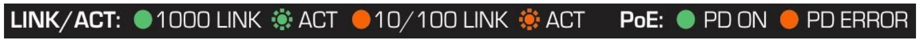
PoE Max LED

Red	When the total PoE output power achieve max power budget (370W).
Off	TPE-4840WS has spared power for new PoE PD (power devices).



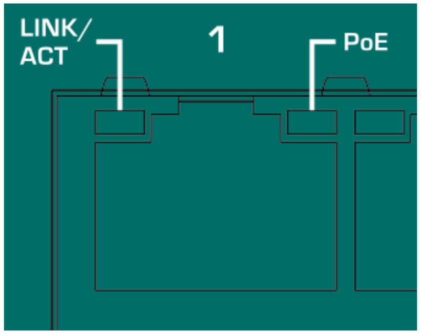
Link/ACT LED (per port)

Green On	The respective port is successfully connected to an Ethernet network on 1000Mbps
Green Blinking	The port is transmitting or receiving data on the Ethernet network on 1000Mbps
Amber On	The respective port is successfully connected to an Ethernet network on 10/100Mbps
Amber Blinking	The port is transmitting or receiving data on the Ethernet network on 10/100Mbps
Off	No link.



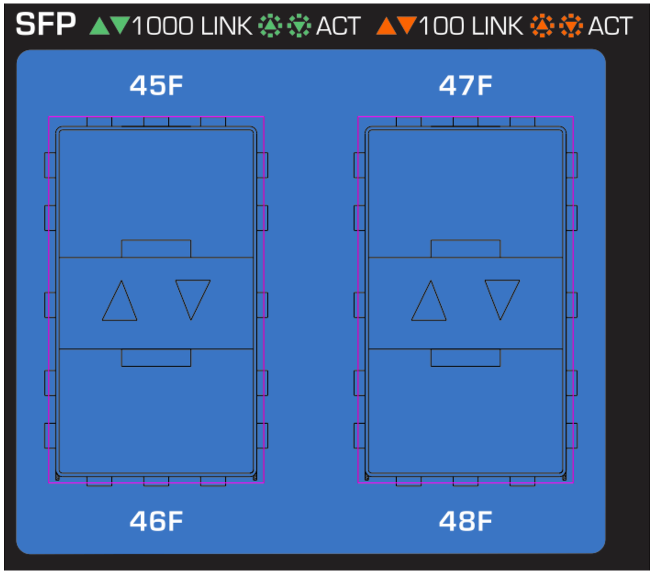
PoE LED (per PoE and PoE+ port)

Green	Power Device (PD) is detected and PoE working normally.
Amber	The power supply is overload or short circuit.
Off	No link.



Shared SFP Slots (45F, 46F, 47F and 48F)

Solid Green	The port is inserted mini-GBIC Gigabit module and gigabit link is established.
Blink in	Traffic is passing through this SPF port with gigabit link.
Green Solid	The port is inserted mini-GBIC 100Mbps module and 100M
Amber Blink	link is established. Traffic is passing through this SPF port with 100Mbps link.
in Amber Off	No link



Rear View

AC Power Connector – Connect the AC power cord to the connector and the other side into a power outlet. (Input: 100~240VAC, 50/60Hz)

Package Contents

TPE-4840WS package includes:

- TPE-4840WS
- Multi-Language Quick Installation Guide
- CD-ROM (Utility and User's Guide)
- Power cord (1.8 m / 6 ft.)
- Rack mount hardware

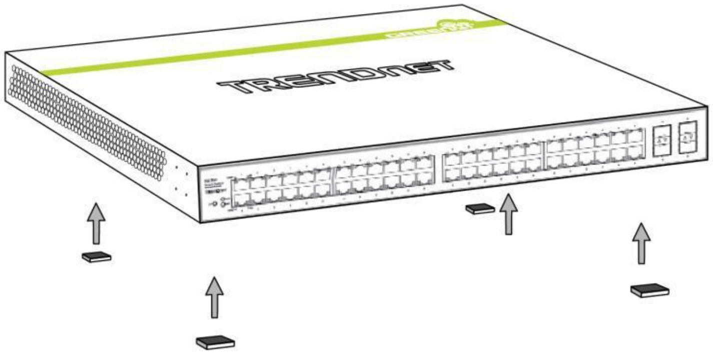
If any package content is missing or damaged, please contact the retail store, online retailer, or reseller/distributor from which the product was purchased.

Switch Installation

Desktop Hardware Installation

The site where you install the switch stack may greatly affect its performance. When installing, consider the following pointers:
Note: The model showing in illustrations may be different to the one you have.

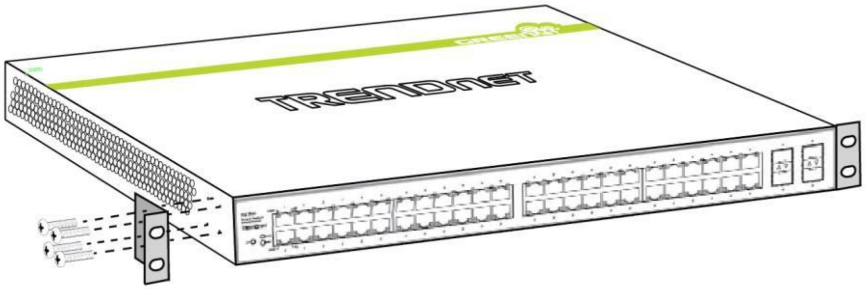
- Install the Switch in a fairly cool and dry place.
- Install the Switch in a site free from strong electromagnetic field generators (such as motors), vibration, dust, and direct exposure to sunlight.
- Leave at least 10cm of space at the front and rear of the hub for ventilation.
- Install the Switch on a sturdy, level surface that can support its weight, or in an EIA standard-size equipment rack. For information on rack installation, see the next section, Rack Mounting.
- When installing the Switch on a level surface, attach the rubber feet to the bottom of each device. The rubber feet cushion the hub and protect the hub case from scratching.



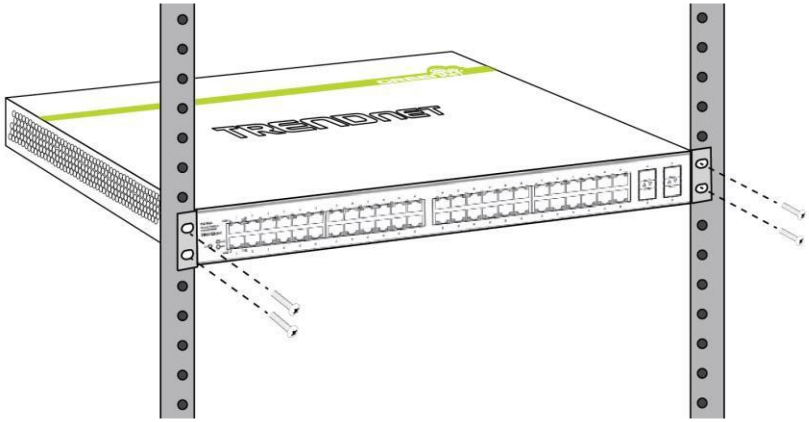
Rack Mount Hardware Installation

The switch can be mounted in an EIA standard-size, 19-inch rack, which can be placed in a wiring closet with other equipment. Attach the mounting brackets at the switch's front panel (one on each side), and secure them with the provided screws.

Note: The switch model may be different than the one shown in the example illustrations.

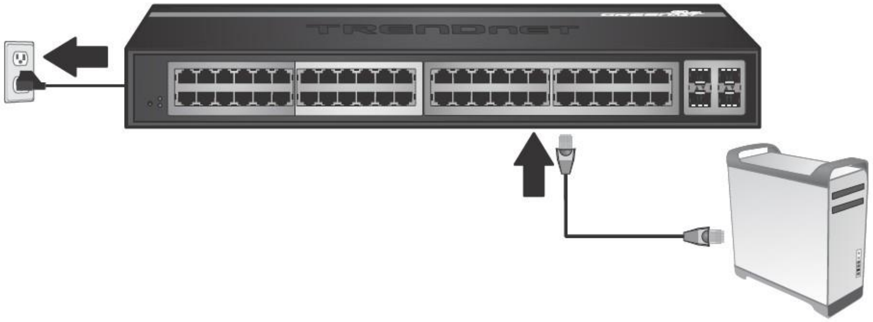


Then, use screws provided with the equipment rack to mount each switch in the rack.

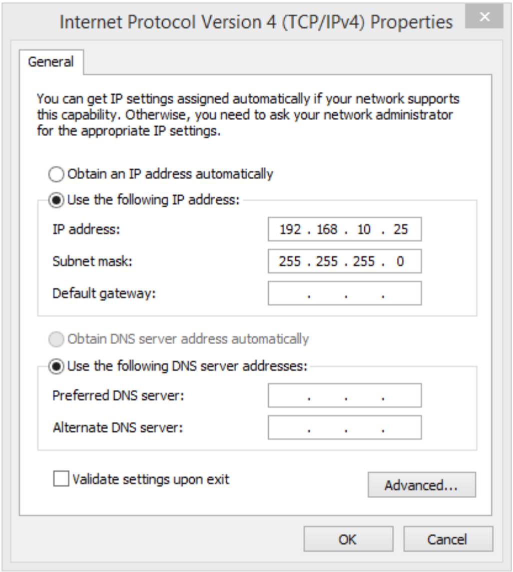


Basic Installation

1. Power on your TPE-4840WS and connect your computer to the switch.



2. Assign a static IP address to your computer's network adapter in the subnet of 192.168.10.x (e.g. 192.168.10.25) and a subnet mask of 255.255.255.0.



Internet Protocol Version 4 (TCP/IPv4) Properties

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

○ Obtain an IP address automatically

● Use the following IP address:

IP address: 192 . 168 . 10 . 25

Subnet mask: 255 . 255 . 255 . 0

Default gateway: . . .

○ Obtain DNS server address automatically

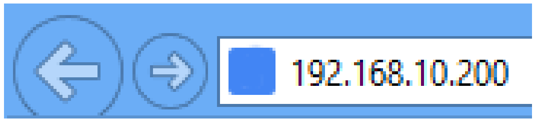
● Use the following DNS server addresses:

Preferred DNS server: . . .

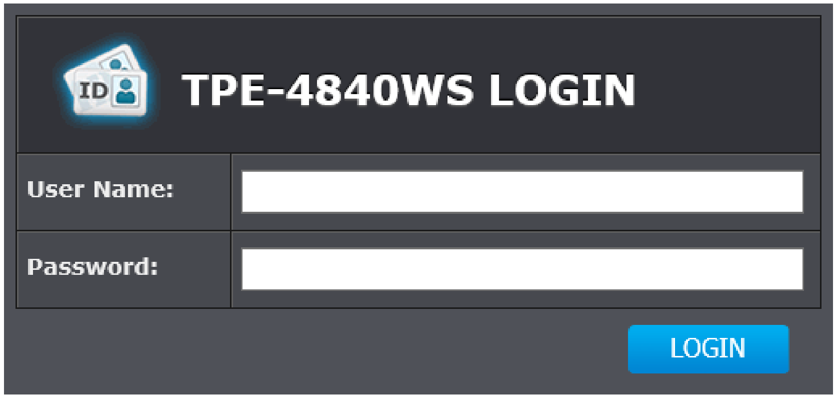
Alternate DNS server: . . .

□ Validate settings upon exit

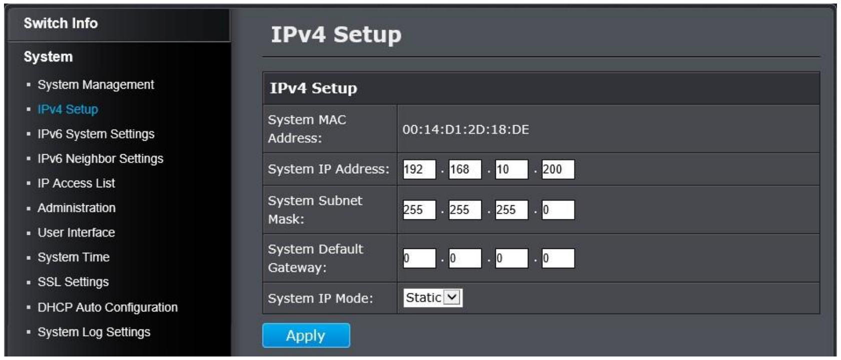
3. Open your web browser, and enter the IP address of the switch, and then press **Enter**. The default IP address is 192.168.10.200.



4. Enter the User Name and Password, and then click **Login.** The default username is **admin** and the password is **admin** as well. The username and password are case sensitive, please enter them in all lower cases.



5. Click **System** and then click **IPv4 Setup**.



IPv4 Setup

IPv4 Setup	
System MAC Address:	00:14:D1:2D:18:DE
System IP Address:	192 . 168 . 10 . 200
System Subnet Mask:	255 . 255 . 255 . 0
System Default Gateway:	0 . 0 . 0 . 0
System IP Mode:	Static

6. Configure the switch IP address settings to be within your network subnet, then click **Apply**.

Note: You may need to modify the static IP address settings of your computer's network adapter to IP address settings within your subnet in order to regain access to the switch.

To store the change to flash memory so you can access the same switch management IP address, please follow the instruction below.

7. Click **Save Settings to Flash** on the bottom of the menu.

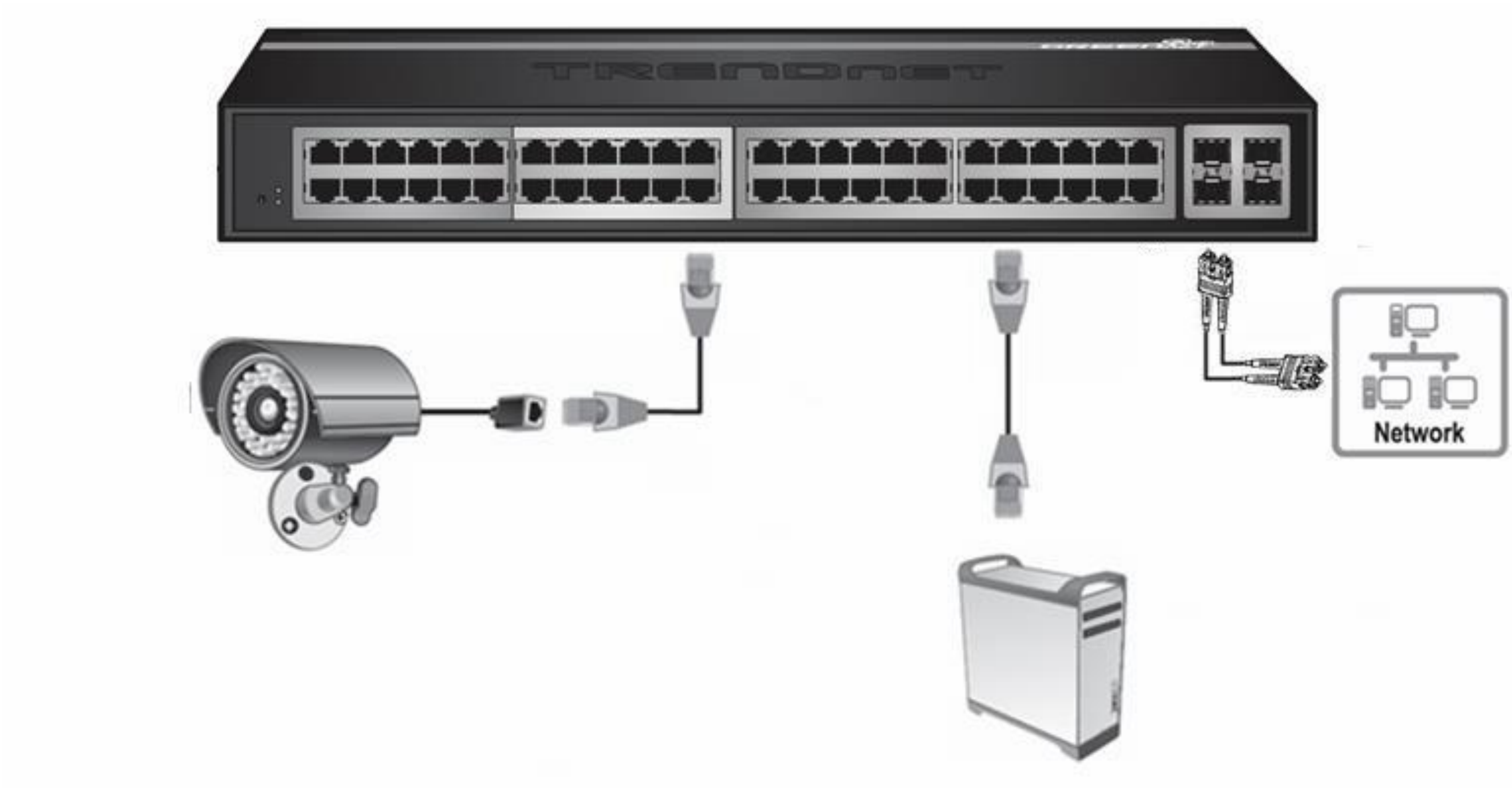
8. Click Save Settings to Flash button, then click **OK.**

Note: Once the settings are saved, you can connect the switch to your network.

Connect additional devices to your switch

You can connect additional computers or other network devices to your switch using Ethernet cables. Connect 802.3at PoE+ devices to port 1 to 24. Connect other devices to Gigabit Ethernet Ports 25 to 48. You can also connect 802.3af devices to PoE+ ports and gigabit devices to any PoE or PoE+ ports for flexible configuration. Check the status of the LED indicators on the front panel of your switch to ensure the physical cable connection from your computer or device and make sure the power budget of a single PoE (15.4W)/PoE+ (30W) port and the whole switch (370W) are not over budget.

Note: If you encounter issues connecting to your network, there may be a problem with your computer or device network settings. Please ensure that your computer or device network settings (also called TCP/IP settings) are configured properly within the network subnet your switch is connected.

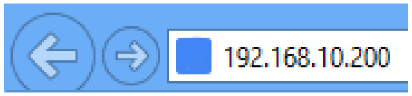


Configure your switch

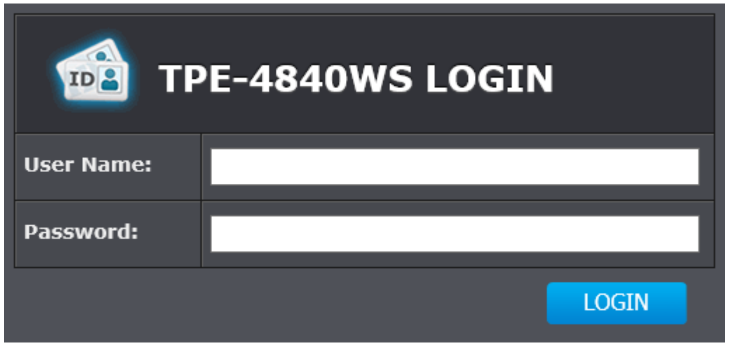
Access your switch management page

Note: Your switch default management IP address http://192.168.10.200. You can manage the TPE-4840WS websmart switch using Internet web browser on your choice. (e.g. Internet Explorer®, Firefox®, Chrome™, Safari®, or Opera™).

Open your web browser and enter the IP address of the switch, such as http://192.168.10.200. Your switch will prompt you for a user name and password.

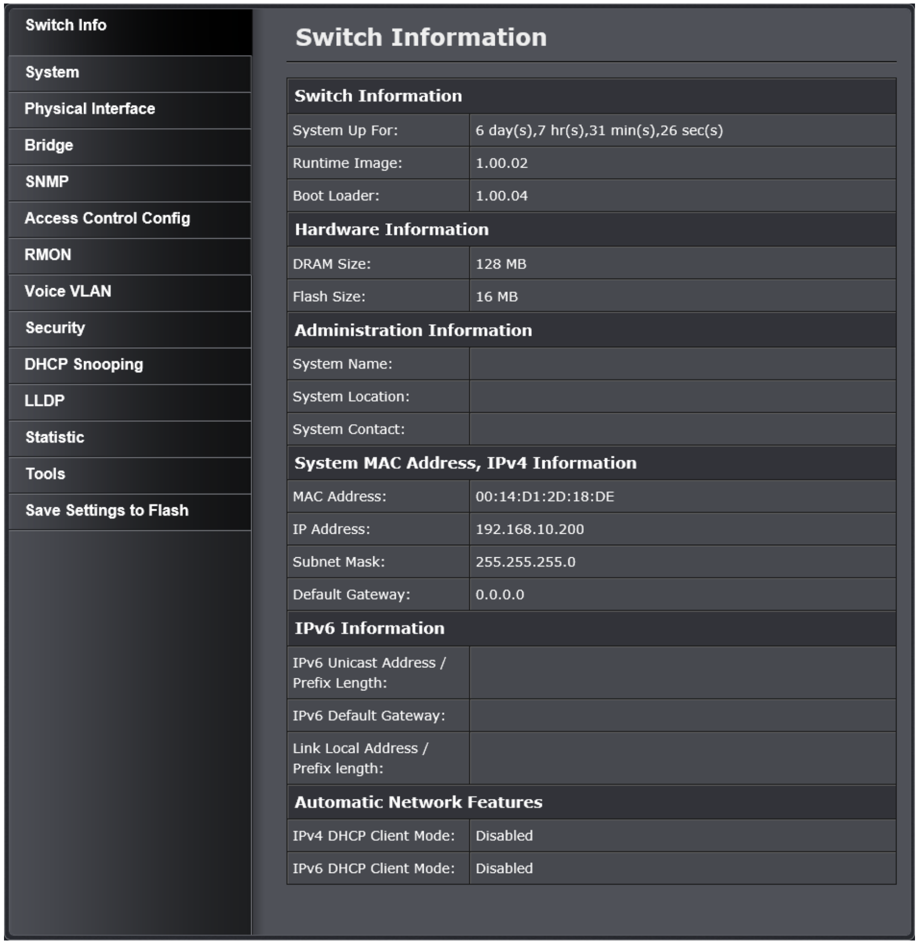


Enter the User Name and Password, and then click **Login**. The default username is **admin** and the password is **admin** as well. The username and password are case sensitive, please enter them in all lower cases.



Switch Info

You'll landing on Switch Info page when login to the web management GUI. You can view your switch status information here.



Switch Information

Switch Information	
System Up For:	6 day(s),7 hr(s),31 min(s),26 sec(s)
Runtime Image:	1.00.02
Boot Loader:	1.00.04
Hardware Information	
DRAM Size:	128 MB
Flash Size:	16 MB
Administration Information	
System Name:	
System Location:	
System Contact:	
System MAC Address, IPv4 Information	
MAC Address:	00:14:D1:2D:18:DE
IP Address:	192.168.10.200
Subnet Mask:	255.255.255.0
Default Gateway:	0.0.0.0
IPv6 Information	
IPv6 Unicast Address / Prefix Length:	
IPv6 Default Gateway:	
Link Local Address / Prefix length:	
Automatic Network Features	
IPv4 DHCP Client Mode:	Disabled
IPv6 DHCP Client Mode:	Disabled

Switch Information	
System Up For:	The duration your switch has been running continuously without a restart/power cycle (hard or soft reboot) or reset.
Runtime Image:	The current software or firmware version your switch is running.
Boot Loader:	The current boot loader version your switch is running.

Hardware Information	
DRAM Size:	Displays your switch RAM memory size.
Flash Size:	Displays your switch Flash memory size.

Administration Information	
System Name:	Displays the identifying system name of your switch. This information can be modified under the **System** section.
System Location:	Displays the identifying system location of your switch. This information can be modified under the **System** section.
System Contact:	Displays the identifying system contact or system administrator of your switch. This information can be modified under the **System** section.

System MAC Address, IPv4 Information	
MAC Address:	Displays the switch system MAC address.
IP Address:	Displays the current IPv4 address assigned to your switch.
Subnet Mask:	Displays the current IPv4 subnet mask assigned to your switch.
Default	Displays the current gateway address assigned to

IPv6 Information	
IPv6 Unicast Address / Prefix Length:	Displays the current IPv6 address and prefix assigned to your switch.
IPv6 Default Gateway:	Displays the current IPv6 default gateway address assigned to your switch.
Link Local Address / Prefix Length:	Displays the current Link Local address and prefix length assigned to your switch.

Automatic Network Features	
IPv4 DHCP Client Mode:	Displays if your switch IPv4 address setting is set to DHCP client.
IPv6 DHCP Client Mode:	Displays if your switch IPv6 address setting is set to DHCP client.

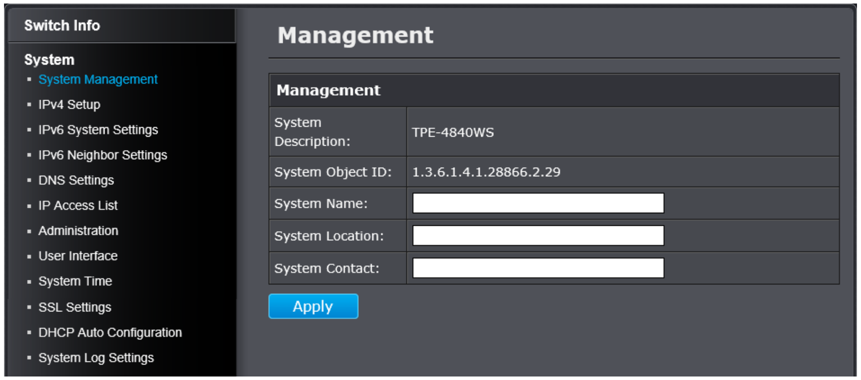
Gateway:	your switch.

System

System Management

System > System Management

This section explains how to assign a name, location, and contact information for the switch. This information helps in identifying each specific switch among other switches in the same local area network. Entering this information is optional.



Management	
System Description:	TPE-4840WS
System Object ID:	1.3.6.1.4.1.28866.2.29
System Name:	
System Location:	
System Contact:	

Management	
System Description:	The model number of this Smart Switch.
System Object ID:	Indicates the unique SNMP MIB object identifier that identifies the switch model. You cannot change this ID number.
System Name:	Specifies a name for the switch, the name is optional and may contain up to 15 characters.
System Location:	Specifies the location of the switch. The location is optional and may contain up to 30 characters.
System Contact:	Specifies the name of the network administrator responsible for managing the switch. This contact name is optional and may contain up to 30 characters.

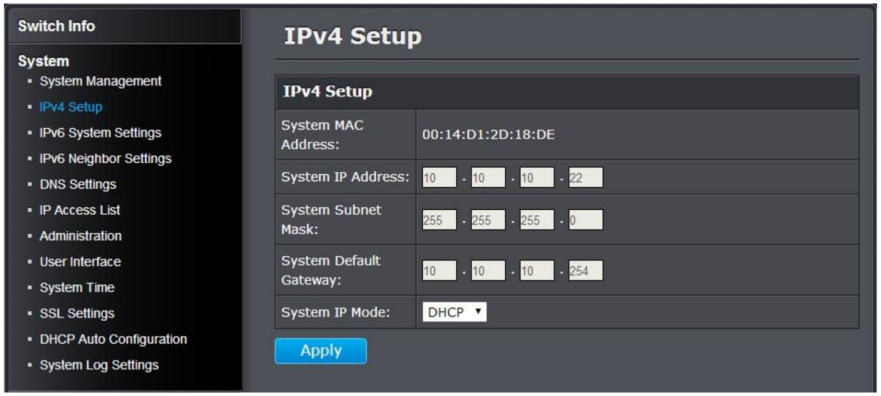
Click **Apply** to apply the change to the switch

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Set your IPv4 settings

System > IPv4 Setup

This section allows you to change your switch IPv4 address settings. Typically, the IP address settings should be changed to match your existing network subnet in order to access the switch management page on your network.



IPv4 Setup

System MAC Address:	00:14:D1:2D:18:DE
System IP Address:	10 . 10 . 10 . 22
System Subnet Mask:	255 . 255 . 255 . 0
System Default Gateway:	10 . 10 . 10 . 254
System IP Mode:	DHCP

IPv4 Setup

System MAC Address:	Displays the switch MAC address information.
System IP Address:	Enter the new switch IP address. (Default: 192.168.10.200)
System Subnet Mask:	Enter the new switch subnet mask. (e.g. 255.255.255.0)
System Default Gateway:	Enter the default gateway IP address. (e.g. 192.168.10.1 or typically your router/gateway to the Internet).
System IP Mode	Click the drop-down list and select Static to manually specify your IP address settings or DHCP to allow your switch to obtain IP address settings automatically from a DHCP server on your network.

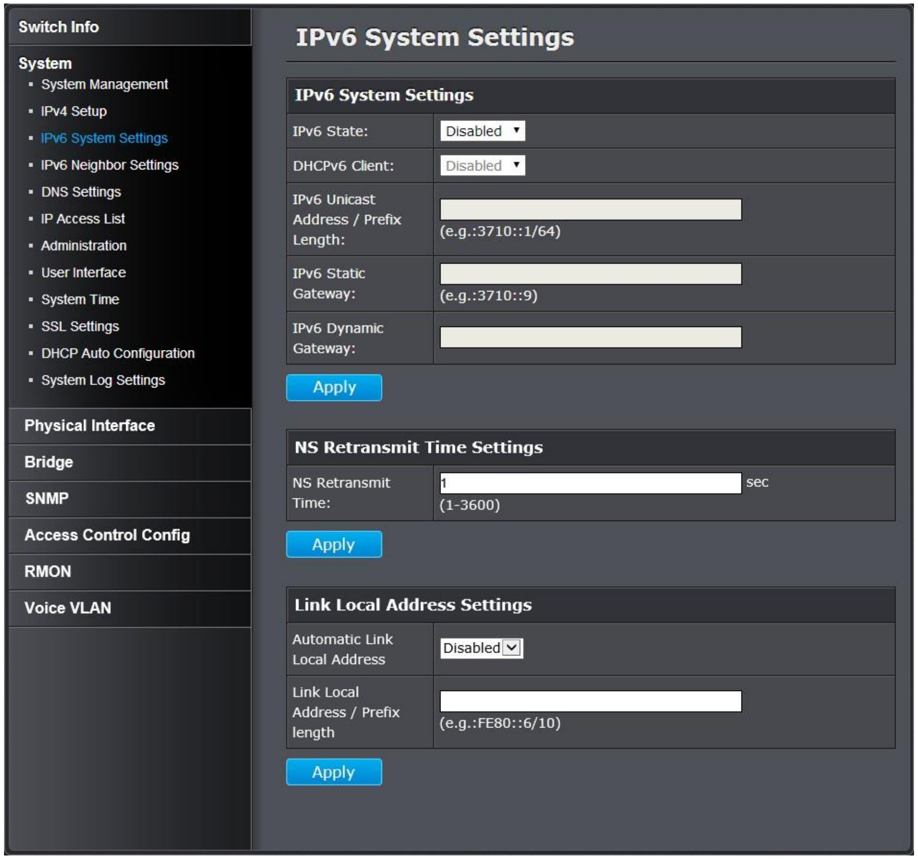
Click **Apply** to apply the change to the switch

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Set your IPv6 settings

System > IPv6 System Settings

Use the IPv6 System Settings page to configure the IPv6 network interface, which is the logical interface used for in-band connectivity with the switch via all of the switch's front-panel ports. The configuration settings associated with the switch's network interface do not affect the configuration of the front-panel ports through which traffic is switched or routed.



IPv6 System Settings

IPv6 System Settings

IPv6 State: Disabled

DHCPv6 Client: Disabled

IPv6 Unicast Address / Prefix Length: (e.g.:3710::1/64)

IPv6 Static Gateway: (e.g.:3710::9)

IPv6 Dynamic Gateway:

NS Retransmit Time Settings

NS Retransmit Time: 1 sec (1-3600)

Link Local Address Settings

Automatic Link Local Address: Disabled

Link Local Address / Prefix length: (e.g.:FE80::6/10)

IPv6 System Settings

IPv6 State: Enabled Enabled Disabled	The IPv6 address for the IPv6 network interface is set in auto configuration mode if this option is enabled. The default value is. Auto configuration can be enabled only when DHCPv6 is not enabled on any of the management interfaces.
DHCPv6 Client:	This option only displays when DHCPv6 is enabled.
IPv6 Unicast Address / Prefix Length:	The IPv6 Unicast Address is an identifier for a single interface, on a single node. A packet that is sent to a unicast address is delivered to the interface identified by that address. Add the IPv6 prefix and prefix length to the IPv6 System Settings interface.
IPv6 Static Gateway:	Specifies the corresponding Gateway of the IP address entered into the field.
IPv6 Dynamic Gateway:	To configure the switch to automatically obtain its IP configuration from a DHCP server on your network.

NS Retransmit Time Settings

NS Retransmit Time:	A constant that defines a nonzero number of seconds between periodic re-authentication of the client. The field is 1~3600 seconds. The default setting is 1 second.

Link Local Address Settings

Automatic Link Local Address:	A link local address has a prefix of FE80, is not routable, and can be used for communication only on the local network. Only one link local address is supported. If a link local address exists on the

	interface, this entry replaces the address in the configuration.
Link Local Address/Prefix length:	Enter the Link Local Address/Prefix Length.

A link-local address is an IPv6 unicast address that can be automatically configured on any interface using the link-local prefix FE80/10 and the interface identifier in the modified EUI-64 format. Link-local addresses are used in the neighbor discovery protocol and the stateless auto configuration process. Nodes on a local link can use link-local addresses to communicate; the nodes do not need globally unique addresses to communicate. IPv6 devices must not forward packets that have link-local source or destination addresses to other links.

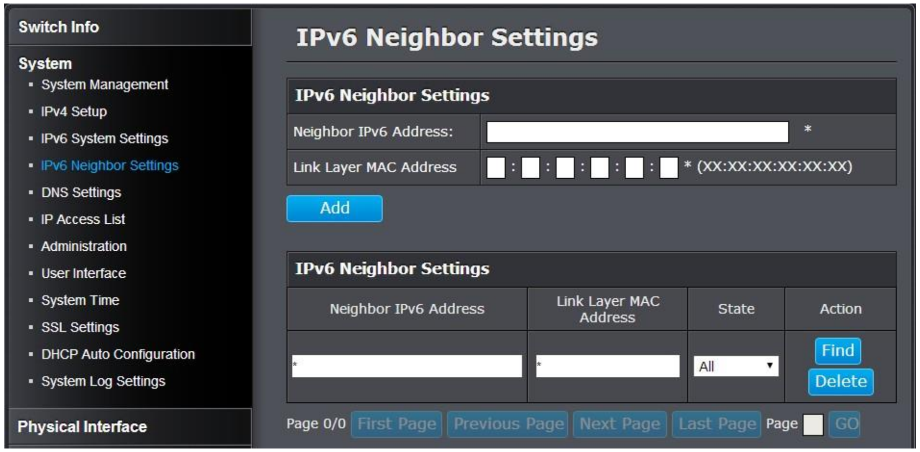
Click **Apply** to apply the change to the switch.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent

Add IPv6 neighbors

System > IPv6 Neighbor Settings

These settings allows you to manually define IPv6 supported neighboring devices on your network.



IPv6 Neighbor Settings

IPv6 Neighbor Settings

Neighbor IPv6 Address:	*
Link Layer MAC Address	: : : : : * (XX:XX:XX:XX:XX:XX)

IPv6 Neighbor Settings

Neighbor IPv6 Address	Link Layer MAC Address	State	Action
*	*	All	Find Delete

Page 0/0 Page

IPv6 Neighbor Settings

Neighbor IPv6 Address:	Specifies the neighbor IPv6 address.
Link Layer MAC Address:	Specifies the link layer MAC address.

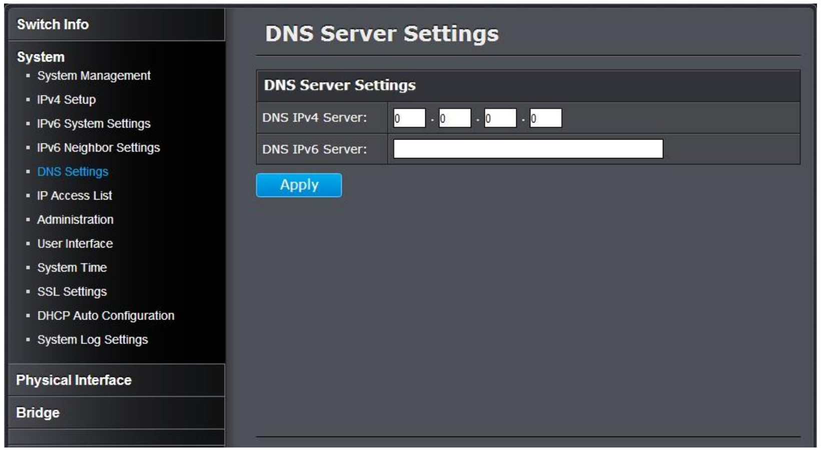
Click **Add** to save the entry to the list.

You can type in the specific address and click **Find** to find the entry to modify or click **Delete** to delete the address. If the entries span multiple pages, you can navigate page number in the Page field and click **Go** or you can click **First**, **Previous**, **Next**, and **Last Page** to navigate the pages.

DNS Settings

System > DNS Settings

Some of the smart switch services requires name resolution services to finish its job, such as SNTP service. Setup the DNS server settings here for name resolution.



DNS Server Settings

DNS Server Settings

DNS IPv4 Server:	0 . 0 . 0 . 0
DNS IPv6 Server:	

DNS Server Settings

DNS IPv4 Server:	Specifies the IPv4 DNS server address.
DNS IPv6	Specifies the IPv6 DNS server address.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Server:

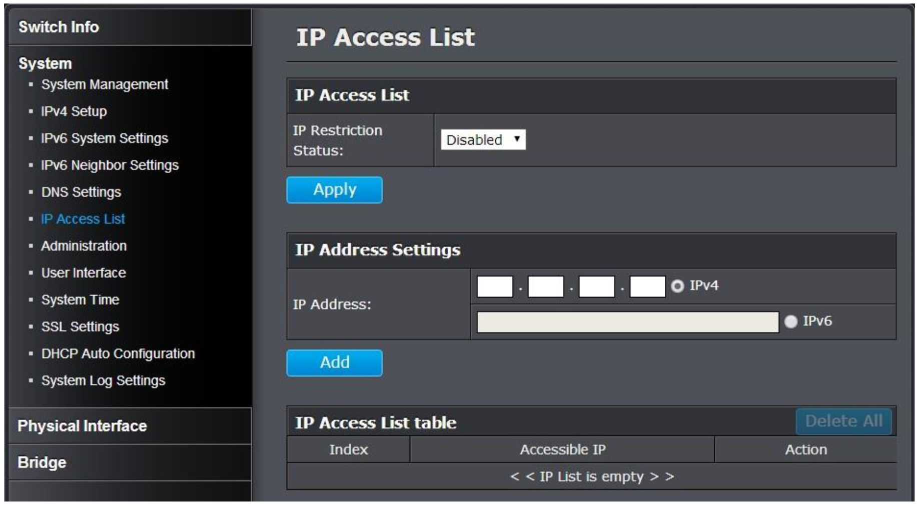
Click **Add** to save the entry to the list.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Restrict access to switch management page

System > IP Access List

This section allows you to define or restrict access to the switch management page to a list of specific IP addresses.



IP Access List

IP Access List

IP Restriction Status: Disabled

IP Address Settings

IP Address: . . . ○ IPv4 ● IPv6

IP Access List table

Index	Accessible IP	Action
< < IP List is empty > >		

IP Access List	
IP Restriction Status:	**Enable** or **Disable** Access Control List. Default: **Disabled**

Enabled
Enabled
Disabled

IP Address Settings	
IP Address:	Enter the IPv4 or IPv6 address and then click **Add** to create an access list entry.

IP Access List Table

For each entry, the access list will populate. You can click **Delete** next to the entry to delete the entry or **Delete All** to delete all entries in the table.

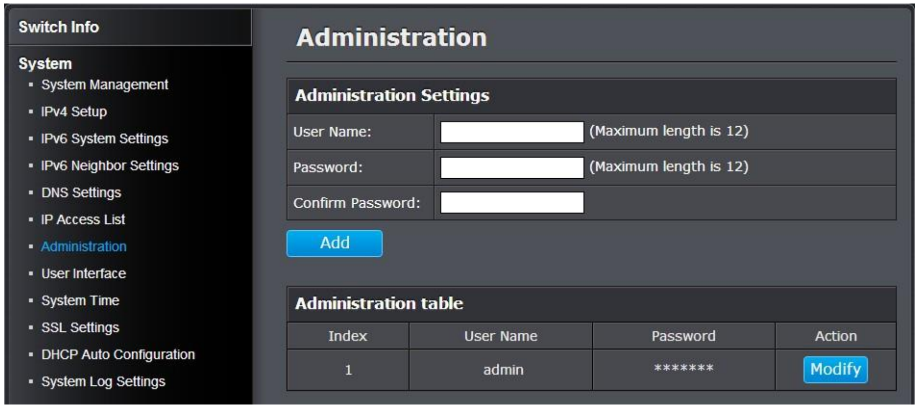
When you have completed entering the IPv4 and IPv6 address entries, click the **IP Restriction Status** drop-down list at the top and select **Enabled**, then click **Apply**.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Change administrator password and add accounts

System > Administration

This section explains how to change the administrator password create additional administrative user accounts for access to the switch management page.



Administration Settings

User Name:		(Maximum length is 12)
Password:		(Maximum length is 12)
Confirm Password:		

Administration table

Index	User Name	Password	Action
1	admin	*******	Modify

To create additional administrative user accounts

Administration Settings

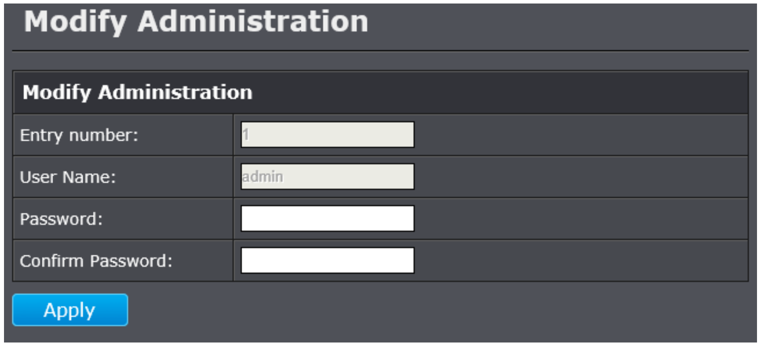
User Name:	Enter the user name of the new account.
Password:	Enter the password for the new account
Confirm Password:	Enter the password again for verification.

Note: The password consists of up to 12 alphanumeric characters.

Click **Add** to add the new administrator.

Changing the administrator password

In the Password field, enter the new password and enter the new password again the Confirm Password field to verify. Then, click **Apply**.



Modify Administration

Entry number:	1
User Name:	admin
Password:	
Confirm Password:	

Note: The password consists of up to 12 alphanumeric characters. The index 1 ***admin*** *user on the administration table is the default administrator. You can modify the password, but you cannot remove it.*

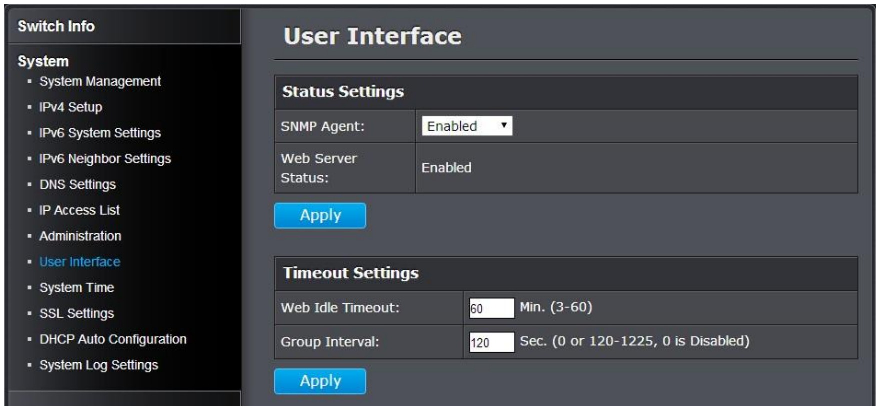
Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Enable or disable SNMP and modify idle timeout settings

System > User Interface

This section explains how to enable SNMP on the switch and modify the switch management page idle timeout settings.

Note: If you disable the SNMP on the switch, the switch will not be manageable via SNMP using MIBs.



User Interface

Status Settings

SNMP Agent: Enabled

Web Server Status: Enabled

Apply

Timeout Settings

Web Idle Timeout: 60 Min. (3-60)

Group Interval: 120 Sec. (0 or 120-1225, 0 is Disabled)

Apply

Status Settings	
SNMP Agent:	Click the drop-down list to one of the following options. • **Enabled:** The SNMP agent is active. You can manage the switch with SNMP network management software and the switch's private MIB. • **Disabled:** The SNMP agent is inactive.
Web Server Status:	Displays the current SNMP status.

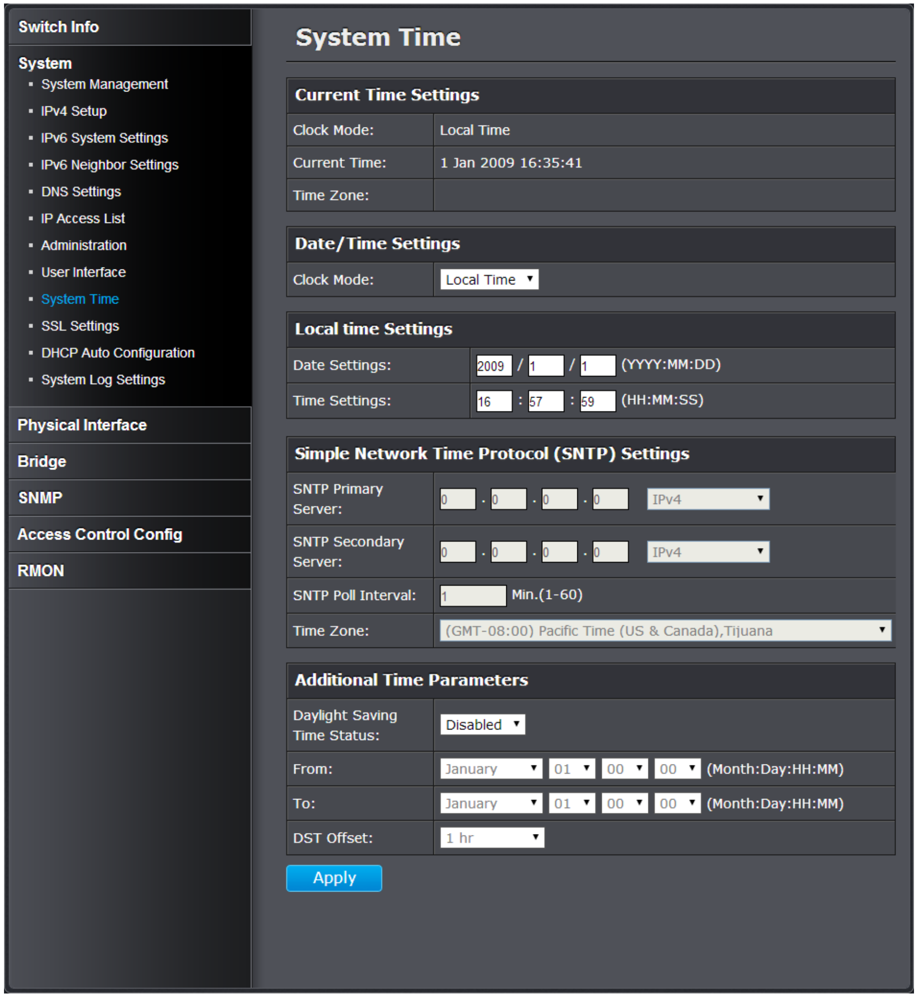
Timeout Settings	
Web Idle Timeout:	Enter the idle period in minutes, when the switch will automatically log out an idled user from the switch management page. Default: 10 min.
Group Interval:	The IGMP group timeout interval. Default: 120 sec.

Click **Apply** to apply the change to the switch

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Set the switch date and time

System > System Time



System Time

Current Time Settings

Clock Mode:	Local Time
Current Time:	1 Jan 2009 16:35:41
Time Zone:	

Date/Time Settings

Clock Mode:	Local Time

Local time Settings

Date Settings:	2009 / 1 / 1 (YYYY:MM:DD)
Time Settings:	16 : 57 : 59 (HH:MM:SS)

Simple Network Time Protocol (SNTP) Settings

SNTP Primary Server:	0 . 0 . 0 . 0 IPv4
SNTP Secondary Server:	0 . 0 . 0 . 0 IPv4
SNTP Poll Interval:	1 Min.(1-60)
Time Zone:	(GMT-08:00) Pacific Time (US & Canada),Tijuana

Additional Time Parameters

Daylight Saving Time Status:	Disabled
From:	January 01 00 00 (Month:Day:HH:MM)
To:	January 01 00 00 (Month:Day:HH:MM)
DST Offset:	1 hr

Current Time Settings

Clock Mode:	Displays if system time and date is set manually Local Time or obtained automatically from a network time server SNTP.
Current Time:	Displays the current system time and date.
Time Zone:	Displays the current system time zone.

Date/Time Settings

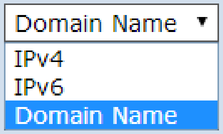
Clock Mode: SNTP Local Time	Select Local Time to manually configure your date and time settings or select SNTP to configure your switch to automatically obtain settings from a network time server.

Local Time Settings

Date Settings:	Enter your date settings (YYYY/MM/DD).
Time Settings:	Enter your time settings (HH:MM:SS)

When select the clock mode to **Local Time**, enter the date and time manually here.

Simple Network Time Protocol (SNTP) Settings

SNTP Primary Server:	Select the format of the URL you want to enter for SNTP server address. Enter the primary network time server IPv4, IPv6 address or domain name.  Domain Name IPv4 IPv6 Domain Name
SNTP Secondary Server:	Select the format of the URL you want to enter for SNTP server address. Enter the secondary network time server IPv4, IPv6 address or domain name.

SNTP Poll Interval:	Enter the interval time when your switch will update the time and date settings with the time server. Default: 1 min.
Time Zone	Click the drop-down list to select your time zone.

When select the clock mode to **SNTP**, enter the SNTP server information here.

Click **Apply** to apply the change to the switch

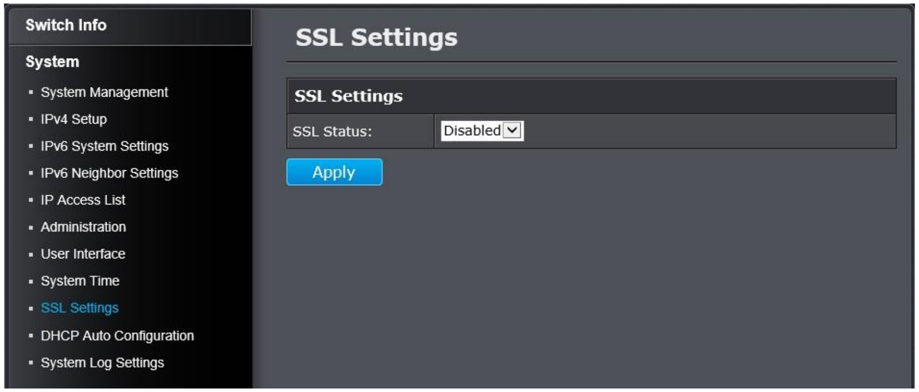
Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Enable HTTPS/SSL (Secure Socket Layer) management access

System > SSL Settings

By default, your switch management page can be accessed using standard web HTTP protocol which transmit files with clear text over the network. Enabling HTTPS/SSL management access allows access to the switch management page using encrypted communication prevents your data been eavesdropped by unauthorized user.

Note: Once HTTPS/SSL management access is enabled, HTTP management access will be disabled forcing all access to the switch management page using secure encryption communication only.



SSL Settings

SSL Status: Disabled

SSL Settings

SSL Status:

Enable or disable HTTPS/SSL management access and disable/enable HTTP clear text mode at the same time. Default: **Disabled**.

Note: When SSL is enabled, you need to access the switch management page using HTTPS instead of HTTP. (e.g. https://192.168.10.200)

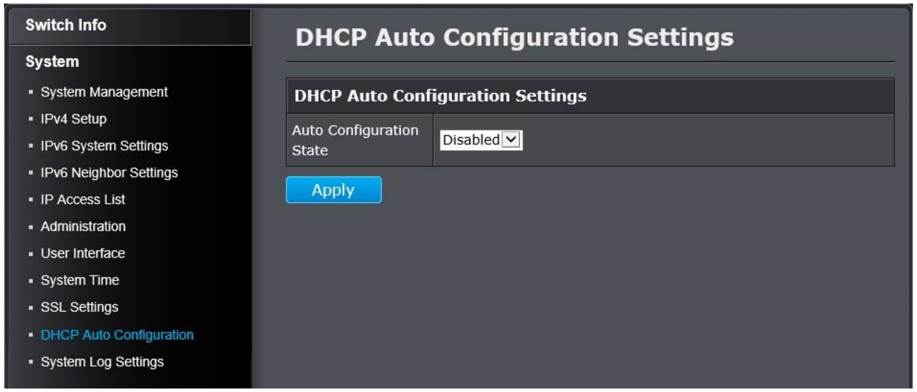
Click **Apply** to apply the change to the switch

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Enable DHCP Auto Configuration

System > DHCP Auto Configuration

If you need to synchronize the switch configuration file on remote server, the DHCP Auto Configuration feature is available for this purpose via the DHCP server. Your IP address settings must enabled to the DHCP client so that this feature can operate with your DHCP/TFTP server.



DHCP Auto Configuration Settings

DHCP Auto Configuration Settings

Auto Configuration State: Disabled

DHCP Auto Configuration Settings	
Auto Configuration State:	Enable/Disable Auto Configuration from DHCP/TFTP server. Default: Disabled.

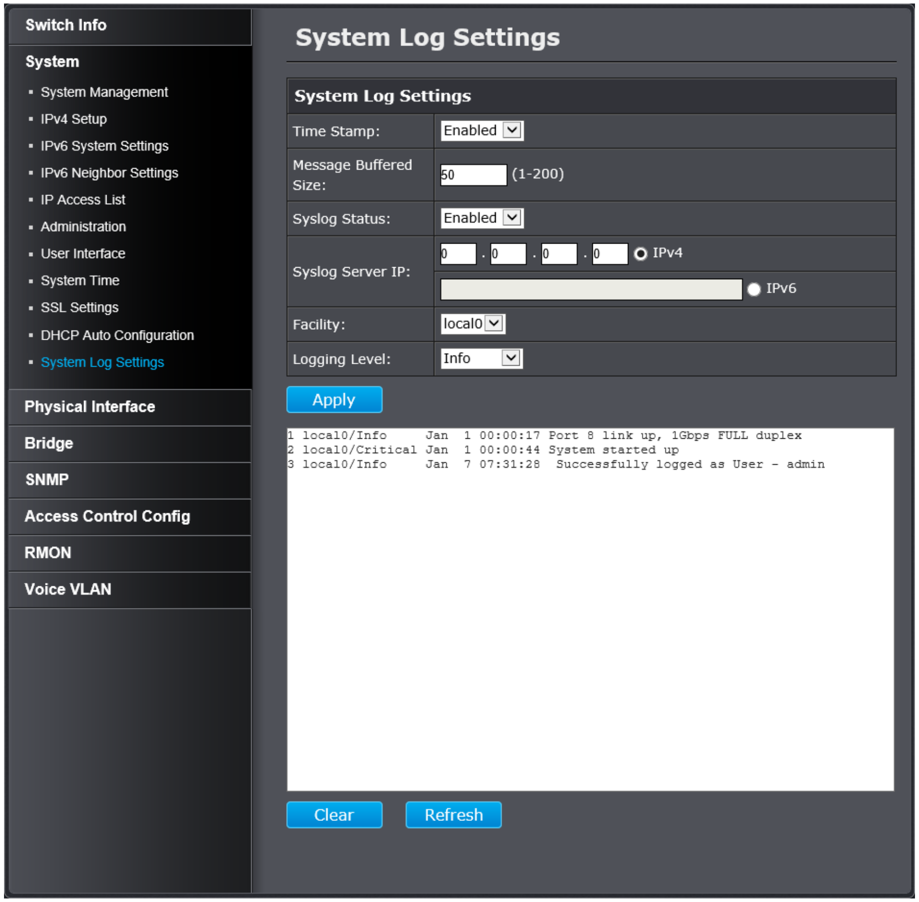
Click **Apply** to apply the change to the switch

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

View and setup your switch logging

System > System Log Settings

The system log is designed to monitor the operation the switch by recording the event messages it generates during normal operation. These events may provide vital information about system activity that can help in the identification and solutions of system problems.



System Log Settings

System Log Settings

Time Stamp: Enabled

Message Buffered Size: 50 (1-200)

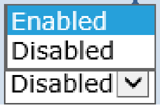
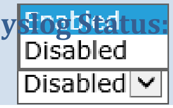
Syslog Status: Enabled

Syslog Server IP: 0 . 0 . 0 . 0 ○ IPv4 ● IPv6

Facility: local0

Logging Level: Info

```
1 local0/Info     Jan  1 00:00:17 Port 8 link up, 1Gbps FULL duplex
2 local0/Critical Jan  1 00:00:44 System started up
3 local0/Info     Jan  7 07:31:28  Successfully logged as User - admin
```

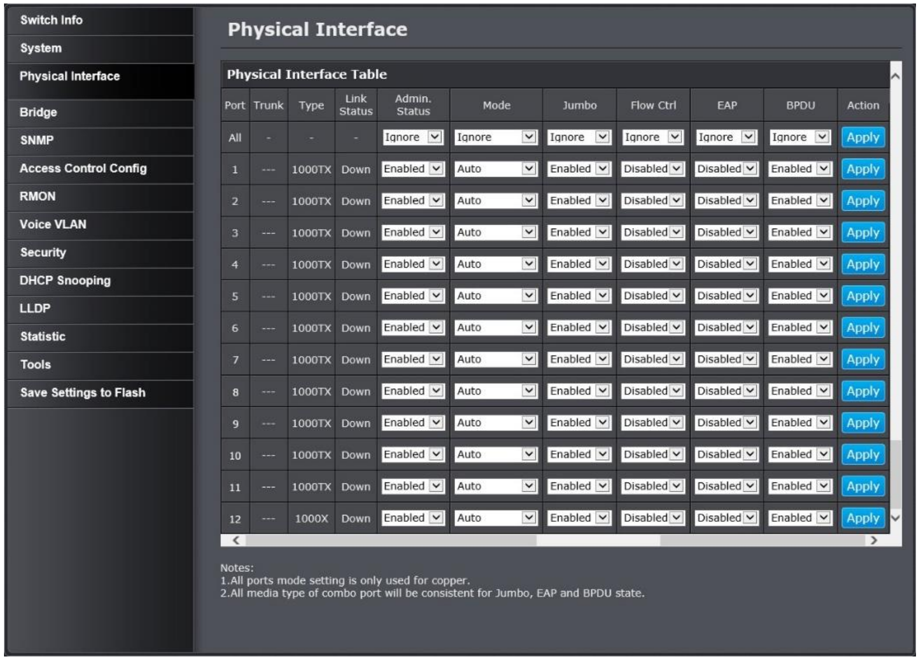
System Log Settings	
Time Stamp:  	Enable/Disable the time stamp on log entry. Default: Enabled.
Message Buffered Size:	Enter the message buffer size. Default: 50 entries, Range: 1-200.
Syslog Status:  	Enable/ Disable to store the logs on remote log server. Default: Enabled.
Syslog Server IP:	Enter the IPv4 or IPv6 address of the external syslog server to send logging.
Facility:	Click the drop-down list and which facility to store the logging. (Options: local0 – local7) *Note: You can define the facility to store logging on your external syslog server. This helps to ensure you have separate logging sections for different devices.*
Logging Level:	Click the drop-down list to select what level of event messages that will be logged. 0. Emergency: The system is unusable. 1. Alert: Action must be taken immediately. 2. Critical: Critical conditions are displayed. 3. Error: Error conditions are displayed. 4. Warning: Warning conditions are displayed. 5. Notice: Normal but significant conditions are displayed. 6. Informational: Informational messages are displayed. 7. Debug: Debug-level messages are displayed.

Click **Apply** to apply the change to the switch

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Physical Interface

This section allows you to configure the physical port settings including network speed, duplex mode, link status, administration status, EAP setting, BPDU packet forwarding, flow control, and jumbo frames. This section also reports the current link status of each port and negotiated speed/duplex. Additionally you will be able to set your BPDU ports for Spanning Tree Configuration and EAP ports for 802.1X port-based authentication configuration.



Physical Interface

Physical Interface Table

Port	Trunk	Type	Link Status	Admin. Status	Mode	Jumbo	Flow Ctrl	EAP	BPDU	Action
All	-	-	-	Ignore	Ignore	Ignore	Ignore	Ignore	Ignore	Apply
1	---	1000TX	Down	Enabled	Auto	Enabled	Disabled	Disabled	Enabled	Apply
2	---	1000TX	Down	Enabled	Auto	Enabled	Disabled	Disabled	Enabled	Apply
3	---	1000TX	Down	Enabled	Auto	Enabled	Disabled	Disabled	Enabled	Apply
4	---	1000TX	Down	Enabled	Auto	Enabled	Disabled	Disabled	Enabled	Apply
5	---	1000TX	Down	Enabled	Auto	Enabled	Disabled	Disabled	Enabled	Apply
6	---	1000TX	Down	Enabled	Auto	Enabled	Disabled	Disabled	Enabled	Apply
7	---	1000TX	Down	Enabled	Auto	Enabled	Disabled	Disabled	Enabled	Apply
8	---	1000TX	Down	Enabled	Auto	Enabled	Disabled	Disabled	Enabled	Apply
9	---	1000TX	Down	Enabled	Auto	Enabled	Disabled	Disabled	Enabled	Apply
10	---	1000TX	Down	Enabled	Auto	Enabled	Disabled	Disabled	Enabled	Apply
11	---	1000TX	Down	Enabled	Auto	Enabled	Disabled	Disabled	Enabled	Apply
12	---	1000X	Down	Enabled	Auto	Enabled	Disabled	Disabled	Enabled	Apply

Notes:
1.All ports mode setting is only used for copper.
2.All media type of combo port will be consistent for Jumbo, EAP and BPDU state.

Physical Interface Table

Port: Specifies the port number. The All value indicates ports 1 through 48 on the Switch. The port number 45, 46, 47 and 48 are Gigabit and SFP shared ports. Only one interface will be activated at the same time. When SFP and Gigabit connection coexist, the SFP will take the priority.

(1) Gigabit Port
(2) SFP with 100FX module
(3) SFP with 1000X module

Trunk: This column shows the trunk status with trunk group number. A number in this column indicates that the port has been added to a trunk using static or dynamic 802.3ad LACP link aggregation.

Type: This column shows the port type. On the Switch, the port type is 1000TX for 10/100/1000Base-T twisted-pair ports (1-48) and 100FX or 1000X for the SFP ports (45F-48F) for copper or fiber SFP type.

Link Status: This column shows the network link status of the port. The possible values are:

- Up: This value indicates a valid link exists between the port and the end node.
- Down: This value indicates the port and the end node have not established a valid link.

Admin Status: This column shows the operating status of the port. You can change this setting to enable or disable a port. You may want to disable a port and prevent packets from being forwarded if a problem occurs with the node or cable connected to the port. You can enable the port to resume normal operation after the problem has been fixed. You can also disable an unused port to secure it from unauthorized connections.

All Ports:
If you select **Ignore** and click on **Apply** for all ports, the **Admin Status** is not changing. If you select **Enabled**

then click on **Apply** for all ports, **Admin Status** on all ports will be set to **Enabled**.

Each Port:

- Enabled: This port is enabled to send and receive Ethernet frames.
- Disabled: This port is disabled and cannot send and receive Ethernet frames.

*Note: Click **Apply** in the end of the row to apply the change.*

Mode: The network speed and duplex mode settings of this port. You can change the network speed negotiation and duplex mode of the port here.

All Ports:

If you select **Ignore** and click on **Apply** for all ports, the **Mode** is not changing. If you set to certain mode then click on **Apply** for all ports, the **Mode** on all ports will be set to the same value.

Each Port:

- Auto: This parameter indicates the port is using Auto-Negotiation to set the operating speed and duplex mode. The actual operating speed and duplex mode of the port are displayed in parentheses (for example, "1000F" for 1000 Mbps full duplex mode) after a port establishes a link with an end node.
    - ○ Auto (1000F): This parameter indicates the port is configured for 1000Mbps operation in Auto-Negotiation mode.
    - ○ 1000/Full -This parameter indicates the port is configured for 1000Mbps operation in full- duplex mode.
    - ○ 100/Full -This parameter indicates the port is configured for 100Mbps operation in full-duplex mode.
    - ○ 10/Full -This parameter indicates the port is configured for 10Mbps operation in full-duplex mode.
    - ○ 1000/Half -This parameter indicates the port is configured for 1000Mbps operation in half-duplex mode.
    - ○ 100/Half -This parameter indicates the port is configured for 100Mbps operation in half-duplex mode.
    - ○ 10/Half -This parameter indicates the port is configured for 10Mbps operation in half-duplex mode.

Note: When selecting a Mode setting, the following points apply:

- ○ *When a twisted-pair port is set to Auto-Negotiation, the end node should also be set to Auto-Negotiation to prevent a duplex mode mismatch.*
- ○ *A switch port using Auto-Negotiation defaults to half-duplex if it detects that the end node is not using Auto-Negotiation. This can result in a mismatch if the end node is operating at a fixed duplex mode of full-duplex. To avoid this problem when connecting an end node with a fixed duplex mode of full-duplex to a switch port, disable Auto-Negotiation on the port and set the port's speed and duplex mode manually.*
- ○ *The only valid setting for the SFP ports is Auto-Negotiation.*

*Note: Click **Apply** in the end of the row to apply the change.*

Jumbo: This parameter indicates whether or not jumbo frames can be accepted by the switch. You may want to activate jumbo frames when your switch will transmit video and audio files.

All Ports:

If you select **Ignore** and click on **Apply** for all ports, the **Jumbo** setting is not changing. If you select **Enabled** or **Disabled** then click on **Apply** for all ports, **Jumbo** setting on all ports will be set to the same value on **Enabled** or **Disabled**.

Each Port:

- Enabled: This port is enabled to send and receive Jumbo frames.
- Disabled: This port is disabled and cannot send and receive Jumbo frames.

Note:
*1) Click **Apply** in the end of the row to apply the change.*
2) When QoS is enabled on a port, the Jumbo frame parameter cannot be enabled.

Flow Ctrl: Flow Control, This parameter shows the current flow control setting on the port. The switch uses a special pause packet to notify the end node to stop transmitting for a specified period of time.

All Ports:
If you select **Ignore** and click on **Apply** for all ports, the **Flow Control** setting is not changing. If you select **Enabled** or **Disabled** then click on **Apply** for all ports, **Flow Control** setting on all ports will be set to the same value on **Enabled** or **Disabled**.

Each Port:

- Enabled: This port is enabled to proceed the flow control.
- Disabled: This port is disabled and not doing flow control.

*Note: Click **Apply** in the end of the row to apply the change.*

EAP: This number shows the current Extensible Authentication Protocol (EAP) setting on the port.

All Ports:
If you select **Ignore** and click on **Apply** for all ports, the **EAP** setting is not changing. If you select **Enabled** or **Disabled** then click on **Apply** for all ports, **EAP** setting on all ports will be set to the same value on **Enabled** or **Disabled**.

Each Port:
Enabled: This port is enabled to send and receive EAP packets.
Disabled: This port is disabled and will not send and receive EAP packets.

*Note: Click **Apply** in the end of the row to apply the change.*

BPDU: This parameter shows the current BPDU setting on the port.

All Ports:
If you select **Ignore** and click on **Apply** for all ports, the **BPDU** setting is not changing. If you select **Enabled** or **Disabled** then click on **Apply** for all ports, **BPDU** setting on all ports will be set to the same value on **Enabled** or **Disabled**.

Each Port:
Enabled: This port is enabled to pass BPDU frames through the switch and broadcast them through all other ports.
Disabled: This port is disabled and the switch will not pass BPDU frames through the switch. With RSTP or STP enabled, the switch will receive BPDU frames and process them according to the spanning tree protocol.

*Note: Click **Apply** in the end of the row to apply the change.*

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Bridge

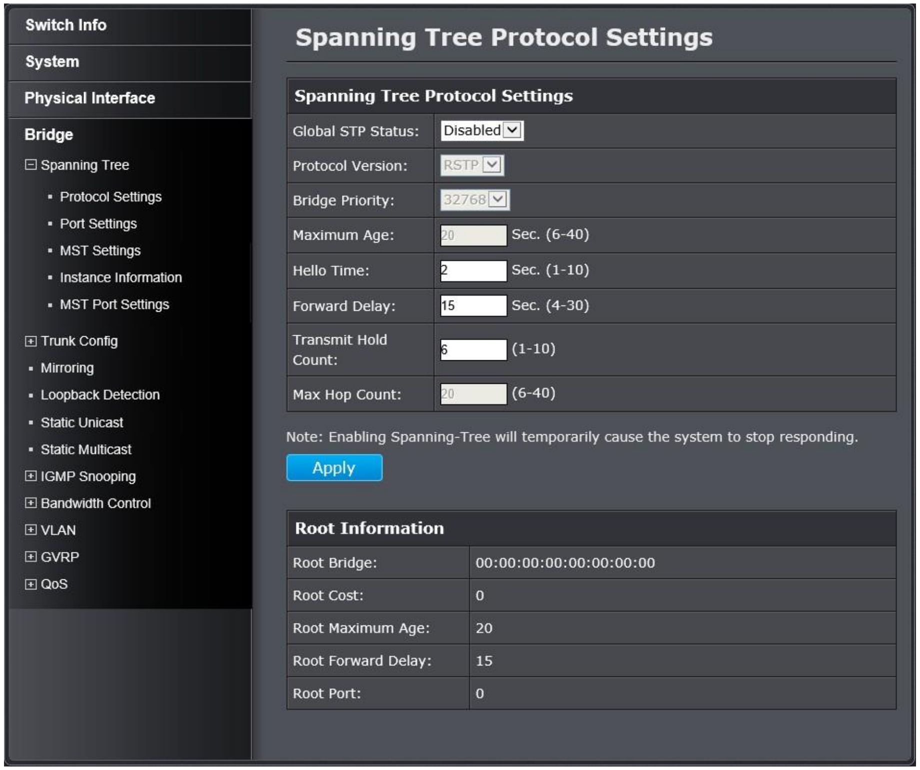
The Bridge session covers most of the web smart switch features including spanning tree, trunk configuration, IGMP snooping, bandwidth control, VLAN, GVRP, and QoS.

Spanning Tree (STP, RSTP, MSTP)

Configure Spanning Tree Protocol settings

Bridge > Spanning Tree > Protocol Settings

Spanning Tree Protocol (STP) provides network topology for any arrangement of bridges/switches. STP also provides a single path between end stations on a network, eliminating loops. Loops occur when alternate routes exist between hosts. Loops in an extended network can cause bridges to forward traffic indefinitely, resulting in increased traffic and reducing network efficiency.



Spanning Tree Protocol Settings

Spanning Tree Protocol Settings	
Global STP Status:	Disabled
Protocol Version:	RSTP
Bridge Priority:	32768
Maximum Age:	20 Sec. (6-40)
Hello Time:	2 Sec. (1-10)
Forward Delay:	15 Sec. (4-30)
Transmit Hold Count:	6 (1-10)
Max Hop Count:	20 (6-40)

Note: Enabling Spanning-Tree will temporarily cause the system to stop responding.

Root Information	
Root Bridge:	00:00:00:00:00:00:00:00
Root Cost:	0
Root Maximum Age:	20
Root Forward Delay:	15
Root Port:	0

Spanning Tree Protocol Settings	
Global STP Status:	Select the STP state on the device. • **Disable:** Disables STP on the device. This is the default value. • **Enable:** Enables STP on the device.
Protocol Version:	Specifies the Spanning Tree Protocol (STP) mode to enable on the switch. **STP:** Enables STP 802.1D on the device. **RSTP:** Enables Rapid STP 802.1w on the device. This is the default value. **MSTP:** Enables Multiple STP 802.1s on the device.

Bridge Priority: The Bridge Priority has a range 0 to 61440 in increments of 4096. To make this easier for you, the Web Management divides the range into increments. You specify the increment that represents the desired bridge priority value.

Maximum Age: The Maximum Age defines the amount of time a port will wait for STP/RSTP information. MSTP uses this parameter when interacting with STP/RSTP domains on the boundary ports. Its range is 6 - 40 seconds

Hello Time: The Hello Time is frequency with which the root bridge sends out a BPDU.

Forward Delay: The Forward Delay defines the time that the bridge spends in the listening and learning states. Its range is 4 - 30 seconds.

Transmit Hold Count: The Transmit Hold Count specifies the maximum number of BPDUs that the bridge can send per second. Its range is 1 - 10.

Max Hop Count: The Max Hop Count is a parameter set in a BPDU packet when it originates. It is decremented by 1 each time it is retransmitted by the next bridge. When the Hop Count value reaches zero, the bridge drops the BPDU packet. Its range is 6 - 40 hops.

Root Information

Root Bridge: The root bridge ID in the spanning tree.

Root Cost: The connection cost on the root port

Root Maximum Age: The aging timeout for the root port.

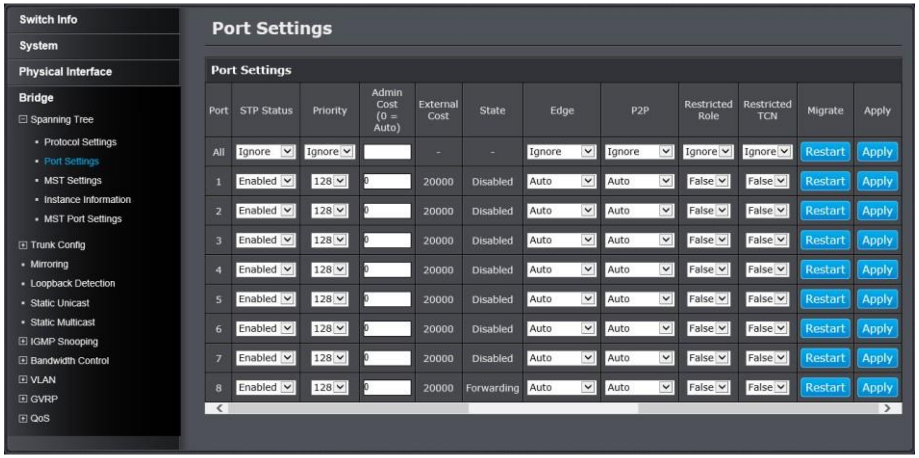
Root Forward Delay: The forward delay timer before packet forwarding.

Root Port: The port number been assigned as root port.

Click **Apply** to apply the change to the switch

Configure Spanning Tree Protocol port settings

Bridge > Spanning Tree > Port Settings



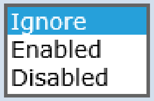
Port Settings

Port Settings

Port	STP Status	Priority	Admin Cost (0 = Auto)	External Cost	State	Edge	P2P	Restricted Role	Restricted TCN	Migrate	Apply
All	Ignore	Ignore		-	-	Ignore	Ignore	Ignore	Ignore	Restart	Apply
1	Enabled	128	0	20000	Disabled	Auto	Auto	False	False	Restart	Apply
2	Enabled	128	0	20000	Disabled	Auto	Auto	False	False	Restart	Apply
3	Enabled	128	0	20000	Disabled	Auto	Auto	False	False	Restart	Apply
4	Enabled	128	0	20000	Disabled	Auto	Auto	False	False	Restart	Apply
5	Enabled	128	0	20000	Disabled	Auto	Auto	False	False	Restart	Apply
6	Enabled	128	0	20000	Disabled	Auto	Auto	False	False	Restart	Apply
7	Enabled	128	0	20000	Disabled	Auto	Auto	False	False	Restart	Apply
8	Enabled	128	0	20000	Forwarding	Auto	Auto	False	False	Restart	Apply

Port Settings

STP Status: Indicates if spanning tree protocol is active or not on the port.



All Ports:

If you select **Ignore** and click on **Apply** for all ports, the **STP Status** setting is not changing. If you select **Enabled** or **Disabled** then click on **Apply** for all ports, **STP Status** setting on all ports will be set to the same value on **Enabled** or **Disabled**.

Each Port:

- **Enable:** The spanning tree protocol is enabled on the port.

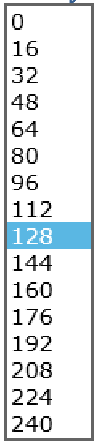
Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

- **Disabled:** The spanning tree protocol is disabled on the port. Enable Disable

*Note: Click **Apply** in the end of the row to apply the change. BPDU pass-through must be disabled for all ports under Physical interface for STP can be enabled.*

Priority: Indicates the port priority. If two paths have the same port cost, the bridges must select a preferred path. In some instances this can involve the use of the port priority parameter which is used as a tie breaker when two paths have the same cost.

The range for port priority is 0 to 240. As with bridge priority, this range is broken into increments, in this case multiples of 16. To select a port priority for a port, select a desired value.



*Note: Click **Apply** in the end of the row to apply the change. If you select **Ignore** on **All Ports** and click on **Apply** for all ports, the **Admin Cost** setting is not changing. If you set the value then click on **Apply** for all ports, The **Admin Cost** will be set to the same value.*

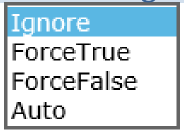
Admin Cost (0 = Auto): The administratively assigned value for the contribution of this port to the path cost of a port. Writing a value of '0' assigns the automatically calculated default path cost value to the port. If the default path cost is being used, this object returns '0' when read.

External Cost: This defines a metric that indicates the relative cost of forwarding packets to the specified port list. Port cost can be set automatically or as a metric value. Define a value between 1 and 200,000,000 to determine the external cost. The default port cost: 100Mbps port = 200,000. Gigabit port = 20,000.

State: Displays the current port spanning tree state.

- **Blocking:** A blocking state does not allow network traffic to be sent or received on the port except for BPDU data. A port with a higher path cost to the root bridge than another on the switch causes a switching loop and is placed in the blocking state by the Spanning Tree algorithm. The port's state may change to the forwarding state if the other links in use fail and the Spanning Tree algorithm determines the port may transition to the forwarding state.
- **Listening:** This state occurs on a port during the convergence process. The port in the listening state processes BPDUs and awaits new information that would cause the port to return to the blocking state.
- **Learning:** While the port does not yet forward frames (packets), in this state the port does learn source addresses from frames received and adds them to the filtering (switching) database.
- **Forwarding:** A port that both receives and sends data. This indicates normal operation. STP continues to monitor the port for incoming BPDUs that indicate the port should return to the blocking state to prevent a loop.
- **Disabled:** A port with STP disabled does not participate in STP. A network administrator can manually disable a port.

Edge: Indicates if a port is connected to an edge device in the network topology or not. Selecting the **ForceTrue** to assign the port as an edge port. Edge ports cannot create loops, however an edge port can lose edge port status if a topology change creates a potential for a loop. An edge port normally should not receive BPDU packets. If a BPDU packet is received, it automatically loses edge port status. Selecting the **ForceFalse** indicates that the port does not have edge port status. Selecting the Auto parameter indicates that the port have edge port



status or not have edge port status automatically. The default setting for this parameter is **Auto**.

*Note: Click **Apply** in the end of the row to apply the change. If you select **Ignore** on **All Ports** and click on **Apply** for all ports, the **Admin Cost** setting is not changing. If you set the value then click on **Apply** for all ports, The **Admin Cost** will be set to the same value.*

P2P: Choosing the **Forcetrue** parameter indicates a point-to-point (P2P) shared link. P2P ports are similar to edge ports however they are restricted in that a P2P port must operate in full-duplex.
Like edge ports, P2P ports transition to a forwarding state rapidly thus benefiting from RSTP.
A P2P value of **Forcefalse** indicates that the port cannot have P2P status. Auto allows the port to have P2P status whenever possible and operate as if the P2P status were true. If the port cannot maintain this status, (for example if the port is forced to half-duplex operation) the P2P status changes to operate as if the P2P value were **Forcefalse**.
The default setting for this parameter is Auto.

Restricted Role: Toggle between True and False to set the restricted role state of the packet. If set to True, the port will never be selected to be the Root port. The default value is False.

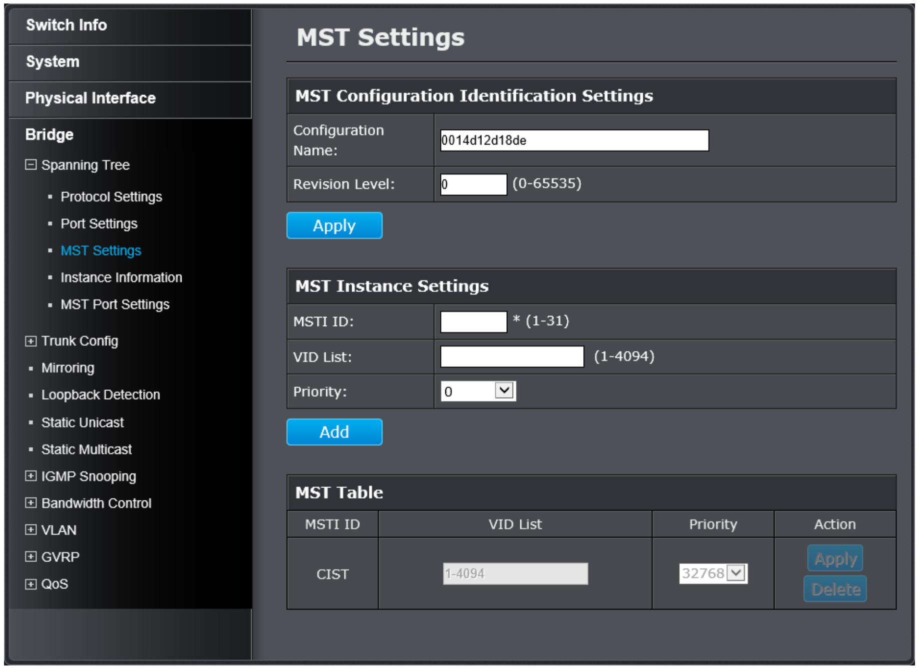
Restricted TCN: Toggle between True and False to set the restricted TCN of the packet. Topology Change Notification (TCN) is a BPDU that a bridge sends out to its root port to signal a topology change. If set to True, it stops the port from propagating received TCN and to other ports. The default value is False.

Migrate: Indicates if the port is configured to accept RSTP and STP BPDUs.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Configure Spanning Tree Protocol MST settings (MSTP)

Bridge > Spanning Tree > MST Settings



MST Settings

MST Configuration Identification Settings

Configuration Name:	0014d12d18de
Revision Level:	0 (0-65535)

MST Instance Settings

MSTI ID:	* (1-31)
VID List:	(1-4094)
Priority:	0

MST Table

MSTI ID	VID List	Priority	Action
CIST	1-4094	32768	Apply Delete

MST Configuration Identification Settings

Configuration Name: A configured name set on the switch to uniquely identify the MSTI (Multiple Spanning Tree Instance). If a configuration name is not set, this field shows the MAC address of the device running MSTP.

Revision Level: This value, together with the configuration name, and identical VLAN mapped for STP instance IDs identifies the MST region configured on the switch. Range: 0 to 65535.

Click **Apply** to apply the change to the switch

MST Instance Settings

MSTI ID: Displays the MSTI ID associated with the VLAN ID. Range: 1 to 31.

VID List: Displays the VLAN ID associated with MSTI. Click **Add** to add the VLAN and MSTI association on MST table. Range: 0 to 4094.

Priority: Select a priority in the **Priority** field. The user may set a priority value between 0 and 61440.

MST Table

MSTI ID: Displays the MSTI ID associated with the VLAN ID.

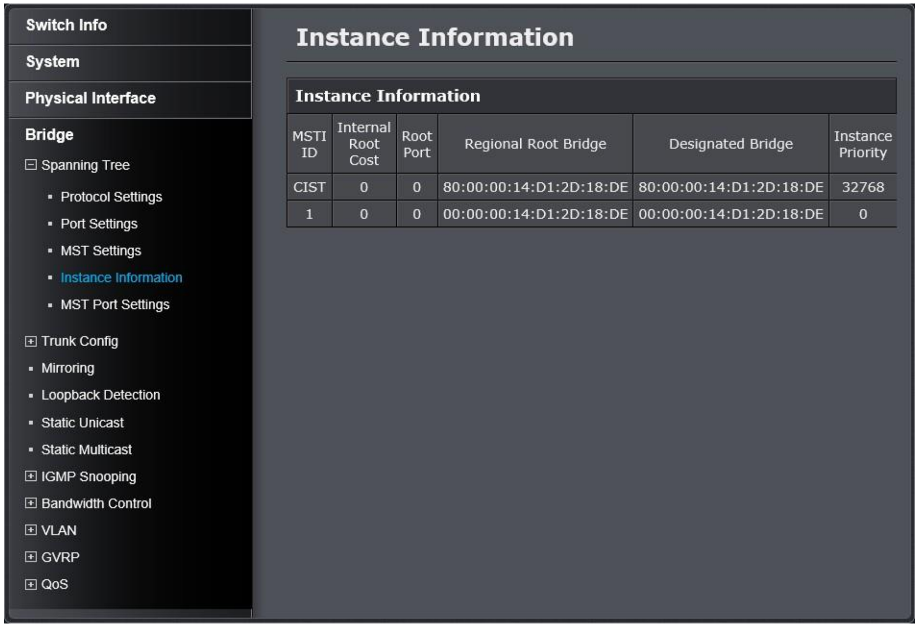
VID List: Displays the VLAN ID associated with MSTI. Click **Apply** to change the VID List value on an entry. Range: 0 – 4094.

Priority: Select a priority in the **Priority** field. The user may set a priority value between 0 and 61440. Click **Apply** to apply the change.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

View your Spanning Tree Protocol Instance Information (MSTP)

Bridge > Spanning Tree > Instance Information



Instance Information

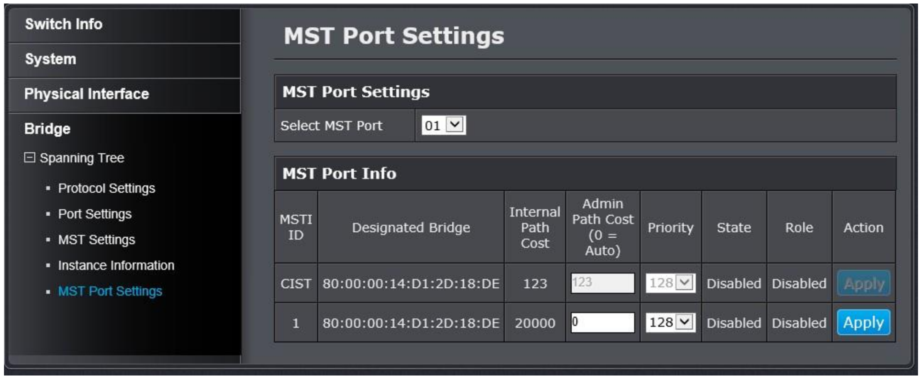
Instance Information

MSTI ID	Internal Root Cost	Root Port	Regional Root Bridge	Designated Bridge	Instance Priority
CIST	0	0	80:00:00:14:D1:2D:18:DE	80:00:00:14:D1:2D:18:DE	32768
1	0	0	00:00:00:14:D1:2D:18:DE	00:00:00:14:D1:2D:18:DE	0

Instance Information	
MSTI ID:	Specifies the ID of MSTI.
Internal Root Cost:	Root cost to the root bridge
Root Port:	Root port of the specific instance.
Regional Root Bridge:	The bridge connected with root port.
Designated Bridge:	The bridge connected with designated port.
Instance Priority:	Priority of the instance.

Configure Spanning Tree Protocol MST Port Settings (MSTP)

Bridge > Spanning Tree > MST Settings



MST Port Settings

MST Port Settings

Select MST Port: 01

MST Port Info

MSTI ID	Designated Bridge	Internal Path Cost	Admin Path Cost (0 = Auto)	Priority	State	Role	Action
CIST	80:00:00:14:D1:2D:18:DE	123	123	128	Disabled	Disabled	Apply
1	80:00:00:14:D1:2D:18:DE	20000	0	128	Disabled	Disabled	Apply

MST Port Settings	
Select MST Port:	Click the drop-down list to select which MST port to configure.

MST Port Info	
MSTI ID:	MSTI identification number
Designated Bridge:	The bridge connects to the designated ports.
Internal Path Cost:	The path cost to the designated bridge.
Admin Path Cost (0 = Auto):	This is the port cost used by MSTP when calculating path cost to the root bridge.

Priority:	This is the port priority used by MSTP in calculating path costs when two ports on the switch have the same port cost.
State:	STP port fording state
Role:	The port role in the STP: root port, designated port, backup port, or disabled port.
Action:	Click **Apply** to apply the change to the MST port

Go Save Settings to Flash section to save the change on the flash to make sure the change is permanent.

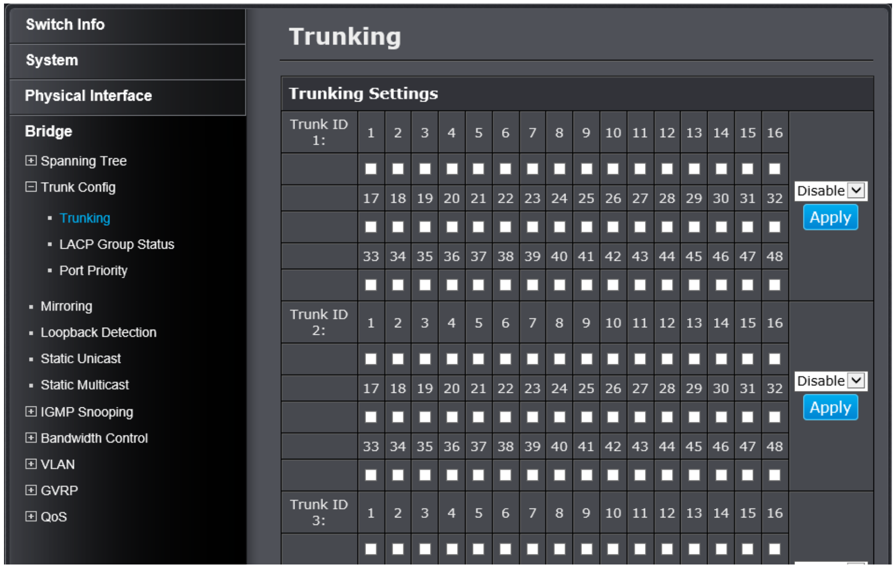
Trunk Configuration (Link Aggregation)

Configure port trunk settings

Bridge > Trunk Config > Trunking

The trunking function aggregates two or more links to a single combined link with larger total bandwidth. Up to 8 trunk groups can be created. Each group combines up to 8 ports in static trunking (manual mode) and 10 ports in LACP dynamic negotiation (Active, Passive). Add a trunking Name and select the ports to be combined together, and then click **Apply** to activate the selected group.

Important Note: Do not connect the cables of a port trunk to the ports on the switch until you have configured the ports on both the switch and the end nodes. Connecting the cables prior to configuring the ports can create loops in your network topology. Loops can result in broadcast storms which can severely limited the effective bandwidth of your network.



Trunking

Trunking Settings

Trunk ID 1:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	Disable
	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	Apply
	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	
	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	
Trunk ID 2:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	Disable
	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	Apply
	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	
	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	
Trunk ID 3:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	

For each Trunk ID/Group, check the port numbers to add for each trunk group.

Click the drop-down list and select one of the following options.

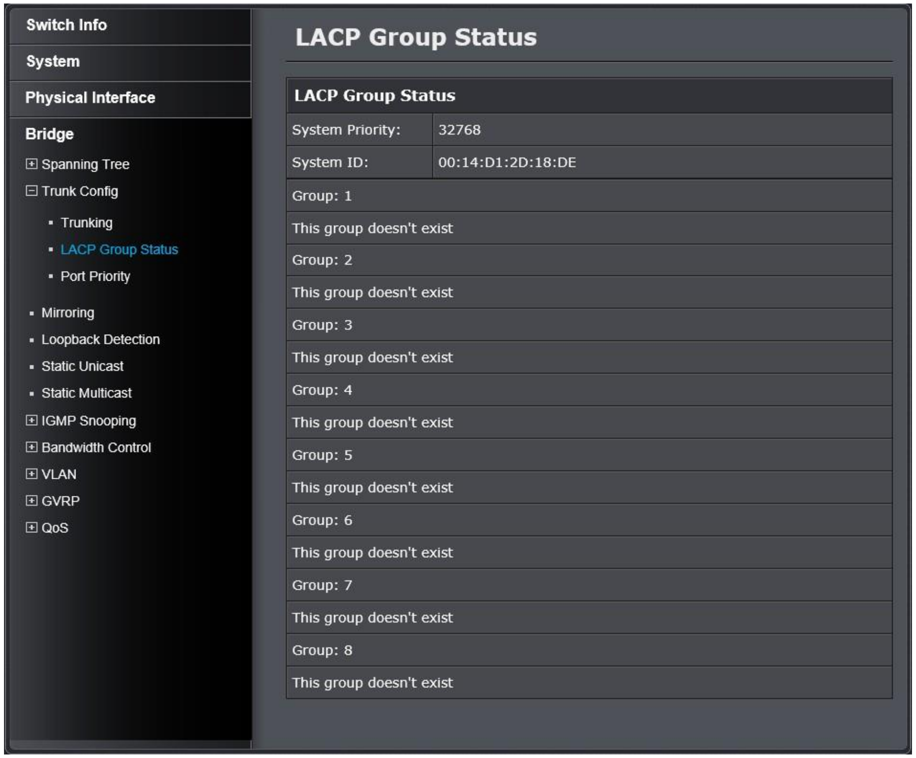
- **Active:** The specific aggregator will broadcast and respond to LACPDU (LACP Data Unit) packets. This setting enables the dynamic LACP feature for the trunk.
- **Passive:** The specific aggregator will not broadcast LACPDU packets, but it will respond to them. This setting disables the LACP feature for the trunk
- **Manual:** Enables static port trunking and disables the LACP feature for the trunk. (Static link aggregation).
- **Disable:** Disables the static port trunk and disables the LACP feature.

Click **Apply** to apply the change to the switch

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

View your trunk group status information

Bridge > Trunk Config > LACP Group Status



LACP Group Status

LACP Group Status	
System Priority:	32768
System ID:	00:14:D1:2D:18:DE

Group: 1
This group doesn't exist
Group: 2
This group doesn't exist
Group: 3
This group doesn't exist
Group: 4
This group doesn't exist
Group: 5
This group doesn't exist
Group: 6
This group doesn't exist
Group: 7
This group doesn't exist
Group: 8
This group doesn't exist

LACP Group Status

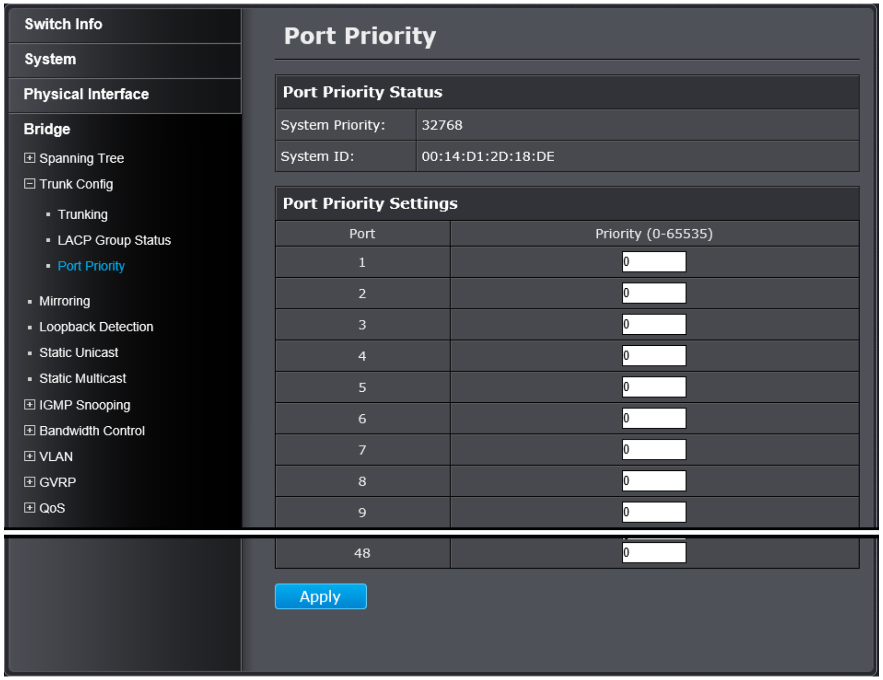
System Priority: Pre assigned setting that cannot be modified. This value applies to the switch.

System ID: MAC address value assigned to the individual switch. This value cannot be modified.

Group: The trunk group (link aggregation group) ID number and status.

Configure your port priority

Bridge > Trunk Config > Port Priority



Port Priority

Port Priority Status	
System Priority:	32768
System ID:	00:14:D1:2D:18:DE

Port Priority Settings

Port	Priority (0-65535)
1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0
48	0

Port Priority Status

System Priority: Preassigned setting that cannot be modified. This value applies to the switch.

System ID: MAC address value assigned to the individual switch. This value cannot be modified.

Port Priority Settings	
Port:	The port number
Priority:	To assign a port higher priority within a trunk group, find the port number and in the priority column, enter a priority value between 0 and 65535 (65535 represents the highest priority).

Click **Apply** to apply the change to the switch

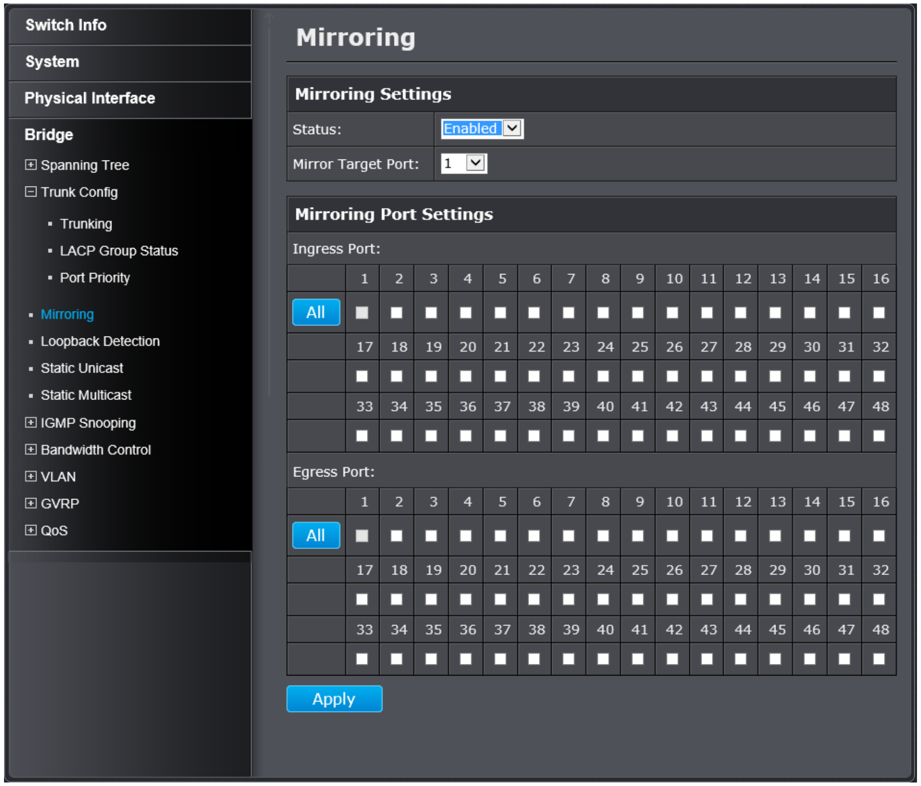
Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Mirroring

Configure port mirror settings

Bridge > Mirroring

Port mirroring allows you to monitor the ingress and egress traffic on a port by having the traffic copied to another port where a computer or device can be set up to capture the data for monitoring and troubleshooting purposes.



Mirroring

Mirroring Settings

Status: Enabled

Mirror Target Port: 1

Mirroring Port Settings

Ingress Port:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
All	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□
	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□

Egress Port:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
All	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□
	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□

Mirroring Settings

Status: Click the drop-down menu and select one of the following options:

- **Enabled:** This parameter activates the Port Mirroring feature and the rest of the configuration parameters become active on the page.
- **Disabled:** This parameter de-activates the Port Mirroring feature and the rest of the configuration parameters become inactive on the page.

Mirror Target Port: Click the drop-down and list and select the port to send the copied ingress/egress packets/data. (e.g. Computer or device with packet capture or data analysis program.)

Mirroring Port Settings

Ingress Port: To copy data received on a specific port, check the port number(s) under the **Ingress Port** section or you could click **All** to copy data received on all ports.

Egress Port: To copy data transmitted on specific port, check the port number under the **Egress** Port section or you could click **All** to copy data transmitted on all ports.

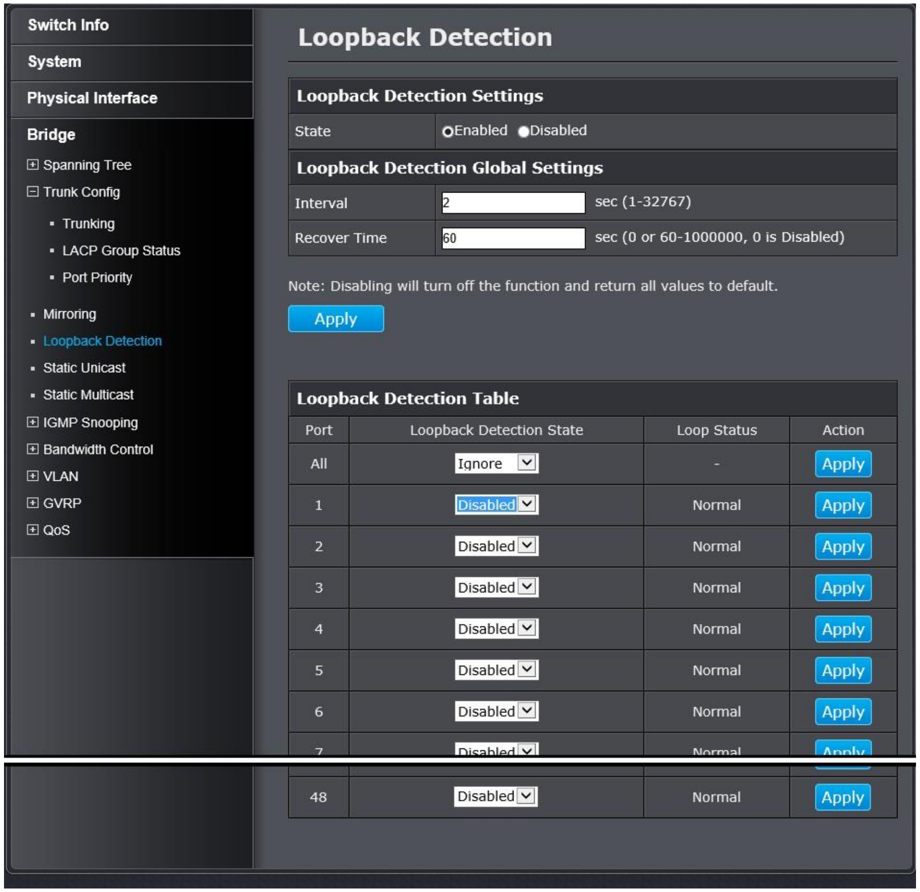
Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Loopback Detection

Enable loopback detection

Bridge > Loopback Detection

The loopback detection feature allows the switch to detect and prevent disruption from loops that occur on uplink or downlink switches directly connected to your switch.



Loopback Detection

Loopback Detection Settings

State ○Enabled ●Disabled

Loopback Detection Global Settings

Interval 2 sec (1-32767)

Recover Time 60 sec (0 or 60-1000000, 0 is Disabled)

Note: Disabling will turn off the function and return all values to default.

Apply

Loopback Detection Table

Port	Loopback Detection State	Loop Status	Action
All	Ignore	-	Apply
1	Disabled	Normal	Apply
2	Disabled	Normal	Apply
3	Disabled	Normal	Apply
4	Disabled	Normal	Apply
5	Disabled	Normal	Apply
6	Disabled	Normal	Apply
7	Disabled	Normal	Apply
48	Disabled	Normal	Apply

Loopback Detection Settings

State: Select **Enabled** to enable the loopback detection feature. Select **Disabled** to disabled the loopback detection feature.

Loopback Detection Global Settings

Interval: Defines the interval your switch will check for loops.

Recover Time: Defines the time period when connectivity will be restored to a port where a loop was previously detected and blocked.

Click **Apply** to apply the change to the switch

Loopback Detection Table

Port: The network port number on the switch

Loopback Detection State: Select one of the Loopback **Detection State** selections from the drop down menu:

- **Ignore:** This parameter indicates that the setting in the All row do not apply to the Loopback Detection State field. In other words, each port is set individually.
- **Enabled:** This selection enables the Loopback Detection feature for each port. This state must be enabled along with the State field at the top of the page before this feature can be active on the selected port.
- **Disabled:** This selection disables the Loopback Detection feature on the selected port.

Note: In the All row when you select Enable or Disable instead of Ignore, the selection applies to all of the Switch ports.

Loop Status: Display the current loopback status.

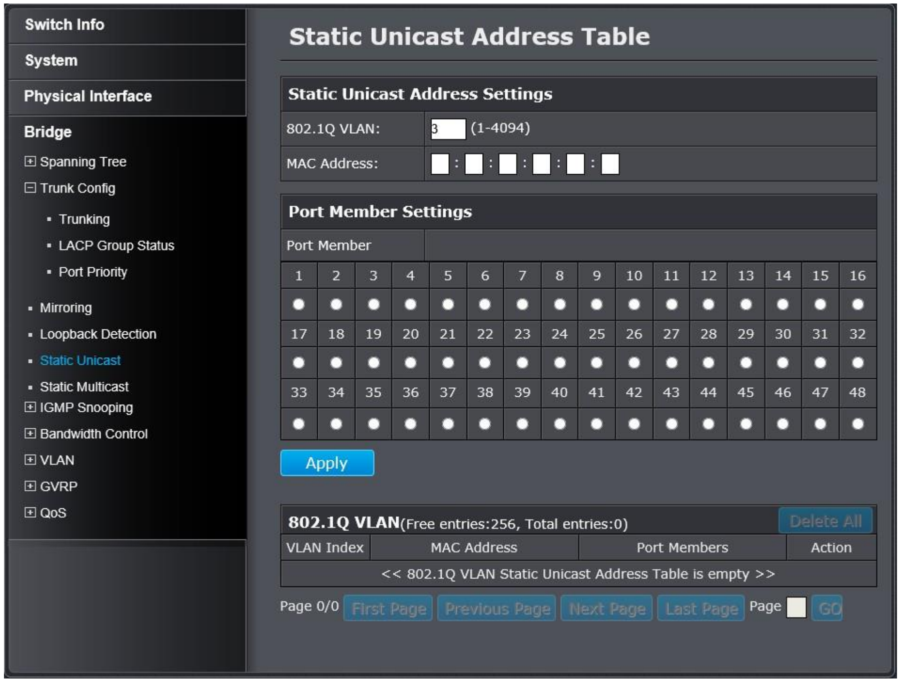
Action:	Next to each entry, click **Apply** to apply the change of the port.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Static Unicast

Add static unicast entries to the switch

Bridge > Static Unicast



Static Unicast Address Table

Static Unicast Address Settings

802.1Q VLAN: 3 (1-4094)

MAC Address: □ : □ : □ : □ : □ : □

Port Member Settings

Port Member

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

Apply

802.1Q VLAN(Free entries:256, Total entries:0) Delete All

VLAN Index	MAC Address	Port Members	Action
<< 802.1Q VLAN Static Unicast Address Table is empty >>			

Page 0/0 First Page Previous Page Next Page Last Page Page □ GO

Static Unicast Address Settings

802.1Q VLAN: Enter the VLAN ID where the MAC address will reside.

Note: By default, all switch ports are part of the default VLAN, VLAN ID 1.

MAC Address: Enter the MAC address of the device to add.

Port Member Settings

Port Member: Select the port where the MAC address will reside.

*Note: Click **Apply** to apply the change.*

802.1Q VLAN

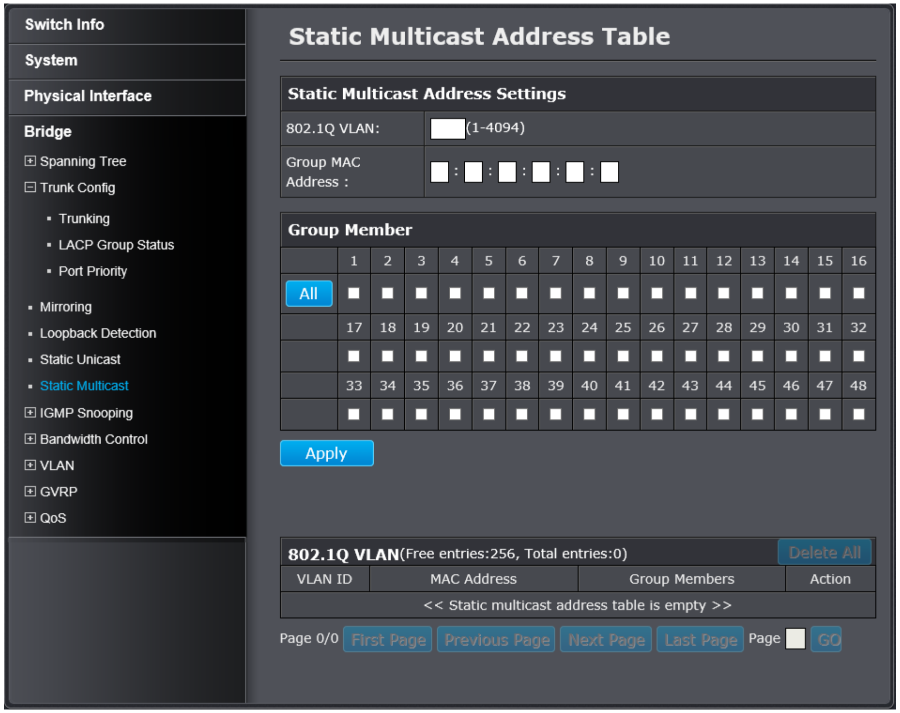
On the list, you can click **Modify** to modify an entry or click Delete to delete the entry. You can also click **Delete All** to delete all the entries in the list. If the entries span multiple pages, you can navigate page number in the Page field and click **Go** or you can click **First**, **Previous**, **Next**, and **Last Page** to navigate the pages.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Static Multicast

Add static multicast entries to the switch

Bridge > Static Multicast



Static Multicast Address Table

Static Multicast Address Settings

802.1Q VLAN: □ (1-4094)

Group MAC Address : □ : □ : □ : □ : □ : □

Group Member

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
All	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□
	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□

802.1Q VLAN(Free entries:256, Total entries:0)

VLAN ID	MAC Address	Group Members	Action
<< Static multicast address table is empty >>			

Page 0/0 Page □

Static Multicast Address Settings	
802.1Q VLAN:	Enter the VLAN ID where the MAC address will reside. *Note: By default, all switch ports are part of the default VLAN (VLAN 1).*
MAC Address:	Enter the MAC address of the device to add.

Group Member Settings	
Group Member:	Select the port where the MAC address will reside. *Note: Click **Apply** to apply the change.*

802.1Q VLAN

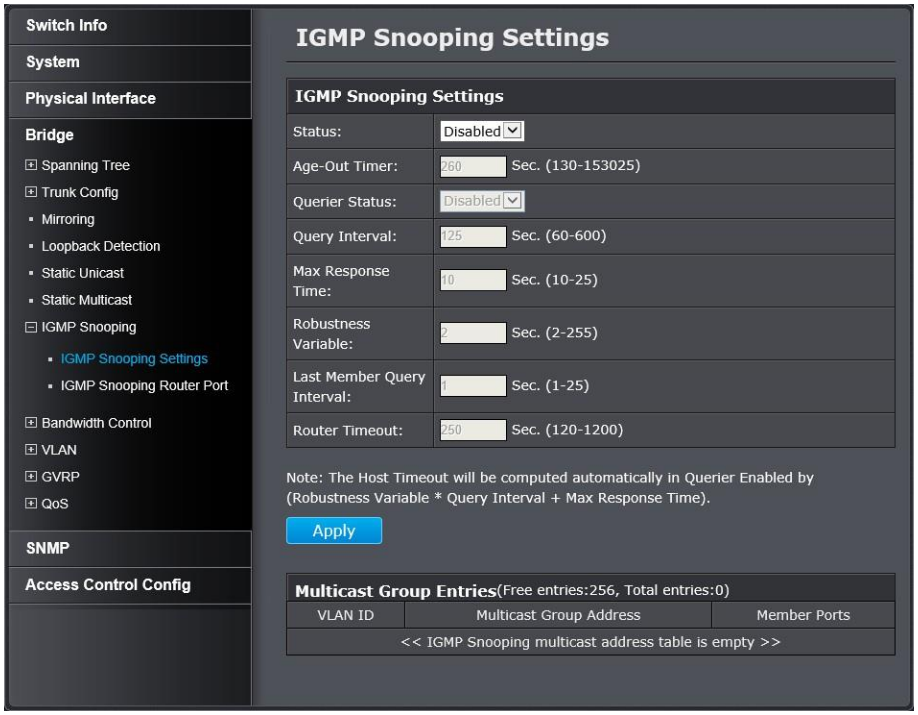
On the list, you can click **Modify** to modify an entry or click Delete to delete the entry. You can also click **Delete All** to delete all the entries in the list. If the entries span multiple pages, you can navigate page number in the Page field and click **Go** or you can click **First**, **Previous**, **Next**, and **Last Page** to navigate the pages.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

IGMP Snooping

Configure IGMP Snooping Settings

Bridge > IGMP Snooping > IGMP Snooping Settings



IGMP Snooping Settings

IGMP Snooping Settings

Status:	Disabled
Age-Out Timer:	260 Sec. (130-153025)
Querier Status:	Disabled
Query Interval:	125 Sec. (60-600)
Max Response Time:	10 Sec. (10-25)
Robustness Variable:	2 Sec. (2-255)
Last Member Query Interval:	1 Sec. (1-25)
Router Timeout:	250 Sec. (120-1200)

Note: The Host Timeout will be computed automatically in Querier Enabled by (Robustness Variable * Query Interval + Max Response Time).

Apply

Multicast Group Entries(Free entries:256, Total entries:0)

VLAN ID	Multicast Group Address	Member Ports
<< IGMP Snooping multicast address table is empty >>		

IGMP Snooping Settings	
Status:	Click the drop-down list and select **Enabled** to enable the IGMP snooping feature or **Disabled** to disable the feature.
Age-Out Timer:	Enter the amount of time in seconds that you want your switch to wait before it purges an inactive dynamic MAC address.
Querier Status:	Click the drop-down list and select **Enabled** to enable the Querier Status or **Disabled** to disable this feature.
Query Interval:	Enter the amount of time you want your switch to send IGMP queries.
Max Response Time:	When a host receives the query packet, it starts counting to a random value, less than the maximum response time. When this timer expires, host replies with a report, provided that no other host has responded yet.
Robustness Variable:	Adjust the robustness variable to compensate the packet loss.
Last Member Query Interval:	The timer to define the window of time to collect member response.
Router Timeout:	The timer to maintain a valid router.

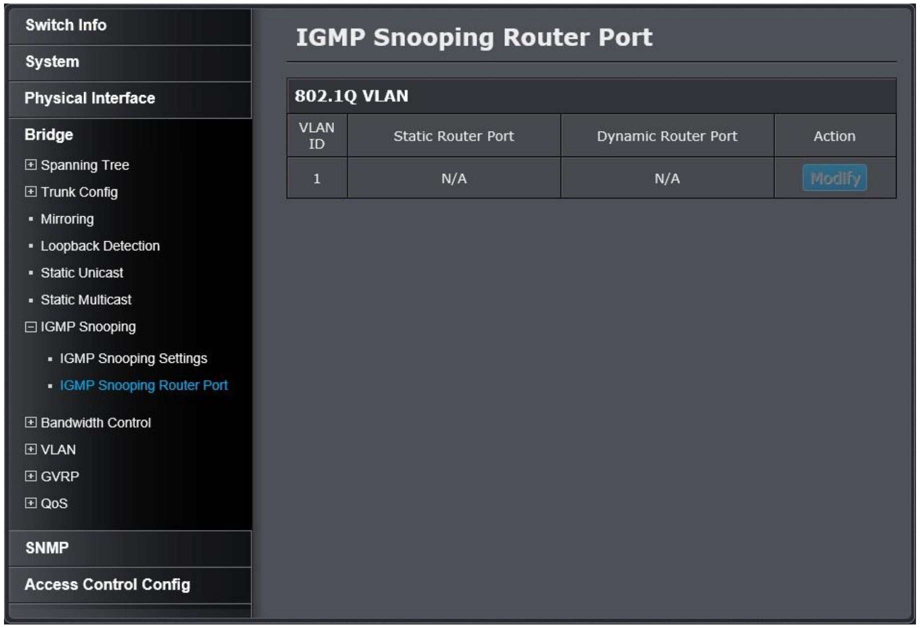
Multicast Group Entries

The table below displays the static multicast address groups defined in your switch for reference and can be modified on under **Bridge > Static Multicast** or dynamically updated with the active multicast address groups.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Configure IGMP Snooping Router Ports

Bridge > IGMP Snooping > IGMP Snooping Router Port

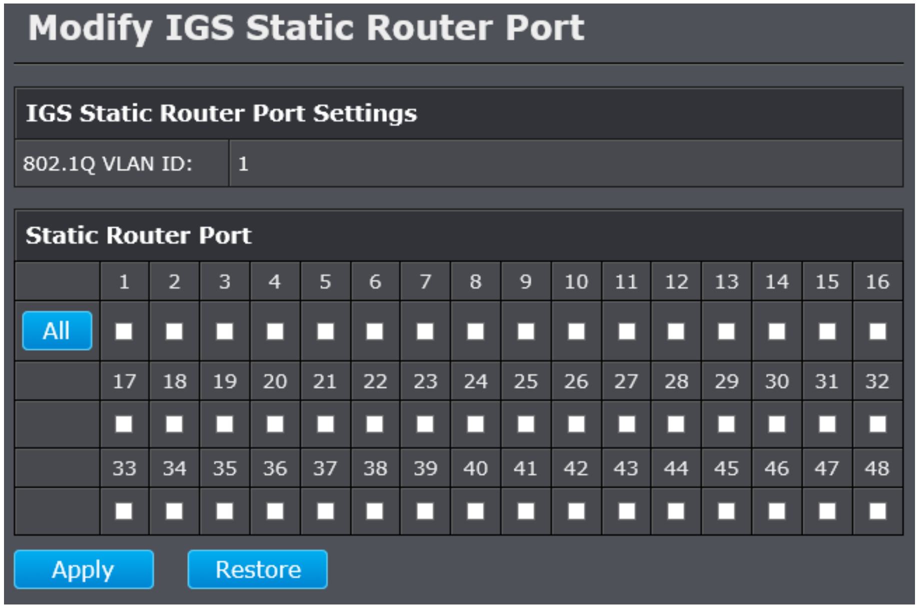


IGMP Snooping Router Port

802.1Q VLAN

VLAN ID	Static Router Port	Dynamic Router Port	Action
1	N/A	N/A	Modify

In the VLAN ID router port list, you can configure your Static and Dynamic Router ports. IGMP Snooping Router Port configured manually is a **Static Router Port**, and a **Dynamic Router Port** is dynamically configured by the Switch when a query control message is received. To modify an entry, click **Modify** to add statically add router ports.



Modify IGS Static Router Port

IGS Static Router Port Settings

802.1Q VLAN ID: 1

Static Router Port

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
All	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Check the static router ports to add and click **Apply** to save the settings.

*Note: You can click on **All** to add all ports. Clicking Restore will restore the static router port settings to default.*

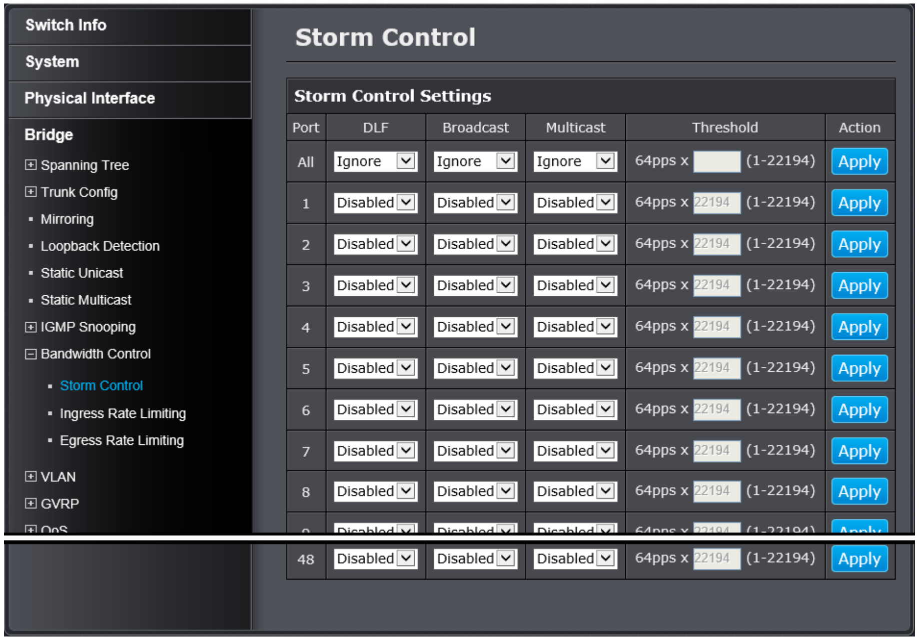
Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Bandwidth Control

Configure Storm Control

Bridge > Bandwidth Control > Storm Control

This section allows you to configure the DLF (Destination Lookup Failure), broadcast, and multicast storm settings for each switch port.



Storm Control

Storm Control Settings

Port	DLF	Broadcast	Multicast	Threshold	Action
All	Ignore	Ignore	Ignore	64pps x (1-22194)	Apply
1	Disabled	Disabled	Disabled	64pps x 22194 (1-22194)	Apply
2	Disabled	Disabled	Disabled	64pps x 22194 (1-22194)	Apply
3	Disabled	Disabled	Disabled	64pps x 22194 (1-22194)	Apply
4	Disabled	Disabled	Disabled	64pps x 22194 (1-22194)	Apply
5	Disabled	Disabled	Disabled	64pps x 22194 (1-22194)	Apply
6	Disabled	Disabled	Disabled	64pps x 22194 (1-22194)	Apply
7	Disabled	Disabled	Disabled	64pps x 22194 (1-22194)	Apply
8	Disabled	Disabled	Disabled	64pps x 22194 (1-22194)	Apply
9	Disabled	Disabled	Disabled	64pps x 22194 (1-22194)	Apply
48	Disabled	Disabled	Disabled	64pps x 22194 (1-22194)	Apply

Storm Control Settings

Port: The port ID you want to implement the storm control.

DLF: Destination Lookup Failure: Click the drop-down list and select **Enabled** to enable DLF storm control.

Broadcast: Click the drop-down list and select **Enabled** to enable broadcast storm control.

Multicast: Click the drop-down list and select Enabled to enable multicast storm control.

Threshold: Enter the pps (packets per second) threshold.

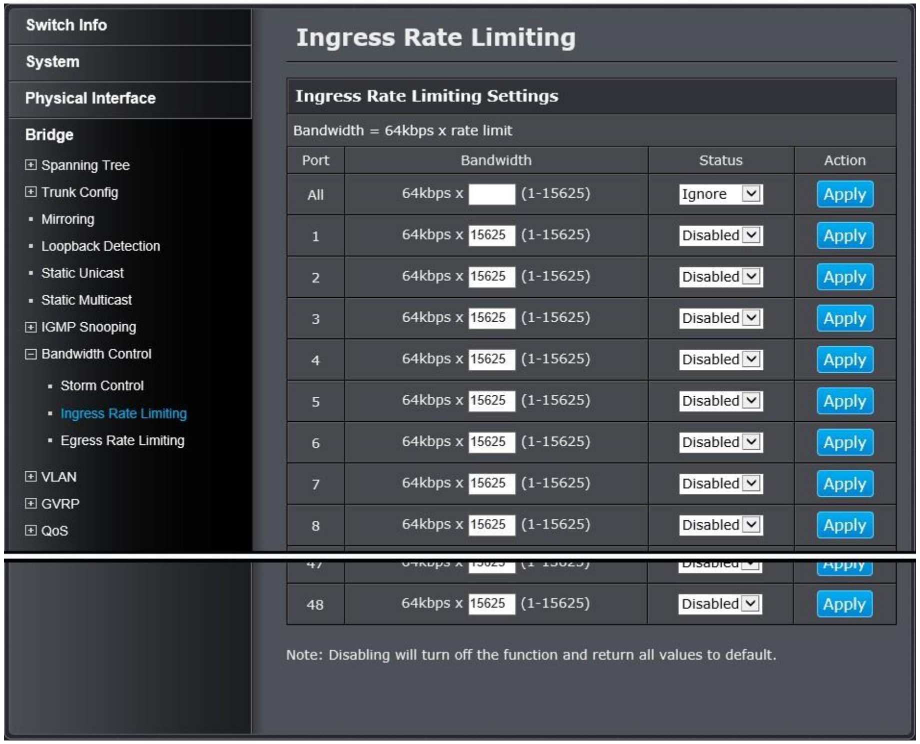
Action: Modifying settings in the row marked **All**, will apply the settings to all ports. Click **Apply** to apply the change.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Set Ingress Rate Limiting

Bridge > Bandwidth Control > Ingress Rate Limiting

This section allows you to set the ingress (receive) rate for each switch port.



Ingress Rate Limiting

Ingress Rate Limiting Settings

Bandwidth = 64kbps x rate limit

Port	Bandwidth	Status	Action
All	64kbps x (1-15625)	Ignore	Apply
1	64kbps x 15625 (1-15625)	Disabled	Apply
2	64kbps x 15625 (1-15625)	Disabled	Apply
3	64kbps x 15625 (1-15625)	Disabled	Apply
4	64kbps x 15625 (1-15625)	Disabled	Apply
5	64kbps x 15625 (1-15625)	Disabled	Apply
6	64kbps x 15625 (1-15625)	Disabled	Apply
7	64kbps x 15625 (1-15625)	Disabled	Apply
8	64kbps x 15625 (1-15625)	Disabled	Apply
47	64kbps x 15625 (1-15625)	Disabled	Apply
48	64kbps x 15625 (1-15625)	Disabled	Apply

Note: Disabling will turn off the function and return all values to default.

Ingress Rate Limiting Settings

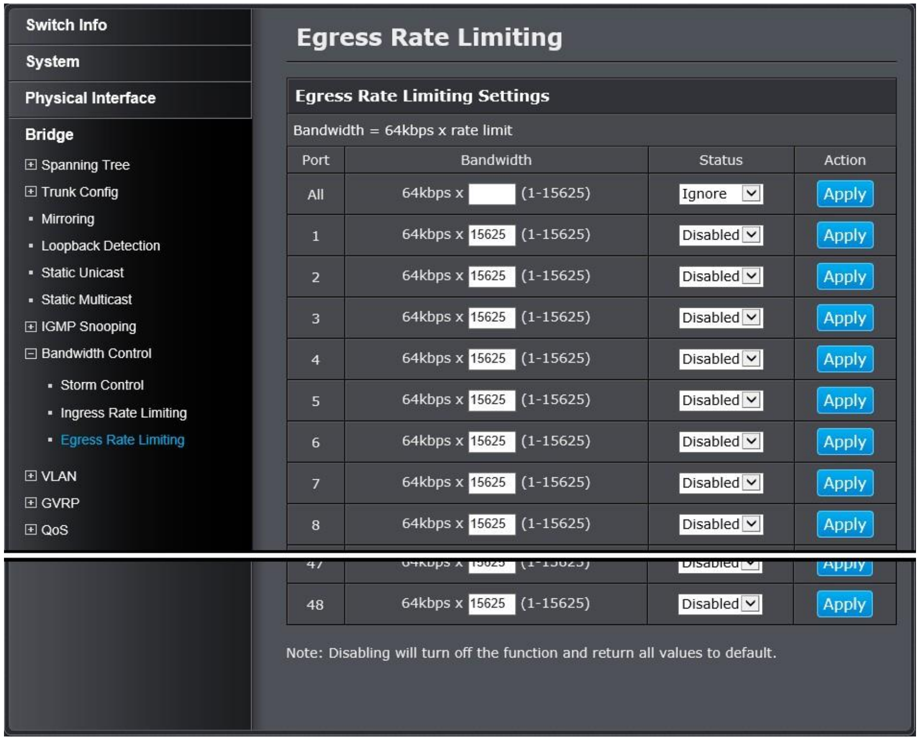
Port:	The port number.
Bandwidth	Enter the ingress rate limit value.
Status	Click the drop-down list and select Enabled to enable ingress rate limiting or select **Disabled** to disable ingress rate limiting.
Action:	Modifying settings in the row marked **All**, will apply the settings to all ports. Click **Apply** to apply the change.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Set Egress Rate Limiting

Bridge > Bandwidth Control > Egress Rate Limiting

This section allows you to set the egress (transmit) rate for each switch port.



Egress Rate Limiting

Egress Rate Limiting Settings

Bandwidth = 64kbps x rate limit

Port	Bandwidth	Status	Action
All	64kbps x [ ] (1-15625)	Ignore	Apply
1	64kbps x 15625 (1-15625)	Disabled	Apply
2	64kbps x 15625 (1-15625)	Disabled	Apply
3	64kbps x 15625 (1-15625)	Disabled	Apply
4	64kbps x 15625 (1-15625)	Disabled	Apply
5	64kbps x 15625 (1-15625)	Disabled	Apply
6	64kbps x 15625 (1-15625)	Disabled	Apply
7	64kbps x 15625 (1-15625)	Disabled	Apply
8	64kbps x 15625 (1-15625)	Disabled	Apply
47	64kbps x 15625 (1-15625)	Disabled	Apply
48	64kbps x 15625 (1-15625)	Disabled	Apply

Note: Disabling will turn off the function and return all values to default.

Egress Rate Limiting Settings

Port:	The port number.
Bandwidth	Enter the egress rate limit value.
Status	Click the drop-down list and select **Enabled** to enable egress rate limiting or select **Disabled** to disable egress rate limiting.
Action:	Modifying settings in the row marked **All**, will apply the settings to all ports. Click **Apply** to apply the change.

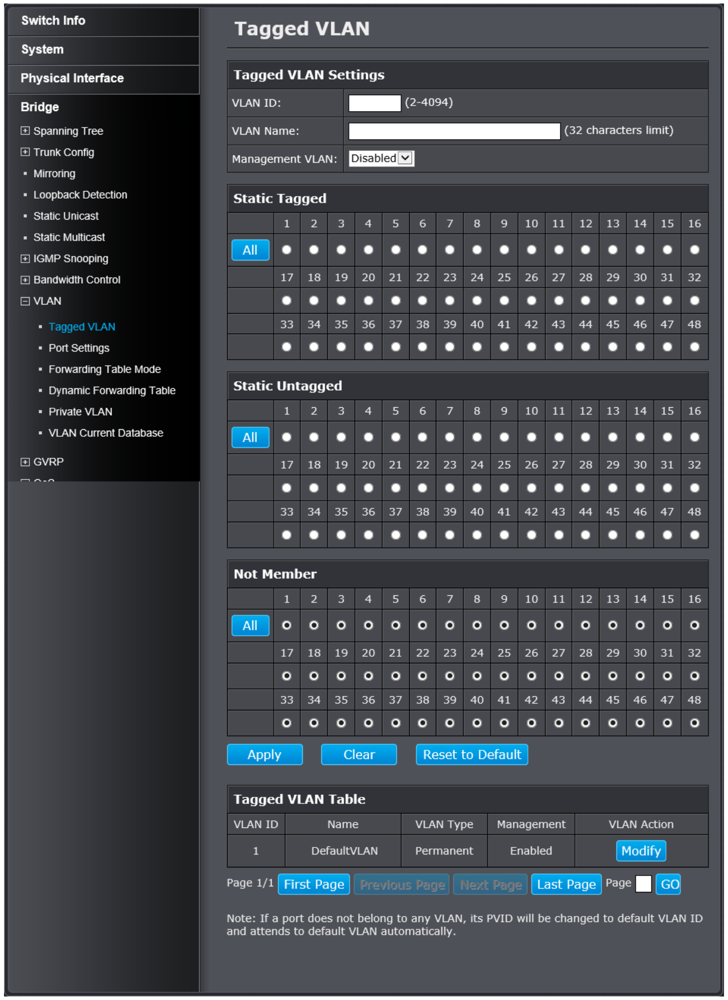
Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

VLAN

Add, modify, and remove VLANs

Bridge > VLAN > Tagged VLAN

A VLAN is a group of ports that can be anywhere in the network, but communicate as though they were in the same area.



Tagged VLAN

Tagged VLAN Settings

VLAN ID: (2-4094)

VLAN Name: (32 characters limit)

Management VLAN: Disabled

Static Tagged

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
All	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

Static Untagged

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
All	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

Not Member

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
All	◉	◉	◉	◉	◉	◉	◉	◉	◉	◉	◉	◉	◉	◉	◉	◉
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
	◉	◉	◉	◉	◉	◉	◉	◉	◉	◉	◉	◉	◉	◉	◉	◉
	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
	◉	◉	◉	◉	◉	◉	◉	◉	◉	◉	◉	◉	◉	◉	◉	◉

Tagged VLAN Table

VLAN ID	Name	VLAN Type	Management	VLAN Action
1	DefaultVLAN	Permanent	Enabled	Modify

Note: If a port does not belong to any VLAN, its PVID will be changed to default VLAN ID and attends to default VLAN automatically.

VLANs can be easily organized to reflect department groups (such as R&D, Marketing), usage groups (such as e-mail), or multicast groups (multimedia applications such as video conferencing), and therefore help to simplify network management by allowing users to move devices to a new VLAN without having to change any physical connections.

Tagged VLAN Settings

VLAN ID:	Enter the VLAN ID for the new VLAN.
VLAN Name:	Enter the VLAN name.
Management VLAN:	Click the drop-down list and select **Enabled** to allow access to the switch management page through the new VLAN. If you want to restrict management access through this VLAN, select **Disabled**. *Note: By default, the default VLAN VID 1 is set as the Management VLAN.*

In the sections **Static Tagged**, **Static Untagged**, and **Not Member**, you can add the type of VLAN ports to add to the new VLAN (Tagged or Untagged) and assign ports that are not members (Forbidden) of the new VLAN.

Tagged/Untagged/Not Member VLAN Ports

On a port, the tag information within a frame is examined when it is received to determine if the frame is qualified as a member of a specific tagged VLAN. If it is, it is eligible to be switched to other member ports of the same VLAN. If it is determined that the frame's tag does not conform to the tagged VLAN, the frame is discarded.

Since these VLAN ports are VLAN aware and able to read VLAN VID tagged information on a frame and forward to the appropriate VLAN, typically tagged VLAN ports are used for uplink and downlink to other switches to carry and forward traffic for multiple VLANs across multiple switches.

Tagged VLAN ports can be included as members for multiple VLANs. Computers and other edge devices are not typically connecting to tagged VLAN ports unless the network interface on these device can be enabled to be VLAN aware.

Untagged VLAN ports are used to connect edge devices (VLAN unaware) such as computers, laptops, and printers to a specified VLAN. It is required to modify the Port VID settings accordingly for untagged VLAN ports under Bridge > VLAN > Port Settings. (e.g. If the VID for the VLAN is 2, the PVID should also be set to 2)

Click **Apply** to set the new VLAN to the table.

Tagged VLAN Table
In the list, you can click Modify to modify an entry or click Delete or delete the entry. If the entries span multiple pages, you can navigate page number in the **Page** field and click **Go** or you can click **First**, **Previous**, **Next**, and **Last** Page to navigate the pages.

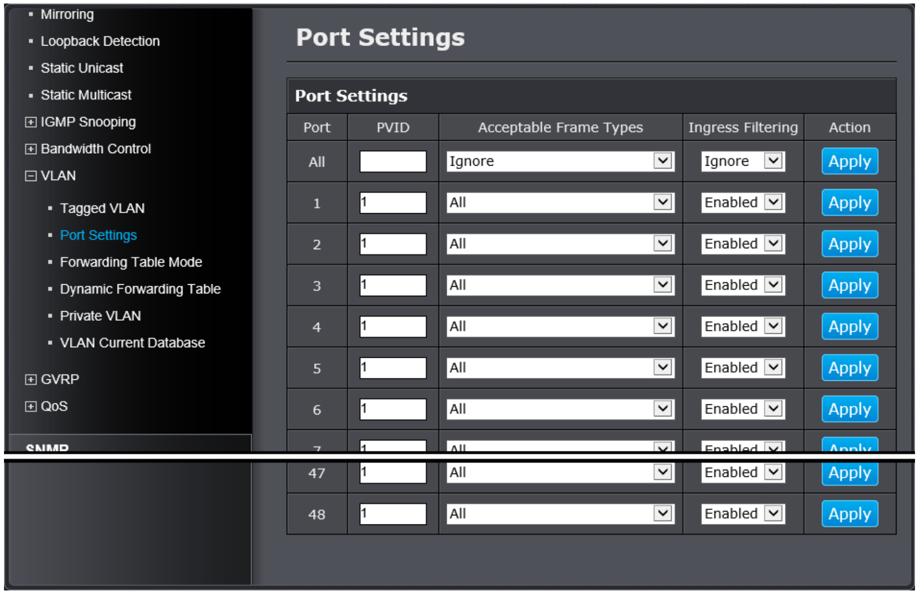
Note: VLAN 1 is the default VLAN and cannot be removed.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Configure VLAN Port Settings

Bridge > VLAN > Port Settings

In this section, you can modify the port VID settings, acceptable frame types, and ingress filtering.



Port Settings

Port Settings

Port	PVID	Acceptable Frame Types	Ingress Filtering	Action
All		Ignore	Ignore	Apply
1	1	All	Enabled	Apply
2	1	All	Enabled	Apply
3	1	All	Enabled	Apply
4	1	All	Enabled	Apply
5	1	All	Enabled	Apply
6	1	All	Enabled	Apply
7	1	All	Enabled	Apply
47	1	All	Enabled	Apply
48	1	All	Enabled	Apply

Port Settings

Port: The port number.

PVID: Enter the port VLAN ID.
Note: Required for untagged VLAN ports.

Acceptable Frame Type: Click the drop-down list and select which type of frames can be accepted:

- **All:** The port can accept all frame types.
- **Tagged:** The port can accept tagged frames only. Untagged frames are discarded.
- **Untagged & Priority Tagged:** The port can accept untagged frames and frames with tagged

Ingress Filtering: Click the drop-down list and select Enabled to enable ingress filtering or Disabled to disable ingress filtering.

Action: Modifying settings in the row marked **All**, will apply the settings to all ports. Click **Apply** to apply the change.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

priority information
only such as 802.1p.

Configure the VLAN Forwarding Table Mode

Bridge > VLAN > Forwarding Table Mode

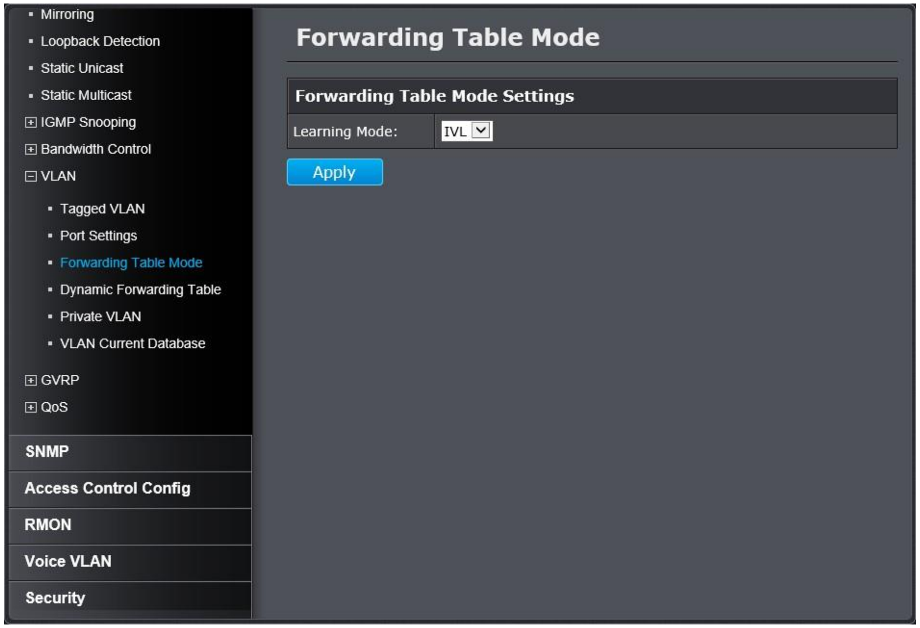
This section allows you to configure your switch to standard 802.1Q VLAN mode (IVL) or Asymmetric VLAN mode (SVL). Asymmetric VLAN allows the configuration of overlapping untagged VLAN ports in order to create VLAN groups. It is recommended to use the standard 802.1Q VLAN mode when possible.

IVL – Independent VLAN Learning

SVL – Shared VLAN Learning

Please note the following when switching between forwarding table modes:

- FDB (Forwarding Database) will be cleared.
- Static Unicast Address entries will be cleared.
- Static Multicast Address entries will be cleared.
- 802.1X authenticated records will be cleared.
- IGMP Snooping multicast group addresses will be cleared
- When using SVL mode, Voice VLAN will not be supported.
- When using SVL mode, the VID field on 802.1Q-VLAN mode will be displayed as "N/A".



Forwarding Table Mode

Forwarding Table Mode Settings

Learning Mode: IVL

Note: The default mode is IVL.

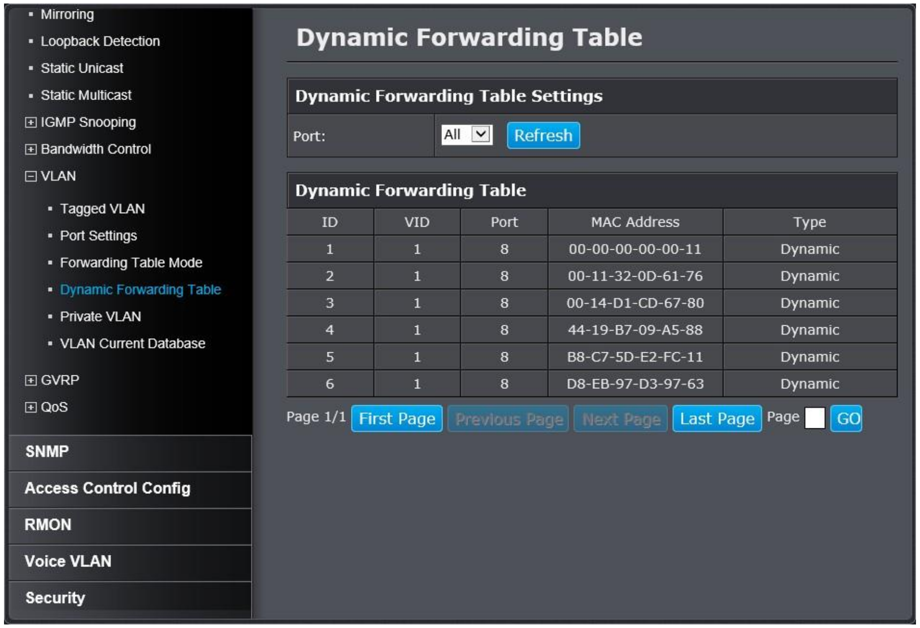
Click **Apply** to apply the change to the switch

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

View the switch VLAN dynamic forwarding table

Bridge > VLAN > Dynamic Forwarding Table

This section allows you to view the VLAN forwarding table with dynamically generated forwarding table entries as devices more devices are connected to your switch.



Dynamic Forwarding Table

Dynamic Forwarding Table Settings

Port: All

Dynamic Forwarding Table

ID	VID	Port	MAC Address	Type
1	1	8	00-00-00-00-00-11	Dynamic
2	1	8	00-11-32-0D-61-76	Dynamic
3	1	8	00-14-D1-CD-67-80	Dynamic
4	1	8	44-19-B7-09-A5-88	Dynamic
5	1	8	B8-C7-5D-E2-FC-11	Dynamic
6	1	8	D8-EB-97-D3-97-63	Dynamic

Page 1/1 Page

By default, forwarding entries for all ports are listed. You can click the **Port** drop-down list to select a specific port to view only the forwarding entries for the selected port.

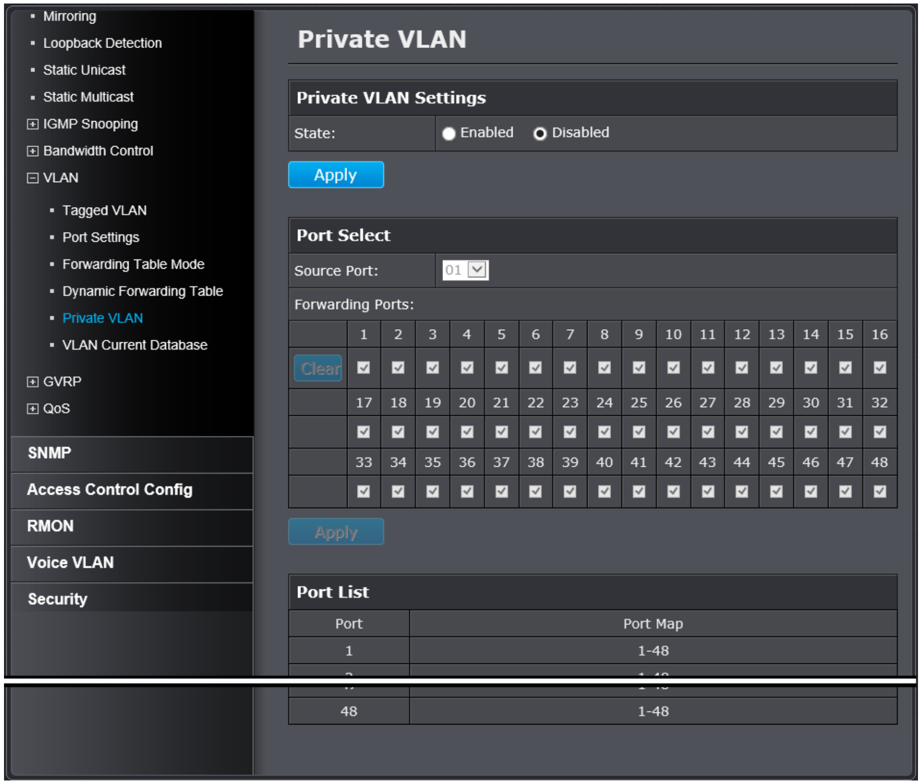
If the entries span multiple pages, you can navigate page number in the Page field and click **Go** or you can click **First, Previous, Next,** and **Last Page** to navigate the pages.

Create a private VLAN

Bridge > VLAN > Private VLAN

The private VLAN feature allows you to create a more secure VLAN that is completely isolated to its members and cannot communicate with other VLANs. A private VLAN partitions the Layer 2 broadcast domain of a VLAN into subdomains, allowing you to isolate the ports on the switch from each other. A subdomain consists of a primary VLAN and one or more secondary VLANs. All VLANs in a private VLAN domain share the same primary VLAN. The secondary VLAN ID differentiates one subdomain from another. The secondary VLANs may either be isolated VLANs or community VLANs. A host on an isolated VLAN can only communicate with the associated promiscuous port in its primary VLAN. Hosts on community VLANs can communicate among themselves and with their associated promiscuous port but not with ports in other community VLANs.

The following guidelines apply when configuring private VLANs: The default VLAN 1 cannot be a private VLAN. The management VLAN 4095 cannot be a private VLAN. The management port cannot be a member of a private VLAN.IGMP Snooping must be disabled on isolated VLANs. Each secondary port's (isolated port and community ports) PVID must match its corresponding secondary VLAN ID. Ports within a secondary VLAN cannot be members of other VLANs. All VLANs that make up the private VLAN must belong to the same Spanning Tree Group.



Private VLAN

Private VLAN Settings

State: ○ Enabled ● Disabled

Port Select

Source Port: 01

Forwarding Ports:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Clear	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑

Port List

Port	Port Map
1	1-48
2	1-48
48	1-48

To configure Private VLAN Settings, perform the following procedure:

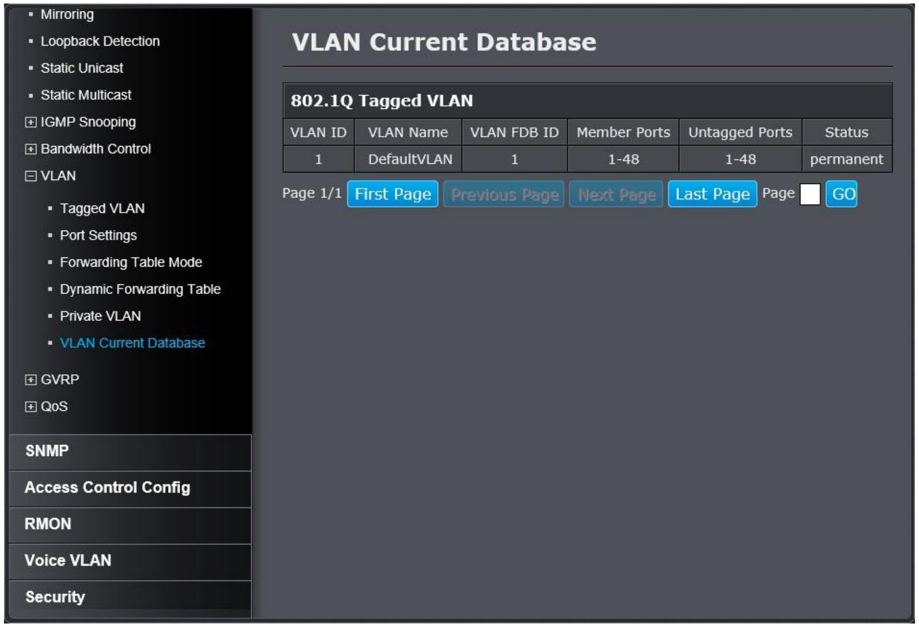
- Change the **Private VLAN Settings** by clicking the **State** radio button choices that you want to change.
  - Enable: Enable Private VLAN settings.
  - **Disable:** Disable Private VLAN settings.

  Press **Apply** to make the changes to take effect.
- Set the Source Port to on port 1 – 8.
- Click on the **Forwarding Ports** ratio button that applies to your configuration.
- Click **Apply**.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

View the current VLAN database

Bridge > VLAN > VLAN Database



VLAN Current Database

802.1Q Tagged VLAN

VLAN ID	VLAN Name	VLAN FDB ID	Member Ports	Untagged Ports	Status
1	DefaultVLAN	1	1-48	1-48	permanent

Page 1/1 First Page Previous Page Next Page Last Page Page □ GO

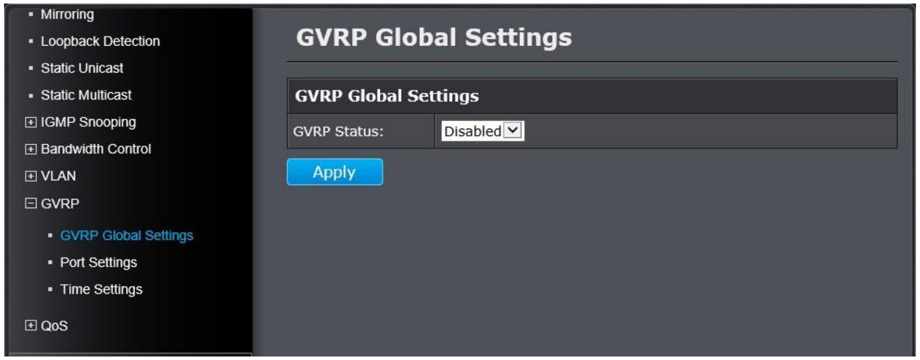
If the entries span multiple pages, you can navigate page number in the **Page** field and click **Go** or you can click **First**, **Previous**, **Next**, and **Last Page** to navigate the pages.

GVRP (GARP VLAN Registration Protocol)

The GARP VLAN Registration Protocol (GVRP) allows network devices to share VLAN information and to use the information to modify existing VLANs or create new VLANs, automatically. This makes it easier to manage VLANs that span more than one switch. Without GVRP, you have to manually configure your switches to ensure that the various parts of the VLANs can communicate with each other across the different switches.

With GVRP, which is an application of the Generic Attribute Registration Protocol (GARP), this is done for you automatically.

Bridge > GVRP > GVRP Global Settings



GVRP Status: Disabled

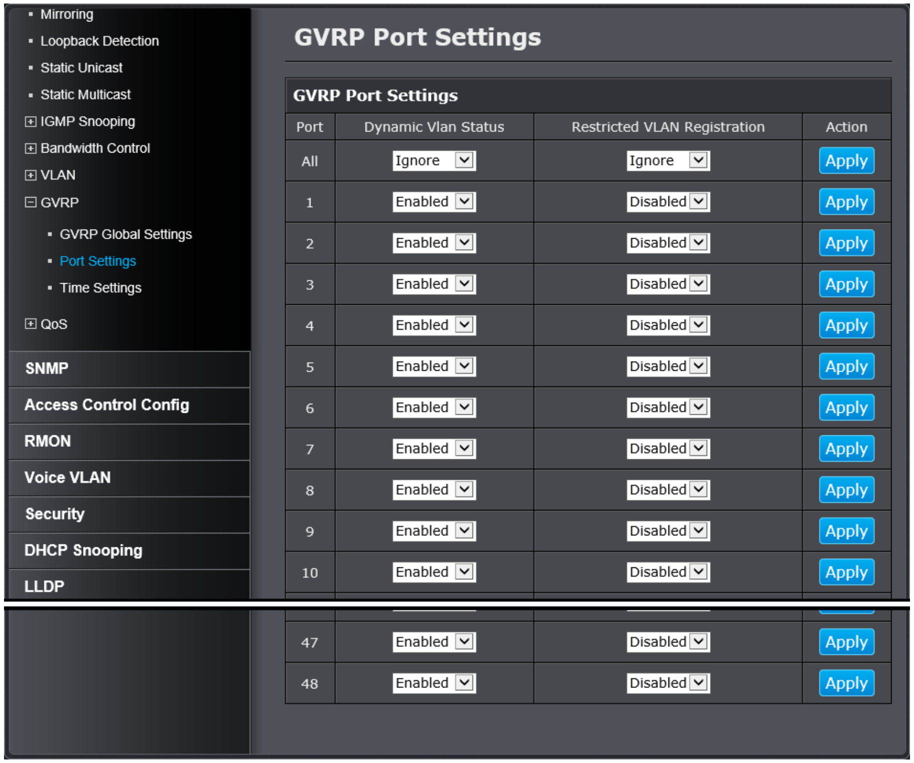
Click the GVRP Status drop-down list and select **Enabled** to activate GVRP or **Disabled** to deactivate GVRP. Click **Apply** to save the settings.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Set GVRP port settings

Bridge > GVRP > Port Settings

This section will allow you to select which ports will have GVRP enabled or will be restricted from using GVRP.



GVRP Port Settings

Port	Dynamic Vlan Status	Restricted VLAN Registration	Action
All	Ignore	Ignore	Apply
1	Enabled	Disabled	Apply
2	Enabled	Disabled	Apply
3	Enabled	Disabled	Apply
4	Enabled	Disabled	Apply
5	Enabled	Disabled	Apply
6	Enabled	Disabled	Apply
7	Enabled	Disabled	Apply
8	Enabled	Disabled	Apply
9	Enabled	Disabled	Apply
10	Enabled	Disabled	Apply
47	Enabled	Disabled	Apply
48	Enabled	Disabled	Apply

GVRP Port Settings

Port: The port number on the switch.

Dynamic Vlan Status This parameter defines the GVRP status of the port. From the Dynamic Vlan Status field, select one of the following choices from the pull-down menu:

- **Ignore:** This parameter indicates that the setting in the All row does not apply to the Dynamic Vlan Status field. In other words, each port is set individually.
- **Enabled:** The Dynamic Vlan is activated for the port row selected.
- **Disabled:** The Dynamic VLAN is de-active for the respective port.

Restricted VLAN Registration This parameter controls if the VLAN registration on the port is restricted or not.

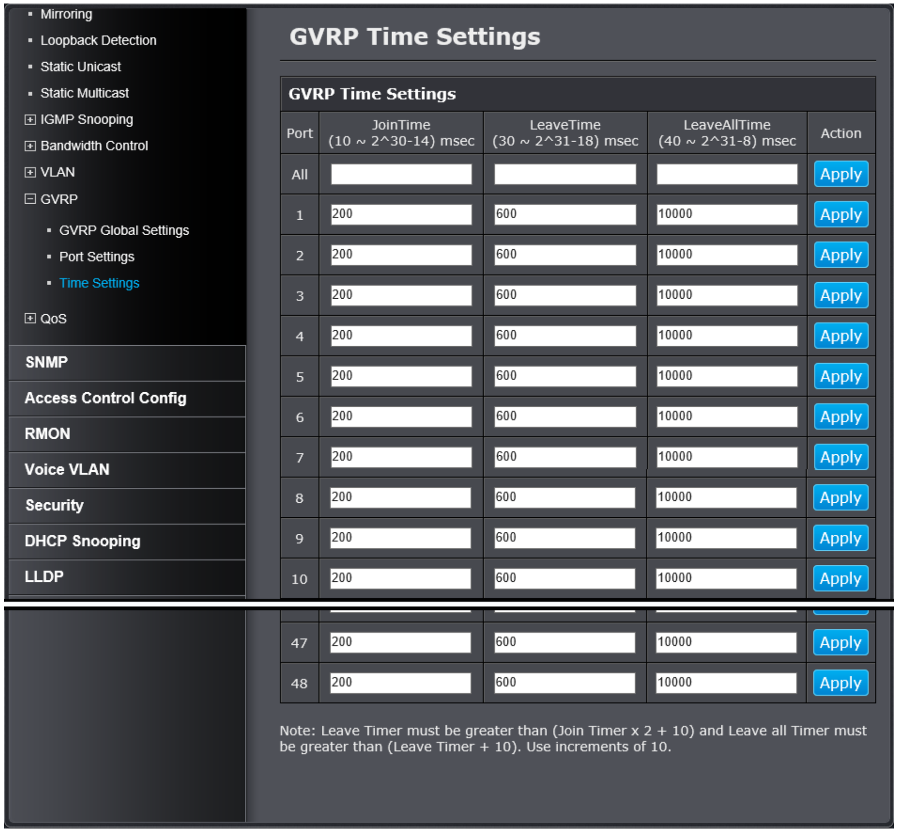
- **Ignore:** This parameter indicates that the setting in the **All** row does not apply to the Restricted VLAN Registration field. In other words, each port is set individually.
- **Enable:** The Restricted VLAN Registration is active for the port row selected.
- **Disable:** The Restricted VLAN Registration is de-active for the port row selected.

Action: Modifying settings in the row marked **All**, will apply the settings to all ports. Click **Apply** to apply the change.

Set GVRP time settings

Bridge > GVRP > Time Settings

This section will allow you to define the GARP Join, Leave, and Leave All Time for each port.



GVRP Time Settings

GVRP Time Settings

Port	JoinTime (10 ~ 2^30-14) msec	LeaveTime (30 ~ 2^31-18) msec	LeaveAllTime (40 ~ 2^31-8) msec	Action
All				Apply
1	200	600	10000	Apply
2	200	600	10000	Apply
3	200	600	10000	Apply
4	200	600	10000	Apply
5	200	600	10000	Apply
6	200	600	10000	Apply
7	200	600	10000	Apply
8	200	600	10000	Apply
9	200	600	10000	Apply
10	200	600	10000	Apply
47	200	600	10000	Apply
48	200	600	10000	Apply

Note: Leave Timer must be greater than (Join Timer x 2 + 10) and Leave all Timer must be greater than (Leave Timer + 10). Use increments of 10.

Note: The GARP LeaveTime must be greater than (GARP JoinTimer x2 + 10) and the GARPLeaveAllTime must be greater than (GARP LeaveTime + 10). The acceptable input values are multiples of 10. If you try to enter a value that is not a multiple of 10, the value is rimmed down to the multiple of 10.

GVRP Time Settings	
Port:	The port number on the switch.
JoinTime:	This parameter is the GARP Join Timer. Its range is 10 - 1073741810 milli-seconds.
LeaveTime:	This parameter is the GARP Leave Timer. Its range is 30 - 2147483630 milli-seconds. This timer must be set in relation to the GVRP Join Timer according to the following equation: • GARPLeaveTimer >= (GARPJoinTimer X 2) + 10
LeaveAllTime:	This parameter is the GARP Leave Timer. Its range is 30 - 2147483630 milli-seconds. This timer must be set in relation to the GVRP Leave Timer according to the following equation: • GARPLeaveAllTimer > (GARPLeaveTimer + 10)
Action:	Modifying settings in the row marked **All**, will apply the settings to all ports. Click **Apply** to apply the change.

Note: To ensure compatibility between network devices, you need to configure the same values for the GARP Join Timer, GARP Leave Timer, and GARP Leave All Timer on all participating GVRP devices in your network.

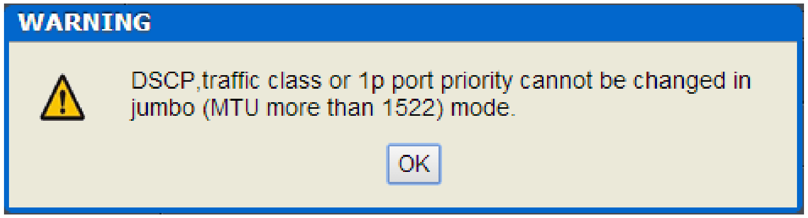
Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

QoS (Quality of Service)

When a port on an Ethernet switch becomes oversubscribed, its egress queues contain more packets than the port can handle in a timely manner. In this situation, the port may be forced to delay the transmission of some packets, resulting in the delay of packets reaching their destinations. A port may be forced to delay transmission of packets while it handles other traffic, and, in some situations, some packets destined to be forwarded to an oversubscribed port from other switch ports may be discarded.

Minor delays are often of no consequence to a network or its performance. But there are applications, referred to as delay or time sensitive applications, which can be impacted by packet delays. Voice transmission and video conferences are two examples. If packets carrying data in either of these cases are delayed from reaching their destination, the audio or video quality may suffer.

This is where Cost of Service (CoS) is of value. It allows you to manage the flow of traffic through a switch by having the switch ports give higher priority to some packets, such as delay sensitive traffic, over other packets. This is referred to as prioritizing traffic.



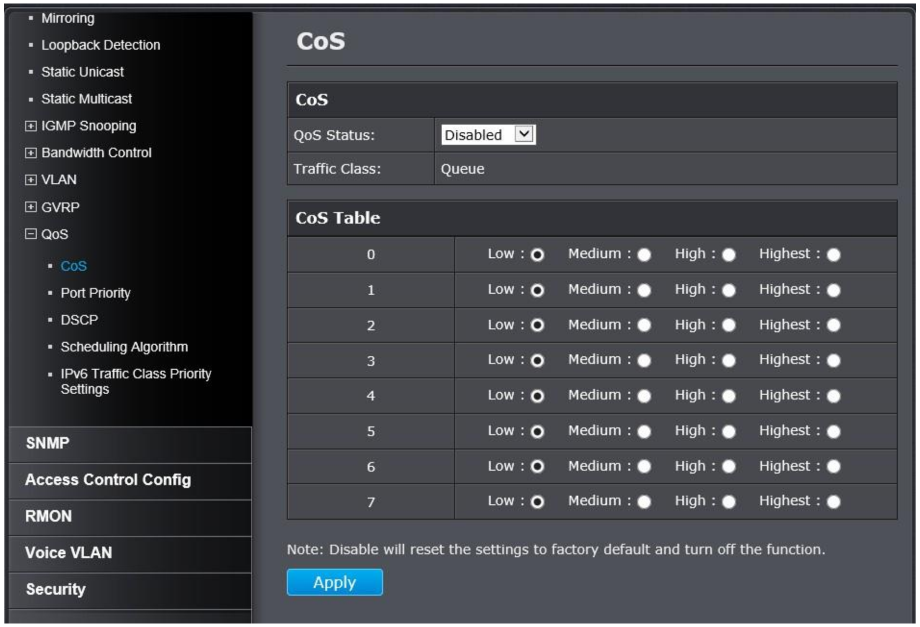
WARNING

DSCP,traffic class or 1p port priority cannot be changed in jumbo (MTU more than 1522) mode.

Note: Before mapping the CoS priorities and the egress queues, you must disable the Jumbo frame parameter on each port. When Jumbo frames are enabled, COS cannot be enabled.

Set CoS priority settings

Bridge > QoS > CoS



CoS

CoS

QoS Status: Disabled

Traffic Class: Queue

CoS Table

0	Low : ◉ Medium : ○ High : ○ Highest : ○
1	Low : ◉ Medium : ○ High : ○ Highest : ○
2	Low : ◉ Medium : ○ High : ○ Highest : ○
3	Low : ◉ Medium : ○ High : ○ Highest : ○
4	Low : ◉ Medium : ○ High : ○ Highest : ○
5	Low : ◉ Medium : ○ High : ○ Highest : ○
6	Low : ◉ Medium : ○ High : ○ Highest : ○
7	Low : ◉ Medium : ○ High : ○ Highest : ○

Note: Disable will reset the settings to factory default and turn off the function.

CoS Settings

For each Traffic Class whose queue you want to change, click on the CoS Table (Low, Medium, High, or Highest) radio button that applies to your configuration.

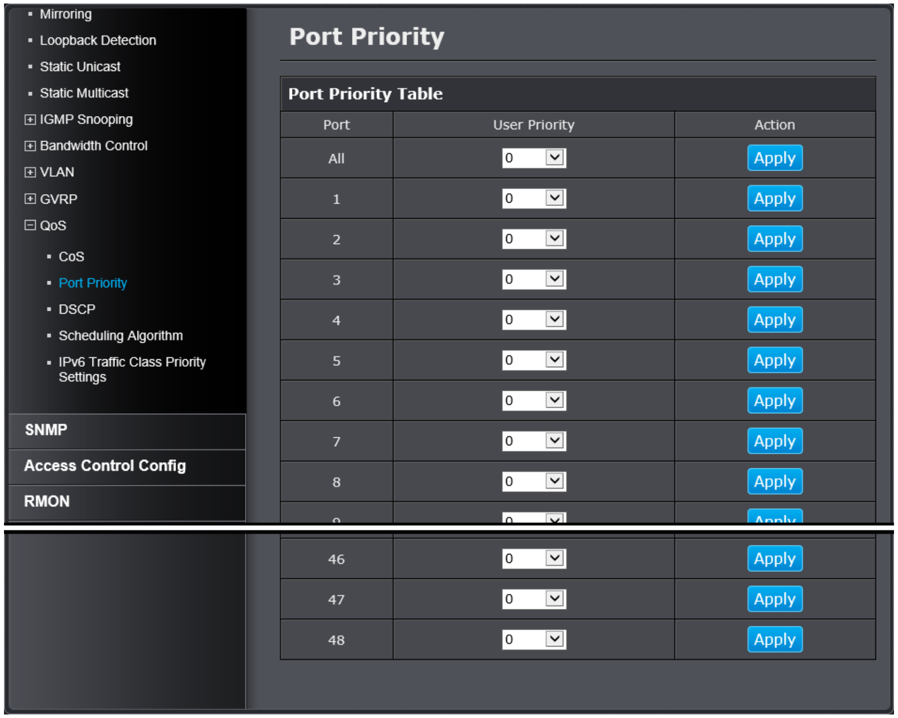
After you have completed this mapping process, select **Enabled** in the **QoS Status** field.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Set Port Priority

Bridge > QoS > Port Priority

The Port Priority values are assigned to an untagged frame at ingress for internal processing in the switch. This procedure explains how to change the default mappings of port priorities to the User Priority. This is set at the switch level. You cannot set this at the per-port level. To change the port priority mappings, perform the following procedure.



Port Priority

Port Priority Table

Port	User Priority	Action
All	0	Apply
1	0	Apply
2	0	Apply
3	0	Apply
4	0	Apply
5	0	Apply
6	0	Apply
7	0	Apply
8	0	Apply
9	0	Apply
46	0	Apply
47	0	Apply
48	0	Apply

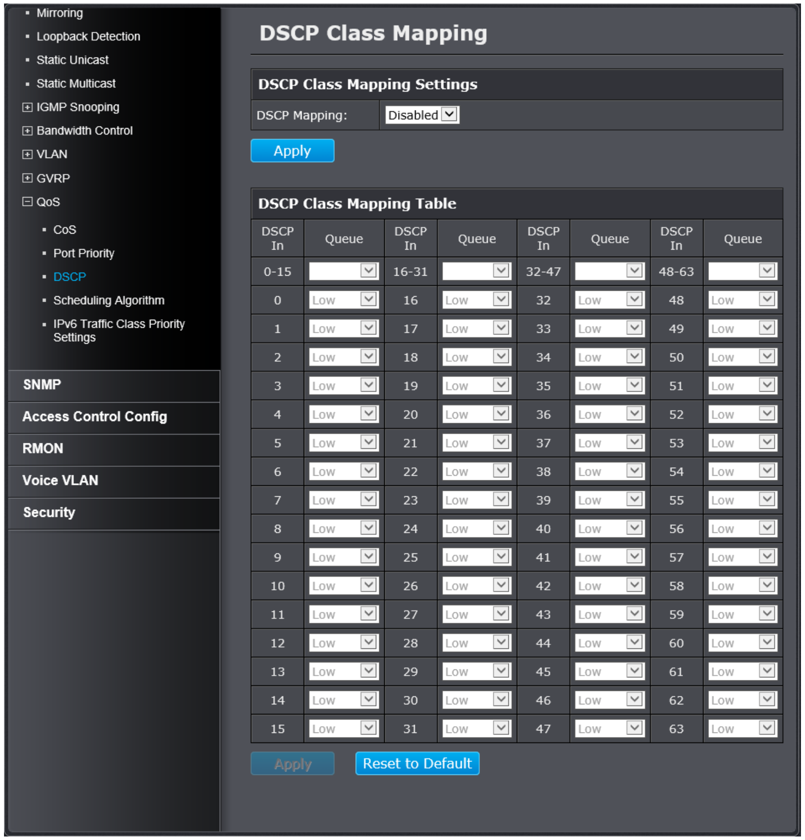
For each port whose priority you want to change, select a priority (0-7) in the **User Priority** column. Click **Apply** to save the settings.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Set DSCP (Differentiated Services Code Point) Class Mapping settings

Bridge > QoS > DSCP

If you choose to use the DSCP tags in your Access Control policy configuration, each DSCP value (0-63) that is relevant to your configuration needs to be mapped to one of the four egress queues (Low, Medium, High, or Highest). The default queue for all DSCP values is 0. To assign the queue mappings to the DSCP values, perform the following procedure.



DSCP Class Mapping

DSCP Class Mapping Settings

DSCP Mapping: Disabled

DSCP Class Mapping Table

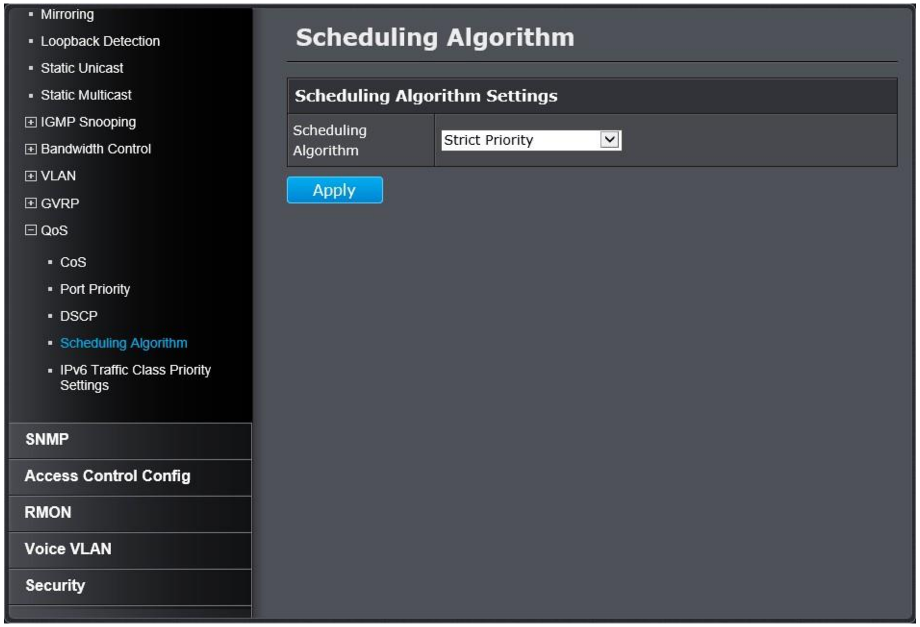
DSCP In	Queue	DSCP In	Queue	DSCP In	Queue	DSCP In	Queue
0-15		16-31		32-47		48-63	
0	Low	16	Low	32	Low	48	Low
1	Low	17	Low	33	Low	49	Low
2	Low	18	Low	34	Low	50	Low
3	Low	19	Low	35	Low	51	Low
4	Low	20	Low	36	Low	52	Low
5	Low	21	Low	37	Low	53	Low
6	Low	22	Low	38	Low	54	Low
7	Low	23	Low	39	Low	55	Low
8	Low	24	Low	40	Low	56	Low
9	Low	25	Low	41	Low	57	Low
10	Low	26	Low	42	Low	58	Low
11	Low	27	Low	43	Low	59	Low
12	Low	28	Low	44	Low	60	Low
13	Low	29	Low	45	Low	61	Low
14	Low	30	Low	46	Low	62	Low
15	Low	31	Low	47	Low	63	Low

For each DSCP In value that is relevant to your configuration, select a queue (Low, Medium, High, or Highest) in the Queue column. Select **Enabled** in the DSCP Mapping drop-down list. Click **Apply** to save the settings.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Set the Scheduling Algorithm

Bridge > QoS > Scheduling Algorithm



Scheduling Algorithm

Scheduling Algorithm Settings

Scheduling Algorithm: Strict Priority

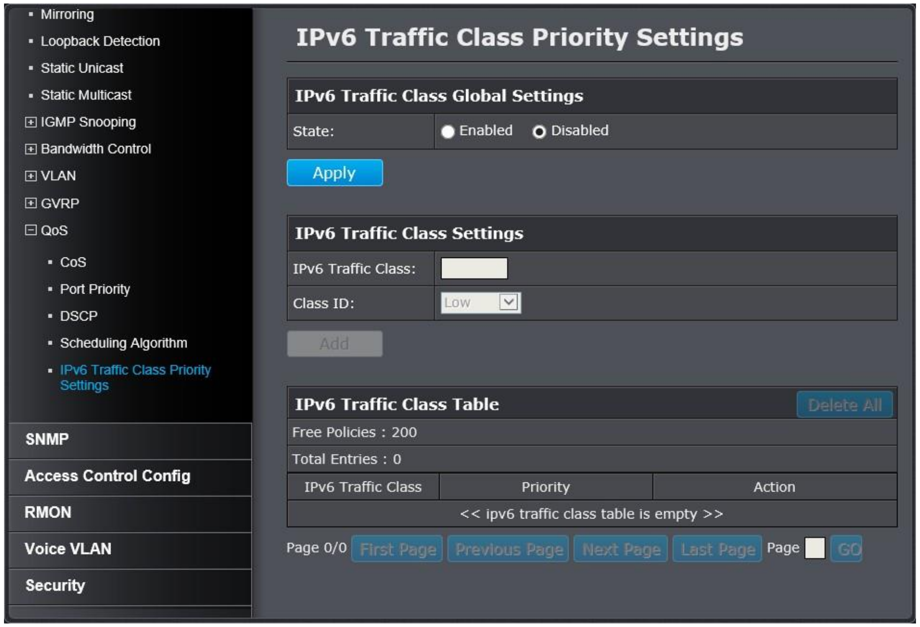
Select your scheduling algorithm and then click **Apply** to save the settings.

Schedule Algorithm Settings	
Strict Priority:	The port transmits all packets out of higher priority queues before transmitting any from the lower priority queues.
WRR (Weighted Round Robin)	The port transmits a set number of packets from each queue, in a round robin fashion, so that each has a chance to transmit traffic.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Configure the IPv6 Traffic Class Priority Settings

Bridge > QoS > IPv6 Traffic Class Priority Settings



IPv6 Traffic Class Priority Settings

IPv6 Traffic Class Global Settings

State: ○ Enabled ● Disabled

IPv6 Traffic Class Settings

IPv6 Traffic Class:

Class ID: Low

IPv6 Traffic Class Table

Free Policies : 200

Total Entries : 0

IPv6 Traffic Class	Priority	Action
<< ipv6 traffic class table is empty >>		

Page 0/0 Page

IPv6 Traffic Class Global Settings: Select **Enabled** or **Disabled**. Click Apply to save the settings.

IPv6 Traffic Class Settings	
IPv6 Traffic Class:	Specify the value of IPv6 class. Range: 0 – 255.
Class ID:	Defines the priority assigned to the port. The priorities are Highest, High, Medium and Low.

Click **Add** to add the traffic class setting entry to the table.

On the **IPv6Traffic Class Table**, you can click **Modify** to modify an entry or click **Delete** or delete the entry. You can also click **Delete All** to delete all of the entries in the table. If the entries span multiple pages, you can navigate page number in the **Page** field and click **Go** or you can click **First**, **Previous**, **Next**, and **Last Page** to navigate the pages.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

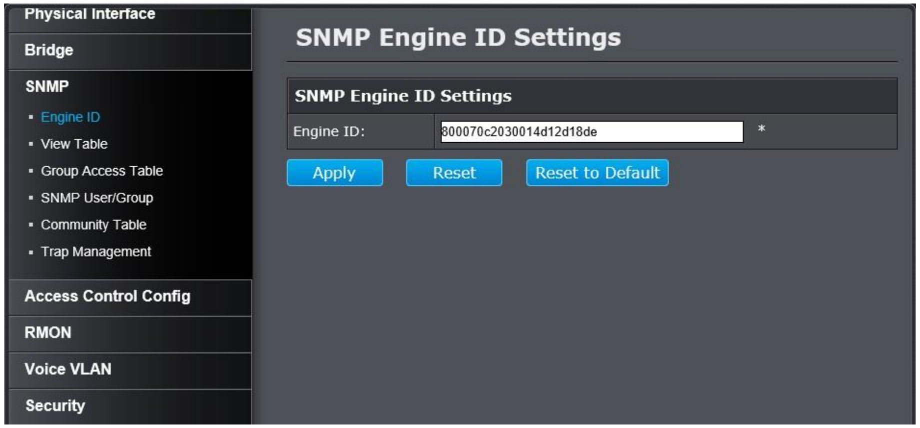
SNMP

You can manage a switch by viewing and configuring the management information base (MIB) objects on the device with the Simple Network Management Program (SNMP). This chapter describes how to configure SNMP. A Group Name, IP address of the switch and at least one community string is the minimum required to manage the switch using SNMP.

Set the SNMP Engine ID

SNMP > Engine ID

The **SNMP Engine ID** screen allows network managers to define the SNMP **Engine ID** or to assign the default **Engine ID** to SNMP.



SNMP Engine ID Settings

SNMP Engine ID Settings

Engine ID: 800070c2030014d12d18de *

Set your **Engine ID** and then click **Apply** to apply the settings.

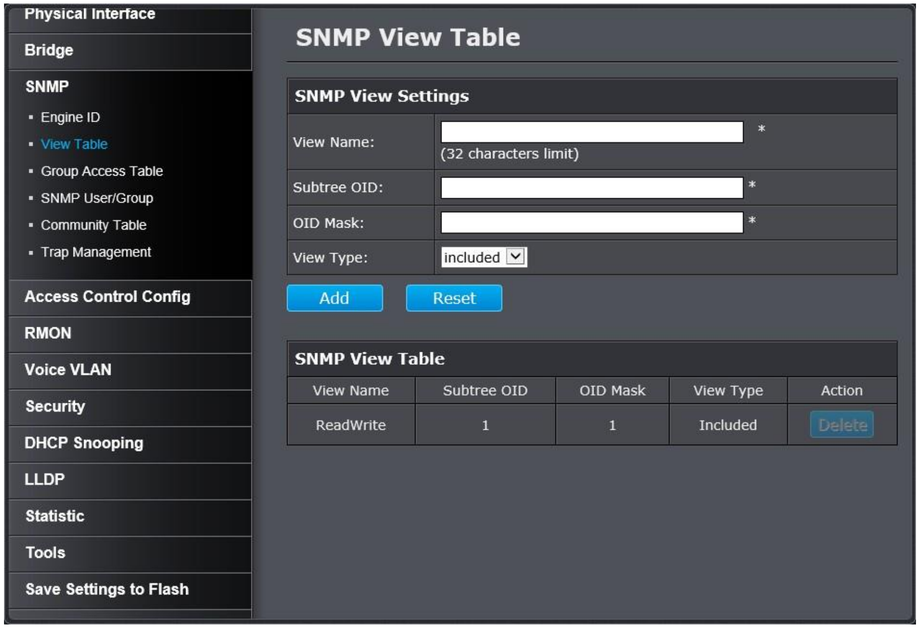
SNMP Engine ID Settings	
Engine ID:	Enter the local device **Engine ID**. The value is a hexadecimal string. Each byte in the hexadecimal character strings is two hexadecimal digits. The **Engine ID** must be defined before SNMP is enabled. (10 - 64 Hexadecimal digits)
Reset:	Clear up the **Engine ID** value
Reset to Default:	Use the device-generated **Engine ID** (Reset to Default will override any entry in the **Engine ID** field).

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Configure the SNMP View Table

SNMP > View Table

The SNMP View table specifies the MIB object access criteria for each **View Name**. If the **View Name** is not specified on this page, then it has access to all MIB objects. You can specify specific areas of the MIB that can be accessed or denied based on the entries in this table. You can create and delete entries in the View table.



SNMP View Table

SNMP View Settings

View Name:	* (32 characters limit)
Subtree OID:	*
OID Mask:	*
View Type:	included

SNMP View Table

View Name	Subtree OID	OID Mask	View Type	Action
ReadWrite	1	1	Included	Delete

To creating SNMP View Table Entries:

- Enter the **View Name**. This value must be pre-defined on the SNMP User/Group page.
- Enter the Subtree OID.
- Enter "1" for the OID Mask.
- Enter the View Type. Choose from the following options, and then click **Add**.
  - **Included:** This selection allows the specified MIB object to be included in the view.
  - **Excluded:** This selection blocks the view of the specified MIB object.

To modify an SNMP View Table Entry:

If you need to modify an entry in the **View Table** page, you must first delete the entry and then re-enter it.

To deleting SNMP View Table Entry:

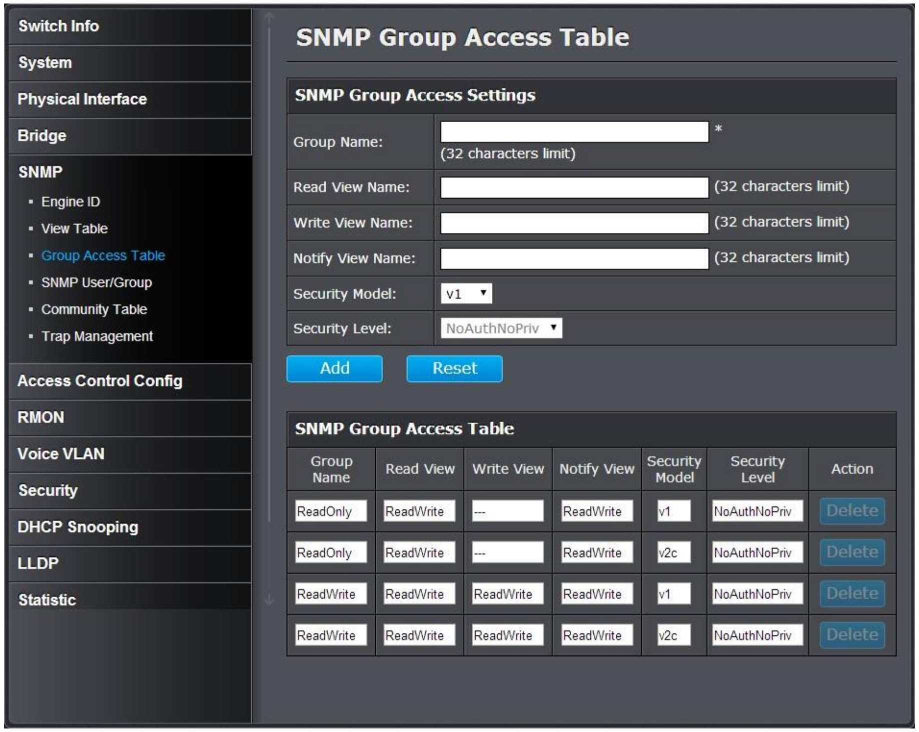
In the Action column of the table, click Delete for the View table entry that you want to remove.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Configure the SNMP Group Access Table

SNMP > Group Access Table

The **SNMP View Names** are defined in the **SNMP Group Access Table** and are based on the **User** and **Group Names.**



SNMP Group Access Table

SNMP Group Access Settings

Group Name: * (32 characters limit)

Read View Name: (32 characters limit)

Write View Name: (32 characters limit)

Notify View Name: (32 characters limit)

Security Model: v1

Security Level: NoAuthNoPriv

SNMP Group Access Table

Group Name	Read View	Write View	Notify View	Security Model	Security Level	Action
ReadOnly	ReadWrite	---	ReadWrite	v1	NoAuthNoPriv	Delete
ReadOnly	ReadWrite	---	ReadWrite	v2c	NoAuthNoPriv	Delete
ReadWrite	ReadWrite	ReadWrite	ReadWrite	v1	NoAuthNoPriv	Delete
ReadWrite	ReadWrite	ReadWrite	ReadWrite	v2c	NoAuthNoPriv	Delete

To create SNMP View Names:

Before you can create an SNMP View name, you must define a **Group Name** using the **SNMP User/Group** page.

- Enter the **Group Name**. This entry must be pre-defined on the **SNMP User/Group** page.
- Enter the **Read View Name**. This name is an optional field. It can be up to 31 characters in length.
- Enter the **Write View Name**. This name is an optional field. It can be up to 31 characters in length.
- Enter the **Notify View Name**. This name is an optional field. It can be up to 31 characters in length.
- From the **Security Model** pull-down menu, select **v3**.
- Enter the **Security Level** from the pull-down menu. The selection options are:
  - **NoAuthNoPriv:** This selection is the appropriate selection when no Auth-Protocol or Priv-Protocol (no encryption) are selected on the **SNMP User/Group** page.
  - **AuthNoPriv:** Choose this selection when encryption has been enabled but only the Auth-Protocol has a password assigned and the Priv-Protocol has been selected as none on the **SNMP User/Group** page.
  - **AuthPriv:** When the Auth-Protocol or Priv-Protocol have been enabled, choose this selection.
- Click the **Add** button.

To modify a SNMP View Name:

If you need to modify an entry in the **SNMP Group Access** page, you must first delete the entry and then re-enter it.

To delete a SNMP View Name:

In the **Action** column of the table, click **Delete** for the **View Name** that you want to remove.

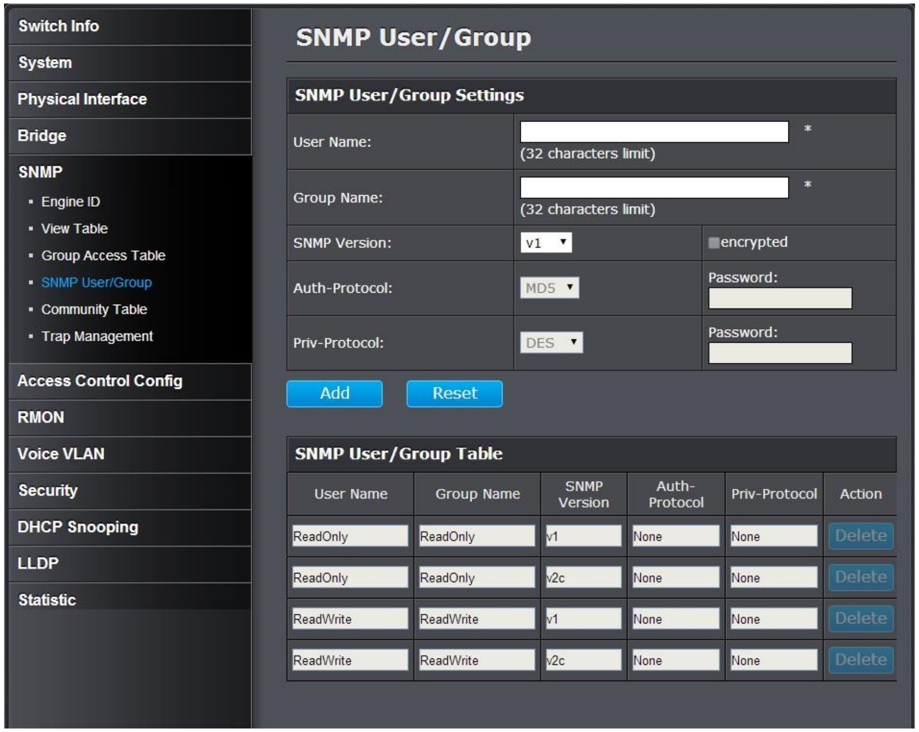
*Note: The views corresponding to the **ReadOnly** and **ReadWrite** Group Names are default values and cannot be removed.*

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Configure the SNMP User/Group Table

SNMP > SNMP User/Group

An SNMP User Name and Group Name definition is the basis for all the other SNMP tables. You can create and delete View Names by following the procedures in the following sections:



SNMP User/Group

SNMP User/Group Settings

User Name:	* (32 characters limit)	
Group Name:	* (32 characters limit)	
SNMP Version:	v1	□ encrypted
Auth-Protocol:	MD5	Password:
Priv-Protocol:	DES	Password:

SNMP User/Group Table

User Name	Group Name	SNMP Version	Auth-Protocol	Priv-Protocol	Action
ReadOnly	ReadOnly	v1	None	None	Delete
ReadOnly	ReadOnly	v2c	None	None	Delete
ReadWrite	ReadWrite	v1	None	None	Delete
ReadWrite	ReadWrite	v2c	None	None	Delete

To create a **SNMP User** and **Group Name:**

*Note: There are no default **User Name** or **Group Name** defined for SNMP.*

- Type a new **User Name**. Enter a name up to 31 characters in length.
- Type a new **Group Name**. Enter a name up to 31 characters in length.
- From the **SNMP Version** pull down menu, select **v3**. The encryption check-box becomes active.
- Check the encryption check-box. The Auth-Protocol, Priv-Protocol, and associated password fields become active.
- Select one of the following choices for the Auth-Protocol field:
  - **MD5:** The MD5 authentication protocol. SNMP Users are authenticated with the MD5 authentication protocol after a message is received.
  - **SHA:** The SHA authentication protocol. Users are authenticated with the SHA authentication protocol after a message is received.
- Enter the password for the Auth-Protocol.
- Select one of the following choices for the Priv-Protocol field:
  - **DES:** Specifies DES encryption scrambles the SNMP data so that outside observers are prevented from seeing the data content.
  - **None:** Specifies no encryption is applied to SNMP data.
- Click **Add**.

The new **User Name** and **Group Name** are displayed on the **SNMP User/Group** page.

To modify a SNMP User and Group Name:
If you need to modify an entry in the **SNMP User/Group** page, you must first delete the entry and then re-enter it.

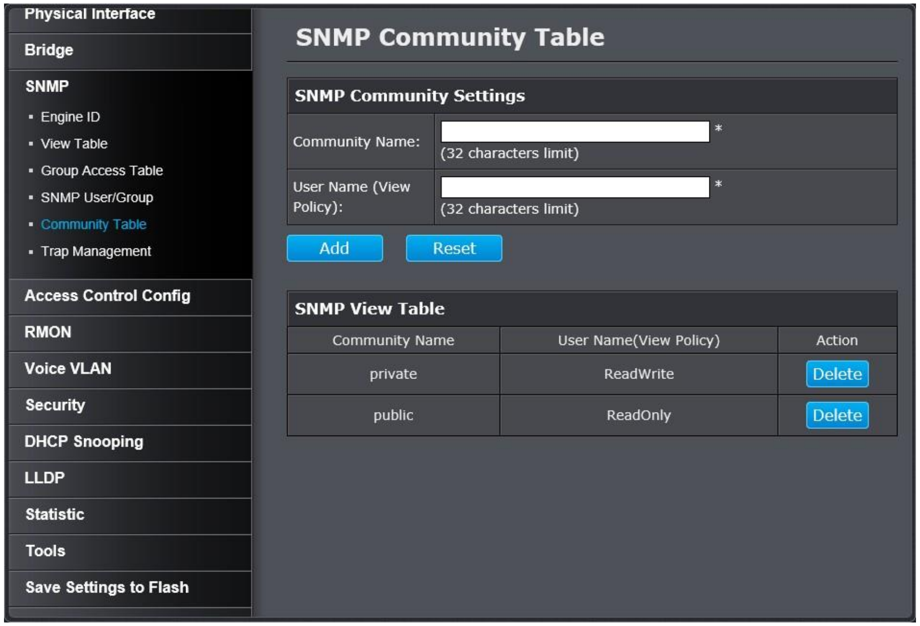
To delete a SNMP User and Group Name:
In the **Action** column of the table, click **Delete** for the **User Name** and **Group Name** that you want to remove.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Configure the SNMP Community Table

SNMP > Community Table

A community string has attributes for controlling who can use the string and what the string will allow a network management station to do on the switch. The **Web Management** does not provide any default community strings. You must first define an SNMP User and Group Name on the **SNMP User/Group** page and then define a **Community Name** on the **SNMP Community Table** page.



SNMP Community Table

SNMP Community Settings

Community Name:	* (32 characters limit)
User Name (View Policy):	* (32 characters limit)

SNMP View Table

Community Name	User Name(View Policy)	Action
private	ReadWrite	Delete
public	ReadOnly	Delete

To create **SNMP Community Setting**

- Enter a new **Community Name**. A name can be up to 31 characters in length.
- Enter a **User Name** (View Policy) that has been previously defined. This name must match one of the User Names displayed on the

*Note: **SNMP User/Group** page. If you enter a user name that has not been pre-defined on the **SNMP User/Group** page, the **Community** entry is displayed, but the agent/manager communication fails.*

- Click **Add**.

The values of the new **Community Name** and **User Name** are displayed.

To modify a SNMP Community Setting

If you need to modify a Community Table entry, you must first delete the entry by using the procedure below and then re-enter it with the modification by creating a new Community table entry.

To delete a SNMP Community Setting

To delete a **Community Name**, click **Delete** next to the entry in the table that you want to remove.

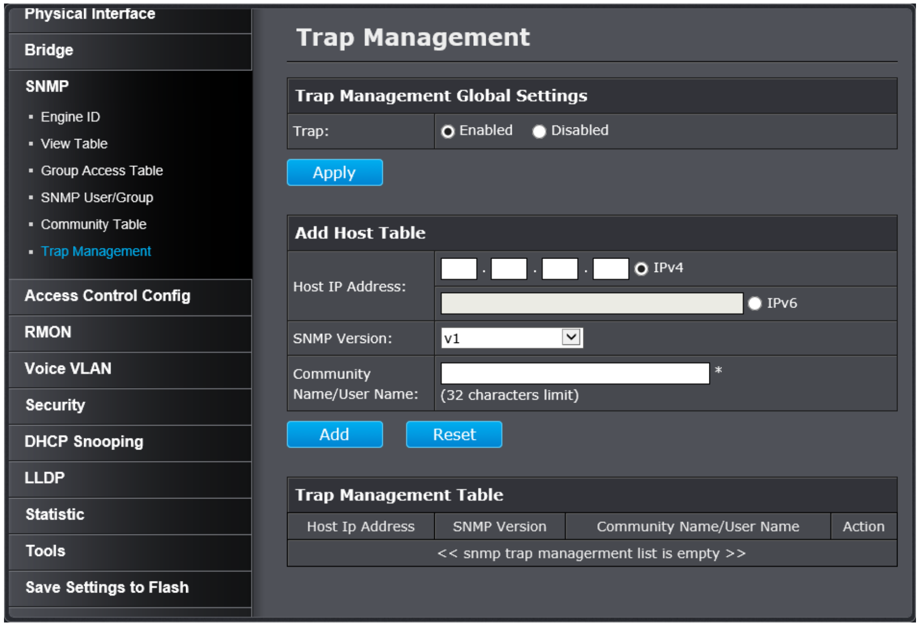
The deleted **Community Name** is no longer displayed in the Community table. No confirmation message is displayed.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Configure the SNMP Trap Management

SNMP > Trap Management

A Host IP address is used to specify a management device that needs to receive SNMP traps sent by the switch. This IP address is associated with the SNMP Version and a valid Community Name in the Host table of the switch.



Trap Management

Trap Management Global Settings

Trap: ● Enabled ○ Disabled

Add Host Table

Host IP Address: ___ . ___ . ___ . ___ ● IPv4

________ ○ IPv6

SNMP Version: v1

Community Name/User Name: ________ * (32 characters limit)

Trap Management Table

Host Ip Address	SNMP Version	Community Name/User Name	Action
<< snmp trap managerment list is empty >>			

To create a Trap Host Table Entry:

Use the following procedure to create a trap Host table entry:

- Enable trap management by selecting the radio button next to **Enabled** at the top of the page. By default, trap management is enabled.
- Enter the Host IP Address for the management device who's going to receive the SNMP traps.
- Enter the **SNMP Version**, either v1 or v2c. That is configured for the host management device.
- Enter a **Community Name** that you have defined previously in the SNMP Community table. The **Community Name** must correlate with one of the communities displayed on **the SNMP Community Table** page. If you enter a **Community Name** that has not been pre-defined, the **Trap Host** entry is displayed, but agent/manager communication fails.
- Click **Add.**

The new host is added to the table.

To modify a Trap Host Table Entry:

If you need to modify an SNMP Trap entry, you must first delete the entry by using the procedure below and then re-enter it with the modification by creating a new SNMP trap.

To delete a Trap Host Table Entry:

To delete an entry in the host table, click Delete next to the entry in the table that you want to remove. The Host table entry is removed from the table. No confirmation message is displayed.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

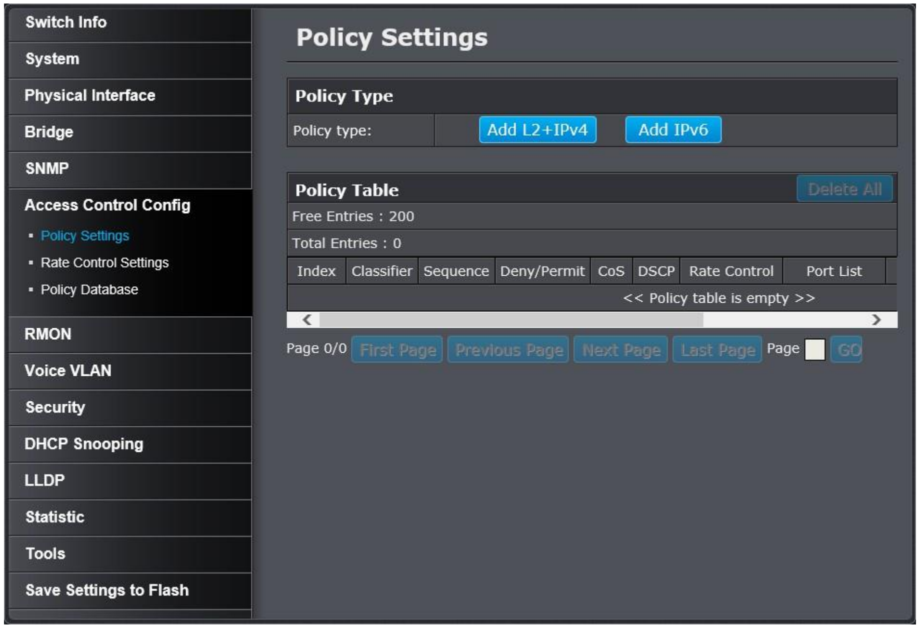
Access Control Config

Access Control configuration allows you to control different aspects of the Ethernet traffic as it enters the switch ports and is process through the Switch. You can specify what traffic is permitted or denied to flow through the switch by setting up specific filter criteria at an ingress port. You can also manage the switching priority of Ethernet packets. All of this is done by specifying policies that define the filtering and priority behavior.

Configure Policy Settings

Access Control Config > Policy Settings

The Policy Settings page allows you to specify the filtering criteria for one policy. You can create, modify or delete a Policy by following the procedures in the following sections:



Policy Settings

Policy Type

Policy type:

Policy Table

Free Entries : 200

Total Entries : 0

Index	Classifier	Sequence	Deny/Permit	CoS	DSCP	Rate Control	Port List
<< Policy table is empty >>							

Page 0/0 Page

Choose the type of policy to create:

- Add L2+IPv4
- Add IPv6

Note: Please note that when adding polices, it is important to note that the rule/policy order of priority in which the rules/policies are evaluated by the switch, one (1) being the highest priority.

Add L2+IPv4

To add an L2+IPv4 policy, use the following procedure:

- Click **Add L2+ IPv4**, The **Policy Settings** page.
- Enter a number in the Policy Index field. The Policy Index is a unique number within the range of 1 – 65535 which identifies the policy. This field is mandatory.
- Choose the parameters to add for the policy, and enter data one or more of the parameters required for your policy. They are listed here:
  - **Source MAC Address:** Specifies the source MAC address. The format is xx.xx.xx.xx.xx.xx.
  - **Source MAC Mask Length:** Indicates the length of the Source MAC Mask ranging from 1- 48.
  - **Destination MAC Address:** Specifies the destination MAC address. The format is xx.xx.xx.xx.xx.xx.
  - **Destination MAC Mask Length:** Indicates the length of the Destination MAC Mask ranging from 1 - 48.
  - **VLAN ID:** A unique number identifying a VLAN ranging from 1 to 4094.
  - **802.1p Priority:** 802.1p priority level of the frame ranging from 0 to 7.
  - **Ether Type:** Indicates the protocol of the Ethernet frame protocol ranging from 0000 to FFFF.
  - **Protocol:** Indicates the packet protocol ranging from 0 to 255.
  - **Source IP Address**: Specifies the source IP address.
  - **Source IP Mask Length:** Specifies the mask length of the source IP address ranging from 0 to 32.
  - **Destination IP Address:** Specifies the destination IP address.
  - **Destination IP MAC Mask Length:** Specifies the mask length of the destination IP address ranging from 0 to 32.
  - **DSCP:** The DSCP (Differentiated Services Code Point) value in the IP header ranging from 0 to 63.
  - **Source Layer 4 Port:** Indicates the source layer 4 port ranging from 1 to 65535.
  - **Destination Layer 4 Port:** Indicates the destination layer 4 port ranging from 1 - 65535.
  - **Policy Sequence:** Enter a number in the Policy Sequence field. The Policy Sequence must be a unique number within the range of 1 - 65535. This field is mandatory.
  - **Policy Action:** In the Permit/Deny field, use the pull down menu to select one of the following parameters:
    - **Deny:** This selection drops ingress packets that conform to the specified Replaced-CoS or Replaced-DSCP.
    - **Permit:** This selection allows ingress packets that conform to the specified Replaced-CoS or Replaced-DSCP to be processed by the switch.

      Note: You must enter a selection for Deny/Permit field even if the Profile Action ID that you have entered ignores both the Replaced-DSCP and Replaced-CoS fields.
  - **Replaced-CoS:** Enter a number in the Replaced-CoS field ranging from 0 to 7. This field indicates the CoS level of interest. This field is not mandatory and you may elect to leave it blank.
  - **Replaced-DSCP:** Enter a number in the Replaced-DSCP field within the range of 0 to 63. This field indicates the DSCP level of interest. This field is not mandatory and you may elect to leave it blank.

- **Rate Control Index:** The **Rate Control Index** is a unique number within the range of 1 to 65535. This field is mandatory and must match a Port List Index that has been previously entered on the Policy Index.
- **Port List:** Select the interface for which you want to display data.

- Click **Add** to add the policy to the **Policy Table**.

Add IPv6

To add an IPv6 policy, use the following procedure:

- Click **Add IPv6**, The **Policy Settings** page.
- Enter a number in the **Policy Index** field. The policy index is a unique number within the range of 1 – 65535 which identifies the policy. This field is mandatory.
- Choose the parameters to add for the policy, and enter data one or more of the parameters required for your policy. They are listed here:
  - **VLAN ID:** A unique number identifying a VLAN ranging from 1 to 4094.
  - **802.1p Priority:** 802.1p priority level of the frame ranging from 0 to 7.
  - **Protocol:** Indicates the packet protocol ranging from 0 to 255.
  - **IPv6 Source IP Address:** Specifies the IPv6 Source IP address.
  - **Prefix Length:** Indicates the length of the Source IP ranging from 1 to 128.
  - **IPv6 Destination IP Address:** Specifies the IPv6 Destination IP address.
  - **Prefix Length:** Indicates the length of the Destination IP ranging from 1 to 128.
  - **Source Layer 4 Port:** Indicates the source layer 4 port ranging from 1 to 65535.
  - **Destination Layer 4 Port:** Indicates the destination layer 4 port ranging from 1 to 65535.
  - **Policy Sequence:** Enter a number in the Policy Sequence field. The Policy Sequence must be a unique number within the range of 1 to 65535. This field is mandatory.

- **Policy Action:** In the Permit/Deny field, use the pull down menu to select one of the following parameters:
  - **Deny:** This selection drops ingress packets that conform to the specified Replaced-CoS or Replaced-DSCP.
  - **Permit:** This selection allows ingress packets that conform to the specified Replaced-CoS or Replaced-DSCP to be processed by the switch.

    Note: You must enter a selection for Deny/Permit field even if the Profile Action ID that you have entered ignores both the Replaced-DSCP and Replaced-CoS fields.

- **Replaced-CoS:** Enter a number in the Replaced-CoS field ranging from 0 to 7. This field indicates the CoS level of interest. This field is not mandatory and you may elect to leave it blank
- **Replaced-DSCP:** Enter a number in the Replaced-DSCP field within the range of 0 to 63. This field indicates the DSCP level of interest. This field is not mandatory and you may elect to leave it blank.
- **Rate Control Index:** The Rate Control Index is a unique number within the range of 1 - 65535. This field is mandatory and must match the Rate Control Settings page.
- **Port List:** Select the interface for which you want to display data.

- Click **Add** to add the policy to the Policy Table.

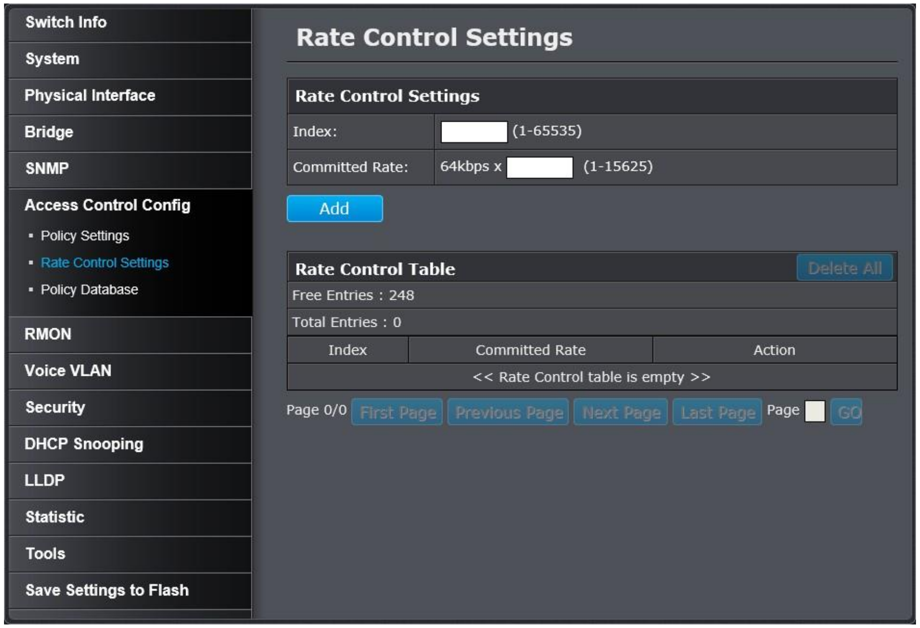
On the list, you can click **Modify** to modify an entry or click **Delete** or delete the entry. You can also click **Delete All** to delete all of the entries in the table. If the entries span multiple pages, you can navigate page number in the Page field and click **Go** or you can click **First**, **Previous, Next**, and **Last Page** to navigate the pages.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Configure Rate Control

Access Control Config > Rate Control

The Policy Settings page allows you to specify the filtering criteria for one policy. You can create, modify or delete a Policy by following the procedures in the following sections:



Rate Control Settings

Rate Control Settings	
Index:	(1-65535)
Committed Rate:	64kbps x (1-15625)

Rate Control Table

Free Entries : 248

Total Entries : 0

Index	Committed Rate	Action
<< Rate Control table is empty >>		

Page 0/0 Page

- Enter a number in the Index field. The Index is a unique number within the range of 1–65535 which identifies the policy. This field is mandatory.
- Enter a number in the Committed Rate column ranging from 1 to 15625.
- Click **Add** to add the rate control settings to the **Rate Control Table**.

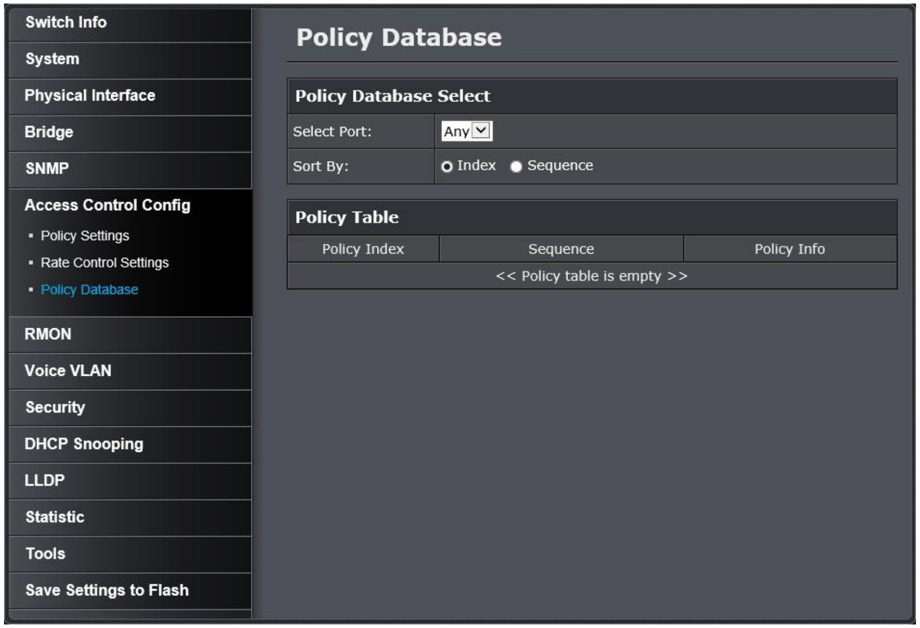
On the list, you can click **Modify** to modify an entry or click **Delete** or delete the entry. You can also click **Delete All** to delete all of the entries in the table. If the entries span multiple pages, you can navigate page number in the Page field and click **Go** or you can click **First**, **Previous, Next**, and **Last Page** to navigate the pages.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

View your policy database

Access Control Config > Policy Database

Allows you to view current policies assigned to each port by Index or Sequence.



Policy Database

Policy Database Select

Select Port:	Any
Sort By:	○ Index ● Sequence

Policy Table

Policy Index	Sequence	Policy Info
<< Policy table is empty >>		

Click the **Select Port** drop-down list to select the port you would like to view associated with the selected port. Then select the order to sort **Index** or **Sequence**.

Note: The Any option will display policies for all ports.

View the active policies associated with the specified port.

RMON

The RMON (Remote MONitoring) MIB is used with SNMP applications to monitor the operations of network devices. The Switch supports the four RMON MIB groups listed here:

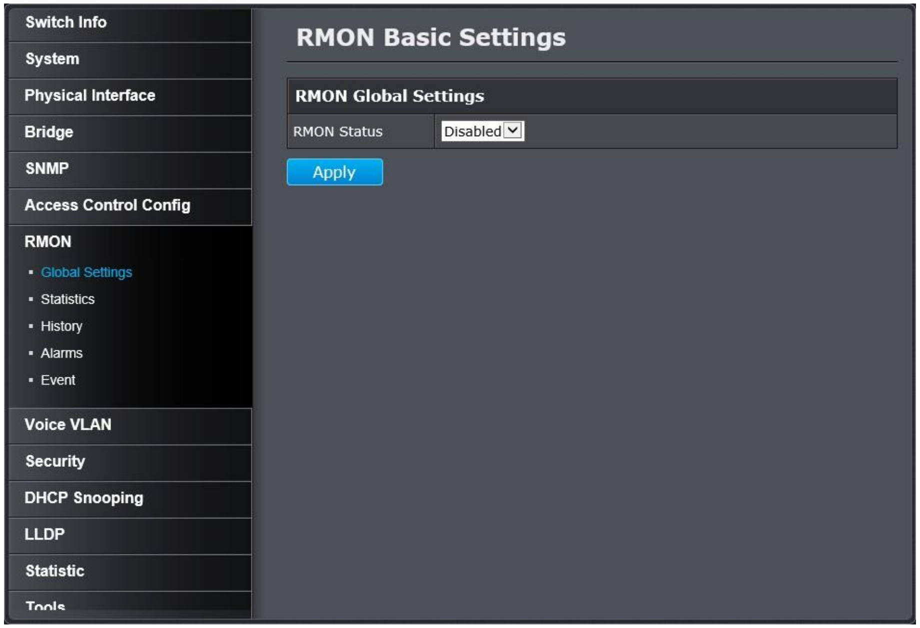
- **Statistic group:** This group is used to view port statistics remotely with SNMP programs.
- **History group:** This group is used to collect histories of port statistics to identify traffic trends or patterns.
- **Event group:** This group is used with alarms to define the actions of the switch when packet statistic thresholds are crossed.
- **Alarm group:** This group is used to create alarms that trigger event log messages or SNMP traps when statistics thresholds are exceeded.

You can use your SNMP Network Management System (NMS) software and the RMON section of the MIB tree to view the RMON statistics, history and alarms associated with specific ports. Since RMON uses the SNMP agent for communicating with your NMS software, the SNMP Agent must be enabled and the SNMP feature must be configured on your switch. Since RMON works in conjunction with the SNMP agent, the SNMP agent must be enabled for the RMON feature to be active.

Enable RMON

RMON > Global Settings

This section allows you to enable or disable RMON functionality.



RMON Basic Settings

RMON Global Settings

RMON Status: Disabled

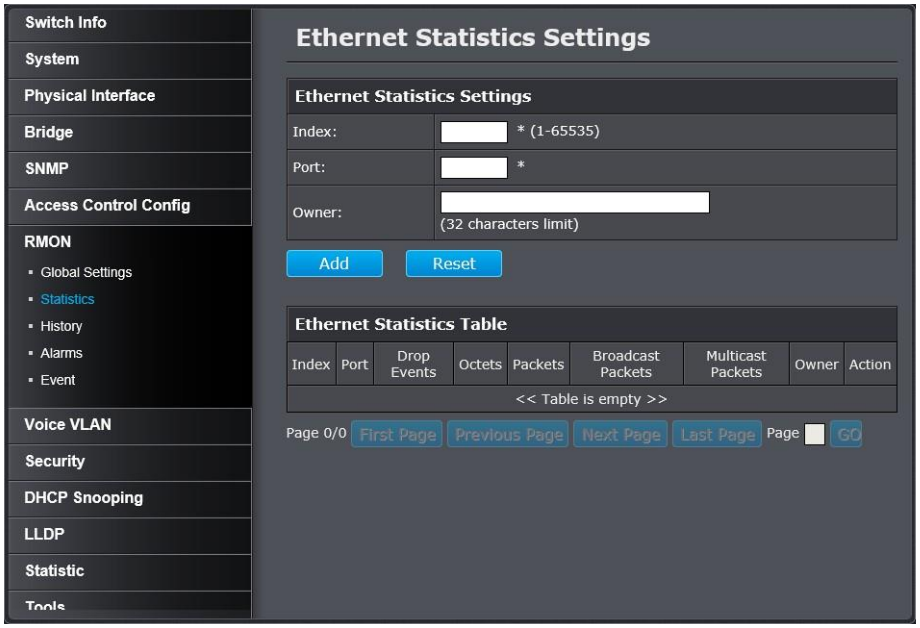
Click the **RMON Status** drop-down list and select **Enabled** to enable RMON. Click **Apply** to save settings.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Configure parameters for RMON Ethernet statistics

RMON > Statistics

You can remotely view individual port statistics with RMON by using your SNMP NMS software and the RMON portion of the MIB tree.



Ethernet Statistics Settings

Ethernet Statistics Settings

Index:	* (1-65535)
Port:	*
Owner:	(32 characters limit)

Ethernet Statistics Table

Index	Port	Drop Events	Octets	Packets	Broadcast Packets	Multicast Packets	Owner	Action
<< Table is empty >>								

Page 0/0 Page

Ethernet Statistics Settings

Index: This parameter specifies the ID number of the new group. The range is 1 to 65535.

Port: This parameter specifies the port where you want to monitor the statistical information of the Ethernet traffic.

Owner: This parameter is used to identify the person who created an entry. It is primarily intended for switches that are managed by more than one person, and is an optional field.

Click **Add** to add the entry to the table.

On the list, you can click **Modify** to modify an entry or click **Delete** or delete the entry. You can also click **Delete All** to delete all of the entries in the table. If the entries span multiple pages, you can navigate page number in the Page field and click **Go** or you can click **First**, **Previous, Next**, and **Last Page** to navigate the pages.

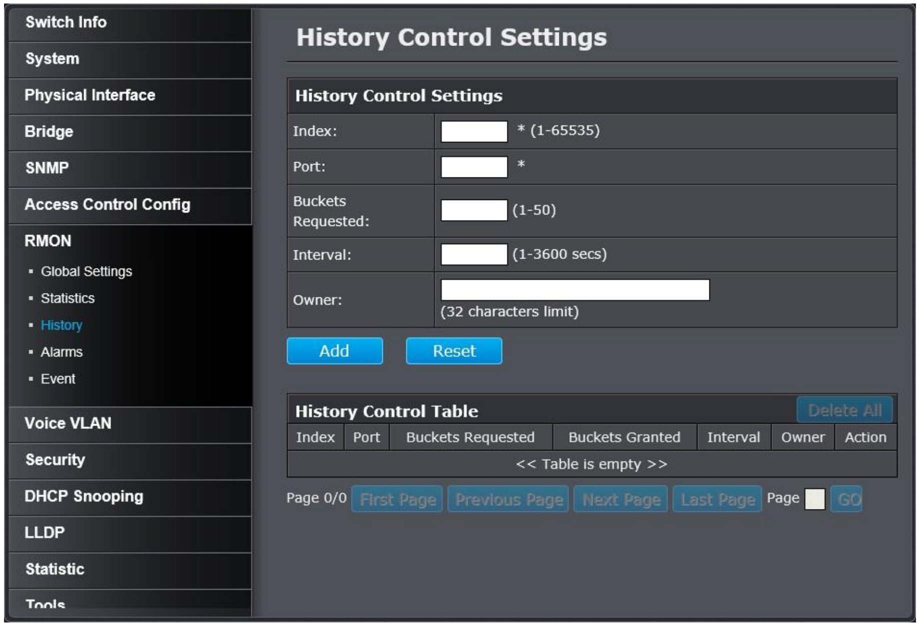
Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Configure parameters for RMON history control settings

RMON > History

RMON histories are snapshots of port statistics. They are taken by the switch at predefined intervals and can be used to identify trends or patterns in the numbers or types of ingress packets on the ports on the switch. The snapshots can be viewed with your SNMP NMS software with the history group of the RMON portion of the MIB tree.

A history group is divided into buckets. Each bucket stores one snapshot of statistics of a port. A group can have from 1 to 50 buckets. The more buckets in a group, the more snapshots it can store.



History Control Settings

History Control Settings	
Index:	* (1-65535)
Port:	*
Buckets Requested:	(1-50)
Interval:	(1-3600 secs)
Owner:	(32 characters limit)

Index	Port	Buckets Requested	Buckets Granted	Interval	Owner	Action
<< Table is empty >>						

Page 0/0 Page

History Control Settings

Index: This parameter specifies the ID number of the new group. The range is 1 to 65535.

Port: This parameter specifies the port where you want to monitor the statistical information of the Ethernet traffic.

Buckets Requested: This parameter defines the number of snapshots of the statistics for the port. Each bucket can store one snapshot of RMON statistics. Different ports can have different numbers of buckets. The range is 1 to 50 buckets.

Interval: This parameter specifies how frequently the switch takes snapshots of the port's statistics. The range is 1 to 3600 seconds (1 hour). For example, if you want the switch to take one snapshot every minute on a port, you specify an interval of sixty seconds.

Owner: This parameter is used to identify the person who created an entry. It is primarily intended for switches that are managed by more than one person, and is an optional field.

On the list, you can click **Modify** to modify an entry or click **Delete** or delete the entry. You can also click **Delete All** to delete all of the entries in the table. If the entries span multiple pages, you can navigate page number in the Page field and click **Go** or you can click **First**, **Previous, Next**, and **Last Page** to navigate the pages.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Configure parameters for RMON alarms

RMON > Alarm

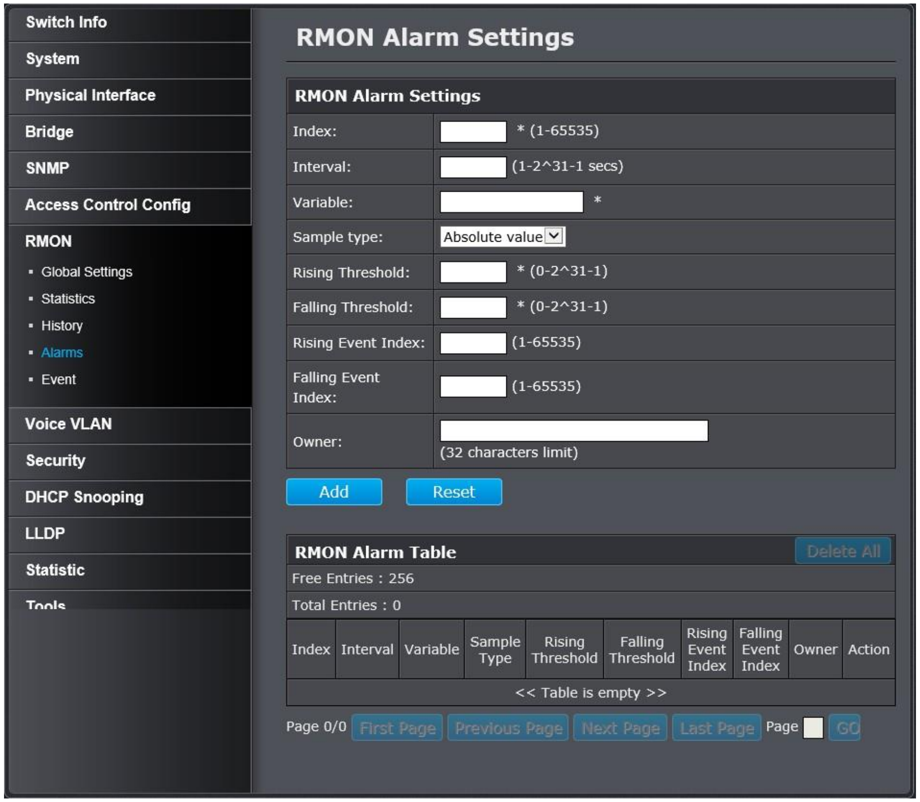
RMON alarms are used to generate alert messages when packet activity on designated ports rises above or falls below specified threshold values. The alert messages can take the form of messages that are entered in the event log on the switch or traps that are sent to your SNMP NMS software or both.

RMON alarms consist of two thresholds. There is a rising threshold and a falling threshold. The alarm is triggered if the value of the monitored RMON statistic of the designated port exceeds the rising threshold. The response of the switch is to enter a message in the event log, send an SNMP trap, or both. The alarm is reset if the value of the monitored statistic drops below the falling threshold.

The frequency with which the switch samples the thresholds of an alarm against the actual RMON statistic is controlled by a time interval parameter. You can adjust this interval for each alarm.

Here are the three components that comprise RMON alarms:

- **RMON statistics group:** A port must have an RMON statistics group configured if it is to have an alarm. When you create an alarm, you specify the port to which it is to be assigned not by the port number, but rather by the ID number of the port's statistics group.
- **RMON event:** An event specifies the action of the Switch when the ingress packet activity on a port crosses a statistical threshold defined in an alarm. The choices are to log a message in the event log of the Switch, send an SNMP trap to an SNMP workstation, or both. Since there are only three possible actions and since events can be used with more than one alarm, you probably will not create more than three events.
- **Alarm:** The last component is the alarm itself. It defines the port statistic to be monitored and the rising and falling thresholds that trigger the switch to perform an event. The thresholds of an alarm can have the same event or different events. The switch supports up to eight alarms.



RMON Alarm Settings

RMON Alarm Settings

Index:	* (1-65535)
Interval:	(1-2^31-1 secs)
Variable:	*
Sample type:	Absolute value
Rising Threshold:	* (0-2^31-1)
Falling Threshold:	* (0-2^31-1)
Rising Event Index:	(1-65535)
Falling Event Index:	(1-65535)
Owner:	(32 characters limit)

RMON Alarm Table

Free Entries : 256

Total Entries : 0

Index	Interval	Variable	Sample Type	Rising Threshold	Falling Threshold	Rising Event Index	Falling Event Index	Owner	Action
<< Table is empty >>									

Page 0/0 Page

RMON Alarm Settings

Index: This parameter specifies the ID number of the new group. The range is 1 to 65535.

Interval: This parameter specifies the time (in seconds) over which the data is sampled. Its range is 1 to 2147483647 seconds.

Variable: This parameter specifies the RMON MIB object that the event is monitoring.

Sample type: This parameter defines the type of change that has to occur to trigger the alarm on the monitored statistic. There are two choices from the pull-down menu - Delta value and Absolute value. Delta value- setting compares a threshold against the difference between the current and previous values of the statistic. Absolute value- setting compares a threshold against the current value of the statistic.

Rising Threshold: This parameter specifies a specific value or threshold level of the monitored statistic. When the value of the monitored statistic becomes greater than this threshold level, an alarm event is triggered. The parameter’s range is 1 to 2147483647.

Falling Threshold: This parameter specifies a specific value or threshold level of the monitored statistic. When the value of the monitored statistic becomes less than this threshold level, an alarm event is triggered. The parameter’s range is 1 to 2147483647.

Rising Event Index: This parameter specifies the event index for the rising threshold. Its range is 1 to 65535. This field is mandatory and must match an Event Index that you previously entered in “Events”.

Falling Event Index: This parameter specifies the event index for the falling threshold. Its range is 1 to 65535. This field is mandatory and must match an Event Index that you previously entered in “Events”.

Owner: This parameter is used to identify the person who created an entry. It is primarily intended for switches that are managed by more than one person, and is an optional field.

Click **Add** to add the entry to the table.

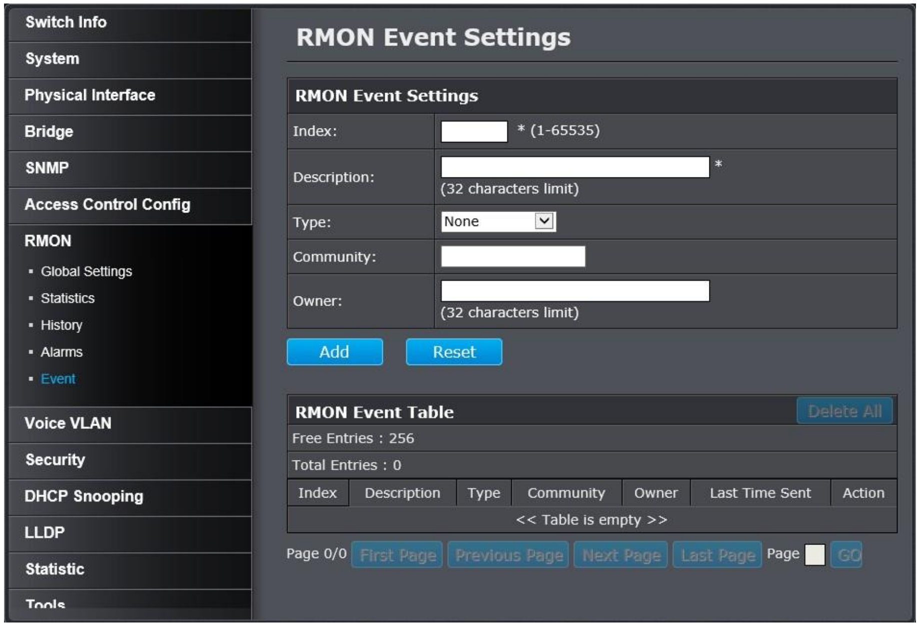
On the list, you can click **Modify** to modify an entry or click **Delete** or delete the entry. You can also click **Delete All** to delete all of the entries in the table. If the entries span multiple pages, you can navigate page number in the Page field and click **Go** or you can click **First**, **Previous, Next**, and **Last Page** to navigate the pages.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Configure parameters for RMON events

RMON > Event

An event specifies the action of the switch when the ingress packet activity on a port crosses a statistical threshold defined in an alarm. The choices are to log a message in the event log of the switch, send an SNMP trap to an SNMP workstation, or both. Since there are only three possible actions and since events can be used with more than one alarm, you probably will not create more than three events - one for each of the three actions.



RMON Event Settings

RMON Event Settings

Index:	* (1-65535)
Description:	* (32 characters limit)
Type:	None
Community:	
Owner:	(32 characters limit)

RMON Event Table

Free Entries : 256

Total Entries : 0

Index	Description	Type	Community	Owner	Last Time Sent	Action
<< Table is empty >>						

Page 0/0 Page

RMON Event Settings

Index: This parameter specifies the ID number of the new group. The range is 1 to 65535.

Description: This parameter specifies a text description of the event that you are configuring.

Type: This parameter specifies where to log the event when it occurs. The choices are to log a message in the event log of the Switch, send an SNMP trap to the SNMP NMS software, or both.

Community: This parameter specifies the community where you want to send the SNMP trap.

Owner: This parameter is used to identify the person who created an entry. It is primarily intended for switches that are managed by more than one person, and is an optional field.

Click **Add** to add the entry to the table.

On the list, you can click **Modify** to modify an entry or click **Delete** or delete the entry. You can also click **Delete All** to delete all of the entries in the table. If the entries span multiple pages, you can navigate page number in the Page field and click **Go** or you can click **First**, **Previous, Next**, and **Last Page** to navigate the pages.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Voice VLAN

This chapter contains a description of the Switch's Voice VLAN feature and the procedures to create, modify, and delete a voice VLAN configuration.

The Voice VLAN feature is specifically designed to maintain high quality, uninterrupted voice traffic through the switch. When talking on a voice over IP phone, a user expects to have no interruptions in the conversation and excellent voice quality. The Voice VLAN feature can be configured to meet these requirements.

CoS with Voice VLAN

The Voice VLAN CoS parameter maintains the voice quality between the ingress and egress ports of the switch. CoS must be enabled for the Voice VLAN CoS priority to take effect. The CoS priority level that you config is applied to voice traffic on all ports of the voice VLAN. Normally, most (non-Voice) Ethernet traffic transverses the switch through lower order egress queues. To avoid delays and interruptions in the voice data flow, the CoS priority level assigned to the voice VLAN should be mapped to a higher order queue and the scheduling algorithm should be set to Strict Priority. These settings ensure that the voice data packets are processed before other types of data so that the voice quality is maintained as the voice data passes through the switch.

Organization Unique Identifier (OUI)

Each IP phone manufacturer can be identified by one or more Organization Unique Identifiers (OUIs). An OUI is three bytes long and is usually expressed in hexadecimal format. It is imbedded into the first part of each MAC address of an Ethernet network device. You can find the OUI of an IP phone in the first three complete bytes of its MAC address.

Typically, you will find that all of the IP phones you are installing have the same OUI in common. The switch identifies a voice data packet by comparing the OUI information in the packet's source MAC address with an OUI table that you configure when you initially set up the voice VLAN. This is important when the Auto-Detection feature for a port and is a dynamic voice VLAN port.

When you are configuring the voice VLAN parameters, you must enter the complete MAC address of at least one of your IP phones. An "OUI Mask" is automatically generated and applied by the Web Management to yield the manufacturer's OUI. If the OUI of the remaining phones from that manufacturer is the same, then no other IP phone MAC addresses need to be entered into the configuration.

However, it is possible that you can find more than one OUI from the same manufacturer among the IP phones you are installing. It is also possible that your IP phones are from two or more different manufacturers in which case you will find different OUIs for each manufacturer. If you identify more than one OUI among the IP phones being installed, then one MAC address representing each individual OUI must be configured in the voice VLAN. You can enter a total of 10 OUIs.

Dynamic Auto-Detection vs Static Ports

Prior to configuring the voice VLAN, you must configure a tagged VLAN which is the basis for the voice VLAN configuration. The VLAN must be configured with one or more tagged or untagged ports that will serve as the voice VLAN uplink/downlink. By default, a tagged or untagged port is a static member of a tagged VLAN. The ports that you choose to configure as dynamic Auto-Detection ports must be connected directly to an IP phone. When you initially define the ports of a tagged VLAN for your voice VLAN configuration, they must be configured as a "Not Member" ports. The "Not Member" ports are eligible to dynamically join the voice VLAN when voice data is detected with a predefined OUI in the source MAC address. The port will leave the voice VLAN after a specified timeout period. This port behavior is configured with the voice VLAN Auto-Detection feature.

For the Auto-Detection feature to function, your IP phone(s) must be capable of generating 802.1Q packets with imbedded VLAN ID tags. You must manually configure your IP phone(s) for the same VLAN ID as the switch's voice VLAN ID. When voice data is detected on one of the "Not Member" ports, the packets from the IP phone will contain the voice VLAN ID so they are switched within the switch's voice VLAN.

One or more ports in your voice VLAN must be configured as Static tagged or untagged members. Static VLAN members are permanent member ports of the voice VLAN and there is no dependency on the configuration of the devices connected to the ports. These ports might be connected to other voice VLAN network nodes such as other Ethernet switches, a telephone switch, or a DHCP server. The voice VLAN Auto-Detection feature cannot be enabled on Static tagged or tagged ports.

Note: Any Static tagged members of the voice VLAN are required to have the port VLAN ID (PVID) configured to be the same as the voice VLAN ID. This insures that all untagged packets entering the port are switched within the voice VLAN as the voice data passes through the switch.

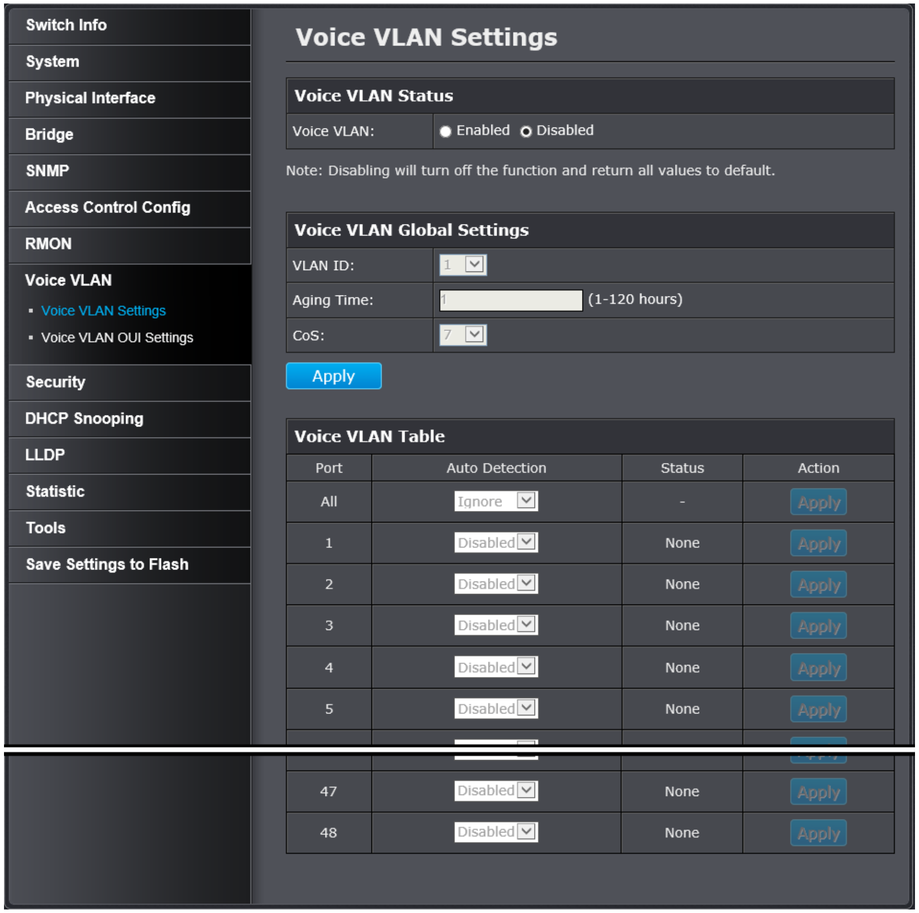
If the IP phone(s) that you are installing cannot be configured with a VLAN ID, then the switch ports should be configured as Static tagged ports within the voice VLAN.

Note: Link Layer Discovery Protocol for Media Endpoint Devices (LLDP- MED) is not supported on the switch. Each IP phone that is VLAN aware should be manually configured for the VLAN ID that matches your voice VLAN ID. Each of the voice VLAN ports connected to an IP phone should be configured as "Not Member" ports of the tagged VLAN.

Create a Voice VLAN

Voice VLAN > Voice VLAN Settings

Note: Prior to configuring your voice VLAN, you must first configure a tagged VLAN. This VLAN will be used as a basis for your voice VLAN.



Voice VLAN Settings

Voice VLAN Status

Voice VLAN: ● Enabled ○ Disabled

Note: Disabling will turn off the function and return all values to default.

Voice VLAN Global Settings

VLAN ID: 1

Aging Time: 1 (1-120 hours)

CoS: 7

Voice VLAN Table

Port	Auto Detection	Status	Action
All	Ignore	-	Apply
1	Disabled	None	Apply
2	Disabled	None	Apply
3	Disabled	None	Apply
4	Disabled	None	Apply
5	Disabled	None	Apply
47	Disabled	None	Apply
48	Disabled	None	Apply

Use the following procedure to configure voice VLAN:

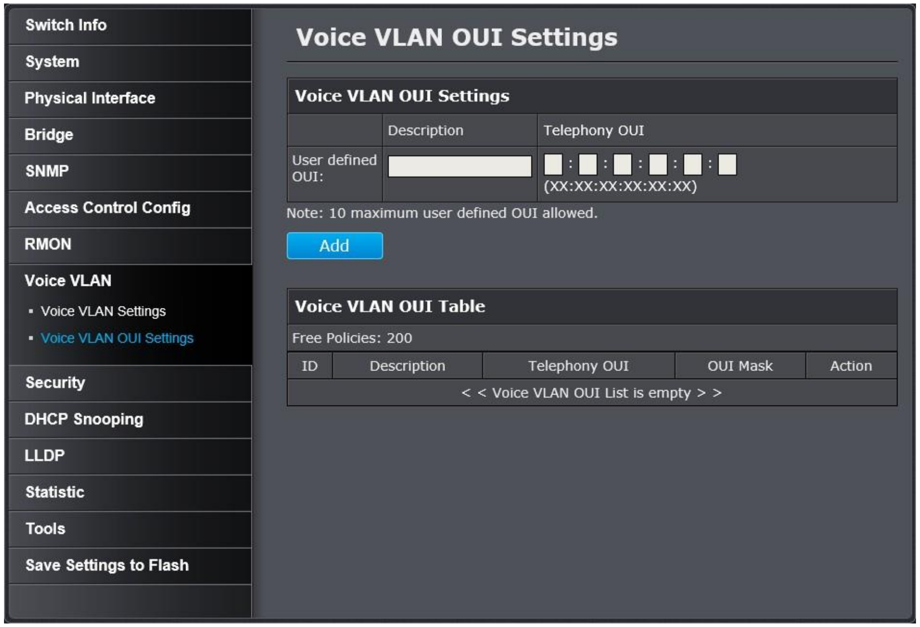
- From the **Voice VLAN** field at the top of the page, select one of the following radio button choices:
  - **Enable:** The voice VLAN feature is active. The other parameter fields in the **Voice VLAN Global Settings** section become active and are eligible for data to be entered.
  - **Disable:** The voice VLAN feature is inactive. The other parameter fields in the **Voice VLAN Global Settings** section become inactive and are greyed out so that data cannot be entered.
- In the **Voice VLAN Global Settings** section, enter the configuration information for the following parameters:
  - **VLAN ID:** This parameter is the tagged VLAN ID that has been configured in "Tagged VLAN Configuration". It is a pull-down menu showing the tagged VLAN IDs that have been defined.
  - **Aging Time:** This parameter indicates the amount of time, in hours, after the last IP phone's OUI was received on a port, after which this port will be removed from the voice VLAN. The range is 1 to 120 hours.
  - **CoS:** This parameter is CoS priority level assigned to the voice data packets received on each voice VLAN port. For the COS priority to be effective, QoS must be Enabled.
- Click **Apply** to apply the settings.
- In the table at the bottom of the page, the **Voice VLAN Auto-Detection status** is defined. From the **Auto-Detec**tion column, select one of the port rows and then one of the following choices from the pull-down menu:
  - **Ignore:** This parameter indicates that the setting in the All row does not apply to the **Dynamic VLAN Status** field. In other words, each port is set individually.
  - **Enable**: The **Voice VLAN Auto-Detection** feature is activated for the port row selected.
  - **Disable:** The **Voice VLAN Auto-Detection** feature is active for the port row selected.

Note: The voice VLAN Auto-Detection feature can only be enabled on "Not Member" ports of the voice VLAN. Member ports cannot have the voice VLAN Auto-Detection feature enabled. The Status column displays Static for the member ports

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Configure Voice VLAN OUI settings

Voice VLAN > Voice VLAN OUI Settings



Voice VLAN OUI Settings

Voice VLAN OUI Settings

	Description	Telephony OUI
User defined OUI:		: : : : : (XX:XX:XX:XX:XX:XX)

Note: 10 maximum user defined OUI allowed.

Voice VLAN OUI Table

Free Policies: 200

ID	Description	Telephony OUI	OUI Mask	Action
< < Voice VLAN OUI List is empty > >				

Use the following procedure to configure **Voice VLAN OUIs**:

- Enter a text description that helps you identify the manufacturer's OUI in the **User Defined OUI**. Description field. This parameter can be up to 20 characters in length.

- Enter the MAC address in the **User Defined OUI**. **Telephony OUI** field of one of the IP phones with the manufacturer's OUI.

- Click **Add**. The new OUI entry is displayed in the table at the bottom of the page.

Note: If you find more than one OUI among the IP phones you are installing, enter one MAC address that represents each individual OUI. You can enter a total of 10 OUIs.

Modify OUI Setting

To modify or delete an OUI, it must be first be deleted and then re-created.

Delete OUI Setting

To delete a specific OUI that had already been entered in the table at the bottom of the page, click on **Delete** in the **Action** column of the table. The specific OUI will be deleted from the table.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Security

This chapter contains information about the Port-based security features and the procedures for setting this feature.

Configure Port Access Control

Security > Port Access Control

This section contains information and configuration procedures for the

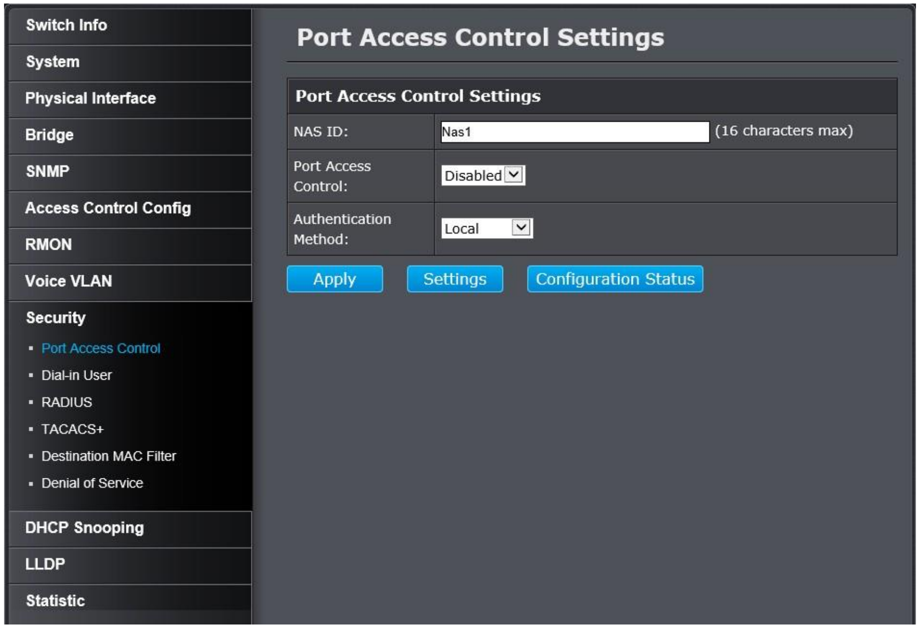
Port-based Access Control. Port-based Network Access Control (IEEE 802.1X) is used to control who can send traffic through and receive traffic from a switch port. With this feature, the switch does not allow an end node to send or receive traffic through a port until the user of the node logs on by entering a user name and password.

This feature can prevent an unauthorized individual from connecting a computer to a port or using an unattended workstation to access your network resources. Only those users to whom you have assigned a user name and password are able to use the switch to access the network.

This feature can be used with one of two authentication methods:

- The RADIUS authentication protocol requires that a remote RADIUS server is present on your network. The RADIUS server performs the authentication of the user name and password combinations.
- The Dial-in User (local) authentication method allows you to set up the authentication parameters internally in the switch without an external server. In this case, the user name and password combinations are entered in the associated with an optional VLAN when they are defined. Based on these entries, the authentication process is done locally by the Web Management using a standard EAPOL transaction.

Note: RADIUS with Extensible Authentication Protocol (EAP) extensions is the only supported authentication server for this feature.



Port Access Control Settings

Port Access Control Settings	
NAS ID:	Nas1 (16 characters max)
Port Access Control:	Disabled
Authentication Method:	Local

Configure the following parameters as required:

- **NAS ID:** This parameter assigns an 802.1X identifier to the switch that applies to all ports. The NAS ID can be up to sixteen characters. Valid characters are 0 to 9, a to z, and A to Z. Spaces are allowed. Specifying an NAS ID is optional.

- **Port Access Control:** This parameter enables or disables **Port Access Control**. Select one of the following choices from the pull down menu:
  - **Enable:** The **Port Access Control** feature is activated.
  - **Disable:** The **Port Access Control** feature is de-activated.

- **Authentication Method:** This parameter indicates the authentication method used by the switch. Select one of the following choices:
  - **RADIUS:** This parameter configures port security for remote authentication. After completing steps, you must configure the "RADIUS Client" section.
  - **Local:** This parameter configures port security for local authentication. After completing steps, you must configure the parameters for "Dial-in User— Local Authentication" section.
  - **TACACS+:** This parameter configures port security for terminal authentication. After completing steps, you must configure the "TACACS+ Settings" section.

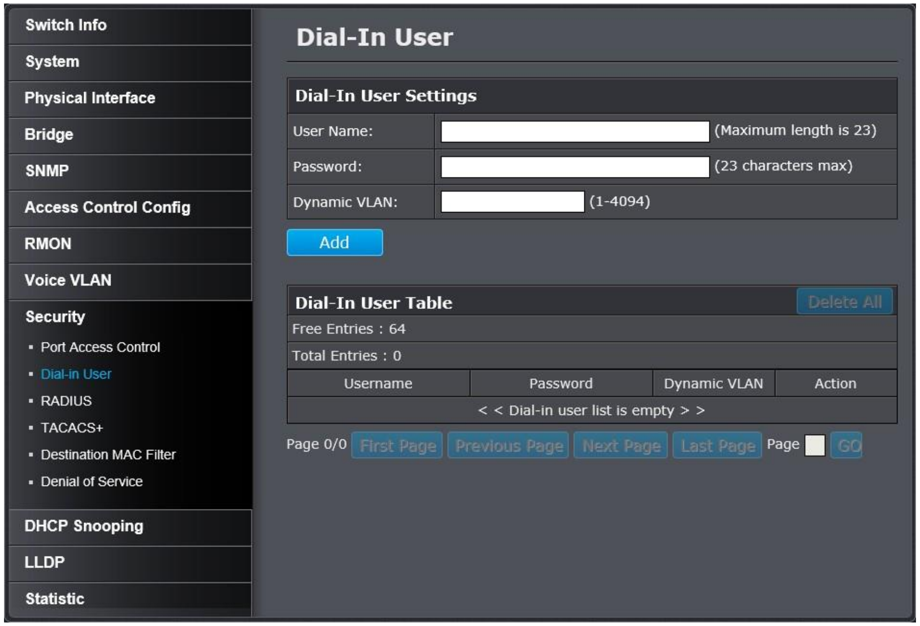
Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Create Dial-In Users (Local Authentication Method)

Security > Dial-in User

Dial-in User feature provides the local authentication server for port security when a remote (RADIUS) server is not available.

The Dial-in User (local) authentication method allows you to set up 802.1X authentication parameters internally in the Switch. In this case, the user name and password combinations are entered with an optional VLAN when they are defined. Based on these entries, the authentication process of a supplicant is done locally by the Switch Management using a standard EAPOL (EAP over LAN) transaction.



Dial-In User

Dial-In User Settings

User Name:		(Maximum length is 23)
Password:		(23 characters max)
Dynamic VLAN:		(1-4094)

Dial-In User Table

Free Entries : 64

Total Entries : 0

Username	Password	Dynamic VLAN	Action
< < Dial-in user list is empty > >			

Page 0/0 Page

To create a dial-in user for local authentication, use the following procedure:

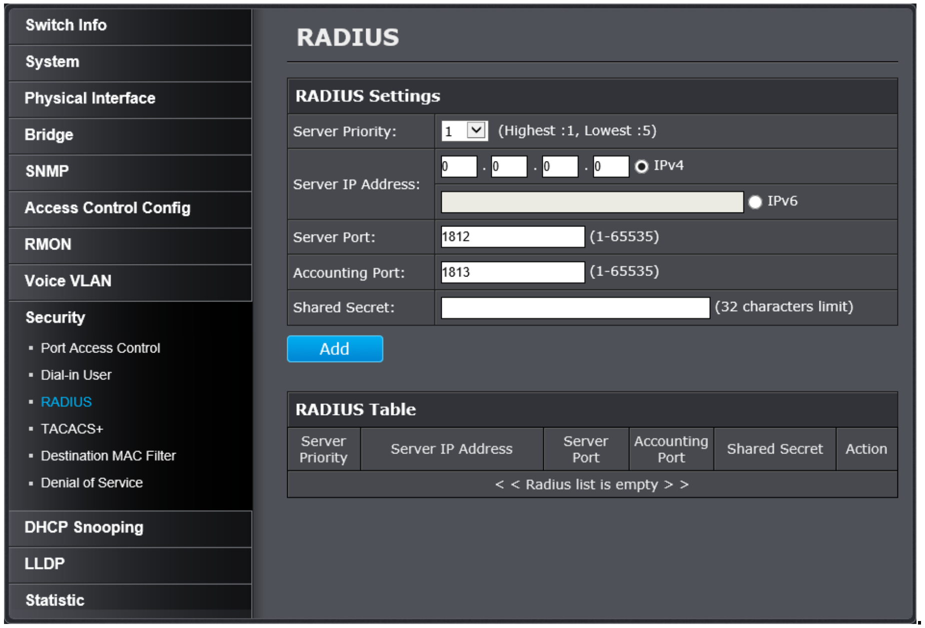
- In the **User Name** field, type a name for the user.
- In the **Password** field, type a password for the user.
- In the **Dynamic VLAN** field, enter the VID of the VLAN which you will allow the user to access. If you enter 0, this field will be ignored.
- Click **Add** to add the entry to the table.

On the list, you can click **Modify** to modify an entry or click **Delete** or delete the entry. You can also click **Delete All** to delete all of the entries in the table. If the entries span multiple pages, you can navigate page number in the Page field and click **Go** or you can click **First**, **Previous, Next**, and **Last Page** to navigate the pages.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Add RADIUS Servers (RADIUS Authentication Method)

Security > RADIUS



RADIUS

RADIUS Settings

Server Priority:	1 (Highest :1, Lowest :5)
Server IP Address:	0 . 0 . 0 . 0 ● IPv4
	○ IPv6
Server Port:	1812 (1-65535)
Accounting Port:	1813 (1-65535)
Shared Secret:	(32 characters limit)

RADIUS Table

Server Priority	Server IP Address	Server Port	Accounting Port	Shared Secret	Action
< < Radius list is empty > >					

RADIUS Settings

Server Priority:	Enter the RADIUS Server priority (Highest: 1, Lowest: 5).
Server IP Address:	Select IPv4 or IPv6 and set the RADIUS server IP address and enter the IP address of the RADIUS server you would like to add.
Server Port:	Set the RADIUS authentic server(s) UDP port. The default port is 1812. Range: 1 – 65535.
Accounting Port:	Set the RADIUS account server(s) UDP port. The default port is 1813. Range: 1 – 65535.
Shared Secret:	Enter the default authentication and encryption key for RADIUS communication between the device and the RADIUS server.

In the list, you can click **Modify** to modify an entry or click **Delete** or delete the entry.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Click **Add** to add the entry to the table.

Add TACACS+ Servers (TACACS+ Authentication Method)

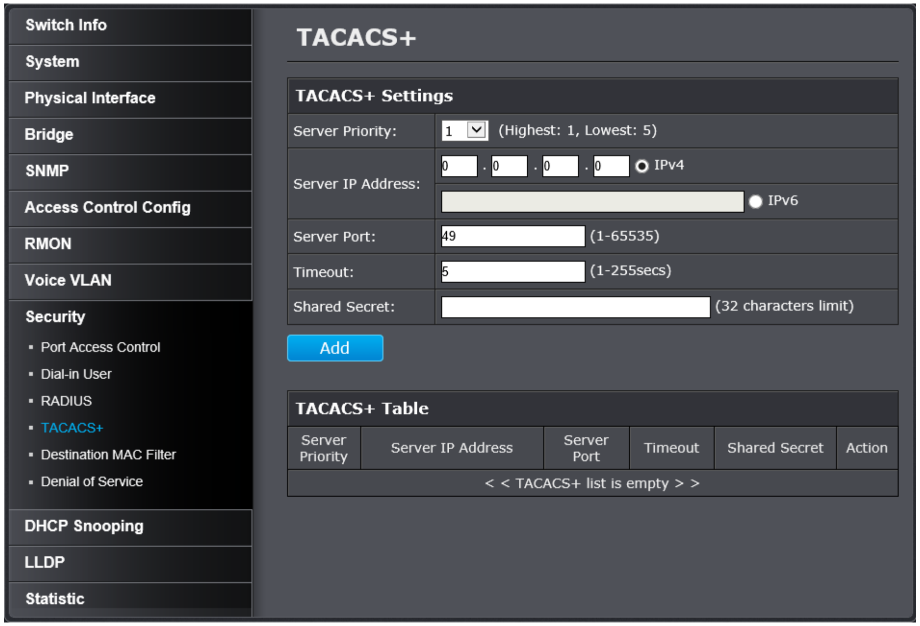
Security > TACACS+

Terminal Access Controller Access Control System (TACACS+) provides centralized security user access validation. The system supports up-to 5

TACACS+ servers.

TACACS+ provides a centralized user management system, while still retaining consistency with RADIUS and other authentication processes.

The TACACS+ protocol ensures network integrity through encrypted protocol exchanges between the client and TACACS+ server. The user-assigned TACACS+ parameters are applied to newly defined TACACS+ servers. If values are not defined, the system defaults are applied to the new TACACS+ servers.



TACACS+

TACACS+ Settings

Server Priority:	1 (Highest: 1, Lowest: 5)
Server IP Address:	0 . 0 . 0 . 0 ● IPv4 ○ IPv6
Server Port:	49 (1-65535)
Timeout:	5 (1-255secs)
Shared Secret:	(32 characters limit)

Add

TACACS+ Table

Server Priority	Server IP Address	Server Port	Timeout	Shared Secret	Action
< < TACACS+ list is empty > >					

TACACS+ Settings

Server Priority:	Enter the TACACS+ Server priority (Highest: 1, Lowest: 5).
Server IP Address:	Enter the TACACS+ Server IP address.
Server Port:	Enter the port number via which the TACACS+ session occurs. The default port is port 49.
Timeout:	Enter the amount of time (in seconds) the device waits for an answer from the TACACS+ server before retrying the query, or switching to the next server. Possible field values are 1-255. The default value is 5.
Shared Secret:	Enter the default authentication and encryption key for TACACS+ communication between the device and the TACACS+ server.

Click **Add** to add the entry to the table.

In the list, you can click **Modify** to modify an entry or click **Delete** or delete the entry.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Destination MAC Filter

Security > Destination MAC Filter

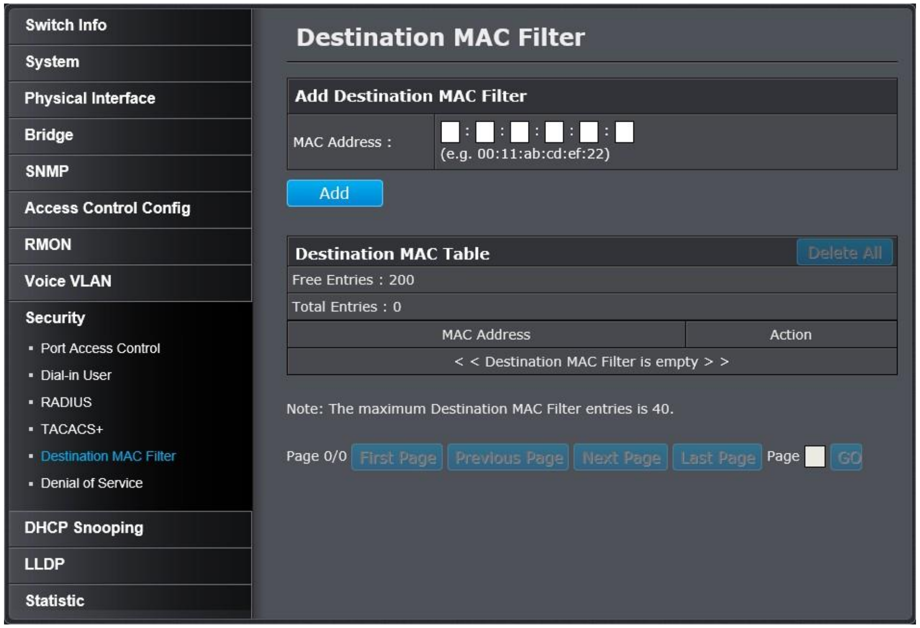
This section contains an explanation of the Destination MAC Filter feature as well a procedure for configuring it. This section includes the following information:

The Destination MAC Filter feature prevents the switch from forwarding packets to a specified device. On the Destination MAC Filter Page of the Web Management, enter the MAC address of the device that you want to filter.

After the switch receives a packet, it examines the destination MAC address of the packet. If the destination MAC address matches a MAC address set in the filter, the software prevents the switch from forwarding it and drops the packet.

You may want to block access to a device within your organization. For instance, you may not want users on the Sales group switch to have access to a server on the Accounting group switch. You can enter the MAC address of the Accounting server as a destination MAC address filter on the Sales group switch. When a packet destined for the Accounting server is received by the Sales group switch, the switch drops the packet.

The Destination MAC Filter is a subset of the static MAC address.



Destination MAC Filter

Add Destination MAC Filter

MAC Address : □:□:□:□:□:□ (e.g. 00:11:ab:cd:ef:22)

Destination MAC Table

Free Entries : 200

Total Entries : 0

MAC Address	Action
< < Destination MAC Filter is empty > >	

Note: The maximum Destination MAC Filter entries is 40.

Page 0/0 Page □

Enter the MAC Address to add to the destination filter table. Click **Add**.

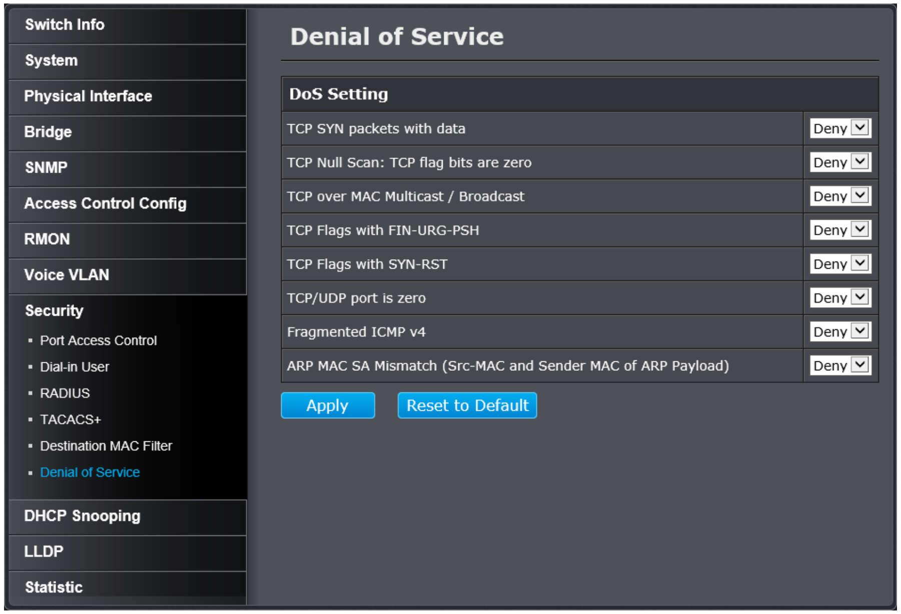
On the list, you can click **Modify** to modify an entry or click **Delete** or delete the entry. You can also click **Delete All** to delete all of the entries in the table. If the entries span multiple pages, you can navigate page number in the Page field and click **Go** or you can click **First**, **Previous, Next**, and **Last Page** to navigate the pages.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Denial of Service (DoS)

Security > Denial of Service

The switch has built-in DoS prevention features to restrict specific type of traffic associated denial of service attacks on your network. By default, all of the DoS settings are set to Allow, which allow any type of traffic to pass through the switch. Setting one of the items to Deny will set the switch to check for traffic matching the selected item and deny any traffic matching the rule. On the other hand, setting one of rules to Deny may deny a specific type of traffic that may prevent traffic essential to running your network such as devices in load balancing configuration using virtual IP addresses (Ex. If ARP MAC SA Mismatch is set to Deny, it may cause devices in load balance configuration using shared virtual IP addresses communication issues essential for network server load balancing.) For additional security, you can set these rules to Deny as necessary.



Denial of Service

DoS Setting	
TCP SYN packets with data	Deny
TCP Null Scan: TCP flag bits are zero	Deny
TCP over MAC Multicast / Broadcast	Deny
TCP Flags with FIN-URG-PSH	Deny
TCP Flags with SYN-RST	Deny
TCP/UDP port is zero	Deny
Fragmented ICMP v4	Deny
ARP MAC SA Mismatch (Src-MAC and Sender MAC of ARP Payload)	Deny

Select the DoS rule you want to activate, click the drop-down menu on the right hand side and select **Deny**.

Click **Apply** to apply the settings.

*Note: You can click **Reset to Default** to restore all DoS settings to **Allow**.*

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Power over Ethernet Configuration

The main advantage of PoE is that it can make installing a network easier. The selection of a location for a network device is often limited by whether there is a power source nearby. This constraint limits equipment placement or requires the additional time and cost to have extra electrical sources installed. However, with PoE, you can install PoE devices wherever they are needed without having to worry about whether there is power source nearby.

Power Sourcing Equipment (PSE)

A device that provides PoE to other network devices is referred to as power sourcing equipment (PSE). The TPE-4840WS is a PSE device which provides DC power through the network cable and functions as a central power source for other network devices.

Powered Device (PD)

A device that receives power from a PSE device is called a powered device (PD). Examples include wireless access points, IP phones, webcams, and even other Ethernet switches.

PD Classes PDs are grouped into five classes. The classes are based on the amount of power that PDs require. The TPE-4840WS supports all five classes.

Class	Maximum Power Output	Power Range of PDs
0	15.4 W	0.44 W to 12.95 W
1	4.0 W	0.44 W to 3.84 W
2	7.0 W	3.84 W to 6.49 W
3	15.4 W	6.49 W to 12.95 W
4	34.2 W	25.5 W to 38.9 W

Power Budget

Power budget is the maximum amount of power that the PoE switch can provide to all the connected PDs at the same time. As long as the total power requirements of the PDs is less than the total available power of the switch, it can supply power to all of the PDs.

When the PD power requirements exceed the total available power budget, the switch denies to supply power to some ports based on a process called port prioritization.

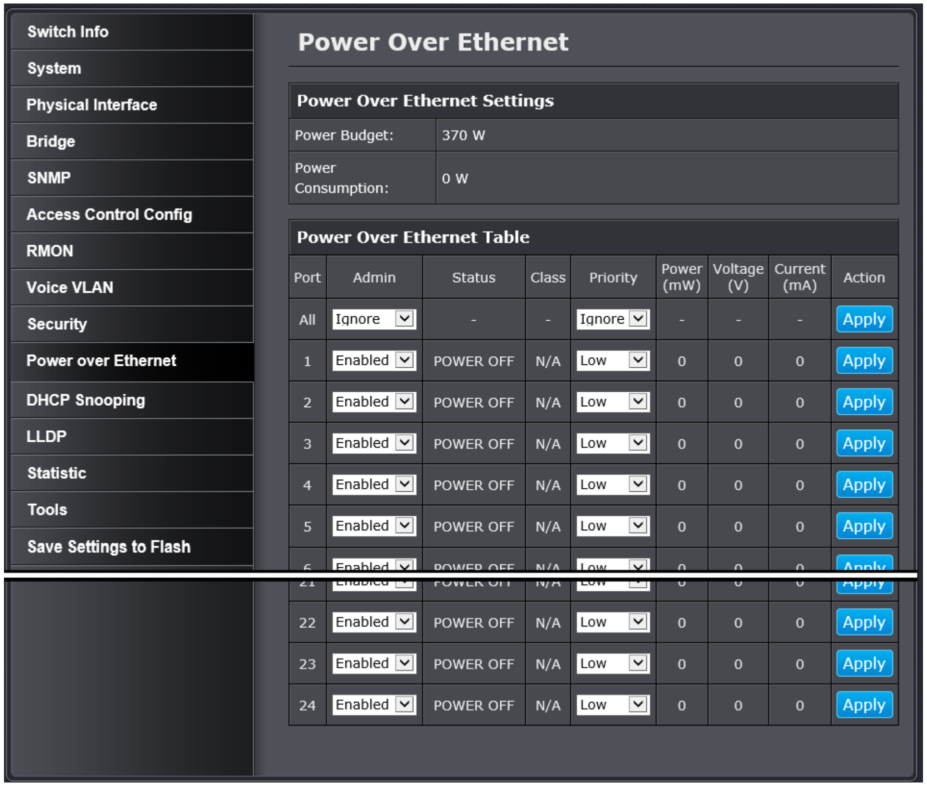
The ports on the PoE switch are assigned to one of three priority levels: Critical, High and Low. If all PoE ports are set to the same PoE port priority and the PoE power supply is over the budget, the switch provides power to the ports based on the port number, in ascending order. For example, when all of the ports on the switch are set to the PoE low priority and the power requirements are over budget, the port 1 has the highest priority to get the power supply, port 2 has the next highest priority and so on and so forth.

PoE Priority	Description
Critical	This is the highest PoE priority. Ports set to the Critical level are guaranteed to receive power before any of the ports assigned to the other priority levels.
High	Ports set to the High level receive power only when all the ports assigned to the Critical level are already receiving power.
Low	This is the lowest priority level. Ports set to the Low level receive power only when all the ports assigned to the Critical and High levels are already receiving power. This level is the default setting.

Configure PoE settings

PoE Configuration

Click on PoE Configuration.



Power Over Ethernet

Power Over Ethernet Settings

Power Budget:	370 W
Power Consumption:	0 W

Power Over Ethernet Table

Port	Admin	Status	Class	Priority	Power (mW)	Voltage (V)	Current (mA)	Action
All	Ignore	-	-	Ignore	-	-	-	Apply
1	Enabled	POWER OFF	N/A	Low	0	0	0	Apply
2	Enabled	POWER OFF	N/A	Low	0	0	0	Apply
3	Enabled	POWER OFF	N/A	Low	0	0	0	Apply
4	Enabled	POWER OFF	N/A	Low	0	0	0	Apply
5	Enabled	POWER OFF	N/A	Low	0	0	0	Apply
6	Enabled	POWER OFF	N/A	Low	0	0	0	Apply
21	Enabled	POWER OFF	N/A	Low	0	0	0	Apply
22	Enabled	POWER OFF	N/A	Low	0	0	0	Apply
23	Enabled	POWER OFF	N/A	Low	0	0	0	Apply
24	Enabled	POWER OFF	N/A	Low	0	0	0	Apply

Review the settings for each port. Next to each port entry, click Apply to save the settings.

- **Power Budget** – Displays the maximum overall TPE-4840WS power budget in watts.
- **Power Consumption** – Displays the current PoE power provided to PoE devices or PDs (Powered devices) in watts.

Power over Ethernet Table

Port:	Indicates the port with a specific PoE status and that you are configuring. *Note: You can select the row labeled ALL to apply settings to all ports.*
Admin:	To enable or disable PoE power supply on a specific port, select **Enabled** or **Disabled**. By default the PoE feature is **Enabled** on all PoE switch ports (1 – 24).
Status:	The PoE port status is given as follows: • **Power ON** - The port is supplying PoE power. • **Power OFF** - The port is not supplying PoE power.
Class:	The PoE class is indicated the class of the PD. N/A is displayed when the port is not supplying power.
Priority:	Indicates the port priority: Low, High, or Critical.
Power (mW):	Indicates the Power in milli-watts that the port is supplying power to the PD.
Voltage (V):	Indicates the Voltage in volts as measured at the port when the port is supplying power to the PD.
Current (mA):	Indicates the Current in milliamps that the port is supplying to the PD.
Action:	Modifying settings in the row marked **All**, will apply the settings to all ports. Click **Apply** to apply the change.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

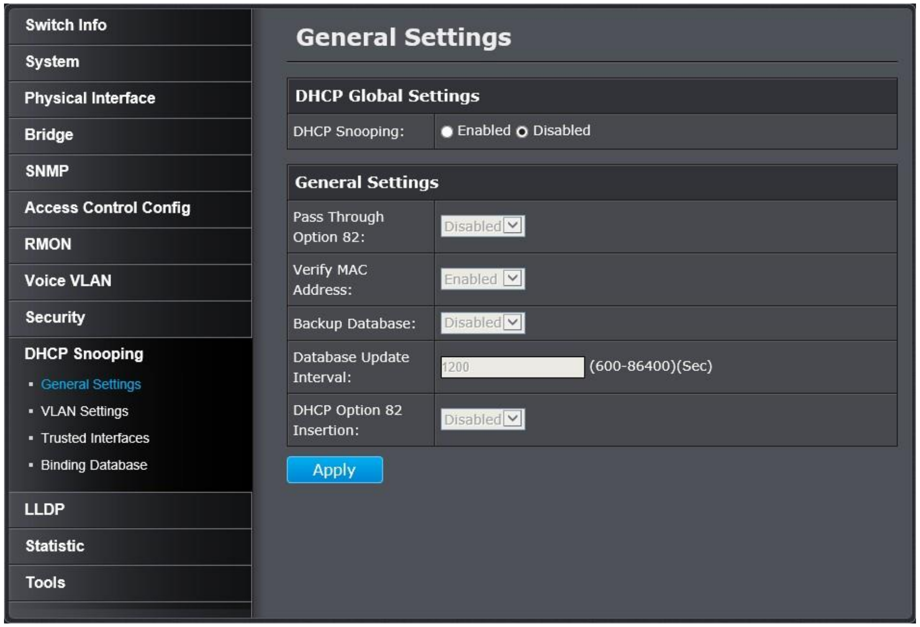
DHCP Snooping

Here is a summary of the rules to observe when you configure DHCP Snooping:

- A trusted port is connected to one of the following:
    - Directly to the legitimate trusted DHCP Server.
    - A network device relaying DHCP messages to and from a trusted server.
    - Another trusted source such as a switch with DHCP Snooping enabled.
    - Untrusted ports are connected to DHCP clients and to traffic that originates outside of the local area network.
- The VLANs to which the DHCP Snooping feature applies must be specified in the DHCP Snooping VLAN Setting configuration.
- Any static IP addresses on the network must be manually added to the Binding Database.

Enable DHCP Snooping

DHCP Snooping > General Settings



General Settings

DHCP Global Settings

DHCP Snooping: ● Enabled ○ Disabled

General Settings

Pass Through Option 82:	Disabled
Verify MAC Address:	Enabled
Backup Database:	Disabled
Database Update Interval:	1200 (600-86400)(Sec)
DHCP Option 82 Insertion:	Disabled

DHCP Snooping Global Settings

Enabled:	This parameter activates the DHCP Snooping feature.
Disabled:	This parameter de-activates the DHCP Snooping.

DHCP Snooping General Settings

Pass Through Option 82:	Select one of the following choices from the pull-down menu: • **Enabled:** Allows an Option 82 packet to be passed through the switch without being altered. • **Disabled:** Blocks an Option 82 packet from passing through the switch.

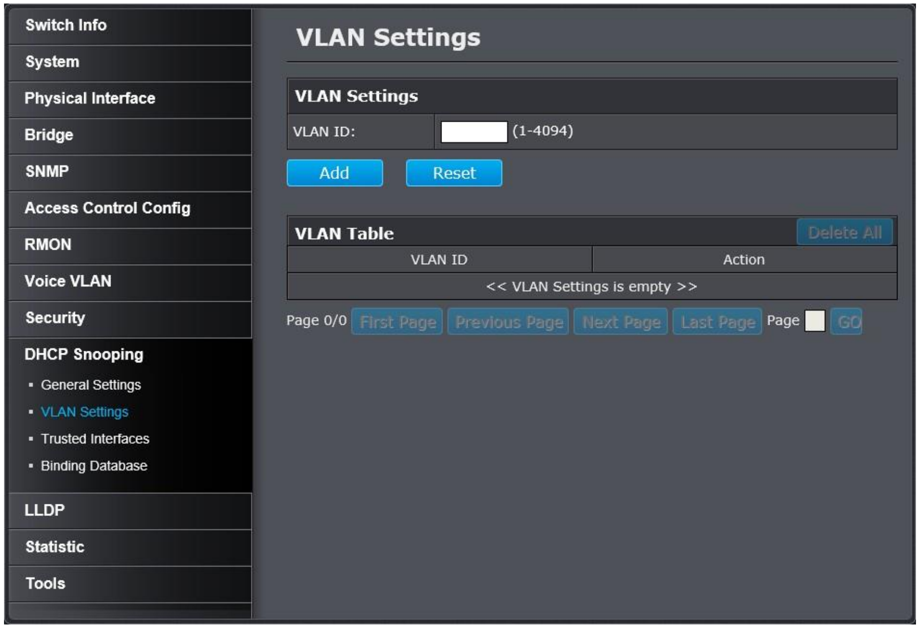
Verify MAC Address:	Select one of the following choices from the pull-down menu: • **Enabled:** The MAC address of each ingress ARP packet is validated when compared against the Binding Table entries. Invalid ARP packets are discarded. • **Disabled:** The MAC address of each ingress ARP packet is not validated against the Binding Table. All ARP packets are forwarded through the switch without regard to the IP and MAC Address information in the packet header.
Backup Database:	select one of the following choices from the pull-down menu: • **Enabled:** The Web Management saves a backup copy of the Binding Table to flash at a specified interval (Database Update Interval) of time. • **Disabled:** The Web Management does not save a backup copy of the Binding Table to flash.
Database Update Interval:	Enter the database update interval. The range of this interval is 600 to 86400 seconds.
DHCP Option 82 Insertion:	select one of the following choices from the pull-down menu: • **Enabled:** The Web Management inserts the DHCP Option 82 information into the DHCP packets. • **Disabled:** The Web Management does not insert the DHCP Option 82 information into the DHCP packets.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

DHCP Snooping over VLAN

DHCP Snooping > VLAN Settings

In this section, you can define an existing VLAN to apply DHCP snooping.



VLAN ID	Action
<< VLAN Settings is empty >>	

In the field, enter the existing VLAN ID to apply DHCP Snooping. Then click **Add** to add the VLAN entry to the table.

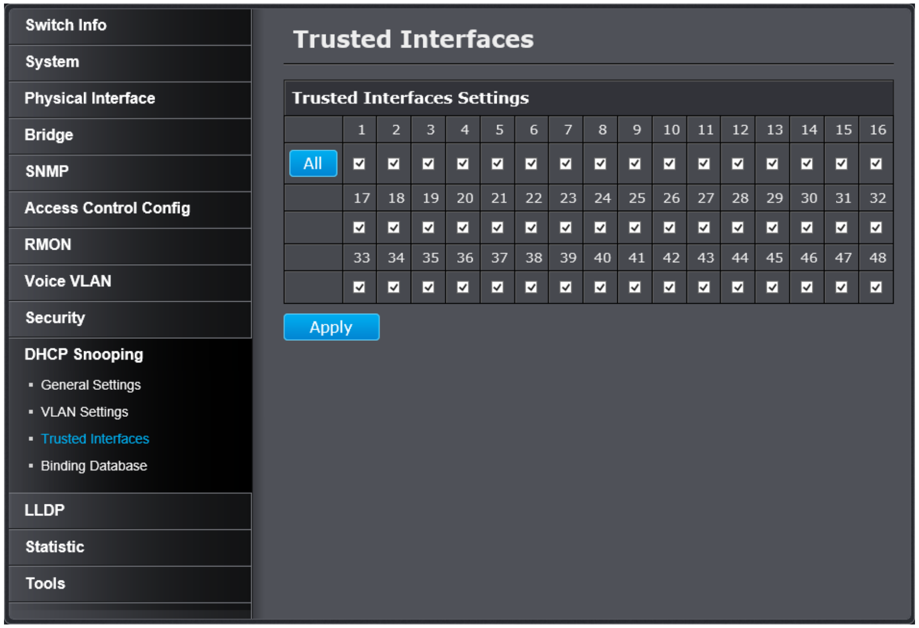
On the list, you can click **Modify** to modify an entry or click **Delete** or delete the entry. You can also click **Delete All** to delete all of the entries in the table. If the entries span multiple pages, you can navigate page number in the Page field and click **Go** or you can click **First**, **Previous, Next**, and **Last Page** to navigate the pages.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Set Trusted Interfaces

DHCP Snooping > Trusted Interfaces

This section allows you to set trusted port interfaces where DHCP servers can be connected allows or denies DHCP server information to be received on those ports.



Trusted Interfaces

Trusted Interfaces Settings

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
All	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑

Check the box of DHCP snooping trusted port number, and then click **Apply**. Click **All** if you want to choose all ports to be trusted.

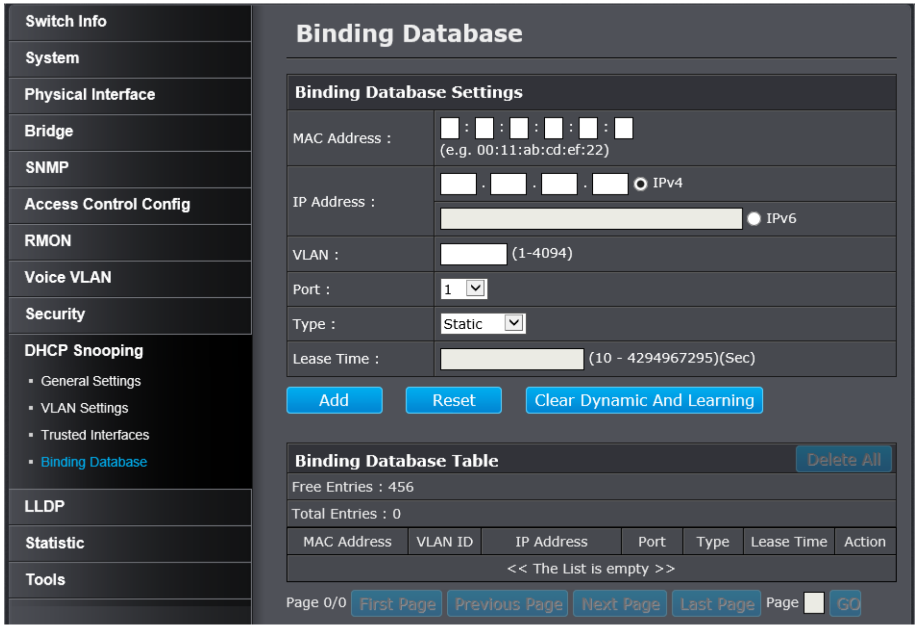
Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Configure Binding Database

DHCP Snooping > Binding Database

The Binding Database displays learned and statically assigned MAC

Address and IP Address information for each host on the local area network. Dynamically assigned IP addresses from the DHCP server will automatically populate the table on the Binding Database page as they are assigned by the server. Statically assigned IP addresses are entered manually by entering the host's address information and clicking on the Add button.



Binding Database

Binding Database Settings

MAC Address :	□ : □ : □ : □ : □ : □ (e.g. 00:11:ab:cd:ef:22)
IP Address :	□ . □ . □ . □ ○ IPv4 □ ○ IPv6
VLAN :	□ (1-4094)
Port :	1
Type :	Static
Lease Time :	□ (10 - 4294967295)(Sec)

Binding Database Table

Free Entries : 456

Total Entries : 0

MAC Address	VLAN ID	IP Address	Port	Type	Lease Time	Action
<< The List is empty >>						

Page 0/0 Page □

Binding Database Settings

MAC Address:	Enter the host's MAC Address.
IP Address:	Enter the static IP Address assigned to the host.
VLAN:	Enter the host's VLAN ID.
Port:	Enter the port number where the host is connected.
Type:	Because the IP Address being entered is static, you must select Static.
Lease Time:	Enter the time that IP address assignment is valid. The range is 10 to 4294967295 seconds.

Click **Add** to add the database entry to the table.

On the list, you can click **Modify** to modify an entry or click **Delete** or delete the entry. You can also click **Delete All** to delete all of the entries in the table. If the entries span multiple pages, you can navigate page number in the Page field and click **Go** or you can click **First**, **Previous, Next**, and **Last Page** to navigate the pages.

Binding Database Table

MAC Address:	This parameter shows the host's MAC Address.
VLAN ID:	This parameter shows the host's VLAN ID of which the DHCP client is a member.
IP Address:	This parameter is the IP Address assigned by the DHCP server to the DHCP client.
Port:	This parameter is the port number where the DHCP client is connected.
Type:	This parameter indicates the following: • **Learned:** The host IP Address is dynamically assigned by the DHCP server. • **Static:** The host IP Address is statically assigned. See "Static IP Addresses" on page 300 for more information.
Lease Time:	This parameter is the time that IP address assignment by the DHCP server is valid.

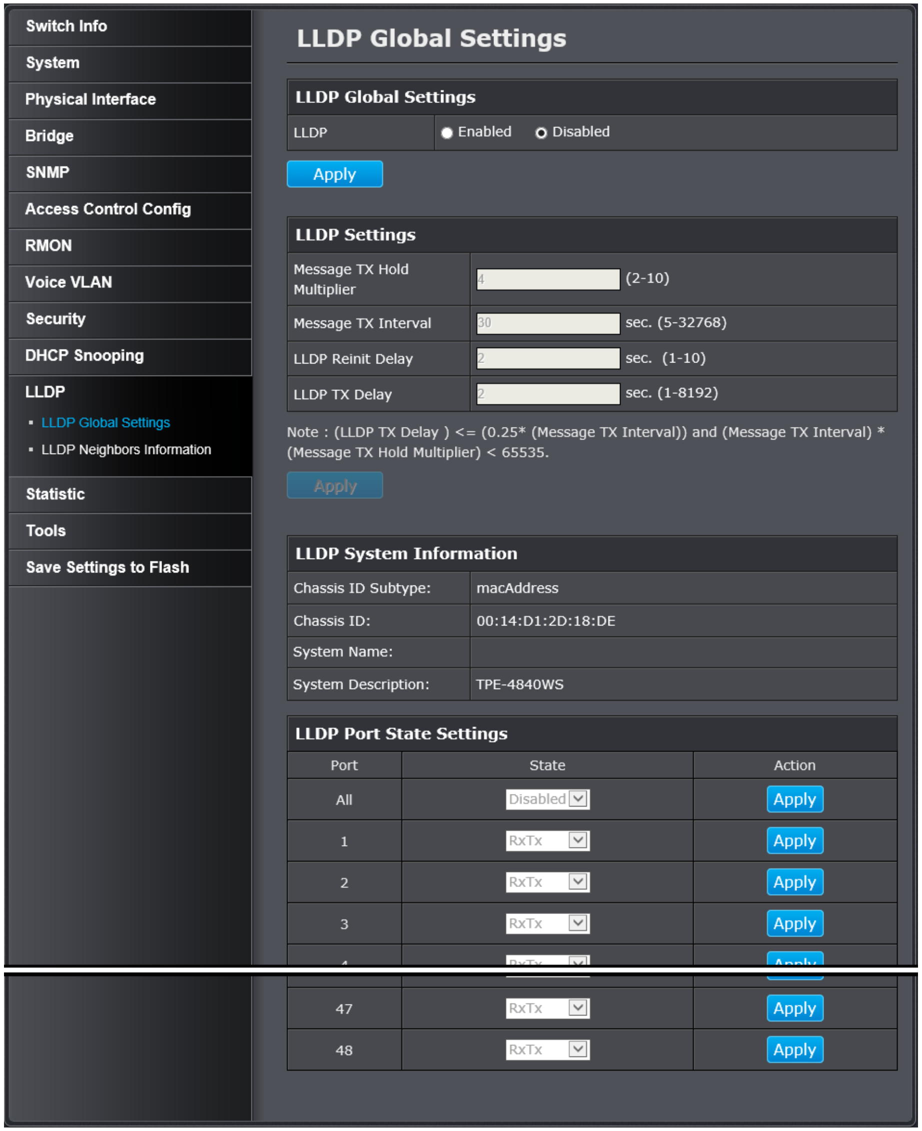
Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

LLDP (Link-Layer Discovery Protocol)

Link Layer Discovery Protocol (LLDP) allows Ethernet network devices, such as switches and routers, to receive and transmit device-related information to directly connected devices on the network and to store data that is learned about other devices.

Enable and configure LLDP

LLDP > LLDP Global Settings



LLDP Global Settings

LLDP Global Settings	
LLDP	● Enabled ○ Disabled

Apply

LLDP Settings		
Message TX Hold Multiplier	4	(2-10)
Message TX Interval	30	sec. (5-32768)
LLDP Reinit Delay	2	sec. (1-10)
LLDP TX Delay	2	sec. (1-8192)

Note : (LLDP TX Delay) <= (0.25* (Message TX Interval)) and (Message TX Interval) * (Message TX Hold Multiplier) < 65535.

Apply

LLDP System Information	
Chassis ID Subtype:	macAddress
Chassis ID:	00:14:D1:2D:18:DE
System Name:	
System Description:	TPE-4840WS

LLDP Port State Settings

Port	State	Action
All	Disabled	Apply
1	RxTx	Apply
2	RxTx	Apply
3	RxTx	Apply
4	RxTx	Apply
47	RxTx	Apply
48	RxTx	Apply

LLDP Global Settings	
Enabled:	The LLDP feature is active.
Disabled:	The LLDP feature is inactive.

LLDP Settings	
Message TX Hold Multiplier:	Sets the hold multiplier value. The hold time multiplier is multiplied by the transmit interval to give the Time To Live (TTL) that the switch advertises to the neighbors. The range is from 2 to 10.
Message TX Interval:	Sets the transmit interval, which is the interval between regular transmissions of LLDP advertisements. The range is from 1 to 10 seconds.
LLDP Reinit Delay:	Sets the re-initialization delay, which is the number of seconds that must elapse after LLDP is disabled on a port before it can be reinitialized. The range is from 1 to 10 seconds.
LLDP TX Delay:	Sets the value of the transmission delay timer, which is the minimum time interval between transmissions of LLDP advertisements due to a change in LLDP local information. The range is from 1 to 8192 seconds.

Click **Apply** to apply the settings.

LLDP System Information	
Chassis ID Subtype:	This parameter describes the Chassis ID subtype which is “macAddress”. You cannot change this parameter.
Chassis ID:	This parameter lists the MAC Address of the switch.
System Name:	This parameter lists the System Name of the switch. You can assign the system name.
System Description:	This parameter lists the product name of the switch. You cannot change this parameter

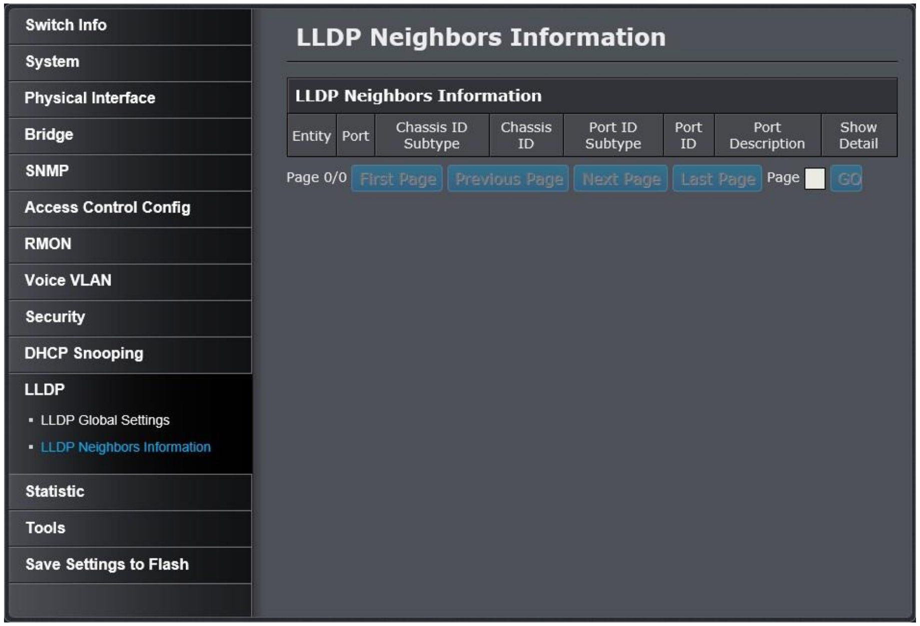
LLDP Port State Settings	
Port:	The port number on the switch.
State:	For each port, click the State drop-down list and choose from the following options. • **Disabled:** Indicates LLDP is disabled on the port. The port cannot receive or transmit LLDP data packets. • **Enabled:** Indicates LLDP is enabled on the port. The port can receive and transmit LLDP data packets. • **RxOnly:** Indicates LLDP is enabled on the port. The port can receive LLDP data packets. • **TxOnly:** Indicates LLDP is enabled on the port. The port can transmit LLDP data packets. *Note: You can select the row labeled ALL to apply settings to all ports.*
Action:	Click **Apply** to apply the settings.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

You cannot change this parameter.

View LLDP Neighbor Information

LLDP > LLDP Neighbor Information



LLDP Neighbors Information

LLDP Neighbors Information

Entity	Port	Chassis ID Subtype	Chassis ID	Port ID Subtype	Port ID	Port Description	Show Detail

Page 0/0 First Page Previous Page Next Page Last Page Page □ GO

LLDP Neighbors Information

Entity: This parameter is a number assigned to the reporting neighbors in the order that the LLDP information is received from them.

Port: This parameter specifies the switch port number where the LLDP information was received.

Chassis ID Subtype: This parameter describes the Chassis ID subtype of the neighboring network device which is reporting the LLDP information.

Chassis ID: This parameter is the neighboring device's chassis ID.

Port ID **Subtype:**

Port ID: This parameter specifies the neighboring network device's port number from which the LLDP information was transmitted.

Port Description: This parameter describes the neighboring network device's port.

Show Normal: If you click on this button, a detailed report of the neighboring network device will be displayed.

If the entries span multiple pages, you can navigate page number in the Page field and click Go or you can click **First**, **Previous**, **Next**, and **Last Page** to navigate the pages.

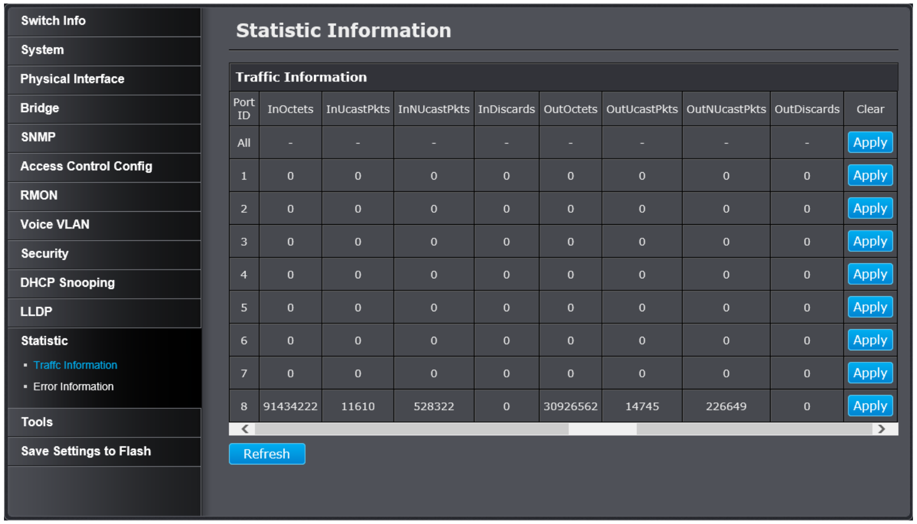
This parameter describes the Port ID subtype of the neighboring network device's port that is connected directly to the switch port.

Statistic

Statistics provide important information for troubleshooting switch problems at the port level. The Web Management provides a two statistics charts, including Traffic Information and Error Information.

View Traffic Information Statistics

Statistic > Traffic Information



Statistic Information

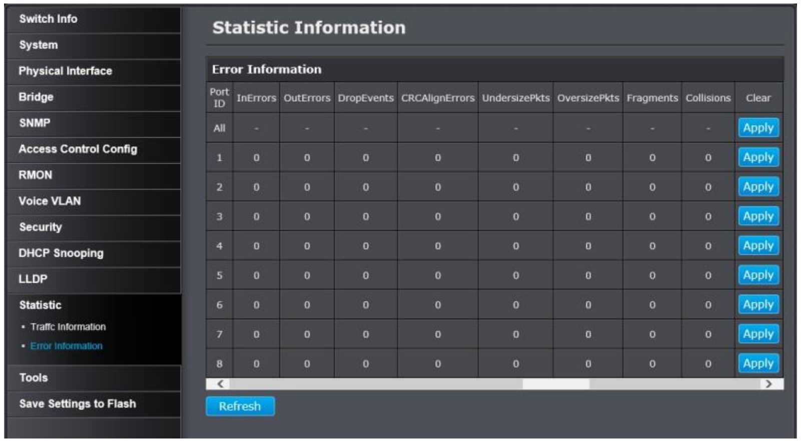
Traffic Information

Port ID	InOctets	InUcastPkts	InNUcastPkts	InDiscards	OutOctets	OutUcastPkts	OutNUcastPkts	OutDiscards	Clear
All	-	-	-	-	-	-	-	-	Apply
1	0	0	0	0	0	0	0	0	Apply
2	0	0	0	0	0	0	0	0	Apply
3	0	0	0	0	0	0	0	0	Apply
4	0	0	0	0	0	0	0	0	Apply
5	0	0	0	0	0	0	0	0	Apply
6	0	0	0	0	0	0	0	0	Apply
7	0	0	0	0	0	0	0	0	Apply
8	91434222	11610	528322	0	30926562	14745	226649	0	Apply

Traffic Information	
Port ID:	The port ID on the switch
InOctets:	Inbound Octets (Bytes/s), number of inbound octet bits in bytes per second.
InUcastPkts:	Inbound Unicast Packets (Pkts), number of inbound unicast packets in packets per second.
InNUcastPkts:	Inbound Non-unicast Packets (Pkts), number of inbound non-unicast packets (such as broadcast and multicast packets) in packets per second.
InDiscards:	Inbound Discards (Pkts), number of inbound discarded packets in packets per second.
OutOctets:	Outbound Octets (Bytes/s), rate of outbound octet bits in bytes per second.
OutUcastPkts:	Outbound Unicast Packets (Pkts), number of outbound unicast packets in packets per second.
OutNUcastPkts:	Outbound Non-unicast Packets (Pkts), number of outbound non-unicast (such as broadcast and multicast packets) packets.
OutDiscards:	Outbound Discards (Pkts), number of outbound discarded packets.

View Error Information Statistics

Statistic > Error Information



Statistic Information

Error Information

Port ID	InErrors	OutErrors	DropEvents	CRCAlignErrors	UndersizePkts	OversizePkts	Fragments	Collisions	Clear
All	-	-	-	-	-	-	-	-	Apply
1	0	0	0	0	0	0	0	0	Apply
2	0	0	0	0	0	0	0	0	Apply
3	0	0	0	0	0	0	0	0	Apply
4	0	0	0	0	0	0	0	0	Apply
5	0	0	0	0	0	0	0	0	Apply
6	0	0	0	0	0	0	0	0	Apply
7	0	0	0	0	0	0	0	0	Apply
8	0	0	0	0	0	0	0	0	Apply

Error Information

Port ID: The port ID on the switch

InErrors: Inbound Errors (Pkts), number of inbound errors in packets per second.

OutErrors: Outbound Errors (Pkts), number of outbound error packets.

DropEvents: Drop Events, number of packets dropped.

CRCAlignErrors: CRC and Align Errors, number of CRC and Align errors that have occurred.

UndersizePkts: Undersize Packets (Pkts), number of undersized packets (less than 64 octets) received.

OversizePkts: Oversize Packets (Pkts), number of oversized packets (over 2000 octets) received.

Fragments: Number of fragments (packets with less than 64 octets, excluding framing bits, but including FCS octets) received.

Collisions: Number of collisions received. If Jumbo Frames are enabled, the threshold of Jabber Frames is raised to the maximum size of Jumbo Frames.

Switch Maintenance

Upgrade your switch firmware

Tools > Firmware Upgrade

TRENDnet may periodically release firmware upgrades that may add features or fix problems associated with your TRENDnet switch model and version. To check if there is a firmware upgrade available for your device, please check your TRENDnet model and version using the link. http://www.trendnet.com/downloads/

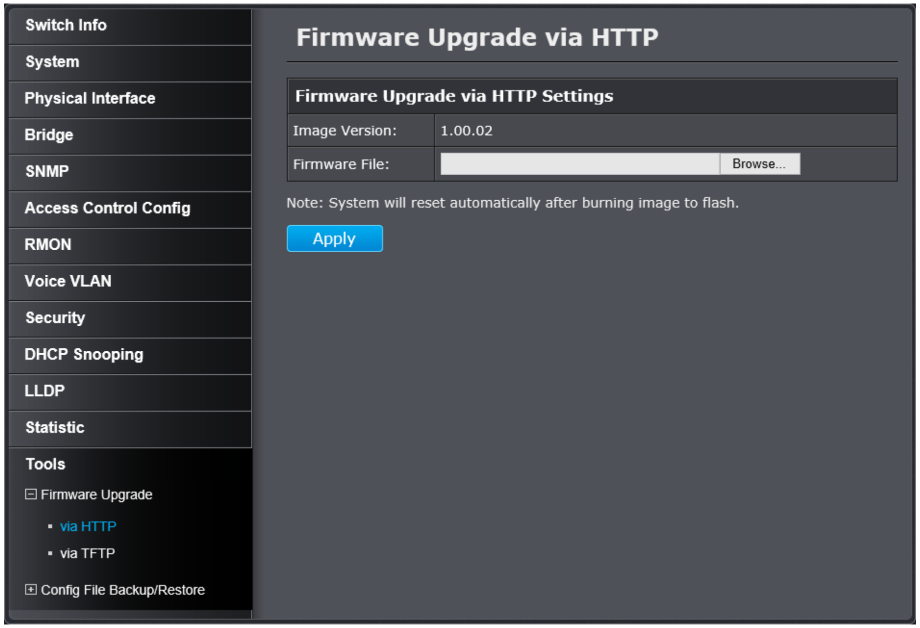
In addition, it is also important to verify if the latest firmware version is newer than the one your switch is currently running. To identify the firmware that is currently loaded on your switch, log in to the switch, click on the **System Info** section or click on **Tools** and click on **Firmware Upgrade**. The firmware used by the switch is listed as **Runtime Image** or **Image Version**. If there is a newer version available, also review the release notes to check if there were any new features you may want or if any problems were fixed that you may have been experiencing.

1. If a firmware upgrade is available, download the firmware to your computer.
2. Unzip the file to a folder on your computer.

Please note the following:

- Do not interrupt the firmware upgrade process. Do not turn off the device or press the Reset button during the upgrade.
- If you are upgrade the firmware using a laptop computer, ensure that the laptop is connected to a power source or ensure that the battery is fully charged.
- Disable sleep mode on your computer as this may interrupt the firmware upgrade process.
- Do not upgrade the firmware using a wireless connection, only using a wired network connection.
- Any interruptions during the firmware upgrade process may permanently damage your switch.

Firmware Upgrade via HTTP Settings



Firmware Upgrade via HTTP

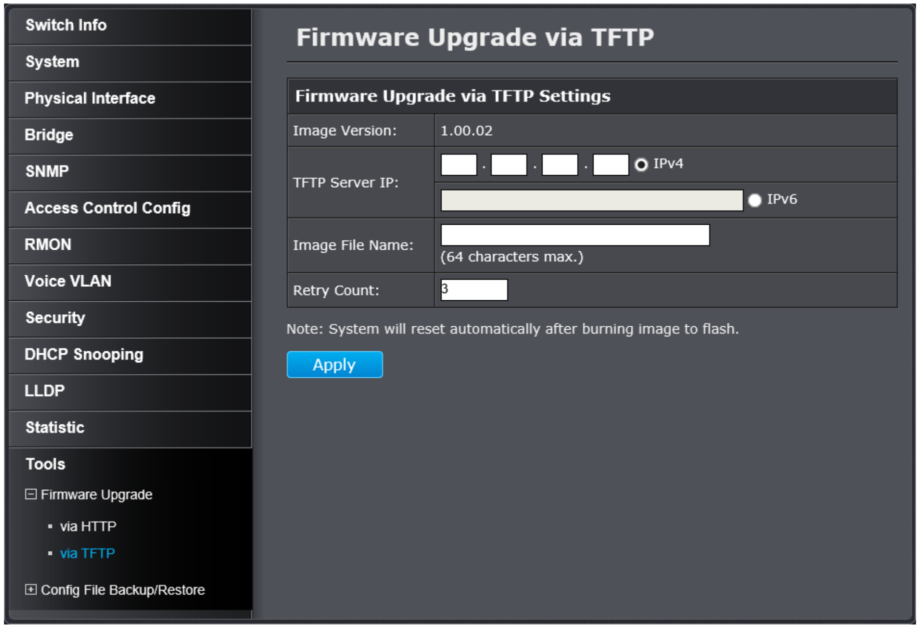
Firmware Upgrade via HTTP Settings	
Image Version:	1.00.02
Firmware File:	

Note: System will reset automatically after burning image to flash.

1. Depending on your web browser, in the **Upload Firmware** section, click **Browse** or **Choose File**.
2. Navigate to the folder on your computer where the unzipped firmware file (.hex) is located and select it.
3. Click **Apply**. If prompted, click **Yes** and then **OK**.

Firmware Upgrade via TFTP Settings

Note: Before using this method, a TFTP server is required alive on the network. The TFTP server has to be in the same subnet. Please place the firmware file (.hex) on the root directory of your TFTP server. If you are not familiar with the TFTP protocol, it is recommended to use the HTTP method.



Firmware Upgrade via TFTP

Firmware Upgrade via TFTP Settings	
Image Version:	1.00.02
TFTP Server IP:	. . . ○ IPv4 ● IPv6
Image File Name:	(64 characters max.)
Retry Count:	3

Note: System will reset automatically after burning image to flash.

Firmware Upgrade via TFTP Settings	
Image Version:	The firmware version now is running on the switch.
TFTP Server IP:	Enter the IP address of your TFTP server.
Image File Name:	Enter the firmware filename with extension. (.hex)
Retry Count:	Defined the number of time to attempt to pull the firmware file from the TFTP server.

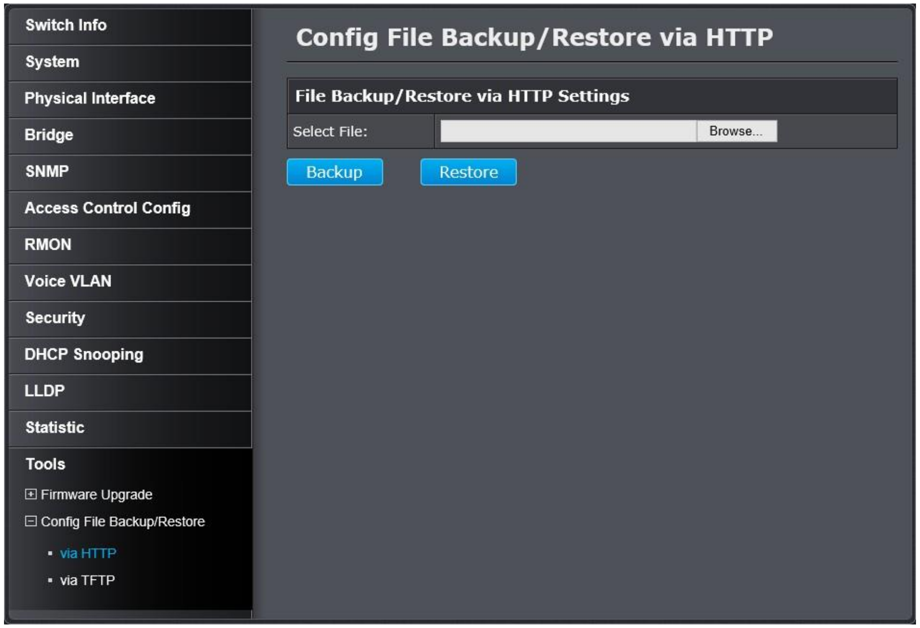
Click **Apply** to start the firmware upgrade.

Backup and restore your switch configuration settings

Tools > Config File Backup/Restore

You may have added many customized settings to your switch and in the case that you need to reset your switch to default, all your customized settings would be lost and would require you to manually reconfigure all of your switch settings instead of simply restoring from a backed up switch configuration file.

Backup/Restore via HTTP Settings



Click **Backup** to save the configuration file (config.bin) to your local hard drive.

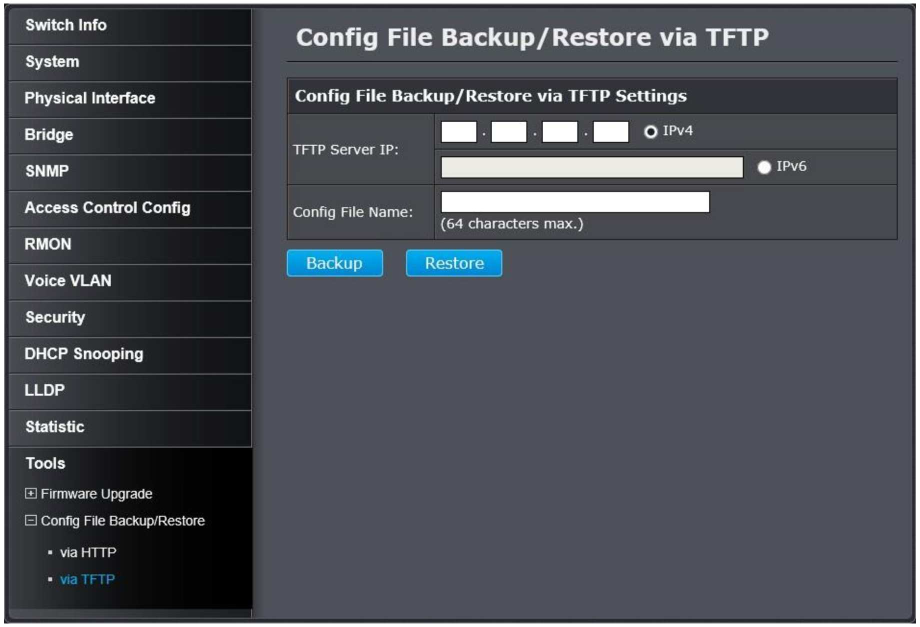
Note: If prompted, choose the location on your local hard drive. If you are not prompted, the configuration file (config.bin) will be saved to your default ***downloads*** *folder.*

To restore your switch configuration:

1. Depending on your web browser, click on **Browse** or **Choose File**.
2. A separate file navigation window should open.
3. Select the configuration file to restore and click **Restore**. (Default Filename: config.bin). If prompted, click **Yes** and then **OK**.
4. Wait for the switch to restore settings.

Backup/Restore via TFTP Settings

Note: Before using this method, a TFTP server is required alive on the network. The TFTP server has to be in the same subnet. Please place the firmware file (.hex) on the root directory of your TFTP server. If you are not familiar with the TFTP protocol, it is recommended to use the HTTP method.



1. Make sure your TFTP server is running and note the IP address of your server and firmware file name. The TFTP server should be in the same IP subnet as the switch.

2. Review the settings. Click Backup to save the configuration file (config.bin) to your local hard drive on your TFTP server root directory.

   - **TFTP Server IP:** Enter the IP address of your TFTP server.
   - **Config File Name:** Enter the configuration file name for the backup. (Default: config.bin)

To restore your switch configuration:

1. Make sure your TFTP server is running and note the IP address of your server and configuration file name. The TFTP server should be in the same IP subnet as the switch.

Note: It is recommended to put the configuration file (config.bin) is placed in your TFTP server root directory.

2. Review the settings. Click Restore to restore the switch configuration file (config.bin) from your local hard drive from your TFTP server root directory.

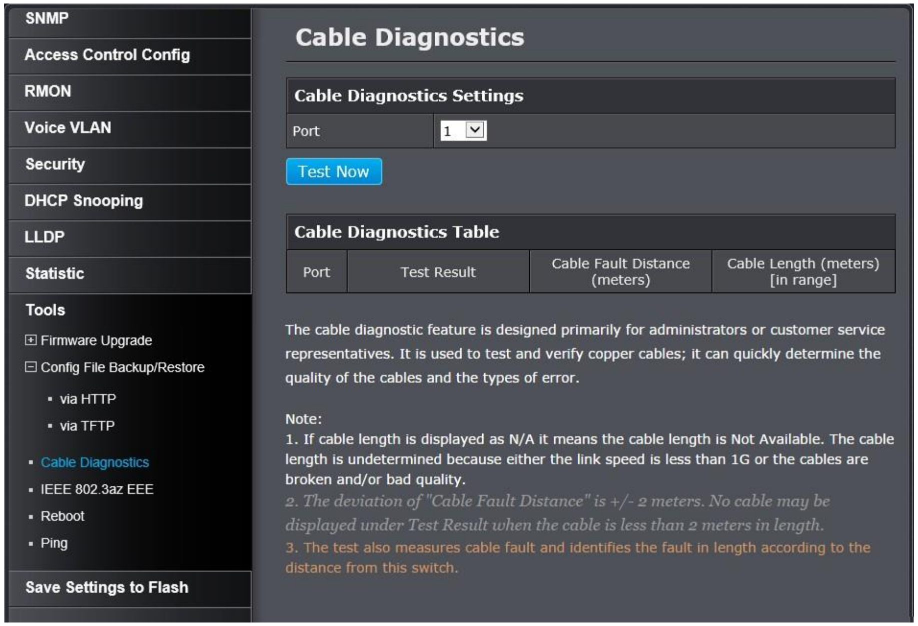
   - **TFTP Server IP:** Enter the IP address of your TFTP server.
   - **Config File Name:** Enter the configuration file name for the backup. (Default: config.bin)

3. Wait for the switch to restore settings.

Cable Diagnostics Test

Tools > Cable Diagnostics

The switch provides a basic cable diagnostic tool in the GUI for verifying the pairs in copper cabling and estimated distance for troubleshooting purposes.



Cable Diagnostics

Cable Diagnostics Settings

Port: 1

Cable Diagnostics Table

Port	Test Result	Cable Fault Distance (meters)	Cable Length (meters) [in range]

The cable diagnostic feature is designed primarily for administrators or customer service representatives. It is used to test and verify copper cables; it can quickly determine the quality of the cables and the types of error.

Note:
1. If cable length is displayed as N/A it means the cable length is Not Available. The cable length is undetermined because either the link speed is less than 1G or the cables are broken and/or bad quality.
2. The deviation of "Cable Fault Distance" is +/- 2 meters. No cable may be displayed under Test Result when the cable is less than 2 meters in length.
3. The test also measures cable fault and identifies the fault in length according to the distance from this switch.

Note:

If the cable length displays N/A, it means that the cable length is Not Available. The may be due to the port being unable to determine the estimated cable length. If length is displayed as "N/A" it means the cable length is "Not Available". This is due to the port being unable to obtain cable length/either because its link speed is 10M or 100M, or the cables used are broken and/or of bad in quality.

The deviation of "Cable Fault Distance" is +/- 2 meters. No cable may be displayed in the table when the cable is less than 2 meters in length.

The test also measures the cable fault and identifies the fault in length according to the distance from the switch.

Select the port you want to proceed cable test. Then click on **Test Now**. The results will be displayed in the Cable Diagnostic Table below.

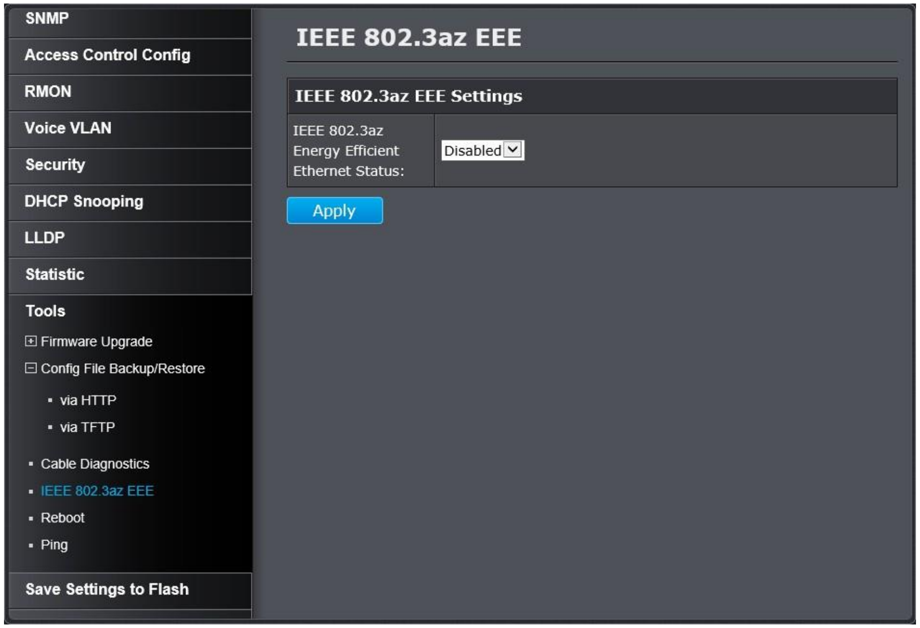
Cable Diagnostics Table

Port:	The port number of the switch.
Test Result:	Displays the diagnostic results for each pair in the cable. One of the following cable status parameters is displayed: • **OK:** There is no problem detected with the cable. • **Open in Cable:** There is an open wire within the cable. • **Short in Cable:** Two wires are shorted together within the cable. • **Cross talk in Cable:** There is crosstalk detected between one pair of wires and another pair within the cable.
Cable Fault Distance:	The distance from the switch port to the cable fault.
Cable Length:	The length of the cable connected to the switch port.

Enable IEEE 802.3az Power Saving Mode

Tools > IEEE 802.3az EEE

The IEEE 802.3 EEE standard defines mechanisms and protocols intended to reduce the energy consumption of network links during periods of low utilization, by transitioning interfaces into a low-power state without interrupting the network connection. The transmitted and received sides should be IEEE802.3az EEE compliance. By default, the switch disabled the IEEE 802.3az EEE function. Users can enable this feature via the IEEE802.3az EEE setting page.



IEEE 802.3az EEE

IEEE 802.3az EEE Settings

IEEE 802.3az Energy Efficient Ethernet Status: Disabled

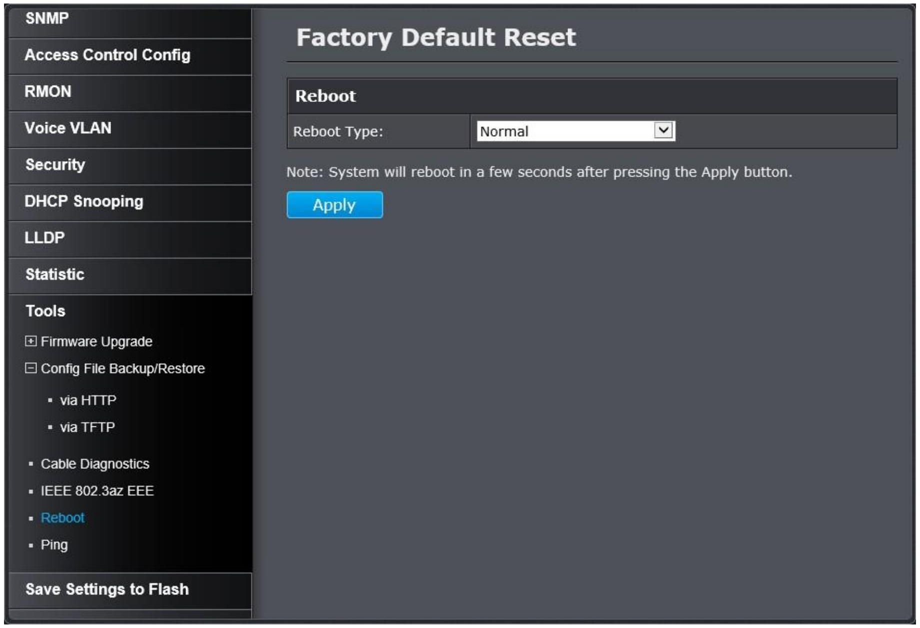
Click the **IEEE 802.3az EEE Status** drop-down list and select **Enabled** to enable the power saving feature and click **Apply** to save the settings.

Go **Save Settings to Flash** section to save the change on the flash to make sure the change is permanent.

Reboot/Reset to factory defaults

Tools > Reboot

This section provides the procedures for rebooting or resetting the switch to factory default settings.



Factory Default Reset

Reboot

Reboot Type: Normal

Note: System will reboot in a few seconds after pressing the Apply button.

To reboot your switch:

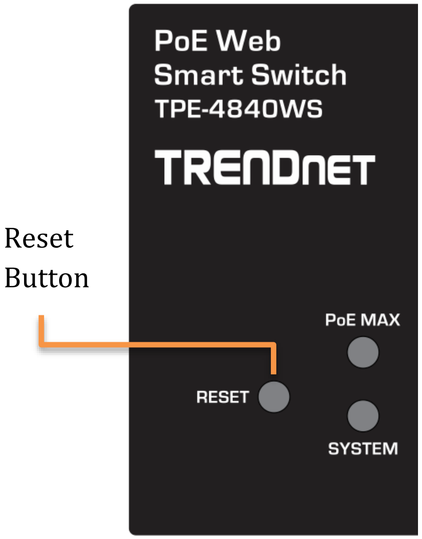
You may want to make your switch restart as a clean and fresh without changing the switch configuration. Select **Reboot Type** to **Normal** and then click on **Apply** to reboot the switch. Wait for the switch complete the rebooting process.

*Note: You may want to save the settings to flash before reboot the switch under **Save Settings to Flash** (menu) > **Save Settings to Flash** (button). If you have not saved your current configuration settings to flash first, the configuration changes will be lost after a reboot.*

To reset your switch to factory defaults:

To reset the switch configurations to factory defaults you can proceed with hardware reset-to-default, or with the web GUI. Hardware reset has the same effect to "reboot the switch to factory default" selection in this session.

- **Hardware Reset-to-Default:** Using a paper clip, on the front panel of the switch, push and hold the **Reset** button more than 10 seconds and then release. Located on the front panel of your switch. Wait for the switch complete the rebooting process.



- **With Web GUI:** You can choose reset to **Factory Default** or **Factory Default Except IP**. If you select **Factory Default Except IP**, all the configurations will be set to the factory defaults, but the switch management IP remains the same.

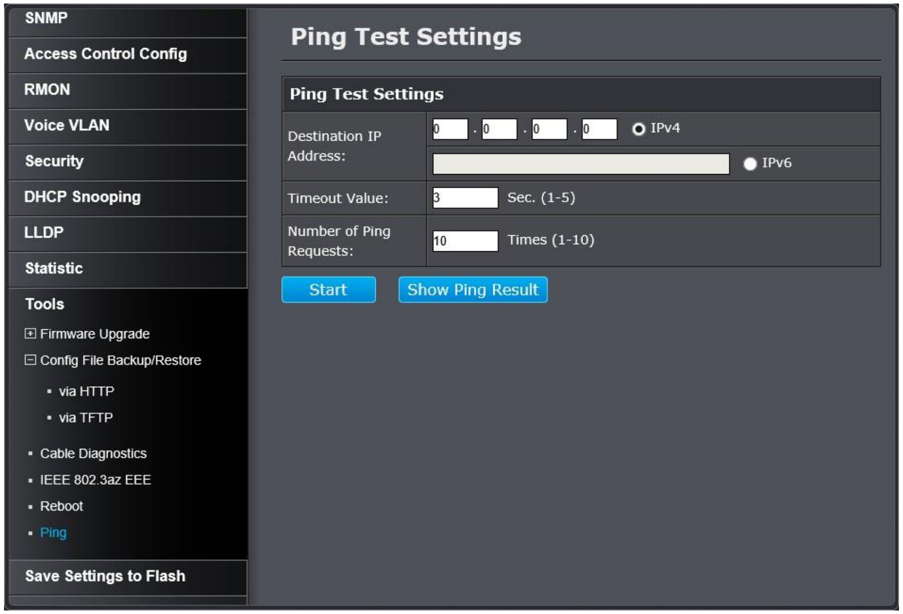
Default Settings	
Management IP:	192.168.10.200
Admin user name:	admin
Password:	admin

Network Connectivity Test (Ping Tool)

Tools > Ping

This chapter provides the procedure to ping a node on your network from the switch. This procedure is useful in determining whether an active link exists between the switch and another network device.

The device you are pinging must be a member of the Default VLAN and within the same local area network as your switch. In other words, the port on the switch through which the node is communicating with the switch must be an untagged or tagged member of the Default VLAN.



Ping Test Settings

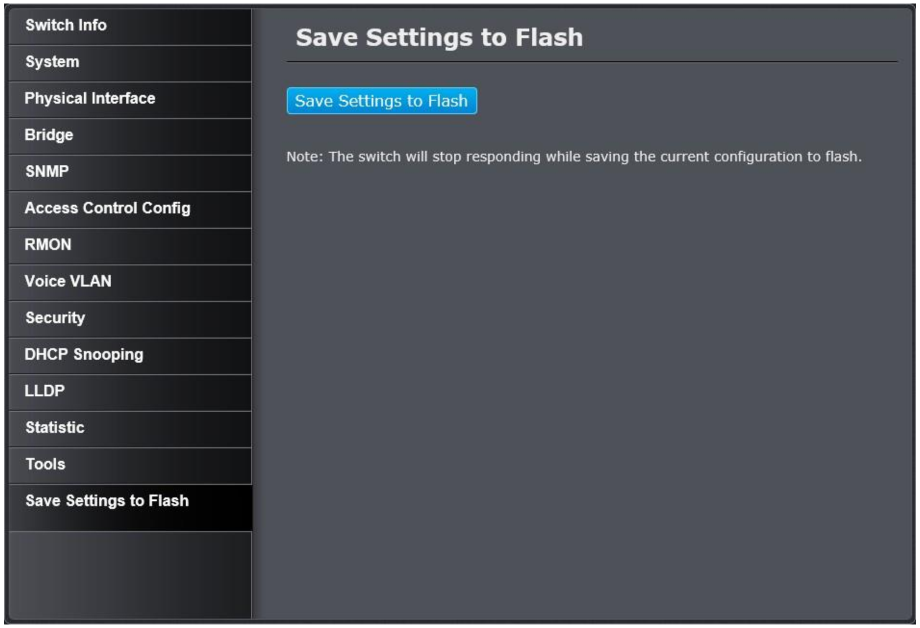
Destination IP Address:	0 . 0 . 0 . 0 ● IPv4 ○ IPv6
Timeout Value:	3 Sec. (1-5)
Number of Ping Requests:	10 Times (1-10)

PING Test Settings	
Destination IP Address:	The IP address of the node you want to ping in the IPv4 or IPv6 format.
Timeout Value:	Specifies the length of time, in seconds, the switch waits for a response before assuming that a ping has failed.
Number of Pings: Requests	Specifies the number of ping requests you want the switch to perform.

Click **Start** to start the network connectivity ping test. After the ping test, click **Show Ping Results** to check the ping test result.

Save Settings to Flash

Save Settings to Flash



Note: The switch will stop responding while saving the current configuration to flash.

Click **Save Settings to Flash** button to save the change on the flash to make sure the change is permanent.

Web Smart Switch Management Utility

The **TRENDnet Management Utility** allows you to do the following:

- You can easily discover all TRENDnet web smart switches on your network using the discover feature.
- You can modify the IP address settings, change the admin password, and upgrade firmware for multiple switches.

System Requirements

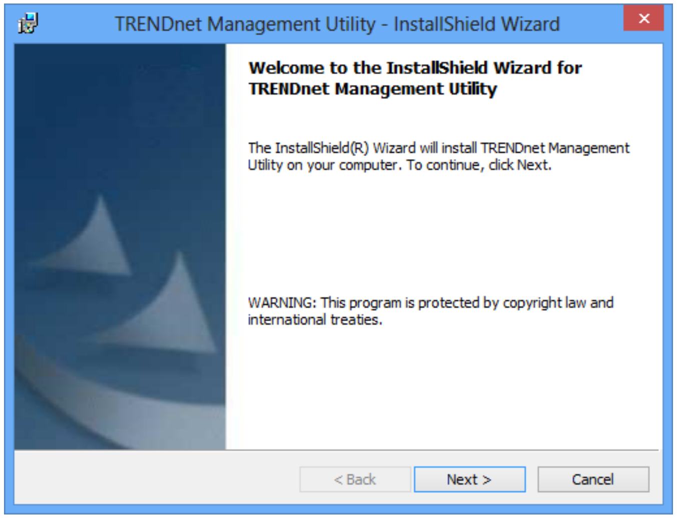
Operating System: Windows® 8.1, Windows8, Windows 7, Windows Vista, or Windows XP

Installation

1. Insert the included CD-ROM into your computer's CD-ROM drive.
2. At the CD Autorun Prompt window, click **Run Autorun.exe** .

   Note: If the Autorun prompt does not appear automatically, open the CD contents and double-click Autorun.exe.

3. At the CD-ROM main menu, click **Install Utility**.
4. At the Utility installation window, click **Next**.



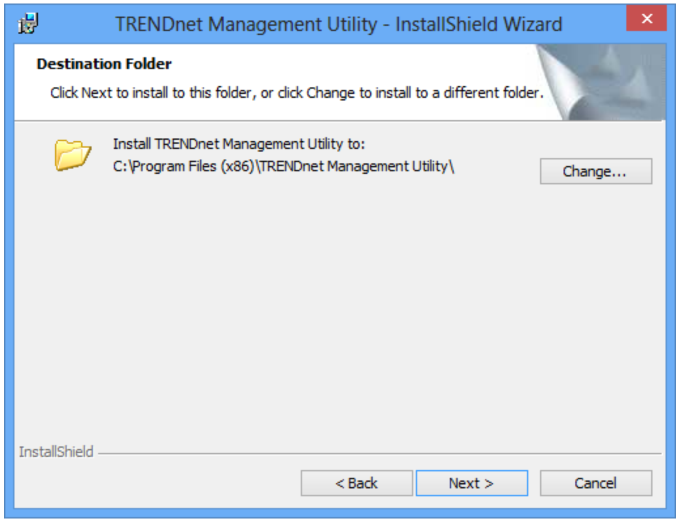
TRENDnet Management Utility - InstallShield Wizard

Welcome to the InstallShield Wizard for TRENDnet Management Utility

The InstallShield(R) Wizard will install TRENDnet Management Utility on your computer. To continue, click Next.

WARNING: This program is protected by copyright law and international treaties.

5. At the Install Location installation window, click **Next**.



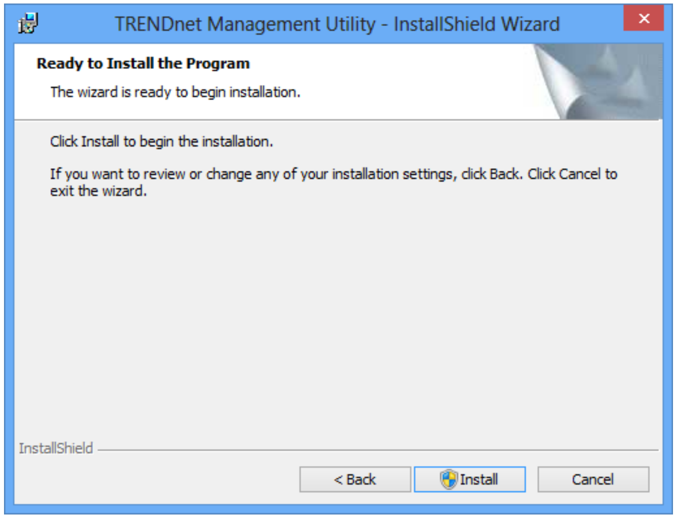
TRENDnet Management Utility - InstallShield Wizard

Destination Folder

Click Next to install to this folder, or click Change to install to a different folder.

Install TRENDnet Management Utility to:
C:\Program Files (x86)\TRENDnet Management Utility\

6. At the Installation, click **Install**.



TRENDnet Management Utility - InstallShield Wizard

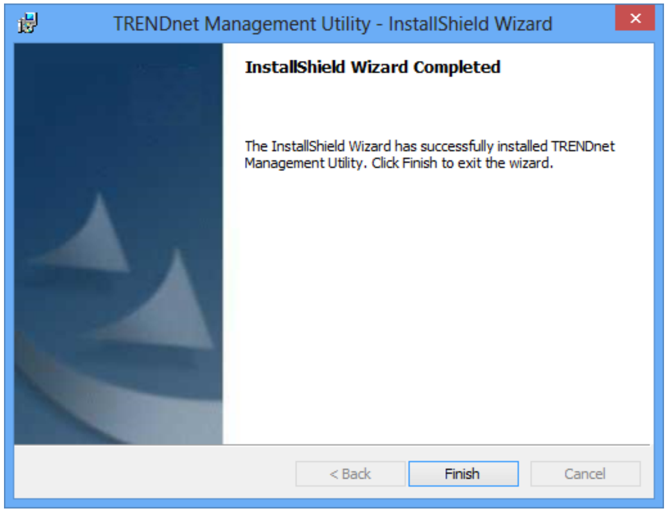
Ready to Install the Program

The wizard is ready to begin installation.

Click Install to begin the installation.

If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.

7. In the Completion window, click **Finish**.



TRENDnet Management Utility - InstallShield Wizard

InstallShield Wizard Completed

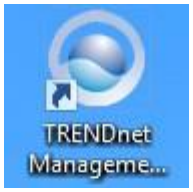
The InstallShield Wizard has successfully installed TRENDnet Management Utility. Click Finish to exit the wizard.

Using the Utility

Launching the Utility

Upon completing the software installation, a desktop shortcut is automatically created.

Double-click the icon to start the utility or open the utility if it is already running. Closing the utility will exit the application. You can also click Exit at the bottom of the utility user interface to exit the application.

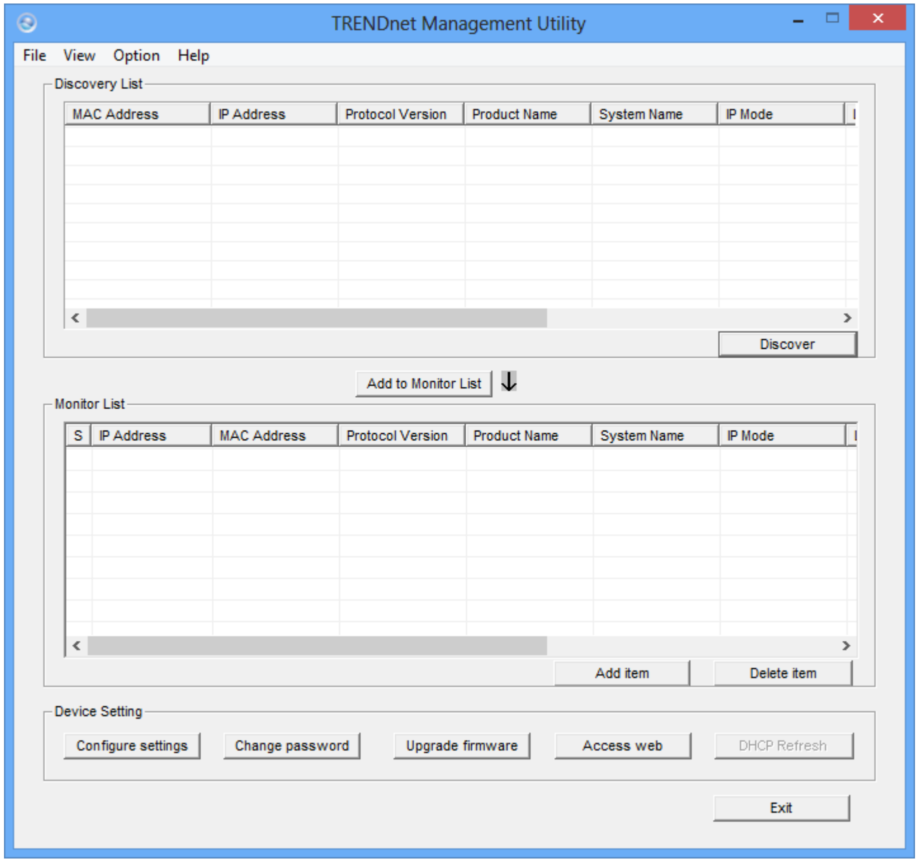


You can also launch the utility from the **Start Menu** programs.

Start > Programs (or All Programs) > TRENDnet Management Utility > TRENDnet Management Utility.exe

Discovery List

This is the list where you can discover all the Web management devices in your network.



Click on the **Discovery** button, you can list all the Web Smart Management switches in the discovery list.

Discovery List	
MAC Address:	Shows the device MAC Address.
IP Address:	Shows the current IP address of the device.
Protocol version:	Shows the version of the Utility protocol.
Product Name:	Shows the device product name.
System Name:	Shows the appointed device system name.
IP Mode:	Shows the DHCP status of the device.
Location:	Shows where the device is located.
Subnet Mask:	Shows the Subnet Mask set of the device.
Gateway:	Shows the Gateway set of the device.
Group Interval:	The IGMP group interval time.

Monitor List	
S:	Shows the system symbol of the Web-Smart device, represent for device system is not alive.
IP Address:	Shows the current IP address of the device.
MAC Address:	Shows the device MAC Address.
Protocol version:	Shows the version of the Utility protocol.

Double click or click on the **Add to monitor list** button to select a device from the Discovery List to the Monitor List.

Product Name: Shows the device product name.

System Name: Shows the appointed device system name.

IP Mode: Shows the DHCP status of the device.

Location: Shows where the device is located.

Subnet Mask: Shows the Subnet Mask set of the device.

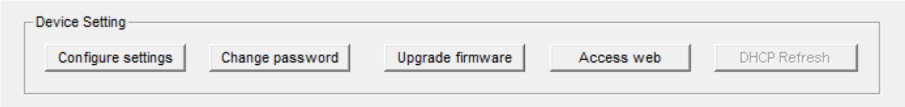
Gateway: Shows the Gateway set of the device.

Group Interval: The IGMP group interval time.

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

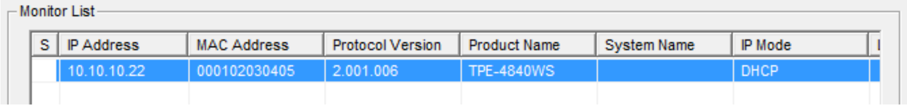
Delete Item: To delete the device in the **Monitor List**.

Device Setting



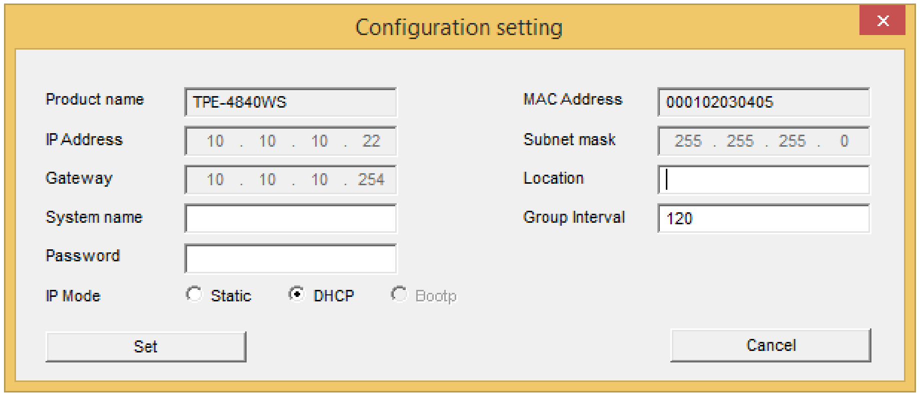
Configuration Setting:

In this Configuration Setting, you can set the IP Address, Subnet Mask, Gateway, Group Interval, System name, Location and IP Mode.


Monitor List

S	IP Address	MAC Address	Protocol Version	Product Name	System Name	IP Mode
	10.10.10.22	000102030405	2.001.006	TPE-4840WS		DHCP

Select the device in the Discovery list or Monitor List and press **Configure settings** button, then the will appear, after entering the data that you want to change, you must enter the password and then click on **Set** to switch configuration. The default password of TRENDnet Web Smart Switches is **admin**.

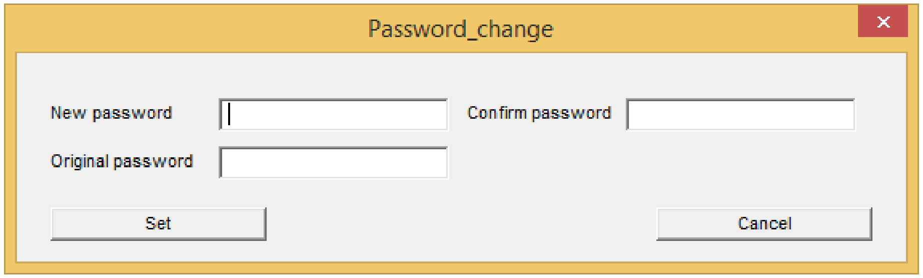

Configuration setting

Product name	TPE-4840WS	MAC Address	000102030405
IP Address	10 . 10 . 10 . 22	Subnet mask	255 . 255 . 255 . 0
Gateway	10 . 10 . 10 . 254	Location	
System name		Group Interval	120
Password			

IP Mode ○ Static ● DHCP ○ Bootp

Password Change:

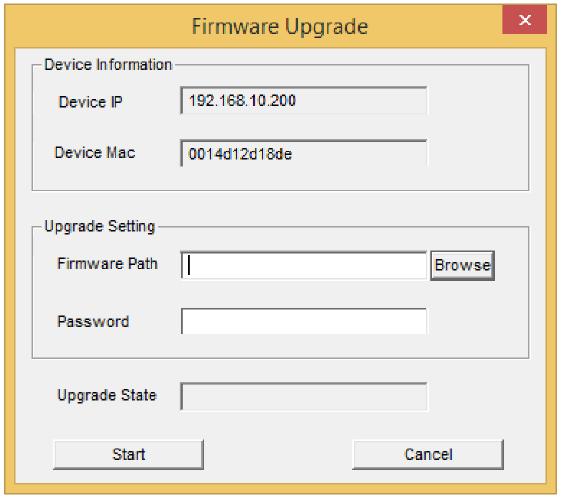
You can use this **Password Change** when you need to change the password, fill in the password needed in the dialog box and then click on **Set** button to proceed the password change.


Password_change

New password
Confirm password
Original password

Firmware Upgrade:

When the device has a new function, there will be a new firmware to update the device, use this function to update.


Firmware Upgrade

Device Information

Device IP: 192.168.10.200

Device Mac: 0014d12d18de

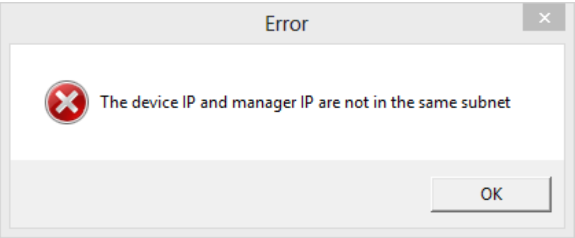
Upgrade Setting

Firmware Path

Password

Upgrade State

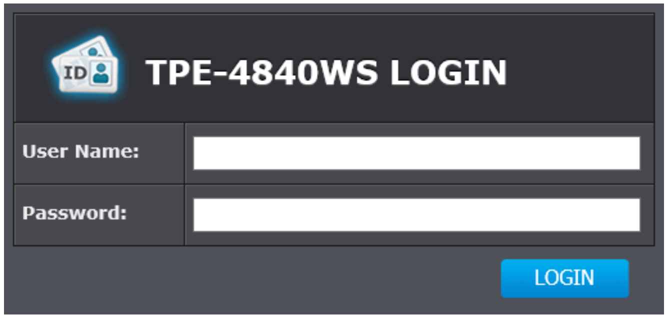
Note: Make sure your computer is in the same sub net with the switch management IP. Otherwise, you are going to have this error message.



The device IP and manager IP are not in the same subnet

Access Web:

Double click the device in the Monitor List or select a device in the Monitor List and press this "Web Access" button to access the device in Web browser.

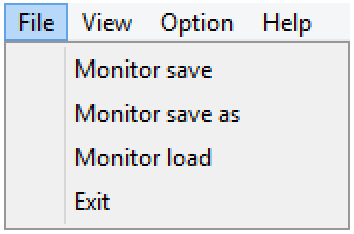


DHCP Refresh:

Click on the **DHCP Refresh** button to refresh IP address of selected device form DHCP server. (Only applies if Web Smart switch IP address settings

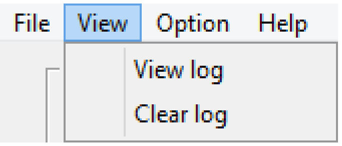
are set to DHCP).

Main Menu Options



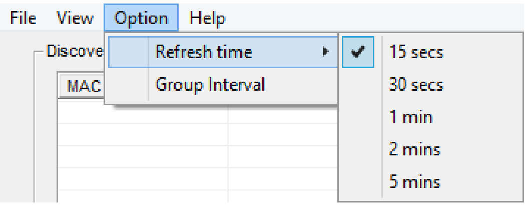
In the **File** tab, you can find **Monitor Save**, **Monitor Save As**, **Monitor Load** and **Exit** actions to choose.

File Tab	
Monitor Save:	To record the setting of the Monitor List to the default, when you open the Switch Management Utility next time, it will auto load the default recorded setting.
Monitor Save As:	To record the setting of the Monitor List in appointed filename and file path.
Monitor Load:	To manually load the setting file of the Monitor List.
Exit:	To exit the Switch Management Utility.



In the **View** tab, there are **view log** and **clear log** actions to choose.

View Tab	
View Log:	To show the event of the Switch Management Utility and the device.
Clear Log:	To clear the log.

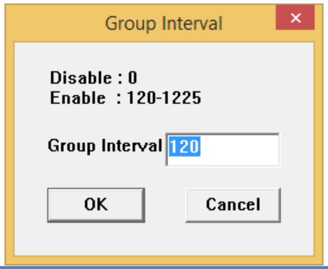


In the **Option** tab, you can set the **Refresh Time** and **Group Interval.**

Option Tab

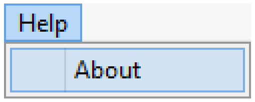
Refresh Time: This function helps you to refresh the time of monitoring the device. Choose 15 secs, 30 secs, 1 min, 2 min and 5 min to select the time of monitoring.

Group Interval: This is IGMP group interval. The range is from 120 to 1225 seconds.

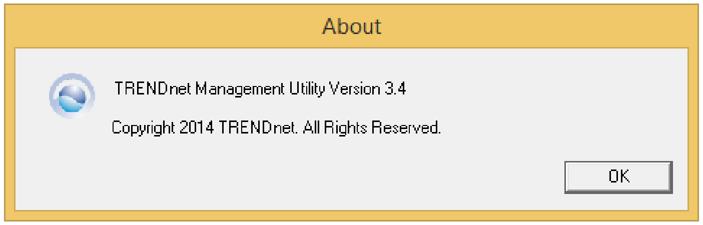


Disable : 0
Enable : 120-1225

Group Interval 120



In the **Help** tab, you can find the utility information with **About** action, it will show out the version of the Switch Management Utility.



TRENDnet Management Utility Version 3.4

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Technical Specifications

Hardware	
Standards:	• IEEE 802.1D • IEEE 802.1Q • IEEE 802.1S • IEEE 802.1X • IEEE 802.1p • IEEE 802.1w • IEEE 802.3 • IEEE 802.3u • IEEE 802.3x • IEEE 802.3z • IEEE 802.1ab • IEEE 802.3ab • IEEE 802.3ad • IEEE 802.3az
Interface:	• 24 x 802.3at PoE+ Gigabit Ports (Ports 1-24) • 24 x Gigabit Ports (Ports 25-48) • 4 x Shared SFP Slots (shared with ports 45F-48F) • LED indicators • Reset button
Cabling	• 10Base-T: UTP/STP Cat. 5 cable (100 m)
Network:	• 100Base-TX: UTP/STP Cat. 5, 5e cable (100 m) • 1000Base-T: UTP/STP Cat 5e, 6 cable (100 m)
Mini-GBIC:	• LC (Multi-Mode): 50/125um~62.5/125um • LC (Single Mode): 9/125um~10/125um
Buffer Memory:	1MB
Forwarding Rate:	71.42 M pps (64-byte packet size)
LED Display:	• **System:** Power on (Green), System failure (Red) • **PoE Max:** Total PoE power supply over budget (On), PoE power supply working properly (Off) • Speed: 10Mbps (Off), 100Mbps (Orange), Gigabit (Green) • **Link/ACT:** Connected with gigabit (Solid Green), Gigabit activity (Blinking Green), Connected with 10/100 (Solid Amber), 10/100 activity (Blinking Amber), No connection (Off) • SFP: 10 (Off), 100Mbps (Amber), Gigabit (Green) ○ 10/100Mbps Activity (Blinking Amber) ○ Gigabit Activity (Blinking Green)
Power Input:	100~240VAC, 50/60Hz internal power supply
Power Consumption:	55.6 W (max. with no PoE connection) 425.6 W (max. with total 370 W PoE budget)
Fan/Acoustics:	Smart fan design
Dimensions:	440 x 430 x 44 mm (17.3 x 16.9 x 1.7 in.) 19 in. width rack mountable (with rack mount hardware installed with 1U height.)
Weight:	6.5 kg (14.3 lbs)
Operating Temperature:	-5^0 - 45^0 C (23^0 ~ 113^0 F)
Storage:	-25^0 - 70^0 C (-13^0 - 158^0 F)
Humidity:	Max. 90% (non-condensing)

Software

Filtering Address Table:	16K MAC address entries
Switch Fabric/Capacity:	Up to 96Gbps

Management:

- HTTP/HTTPS (SSL v2/3 TLS) Web based GUI
- SNMP v1, v2c, v3
- RMON v1
- Static Unicast MAC Address

	• Enable/disable 802.3az Power Saving • LLDP • Virtual Cable Test • IPv6: IPv6 Neighbor Discovery, IPv6 Static IP, DHCPv6, Auto configuration
MIB:	• MIB II RFC 1213 • Bridge MIB RFC 1493 • Bridge MIB Extension RFC 2674 • SNMPv2 MIB RFC 1907 • Ethernet Interface MIB RFC 1643 • Ethernet –like MIB RFC 2863 • Interface Group MIB RFC 2233 • MIB Traps Convention RFC 1215 • RMON MIB RFC 1757, RFC 2819 • 802.1p MIB RFC 2674 • RADIUS Client Authentication MIB RFC 2618 • LLDP-MIB IEEE 802.1ab • Ping MIB RFC 2925, RFC 4560
Spanning Tree:	• 802.1d STP (Spanning Tree Protocol) • 802.1w RSTP (Rapid Spanning Tree Protocol) • 802.1s MSTP (Multiple Spanning Tree Protocol)
Link Aggregation	• Static Link Aggregation • 802.3ad Dynamic LACP
Quality of Service:	• 802.1p Class of Service (CoS) • DSCP (Differentiated Services Code Point) • Bandwidth Control per port • Queue Scheduling: Strict Priority, Weighted Round Robin (WRR)
VLAN:	• Multiple management VLAN assignment • Asymmetric VLAN • 802.1Q Tagged VLAN • Dynamic GVRP • Up to 256 groups, ID Range 1-4094
Multicast:	• IGMP Snooping v1, v2, v3 (per VLAN) • Static Multicast Address • Up to 256 multicast entries
Port Mirror:	RX, TX, or both
Access Control:	• 802.1X Port-Based Network Access Control, RADIUS, TACACS+ • Local Dial In User Authentication • DHCP Snooping (per VLAN) • Loopback Detection • Duplicated Address Detection • Denial of Service (DoS)
ACL IPv4 L2-L4 & IPv6:	• MAC Address • VLAN ID • Ether Type (IPv4 only) • IP Protocol 0-255 • TCP/UDP Port 1-65535 • 802.1p • DSCP (IPv4 only) • IPv6 Address (IPv6 only)
Flow Control	802.3x Flow Control for Full-Duplex and back pressure for Half-Duplex
Firmware Update	Support TFTP firmware update, TFTP backup and restore, via Web Browser
Utility OS Compatibility	Windows® 8.1, Windows® 8, Windows® 7, Windows® Vista, Windows® XP, Windows® 2003/2008 Server.

- Private VLAN (Protected Ports)
- Voice VLAN (10 user defined OUIs)

Troubleshooting

Q:

I typed http://192.168.10.200 in my Internet Browser Address Bar, but an error message says "The page cannot be displayed." How can I access the switch management page?

A:

1. Check your hardware settings again.

2. Make sure the Power and port Link/Activity lights are lit.

3. Make sure your network adapter TCP/IP settings are set to use the static IP.

4. Make sure your computer is connected to one of the Ethernet switch ports.

5. Since the switch default IP address is 192.168.10.200, make sure there are no other network devices assigned an IP address of 192.168.10.200

Q:

If my switch IP address is different than my network's subnet, what should I do?

A:

You should still configure the switch first. After all the settings are applied, go to the switch configuration page, click on System, click IPv4 Setup and change the IP address of the switch to be within your network's IP subnet. Click Apply, then click OK. Then click Save Settings to Flash (menu) and click Save Settings to Flash to save the IP settings to the NV-RAM.

Q:

I changed the IP address of the switch, but I forgot it. How do I reset my switch?

A:

Using the TRENDnet Switch Management Utility to find your smart switch. Or, you can reset your smart switch to factory default.

To reset the smart switch, using a paper clip, push and hold the reset button on the front of the switch and release after 15 seconds. The default IP address of the switch is 192.168.10.200. The default user name and password is "admin".

Appendix

How to find your IP address?

Please note that although the following procedures provided to follow for your operating system on configuring your network settings can be used as general guidelines, however, it is strongly recommended that you consult your computer or operating system manufacturer directly for assistance on the proper procedure for configuring network settings.

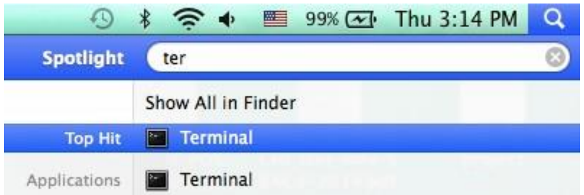
Command Line

Windows 2000/XP/Vista/7

1. On your keyboard, press **Windows Logo + R** keys simultaneously to bring up the Run dialog box.
2. In the dialog box, type `cmd` to bring up the command prompt.
3. In the command prompt, type `ipconfig/all` to display your IP address settings.

MAC OS X

1. Enter **Terminal** in **Spotlight** to look for the **Terminal** app.

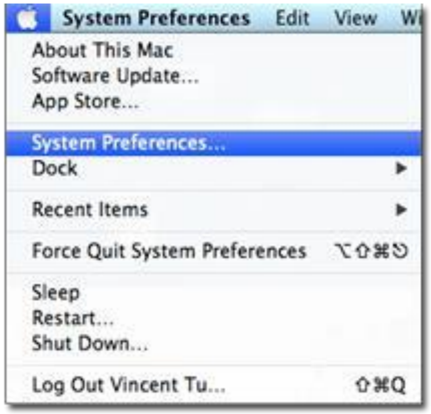


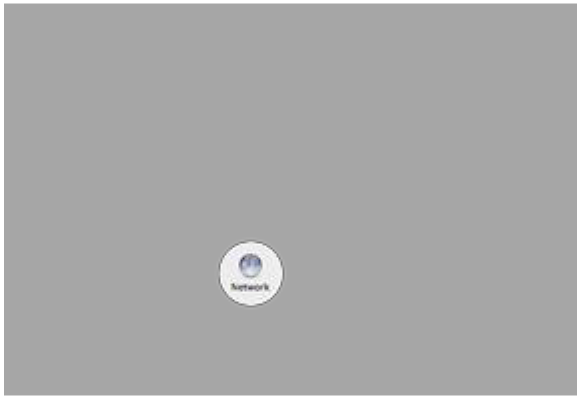
2. Click on **Terminal** to launch the command prompt.
3. In the command prompt, enter `ifconfig` to display all network interface status on your MAC.

Graphic User Interface

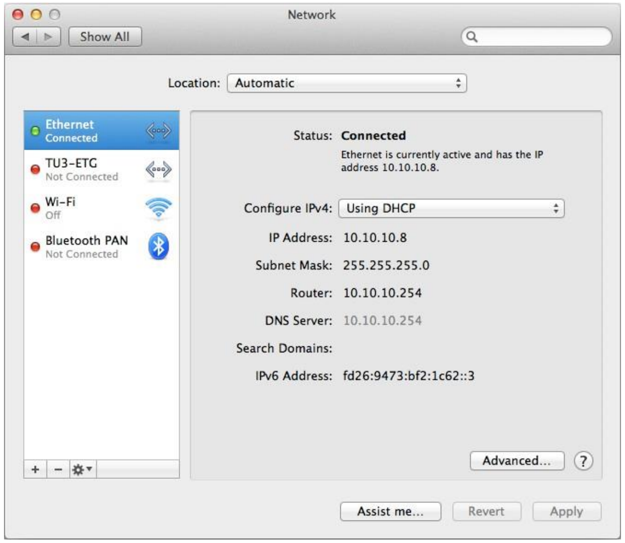
MAC OS X

1. Click the **Apple logo** in the top-left corner of your screen. Click on **System Preferences...** . In the Internet and Wireless section, click on **Network**.





2. Select the network card you want to configure on the left banner and the network adapter status is showing here.



Location: Automatic

Ethernet Connected
TU3-ETG Not Connected
Wi-Fi Off
Bluetooth PAN Not Connected

Status: Connected
Ethernet is currently active and has the IP address 10.10.10.8.

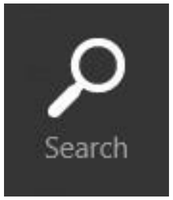
Configure IPv4: Using DHCP
IP Address: 10.10.10.8
Subnet Mask: 255.255.255.0
Router: 10.10.10.254
DNS Server: 10.10.10.254
Search Domains:
IPv6 Address: fd26:9473:bf2:1c62::3

How to setup a static IP address on your computer's network card

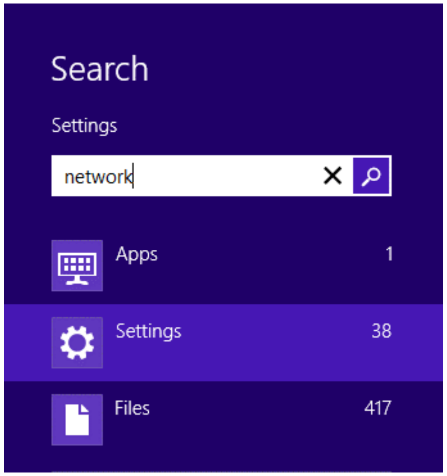
Note: Before setup, make sure that you have a unique static IP address available which will not cause the network address collision.

Windows 8

1. Open the Charms bar by moving the mouse to the top right corner of the screen or press the **Windows Key + C** and click on Search.

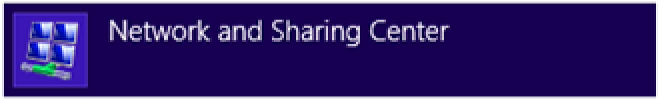


2. Type "network" in the search box and click Settings to focus your search.

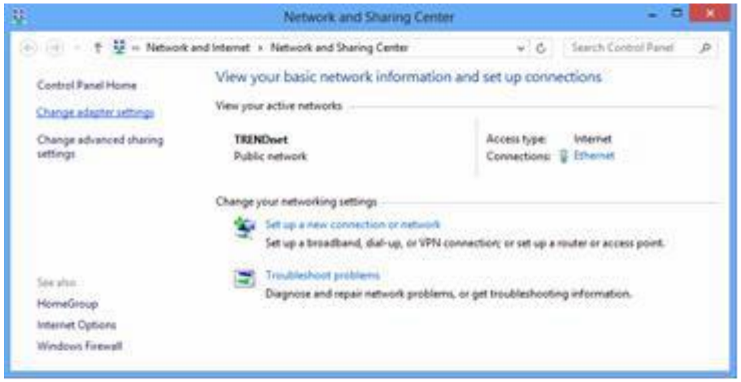


network

3. Choose **Network and Sharing Center**



4. Click **Change adapter settings** on the left-hand side.


Network and Sharing Center
Network and Internet › Network and Sharing Center
Search Control Panel
Control Panel Home
Change adapter settings
Change advanced sharing settings
See also
HomeGroup
Internet Options
Windows Firewall
Set up a new connection or network
Troubleshoot problems

View your basic network information and set up connections

View your active networks

TRENDnet
Public network

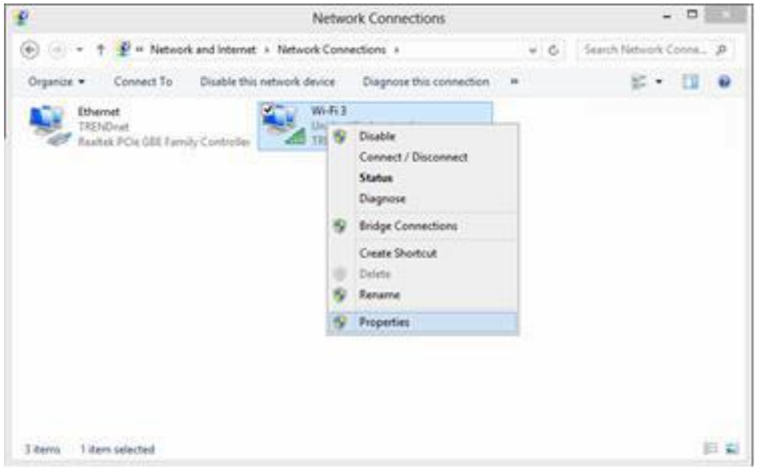
Access type: Internet
Connections: Ethernet

Change your networking settings

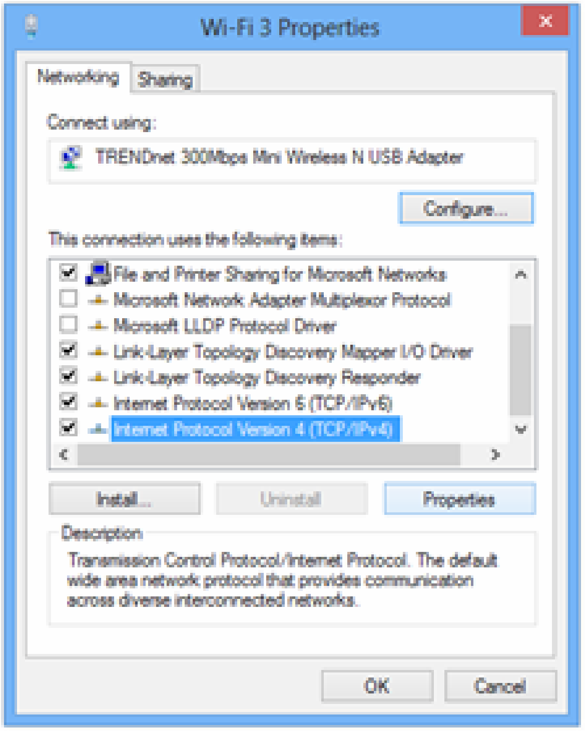
Set up a broadband, dial-up, or VPN connection; or set up a router or access point.

Diagnose and repair network problems, or get troubleshooting information.

5. Click **Properties** on the selected network adapter.



6. Select **Internet Protocol Version 4 (TCP/IPv4)** and then click **Properties**.



Wi-Fi 3 Properties

Networking | Sharing

Connect using:

TRENDnet 300Mbps Mini Wireless N USB Adapter

Configure...

This connection uses the following items:

- ☑ File and Printer Sharing for Microsoft Networks
- □ Microsoft Network Adapter Multiplexor Protocol
- □ Microsoft LLDP Protocol Driver
- ☑ Link-Layer Topology Discovery Mapper I/O Driver
- ☑ Link-Layer Topology Discovery Responder
- ☑ Internet Protocol Version 6 (TCP/IPv6)
- ☑ Internet Protocol Version 4 (TCP/IPv4)

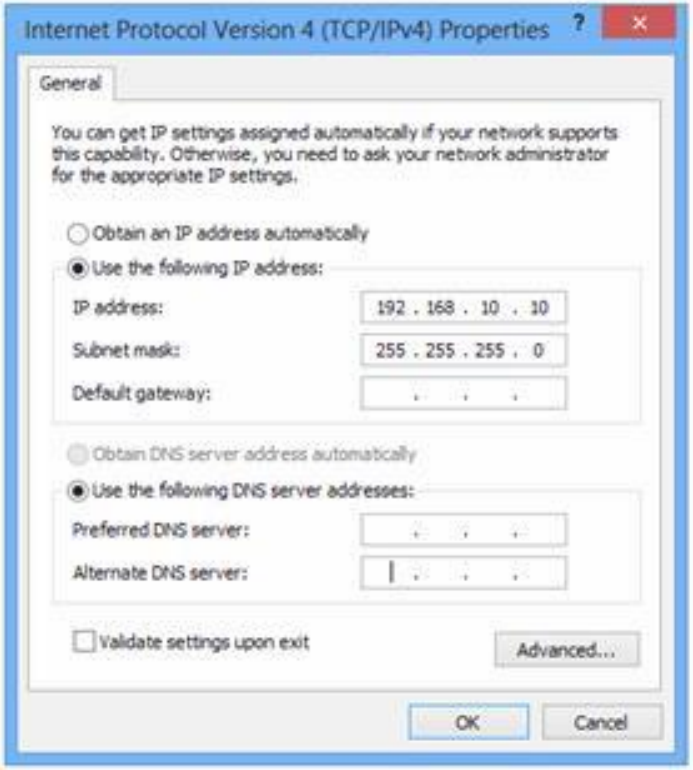
Install... | Uninstall | Properties

Description

Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.

OK | Cancel

7. Click **Use the following address** and enter the static IP address and related information. For setting up the TRENDnet product, you can enter 192.168.10.10 as your IP address, 255.255.255.0 as the Subnet mask. Leave the other fields blank. Click **OK** to apply the changes.



Internet Protocol Version 4 (TCP/IPv4) Properties

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

○ Obtain an IP address automatically

● Use the following IP address:

IP address: 192 . 168 . 10 . 10

Subnet mask: 255 . 255 . 255 . 0

Default gateway: . . .

○ Obtain DNS server address automatically

● Use the following DNS server addresses:

Preferred DNS server: . . .

Alternate DNS server: . . .

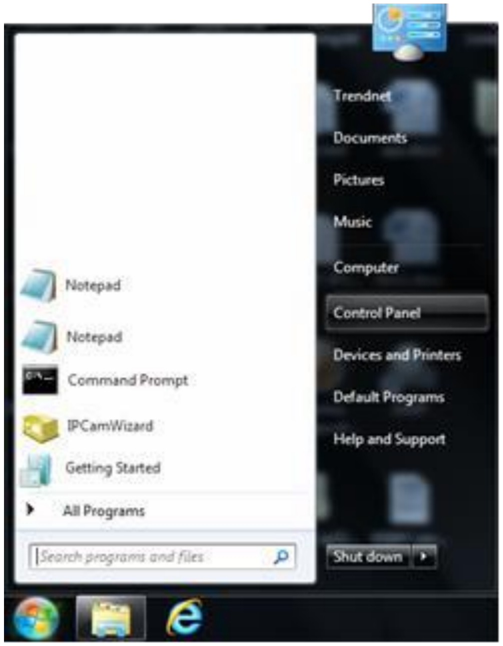
□ Validate settings upon exit

Advanced...

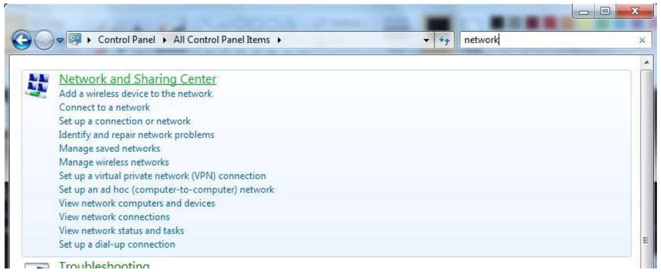
OK | Cancel

Windows 7

1. Click **Control Panel** from the **Start** menu.

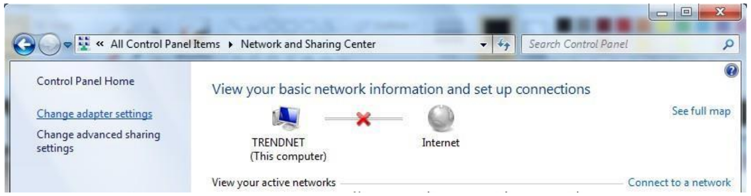


2. Type "network" in the search box to focus your selection. Click on **Network and Sharing Center**



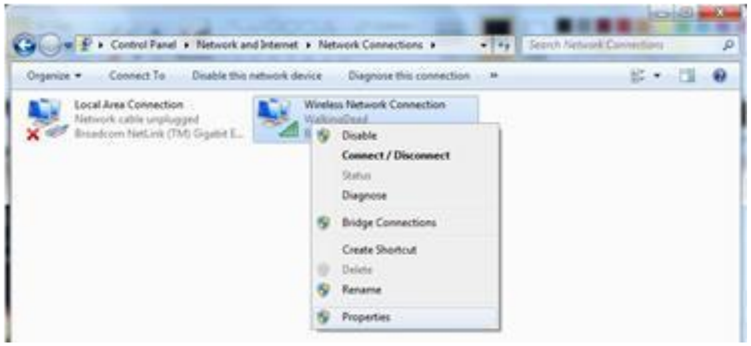
Network and Sharing Center
Add a wireless device to the network
Connect to a network
Set up a connection or network
Identify and repair network problems
Manage saved networks
Manage wireless networks
Set up a virtual private network (VPN) connection
Set up an ad hoc (computer-to-computer) network
View network computers and devices
View network connections
View network status and tasks
Set up a dial-up connection
Troubleshooting

3. Click **Change adapter settings** on the left-hand side.

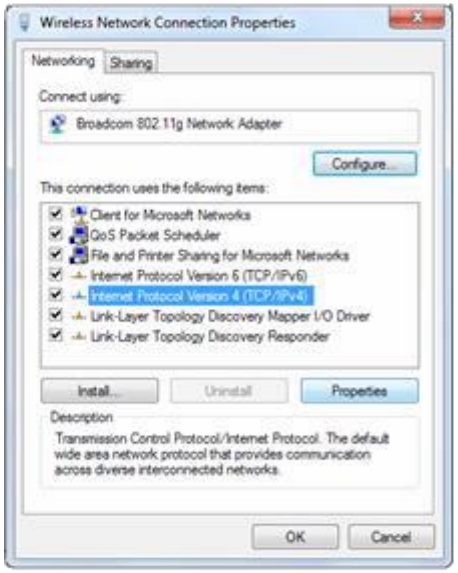


View your basic network information and set up connections

4. Click **Properties** on the selected network adapter.



5. Select **Internet Protocol Version 4 (TCP/IPv4)** and then click Properties



Wireless Network Connection Properties

Networking | Sharing

Connect using:

Broadcom 802.11g Network Adapter

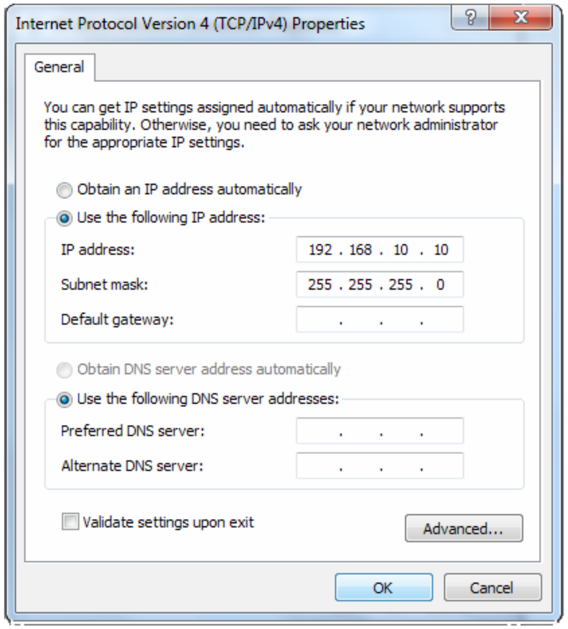
This connection uses the following items:

- ☑ Client for Microsoft Networks
- ☑ QoS Packet Scheduler
- ☑ File and Printer Sharing for Microsoft Networks
- ☑ Internet Protocol Version 6 (TCP/IPv6)
- ☑ Internet Protocol Version 4 (TCP/IPv4)
- ☑ Link-Layer Topology Discovery Mapper I/O Driver
- ☑ Link-Layer Topology Discovery Responder

Description

Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.

6. Click Use the following address and enter the static IP address and related information. For setting up the TRENDnet product, you can enter 192.168.10.10 as the IP address, 255.255.255.0 as the Subnet mask. Leave other fields blank. Click OK to apply the changes.



Internet Protocol Version 4 (TCP/IPv4) Properties

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

○ Obtain an IP address automatically

● Use the following IP address:

IP address: 192 . 168 . 10 . 10

Subnet mask: 255 . 255 . 255 . 0

Default gateway: . . .

○ Obtain DNS server address automatically

● Use the following DNS server addresses:

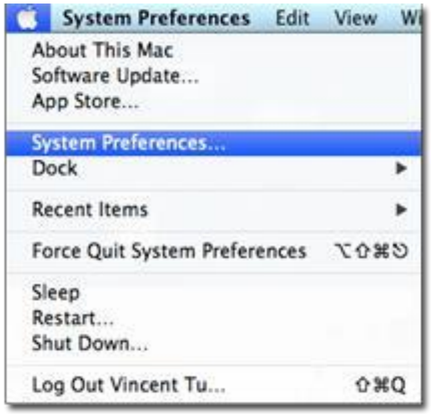
Preferred DNS server: . . .

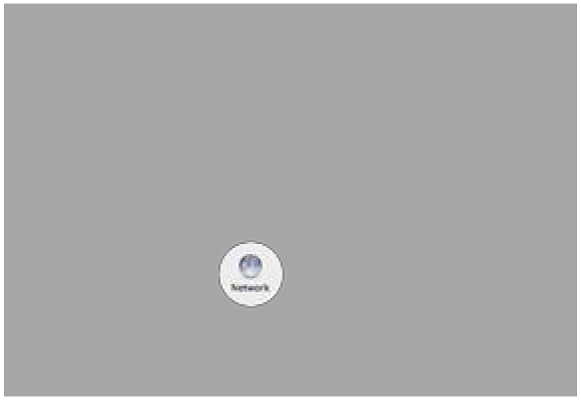
Alternate DNS server: . . .

□ Validate settings upon exit

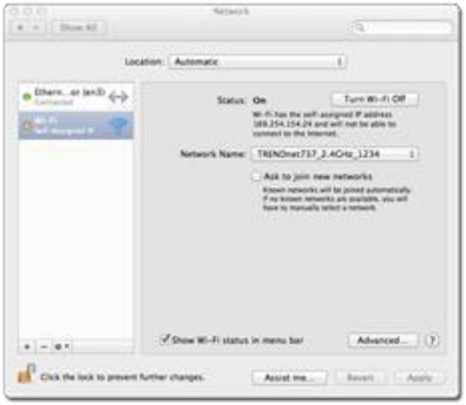
OS X

3. Click the **Apple logo** in the top-left corner of your screen. Click on **System Preferences…** . In the Internet and Wireless section, click on **Network**.





4. Select the network card you want to configure on the left banner (e.g. Wi-Fi). Click **Advanced**.



Location: Automatic

Status: On

Wi-Fi has the self-assigned IP address 169.254.154.24 and will not be able to connect to the Internet.

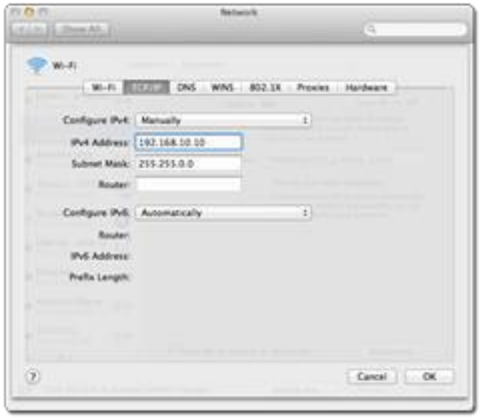
Network Name: TRENDnet737_2.4GHz_1234

□ Ask to join new networks

Known networks will be joined automatically. If no known networks are available, you will have to manually select a network.

☑ Show Wi-Fi status in menu bar

5. Choose TCP/IP. In Configure IPv4, select **Manually**. Input the static IP address, subnet mask, and your router IP address. (In order to setup the TRENDnet product, you can put in 192.168.10.10 as the IP address, 255.255.255.0 as the subnet mask and leave router in blank. Click **OK** to exit advanced setup.



Configure IPv4: Manually

IPv4 Address: 192.168.10.10

Subnet Mask: 255.255.0.0

Router:

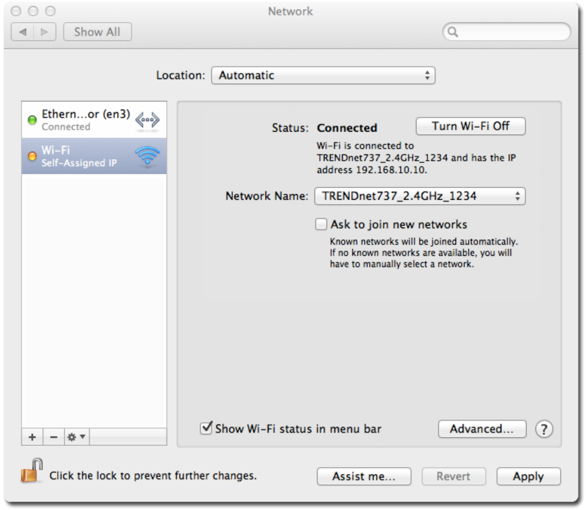
Configure IPv6: Automatically

Router:

IPv6 Address:

Prefix Length:

6. Click **Apply** to apply the changes.



Location: Automatic

Status: **Connected**

Wi-Fi is connected to TRENDnet737_2.4GHz_1234 and has the IP address 192.168.10.10.

Network Name: TRENDnet737_2.4GHz_1234

☐ Ask to join new networks

Known networks will be joined automatically. If no known networks are available, you will have to manually select a network.

☑ Show Wi-Fi status in menu bar

Click the lock to prevent further changes.

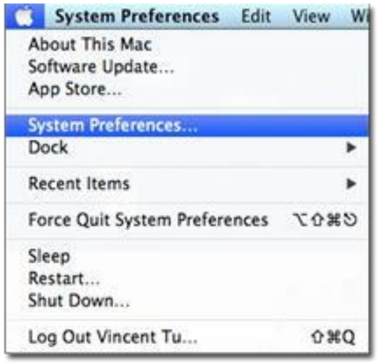
How to find your MAC address?

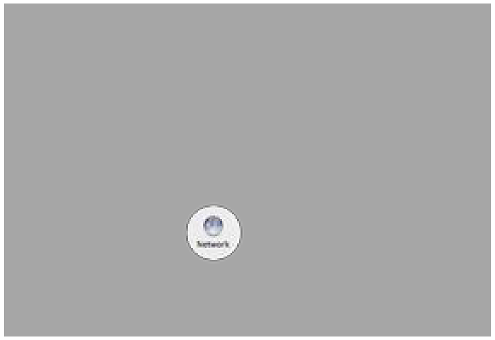
Windows 2000/XP/Vista/7

Your computer MAC addresses are also displayed in this window, however, you can type `getmac -v` to display the MAC addresses only.

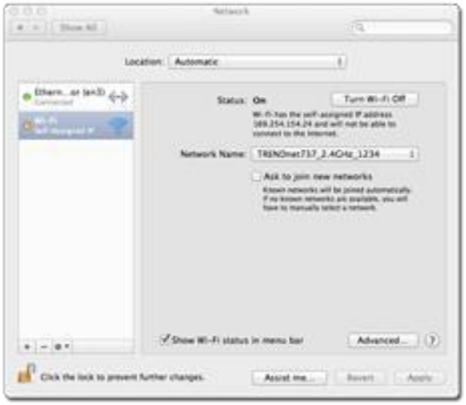
MAC OS X

1. Click the **Apple logo** in the top-left corner of your screen. Click on **System Preferences…** . In the Internet and Wireless section, click on **Network**.





2. Select the network card you want to configure on the left banner (e.g. Wi-Fi). Click **Advanced**.



Location: Automatic

Status: On

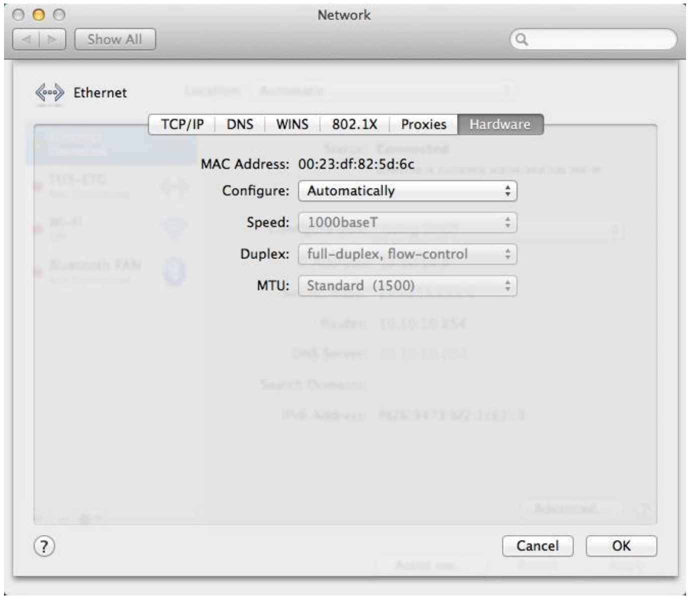
Network Name: TRENDnet737_2.4GHz_1234

□ Ask to join new networks

☑ Show Wi-Fi status in menu bar

Click the lock to prevent further changes.

3. Click **Hardware** to find out the MAC address of the network adapter.



MAC Address: 00:23:df:82:5d:6c

Configure: Automatically

Speed: 1000baseT

Duplex: full-duplex, flow-control

MTU: Standard (1500)

Regulations

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

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.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination. The firmware setting is not accessible by the end user.

RoHS

This product is RoHS compliant.

Europe – EU Declaration of Conformity

This device complies with the essential requirements of the Directive 2004/108/EC and 2006/95/EC. The following test methods have been applied in order to prove presumption of conformity with the essential requirements of the Directive 2004/108/EC and 2006/95/EC:

- EN60950-1: 2006 + A11: 2009 + A1: 2010 + A12: 2011
- AS/NZS CISPR 22: 2009 Class A
- EN 55022: 2010 Class A
- EN 55024: 2010
- EN 61000-3-2: 2006 + A1: 2009 + A2: 2009 Class A
- EN 61000-3-3: 2008

CE Mark Warning

This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

Česky [Czech]	TRENDnet tímto prohlašuje, že tento TPE-4840WS je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 2004/108/ES a 2006/95/ES.
Dansk [Danish]	Undertegnede TRENDnet erklærer herved, at følgende udstyr TPE-4840WS overholder de væsentlige krav og øvrige relevante krav i direktiv 2004/108/EF og 2006/95/EF.
Deutsch [German]	Hiermit erklärt TRENDnet, dass sich das Gerät TPE-4840WS in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 2004/108/EG und 2006/95/EG befindet.
Eesti [Estonian]	Käesolevaga kinnitab TRENDnet seadme TPE-4840WS vastavust direktiivi 2004/108/EÜ ja 2006/95/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
English	Hereby, TRENDnet, declares that this TPE-4840WS is in compliance with the essential requirements and other relevant provisions of Directive 2004/108/EC and 2006/95/EC.
Español [Spanish]	Por medio de la presente TRENDnet declara que el TPE-4840WS cumple con los requisitos esenciales y cualesquiera otras
	ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 2004/108/ΕΚ, 2006/95/ΕΚ και.
Français [French]	Par la présente TRENDnet déclare que l'appareil TPE-4840WS est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 2004/108/CE, 2006/95/CE et.
Italiano [Italian]	Con la presente TRENDnet dichiara che questo TPE-4840WS è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 2004/108/CE e 2006/95/CE.
Latviski [Latvian]	AršoTRENDnetdeklarē, ka TPE-4840WS atbilstDirektīvas 2004/108/EK un 2006/95/EK būtiskajāmprasībām un citiemar to saistītajiemnoteikumiem.
Lietuvių [Lithuanian]	Šiuo TRENDnet deklaruoja, kad šis TPE-4840WS atitinka esminius reikalavimus ir kitas 2004/108/EB ir 2006/95/EB Direktyvos nuostatas.
Nederlands [Dutch]	Hierbij verklaart TRENDnet dat het toestel TPE-4840WS in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 2004/108/EG en 2006/95/EG.
Malti [Maltese]	Hawnhekk, TRENDnet, jiddikjara li dan TPE-4840WS jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 2004/108/KE u 2006/95/KE.
Magyar [Hungarian]	Alulírott, TRENDnet nyilatkozom, hogy a TPE-4840WS megfelel a vonatkozó alapvetõ követelményeknek és az 2004/108/EK és a 2006/95/EK irányelv egyéb elõírásainak.
Polski [Polish]	Niniejszym TRENDnet oświadcza, że TPE-4840WS jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 2004/108/WE i 2006/95/.
Português [Portuguese] Slovensko	TRENDnet declara que este TPE-4840WS está conforme com os requisitos essenciais e outras disposições da Directiva2004/108/CE e 2006/95/CE.
[Slovenian] Slovensky	TRENDnet izjavlja, da je ta TPE-4840WS v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive2004/108/ES in 2006/95/ES.
[Slovak] Suomi	TRENDnettýmtovyhlasuje, že TPE-4840WS spĺňazákladnépožiadavky a všetkypríslušnéustanoveniaSmernice 2004/108/ES a 2006/95/ES.
[Finnish]	TRENDnet vakuuttaa täten että TPE-4840WS tyyppinen laite on direktiivin2004/108/EY ja 2006/95/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Svenska [Swedish]	Härmed intygar TRENDnet att denna TPE-4840WS står I överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 2004/108/EG
Ελληνική	

[Greek]	disposiciones aplicables o exigibles de la Directiva 2004/108/CE y 2006/95/CE.
	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑTRENDnet ΔΗΛΩΝΕΙ ΟΤΙ TPE-4840WS ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ

och 2006/95/EG.

Limited Warranty

TRENDnet warrants only to the original purchaser of this product from a TRENDnet authorized reseller or distributor that this product will be free from defects in material and workmanship under normal use and service. This limited warranty is non-transferable and does not apply to any purchaser who bought the product from a reseller or distributor not authorized by TRENDnet, including but not limited to purchases from Internet auction sites.

Limited Warranty

TRENDnet warrants its products against defects in material and workmanship, under normal use and service. Each product's warranty period is listed on the product specification sheet and in the user's guide.

- AC/DC Power Adapter, Cooling Fan, and Power Supply carry one year warranty.

Limited Lifetime Warranty

TRENDnet offers a limited lifetime warranty for all of its metal-enclosed network switches that have been purchased in the United States/Canada on or after 1/1/2015.

- Cooling fan and internal power supply carry a one-year warranty

To obtain an RMA, the ORIGINAL PURCHASER must show Proof of Purchase and return the unit to the address provided. The customer is responsible for any shipping-related costs that may occur. Replacement goods will be shipped back to the customer at TRENDnet's expense.

Upon receiving the RMA unit, TRENDnet may repair the unit using refurbished parts. In the event that the RMA unit needs to be replaced, TRENDnet may replace it with a refurbished product of the same or comparable model.

In the event that, after evaluation, TRENDnet cannot replace the defective product or there is no comparable model available, we will refund the depreciated value of the product.

If a product does not operate as warranted during the applicable warranty period, TRENDnet shall reserve the right, at its expense, to repair or replace the defective product or part and deliver an equivalent product or part to the customer. The repair/replacement unit's warranty continues from the original date of purchase. All products that are replaced become the property of TRENDnet. Replacement products may be new or reconditioned. TRENDnet does not issue refunds or credit. Please contact the point-of-purchase for their return policies.

TRENDnet shall not be responsible for any software, firmware, information, or memory data of customer contained in, stored on, or integrated with any products returned to TRENDnet pursuant to any warranty.

There are no user serviceable parts inside the product. Do not remove or attempt to service the product by any unauthorized service center. This warranty is voided if (i) the product has been modified or repaired by any unauthorized service center, (ii) the product was subject to accident, abuse, or improper use (iii) the product was subject to conditions more severe than those specified in the manual.

Warranty service may be obtained by contacting TRENDnet within the applicable warranty period and providing a copy of the dated proof of the purchase. Upon proper submission of required documentation a Return Material Authorization (RMA) number will be issued. An RMA number is required in order to initiate warranty service support for all TRENDnet products. Products that are sent to TRENDnet for RMA service must have the RMA number marked on the outside of return packages and sent to TRENDnet prepaid, insured and packaged appropriately for safe shipment. Customers shipping from outside of the USA and Canada are responsible for return shipping fees. Customers shipping from outside of the USA are responsible for custom charges, including but not limited to, duty, tax, and other fees.

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20675 Manhattan Place
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