User's Guide

TRENDnet®

8-Port 10G EdgeSmart Switch

TEG-7080ES

Contents

Product Overview

TEG-7080ES

Package Contents

In addition to your switch, the package includes:

- Quick Installation Guide
- Power cord
- RJ-45 to RS-232 console cable (1 m / 3.28 ft.)
- Rack mount kit

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

Features

TRENDnet's 8-Port 10G Easy Smart Switch with 8 x 10GBASE-T ports, model TEG-7080ES, is a cost-effective switch solution for high-speed 10 Gigabit network server connections. This easy smart switch features the most commonly used managed switch features, reducing unnecessary switch complexity. The web-based management interface offers features for traffic control, troubleshooting, access controls, and monitoring. TRENDnet's TEG-7080ES allows for simple network integration into your SMB network

High-Speed 10GBASE-T

Offers eight 10GBASE-T Ethernet ports for high-speed network uplink or downlink NAS / access server connections providing a cost-effective solution in adding 10G link capability to an SMB network.

Easy Smart Management

Provides an easy to use web-based GUI management for reduced switch configuration complexity and offers a combination of more commonly used SMB management features for easy deployment.

Integration Flexibility

Managed features include access control lists, VLAN, IGMP Snooping, and QoS for flexible network integration

Hardware

Provides 8 x 10GBASE-T ports for high-speed network uplink or downlink server connections, and 1U rack mountable.

Smart Fan

Smart fan saves energy by auto-adjusting the fan speed and use based on cooling needs.

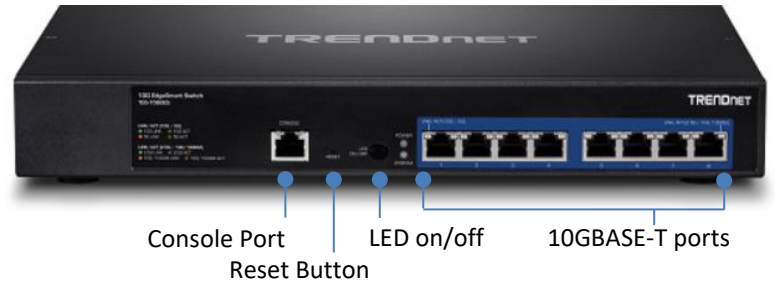
Network Management

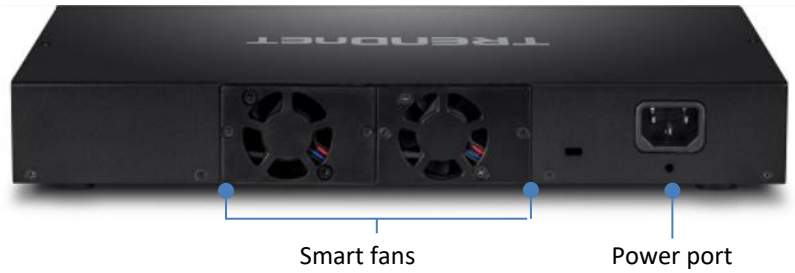
A broad range of network configurations are supported by: 802.3ad link aggregation, 802.1Q VLAN, bandwidth controls, IGMP, loopback detection, port mirroring and 802.1p (QoS).

Troubleshooting

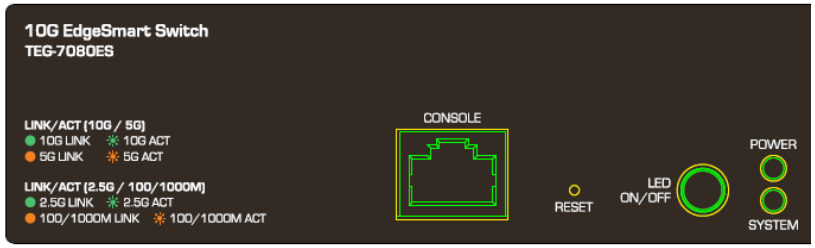
Traffic statistics and a convenient cable diagnostic test aid in network troubleshooting.

Product Hardware Features





- **LED on/off –** Press and hold to turn LED lights on or off
- **LED Indicators –** Indicator for device Power and System status.
- **10GBASE-T Ethernet Ports (1-8) –** Connect network devices or servers
- **Console Port –** – Use the included RJ-45 to RS-232 serial console cable to access the out-of-band command line interface management.
- **Reset Button-** Press and hold this button for 8 seconds and release to reset the switch to factory defaults. The ports LEDs will turn off to indicate that the reset was initiated.
- **Power Port –** Connect the power cord to start up the device (supports AC 100 – 240V, 50-60Hz)



LED Indicators

- **POWER LED**

On	:	When the POWER LED light is on, the device is receiving power.
Off	:	When the Power turns off, the power adapter is not connected or the device is not receiving power.

- **SYSTEM LED**

On (Amber)	:	When the amber SYSTEM LED light is on, the device is booting up
On (Green)	:	When the green SYSTEM LED light is on, the device has finished booting and is ready for operation.

LED ON/OFF Button

Click Once	:	When the LED ON/OFF button is clicked, the device will disable all LED lights aside from the POWER LED.
Hold 3 Seconds	:	When the LED ON/OFF button is held for 3 seconds, the device will automatically begin running cable diagnostics.

10GBASE-T Ethernet Port LEDs

- **Link/Activity (Left hand LED - per port)**

On (Amber)	:	When the Link/Act LED is on, the link established is operating at 5Gbps speeds.
On (Green)	:	When the Link/Act LED is on, the link established is operating at 10Gbps speeds.
Off		When the Link/Act LED light is off, there is no established connection.

- **Link/Activity (Right hand LED - per port)**

On (Amber)	:	When the Link/Act LED is on, the link established is operating at 100/1000Mbps speeds.
On (Green)	:	When the Link/Act LED is on, the link established is operating at 10Gbps speeds.
Off		When the Link/Act LED light is off, there is no established connection.

10GBASE-T Ethernet Port LEDs

- **Cable Diagnostic (Per port)**

Blinking (Green)	:	When the CABLE DIAGNOSTIC LED is blinking Green, the port is executing cable diagnostics.
Blinking (Amber)		When the CABLE DIAGNOSTIC LED is blinking Amber, the link is not established.
On (Green)		When the CABLE DIAGNOSTIC LED is on, the diagnostic has determined a healthy connection.
On (Amber)	:	When the CABLE DIAGNOSTIC LED is on, the diagnostic has determined an unhealthy connection.

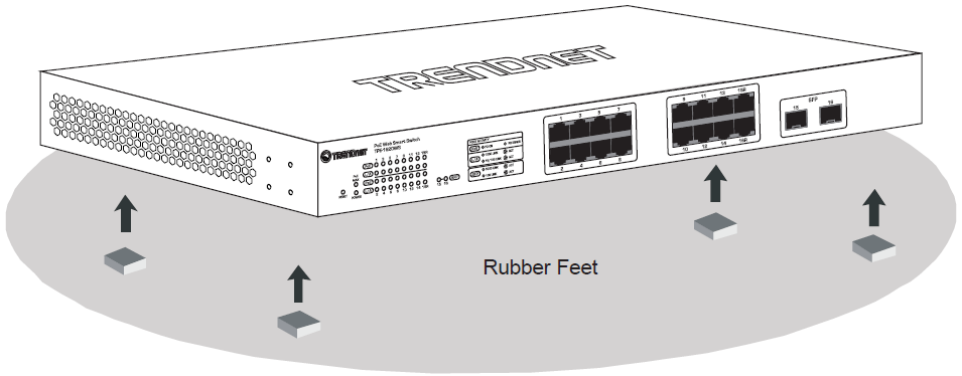
Switch Installation

Desktop Hardware Installation

The site where you install the switch may greatly affect its performance. When installing, consider the following pointers:

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

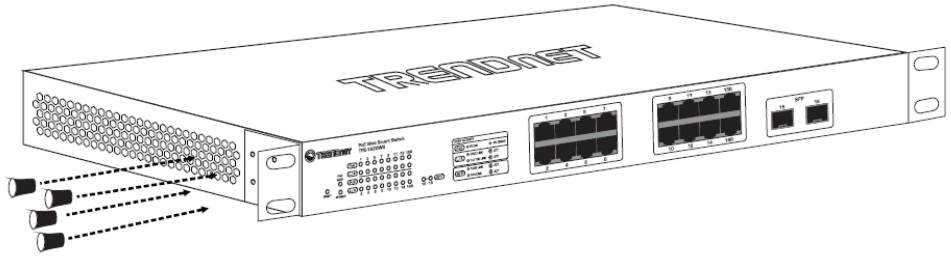
- Install the Switch in a fairly cool and dry place.
- Install the Switch in a site free from strong electromagnetic field generators (such as motors), vibration, dust, and direct exposure to sunlight.
- Leave at least 10cm of space at the front and rear of the hub for ventilation.
- Install the Switch 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.



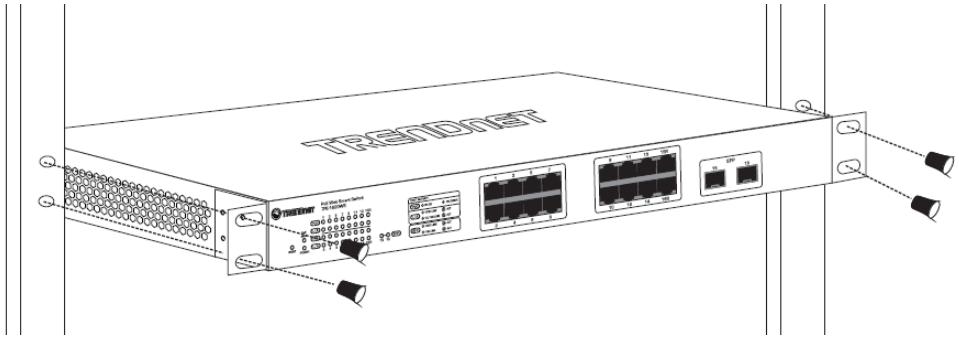
Rack Mount Hardware Installation

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

3. 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.

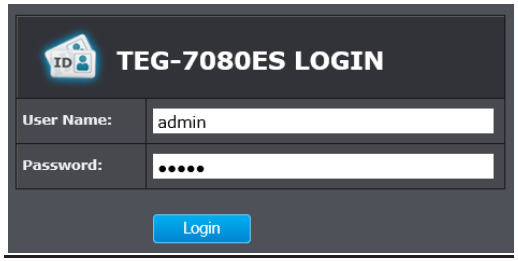
4. Open your web browser, and type the IP address of the switch in the address bar, and then press **Enter**. The default IP address is **192.168.10.200**.

5. Enter the User Name and Password, and then click **Login.** By default:

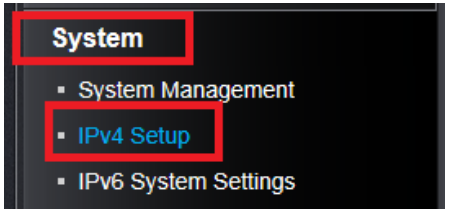
User Name: **admin**

Password: **admin**

Note: *User name and password are case sensitive.*

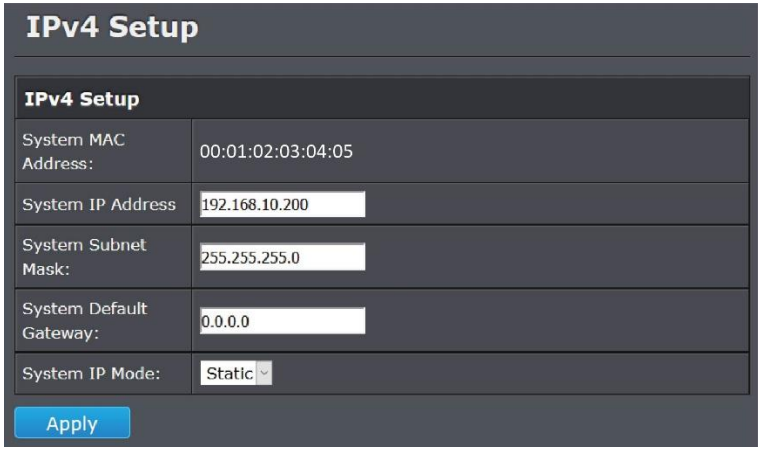


6. Click **System** and then click **IPv4 Setup**.



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

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.*



5. The browser will automatically use the new IP address to reconnect to the device and bring you back to the login page. Re-login using the default User Name and Password.

Connect additional devices to your switch

You can connect computers/servers or other network devices to your switch using Ethernet cables to connect them to one of the available 10GBASE-T Ethernet Ports. 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. You can use either the 10GBASE-T Ethernet ports connections as network uplinks.

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

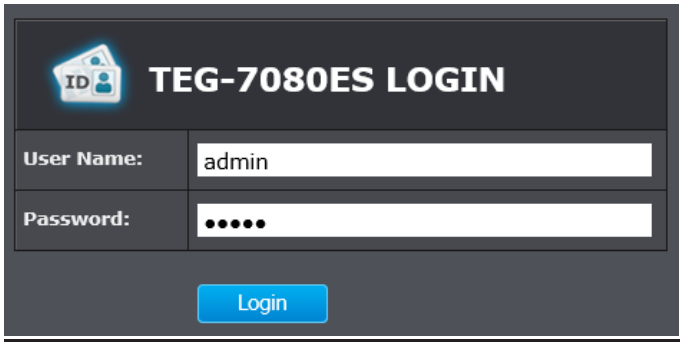
Access your switch management page

Note: *Your switch default management IP address http://192.168.10.200 is accessed through the use of your Internet web browser (e.g. Internet Explorer®, Firefox®, Chrome™, Safari®, Opera™) and will be referenced frequently in this User's Guide.*

1. Open your web browser and go to the IP address http://192.168.10.200. Your switch will prompt you for a user name and password.

2. Enter the user name and password. By default:

   User Name: **admin**
   Password: **admin**
   Note: *User Name and Password are case sensitive.*



System Info

View your switch status information

System Info

You may want to check the general system information of your switch such as firmware version and system uptime. Other information includes administration information, IPv4 and IPv6 information.

1. Log into your switch management page (see "Access your switch management page" on page 7).

2. Click on **System Info**.

System 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.

Switch Information	
System Up For:	0 day(s),1 hr(s),50 min(s),2 sec(s)
Runtime Image:	1.00.008

Administration Information

- **System Name** – Displays the identifying system name of your switch. This information can be modified under the **System** section.

Administration Information	
System Name:	

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 Gateway** – Displays the current gateway address assigned to your switch.

System MAC Address, IPv4 Information	
MAC Address:	00:01:02:03:04:05
IP Address:	192.168.10.200
Subnet Mask:	255.255.255.0
Default Gateway:	0.0.0.0

IPv6 Information

- **IPv6 Address:** Displays the current IPv6 address and prefix assigned to your switch.

IPv6 Information	
IPv6 Unicast Address Prefix Length:	

Automatic Network Features

- **IPv4 DHCP Client Mode:** Displays if your switch IPv4 address setting is set to DHCP client.

Automatic Network Features	
IPv4 DHCP Client Mode:	Disabled

System

Set your system information

System > System Management

This section explains how to assign a name 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.

1. Log into your switch management page (see "Access your switch management page on page 7").

2. Click on **System**

3. Review the System Management settings. When you have completed making changes, click **Apply** to save the settings.

- **System Description** - Specifies the switch model. You cannot change this parameter.
- **System Name** - Specifies a name for the switch, the name is optional and may contain up to 15 characters.
- **Link Ports** - Specifies the ports with an established link.
- **Bonjour** – A discovery protocol that enables automatic discovery of services and devices within the IP networks. Bonjour is disabled by default.

System Management	
System Description:	8-Port 10G EdgeSmart Switch
System Name	TEG-7080ES
Link Ports	P2
Bonjour	Disabled

4. Click **Apply** to save configuration changes to the NV-RAM to ensure that if the switch is rebooted or power cycled, the configuration changes will still be applied.

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.

Default Switch IPv4 Address: 192.168.10.200

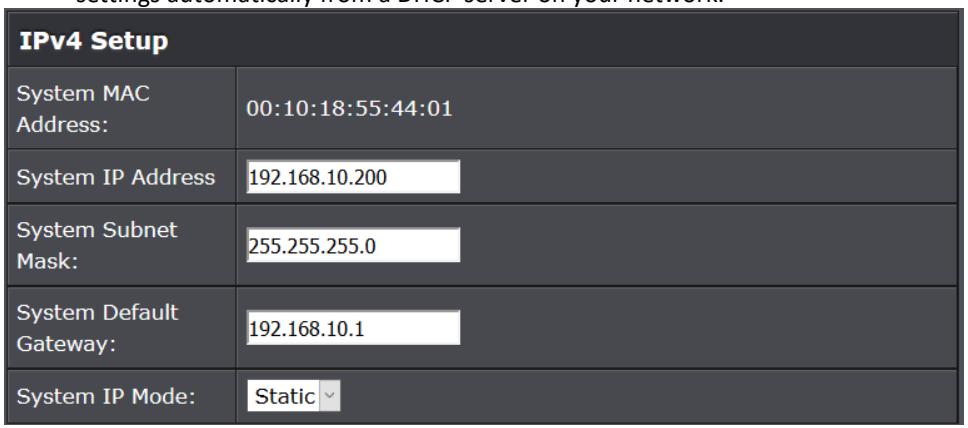
Default Switch IPv4 Subnet Mask: 255.255.255.0

1. Log into your switch management page (see "Access your switch management page" on page 7).

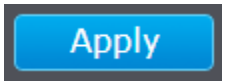
2. Click on **System**, and click on **IPv4 Setup**.

3. Review the settings. When you have completed making changes, click **Apply** to save the settings.

- **System MAC Address:** Displays the switch MAC address information.
- **System IP Address:** Enter the new switch IP address. (e.g. *192.168.200.200*)
- **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. 192.168.200.1 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.



4. Click **Apply** to save configuration changes to the NV-RAM to ensure that if the switch is rebooted or power cycled, the configuration changes will still be applied.



Set your IPv6 settings

System > IPv6 System Settings

Internet Protocol version 6 (IPv6) is a new IP protocol designed to replace IP version 4 (IPv4). The IPv6 address protocol meets the current requirements of new applications and the never ending growth of the Internet. The IPv6 address space makes more addresses available but it must be approached with careful planning. Successful deployment of IPv6 can be achieved with existing IPv4 infrastructures. With proper planning and design, the transition between IP version 4 and 6 is possible today as well.

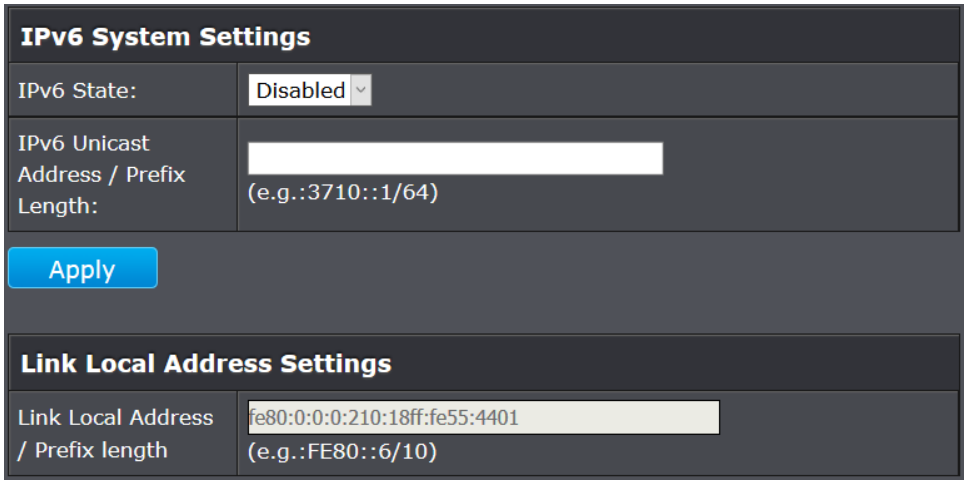
Use the **IPv6 System Settings** page to configure the IPv6 network interface, which is the logical interface used for in-band connectivity with the switch via all of the switch's front-panel ports. The configuration parameters associated with the switch's network interface do not affect the configuration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

1. Log into your switch management page (see "Access your switch management page on page 7").

2. Click on **System**, and click on **IPv6 System Settings**.

3. Review the settings. When you have completed making changes, click **Apply** to save the settings.

- **IPv6 State:** The IPv6 address for the IPv6 network interface is set in auto configuration mode if this option is enabled. The default value is Disable. 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.
- **Link Local Address Settings / Prefix Length:** 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.



4. Click **Apply** to save configuration changes to the NV-RAM to ensure that if the switch is rebooted or power cycled, the configuration changes will still be applied.

Restrict access to switch management page

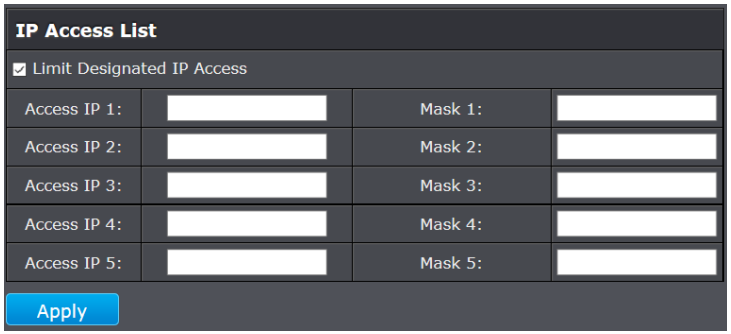
System > IP Access List

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

1. Log into your switch management page (see "Access your switch management page" on page 7).
2. Click on **System**, and click on **IP Access List**.

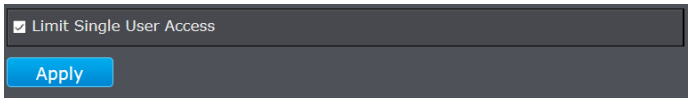
3. Review the settings.

First, enter the IPv4 or IPv6 address to allow access and click **Apply** to save entries into the IP Access List. A maximum of 5 IP addresses can be added to the IP Access List.



For each entry, the access list will populate. You can remove IP addresses from the IP Access List simply by deleting the entries and clicking **Apply**.

To limit access to your switch management page to a single user at a time, simply check the **Limit Single User Access** box and click **Apply.** Access to the switch management page will automatically timeout after 5 minutes.



4. Click **Apply** to save configuration changes to the NV-RAM to ensure that if the switch is rebooted or power cycled, the configuration changes will still be applied.

Change administrator password and add accounts

System > Administration

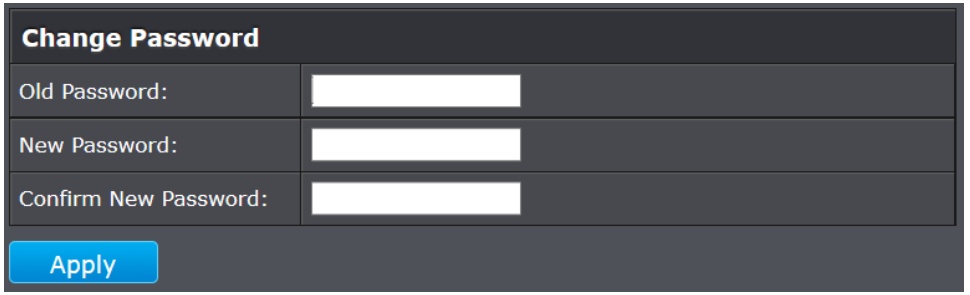
This section explains how to change the administrator password create additional administrative user accounts for access to the switch management page.

1. Log into your switch management page (see "Access your switch management page" on page 7).

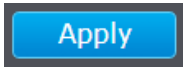
2. Click on **System**, and click on **Administration**.

To change the administrator password, first enter the current password and then enter and confirm the new password in the avaliable cells. Click **Apply** to save the new password.

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



4. Click **Apply** to save configuration changes to the NV-RAM to ensure that if the switch is rebooted or power cycled, the configuration changes will still be applied.



Physical Interface

Configure Physical Interfaces

Physical Interface

This section allows you to configure the physical port parameters such as speed, duplex, flow control, and jumbo frames. This section also reports the current link status of each port and negotiated speed/duplex.

1. Log into your switch management page (see "Access your switch management page" on page 7).

2. Click on **Physical Interface**.

3. Review the settings. Click **Apply** to save changes.

- **Port -** Specifies the port number. The All value indicates ports 01 through 08 on the Switch. You cannot change this parameter.
- **Type -** This parameter indicates the port type. On the Switch, the port type can be 10Gbps/Full, 5Gbps/Full, 2.5Gbps/Full, 1000Mbps/Full, and 100Mbps/Full.
- **Link Status -** This parameter indicates the status of the link between the port and the end node connected to the port. The possible values are:
  - **Up** -This parameter indicates a valid link exists between the port and the end node.
  - **Down** -This parameter indicates the port and the end node have not established a valid link.
- **Admin. Status:** This parameter indicates the operating status of the port. You can use this parameter 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. The possible values are:
  - **Enabled** - This parameter indicates the port is able to send and receive Ethernet frames.
  - **Disabled** - This parameter indicates the port is not able to send and receive Ethernet frames.
- **Mode:** This parameter indicates the speed and duplex mode settings for the port. You can use this parameter to set the speed and duplex mode of a port. The possible settings are:
  - **Auto** -This parameter indicates the port is using Auto-Negotiation to set the maximum operating speed and duplex mode. The actual operating speed and duplex mode of the port are displayed in port Type (for example, "1000Mbps" for 1000 Mbps full duplex mode) after a port establishes a link with an end node.
  - **10000/Full** -This parameter indicates the port is configured for 10Gbps operation in full-duplex mode.
  - **5000/Full** -This parameter indicates the port is configured for 5Gbps operation in full-duplex mode.
  - **2500/Full** -This parameter indicates the port is configured for 2.5Gbps operation in full-duplex 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.

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

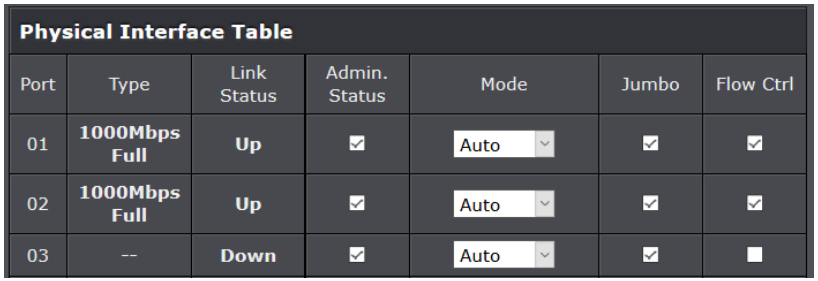
- *When a twisted-pair port is set to Auto-Negotiation, the end node should also be set to Auto-Negotiation to prevent a duplex mode mismatch.*
- *A switch port using Auto-Negotiation defaults to half-duplex if it detects that the end node is not using Auto-Negotiation. This can result in a mismatch 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.*

- **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. The possible values are:
  - **Enabled** -This parameter indicates the port is permitted to accept jumbo frames.

- **Disabled** -This parameter indicates the port is not permitted to accept jumbo frames.

Note: *When* ***QoS*** *is enabled on a port, the Jumbo frame parameter cannot be enabled.*

- **Flow Ctrl:** Flow Control, This parameter reflects 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. The possible values are:
  - **Enabled** - This parameter indicates that the port is permitted to use flow control.
  - **Disabled** - This parameter indicates that the port is not permitted to use flow control.



5. Click **Apply** to save configuration changes to the NV-RAM to ensure that if the switch is rebooted or power cycled, the configuration changes will still be applied.

Bridge

Configure Trunking

Bridge > Trunk Config > Trunking

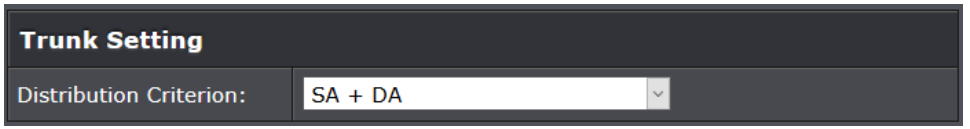
Important Note: *Do not connect the cables of a port trunk to the ports on the switch until you have configured the ports on both the switch and the end nodes. Connecting the cables prior to configuring the ports can create loops in your network topology. Loops can result in broadcast storms which can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

1. Log into your switch management page (see "Access your switch management page on page 7").

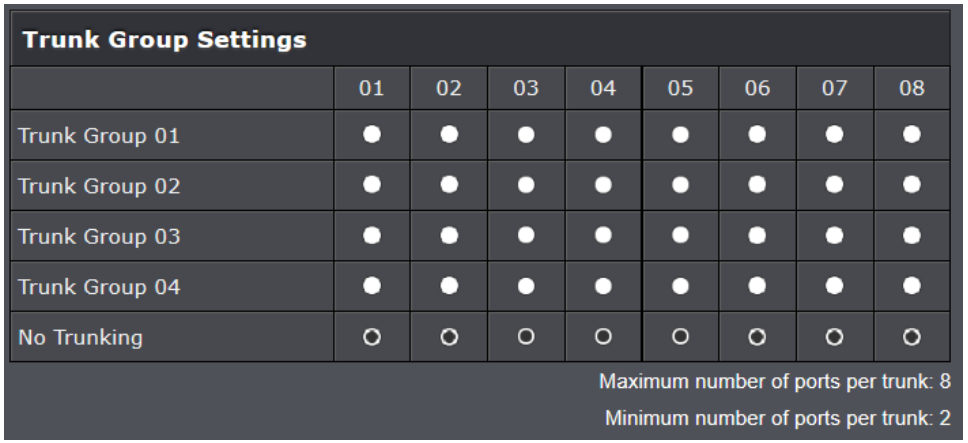
2. Click on **Bridge**, click on **Trunk Config**, and click on **Trunking**.

3. Review the settings. For each trunk group, click **Apply** to save changes.

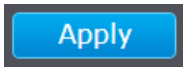
- **Distribution Criterion:** This parameter indicates the criterion to balance traffic between members of the Trunk Group. This allows the switch to specify criteria to allow for the most efficient traffic distribution. The optimal choice will depend on your network environment.
  - **SA**-This parameter indicates the switch is distributing traffic to links within the trunk group based on the Source MAC address only.
  - **DA**- This parameter indicates the switch is distributing traffic to links within the trunk group based on the Destination MAC address only.
  - **SA + DA**- This parameter indicates the switch is distributing traffic to links within the trunk group based on the Source MAC address and Destination MAC address.



- **Trunk Group Settings:** This parameter allows users to create Trunk Groups based on specified ports. The trunking function enables the cascading of two or more ports for a combined larger total bandwidth. Up to 4 trunk groups may be created, each supporting up to 8 ports. Select the ports to be trunked together in the desired Trunk Group, and click Apply to activate the selected trunking groups.



4. Click **Apply** to save configuration changes to the NV-RAM to ensure that if the switch is rebooted or power cycled, the configuration changes will still be applied.



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.

1. Log into your switch management page (see "Access your switch management page on page 7").

2. Click on **Bridge**, and click on **Mirroring**.

3. Review the settings. Click **Apply** to save changes.

- **Mirror Setting** – Check the **Enable Mirror** box to enable port mirroring.
- **Mirroring Port Setting** – Select desired **Mirror** ports and designate a **Mirror To** port for traffic to be copied for data monitoring and troubleshooting

Note: *The Mirror Ports and Mirror-To ports cannot belong to the same trunk group.*

4. Click **Apply** to save configuration changes to the NV-RAM to ensure that if the switch is rebooted or power cycled, the configuration changes will still be applied.

Enable loopback detection

Bridge > Loopback Detection

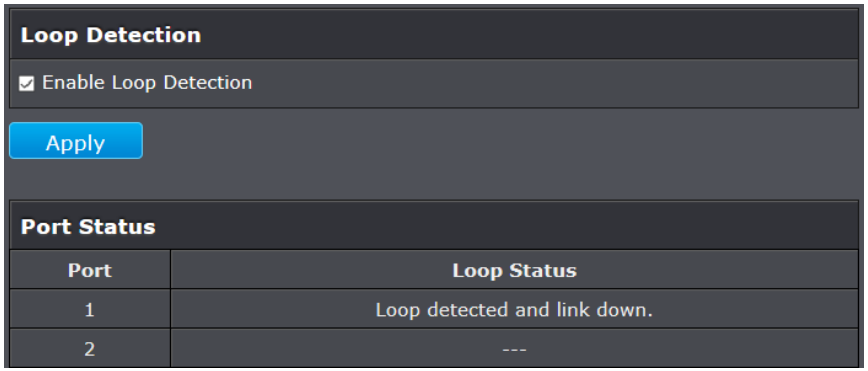
The loopback detection feature allows the switch to detect and prevent disruption from loops that occur on uplink or downlink switches directly connected to your switch.

1. Log into your switch management page (see "Access your switch management page on page 7").

2. Click on **Bridge** and click on **Loopback Detection**.

3. Review the settings.

- **Enable Loop Detection** – This selection enables the Loopback Detection feature for each port.
- **Port –** Defines switch port and corresponding **Loop Status**
- **Loop Status –** Defines if a Loop is detected and the link status.



4. Click **Apply** to save configuration changes to the NV-RAM to ensure that if the switch is rebooted or power cycled, the configuration changes will still be applied.

Configure IGMP Snooping Settings

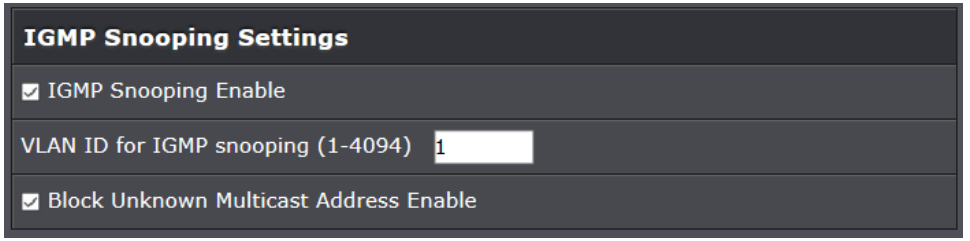
Bridge > IGMP Snooping > IGMP Snooping Settings

1. Log into your switch management page (see "Access your switch management page on page 7").

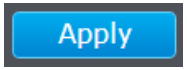
2. Click on **Bridge**, click on **IGMP Snooping**, and click on **IGMP Snooping Settings**.

3. Review the settings. Click **Apply** to save the settings.

- **IGMP Snooping Enable** – Select to enable IGMP Snooping feature
- **VLAN ID for IGMP snooping –** This parameter allows users to define VLAN IDs to enable IGMP snooping.
- **Block Unknown Multicast Address Enable –** Enabling this feature will automatically block unknown multicasting addresses.



4. Click **Apply** to save configuration changes to the NV-RAM to ensure that if the switch is rebooted or power cycled, the configuration changes will still be applied.



Configure Storm Control

Bridge > Bandwidth Control > Storm Control

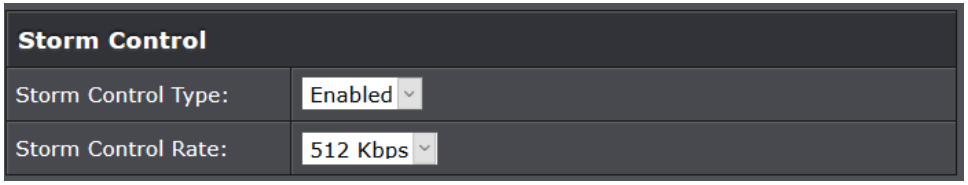
This section allows you to configure the storm control settings for the switch.

1. Log into your switch management page (see "Access your switch management page on page 7").

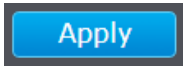
2. Click on **Bridge**, click on **Bandwidth Control,** and click on **Storm Control**.

3. Review the settings for each port. Click **Apply** to save the settings.

- **Storm Control Type** – Enabling this feature provides bidirectional bandwidth control. Once enabled, any excessive packets will be discarded.
- **Storm Control Rate** – This parameter defines the Ingress/Egress Storm Control Rates (1/2/4/8/16/64/128/256/512Mbps)



4. Click **Apply** to save configuration changes to the NV-RAM to ensure that if the switch is rebooted or power cycled, the configuration changes will still be applied.



Set Ingress / Egress Rate Limiting

Bridge > Bandwidth Control > Rate Limiting

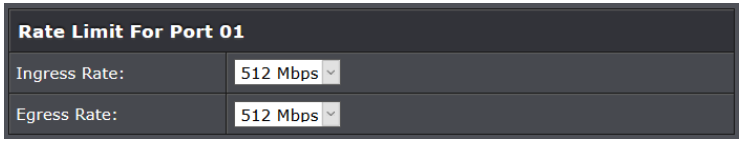
This section allows you to set the ingress (receive) and egress (transmit) rate for each switch port.

1. Log into your switch management page (see "Access your switch management page on page 7").

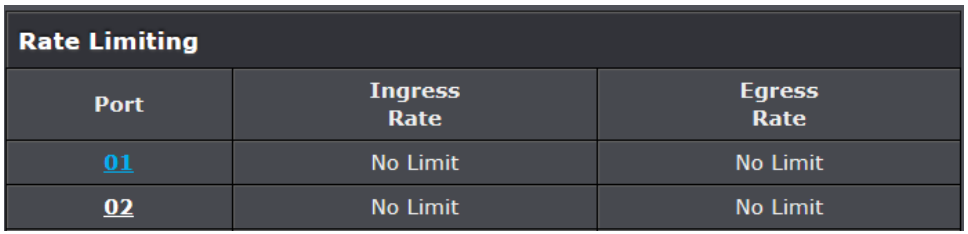
2. Click on **Bridge**, click on **Bandwidth Control,** and click on **Rate Limiting**.

3. Review the settings for each port. Click **Apply** to save the settings.

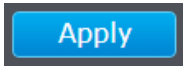
- **Port** – Lists the switch ports. Users can click on the port number to change Rate Limiting changes to the respective port.



- **Ingress Rate** – Displays the Ingress Rate Limit value.
- **Egress Rate**- Displays the Egress Rate Limit Value.



4. Click **Apply** to save configuration changes to the NV-RAM to ensure that if the switch is rebooted or power cycled, the configuration changes will still be applied.



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.

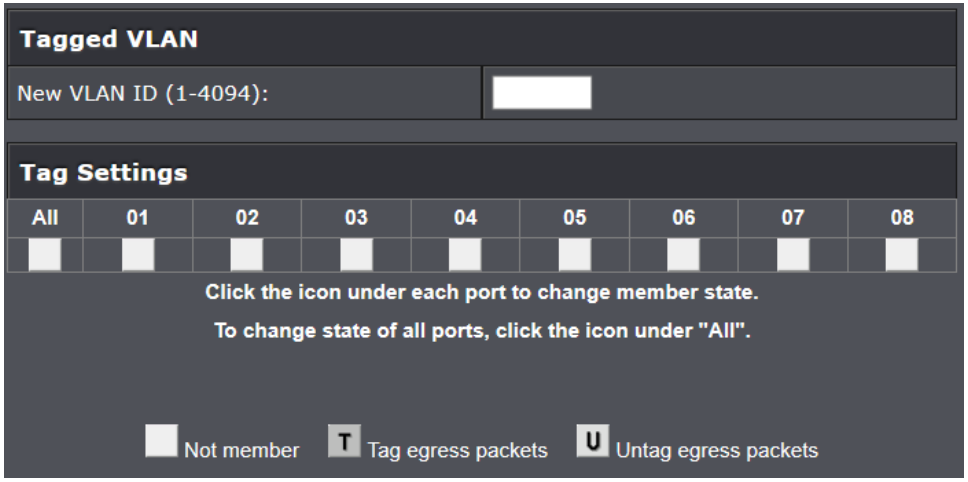
VLANs can be easily organized to reflect department groups (such as R&D, Marketing), usage groups (such as e-mail), or multicast groups (multimedia applications such as video conferencing), and therefore help to simplify network management by allowing users to move devices to a new VLAN without having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

1. Log into your switch management page (see "Access your switch management page" on page 7).

2. Click on **Bridge**, click on **VLAN,** and click on **Tagged VLAN** and then **Create New VLAN**.

3. Review the settings.

- **New VLAN ID –** Enter the VLAN ID for the new VLAN.
- **Tag Settings** –Clicking the icons under each port will change the member state from Not Member, Tag egress packets, and Untag egress packets. Clicking the All icon will change tag settings for all ports.

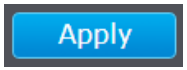


On a port, the tag information within a frame is examined when it is received to determine if the frame is qualified as a member of a specific tagged VLAN. If it is, it is eligible to be switched to other member ports of the same VLAN. If it is determined that the frame's tag does not conform to the 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 connected to tagged VLAN ports unless the network interface on these device can be enabled to be VLAN aware.

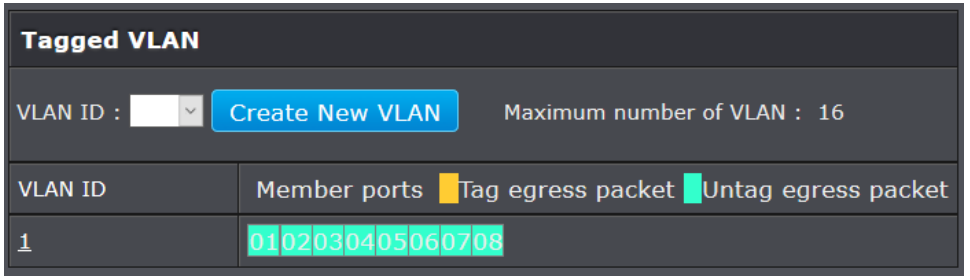
Select the tagged VLAN ports to add to the new VLAN.

- ***Note:** By default, the default VLAN VID 1 is set as the Management VLAN.*

4. Click **Apply** to save configuration changes to the NV-RAM to ensure that if the switch is rebooted or power cycled, the configuration changes will still be applied.



5. The created Tagged VLANs will be displayed on the **Tagged VLAN** page. This switch supports a maximum of 16 VLANs.



Configure VLAN Port Settings

Bridge > VLAN > Port Settings

In this section, you can modify the port VID settings.

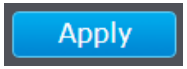
1. Log into your switch management page (see "Access your switch management page" on page 7).

2. Click on **Bridge**, click on **VLAN,** and click on **Port Settings**.

3. Review the settings for each port. Click **Apply** to save settings.

- **Port –** Displays the port number
- **PVID** – Allows users to assign VLAN IDs for untagged packets through 802.1q VLAN.

4. Click **Apply** to save configuration changes to the NV-RAM to ensure that if the switch is rebooted or power cycled, the configuration changes will still be applied.



Configure the VLAN forwarding Table

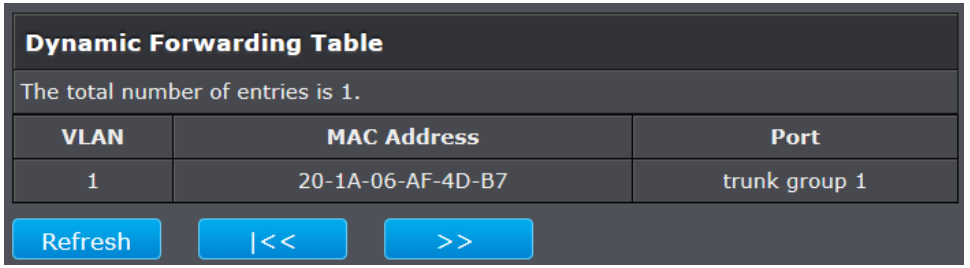
Bridge > VLAN > Dynamic Forwarding Table

1. Log into your switch management page (see "Access your switch management page" on page 7).

2. Click on **Bridge**, click on **VLAN,** and click on **Dynamic Forwarding Table**.

3. This table displays the MAC addresses learned by the switch, along with responding VLAN, and Port (including trunk groups).

If the entries span multiple pages, you can click the **Arrow** buttons to navigate the pages.



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 Class 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.

Set IEEE 802.1P settings

Bridge > QoS > IEEE 802.1P QoS

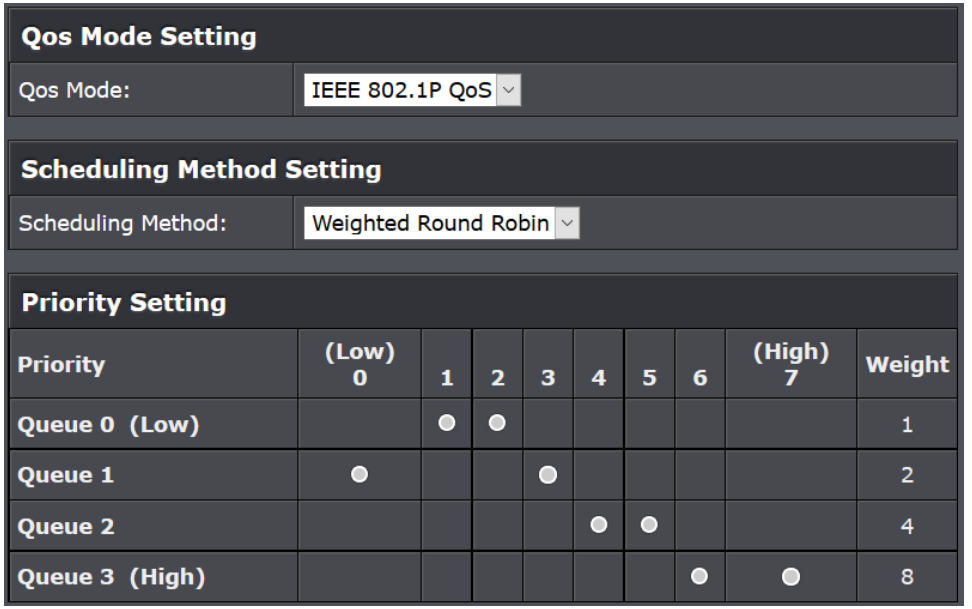
1. Log into your switch management page (see "Access your switch management page" on page 7).

2. Click on **Bridge** and click on **QoS**.

3. By default, the **QoS Mode setting** is set to **IEEE 802.1P QoS**.

4. Review the fixed **IEEE 802.1P QoS** settings. These **Traffic Classes** are fixed to their respective queues (Queue 0, Queue 1, Queue, 2, Queue 3) and cannot be changed.

   - IEEE 802.1p sets a 3-bit value in the MAC header to indicate prioritization. This 3-bit value provides priority levels ranging from 0 to 7 (i.e., a total of 8 levels), with level 7 representing the highest priority. This permits packets to cluster and form different traffic classes. Thus, when network congestion occurs, those packets that have higher priorities will receive preferential treatment while low priority packets will be kept on hold.



6. Change the **Scheduling Method Settings** to define the hierarchy and parameters for the QoS Mode application. Click **Apply** to save the settings.

   - **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.
   - **All-High-Before-Low** - The port transmits all packets out of higher priority queues before transmitting any from the lower priority queues.

7. Click **Apply** to save configuration changes to the NV-RAM to ensure that if the switch is rebooted or power cycled, the configuration changes will still be applied.

Set Port-Based QoS

Bridge > QoS > Port-Based QoS

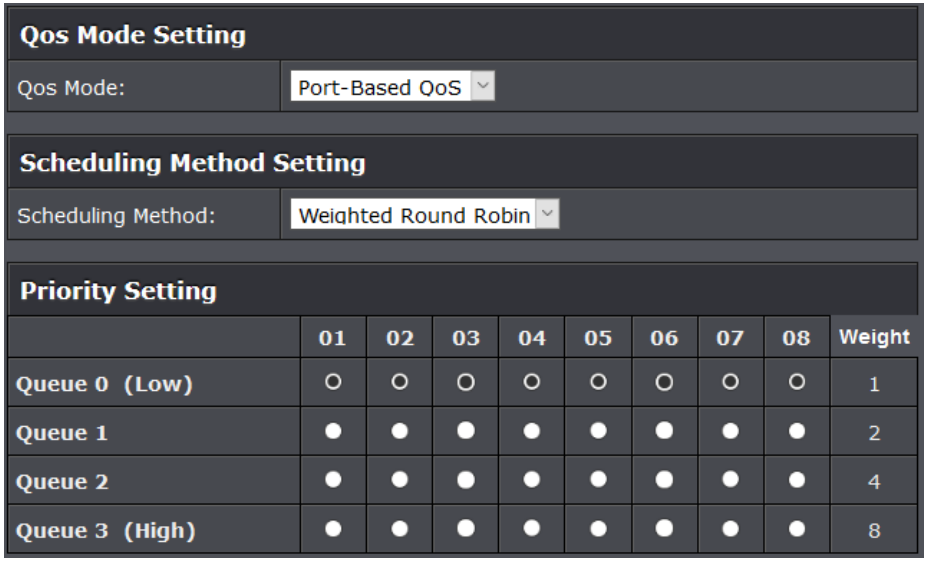
The Port-Based QoS mode allows users to change priority port settings for all available ports. This setting supports four Queues (Queue 0, Queue 1, Queue 2, Queue 3), all of which hold different weights. Ports handling high priority traffic, such as video or voice application, can be assigned higher priority queues (Queue 3) for optimized performance.

1. Log into your switch management page (see "Access your switch management page" on page 7).

2. Click on **Bridge** and select **QoS**

3. Change **QoS Mode Setting** to **Port-Based QoS.**

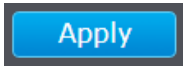
3. For each port, select a Queue in the **Priority Settings**. Click **Apply** to save the settings.



5. Change the **Scheduling Method Settings** to define the hierarchy and parameters for the QoS Mode application. Click **Apply** to save the settings.

- **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.
- **All-High-Before-Low** - The port transmits all packets out of higher priority queues before transmitting any from the lower priority queues.

6. Click **Apply** to save configuration changes to the NV-RAM to ensure that if the switch is rebooted or power cycled, the configuration changes will still be applied.



Statistics

Statistics provide important information for troubleshooting switch problems at the port level. The Switch Management page provides one statistics charts for monitoring Traffic Information

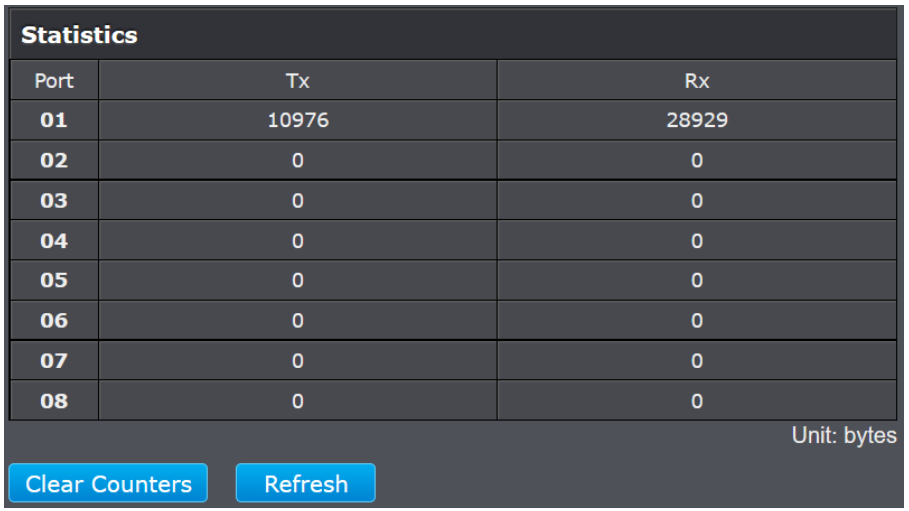
View Traffic Information Statistics

Statistics > Traffic Information

1. Log into your switch management page (see "Access your switch management page" on page 7).

2. Click on **Statistics** and click on **Traffic Information**

3. View the Traffic Information Statistics.
   - **Tx** – Displays the total number of bytes transmitted per port.
   - **Rx** – Displays the total number of bytes received per port.
   - **Clear Counter** – Clears the Traffic Information and resets the counter.
   - **Refresh** – Refreshes the Statistics table with the updated Traffic Information.



Switch Maintenance

Upgrade your switch firmware

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.

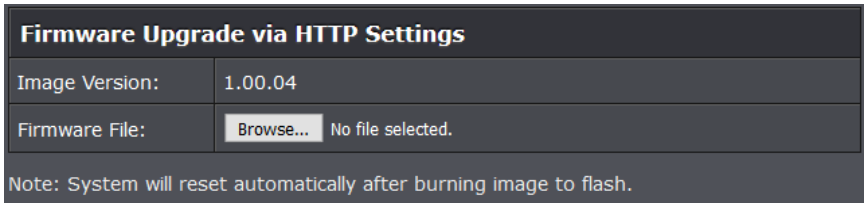
Firmware Upgrade via HTTP Settings

Tools > Firmware Upgrade > via HTTP

1. Log into your switch management page (see "Access your switch management page" on page 7).

2. Click on **Tools**, click on **Firmware Upgrade**, and click **via HTTP**.

3. Depending on your web browser, in the **Firmware Upgrade via HTTP Settings**, click **Browse** or **Choose File**.



4. Navigate to the folder on your computer where the unzipped firmware file (*.hex*) is located and select it.

5. Click **Apply**. If prompted, click **Yes** or **OK**.

Backup and restore your switch configuration settings

Tools > Config File Backup/Restore > via HTTP

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. The configuration will be backed up or restored only to the currently used image.

Backup/Restore via HTTP Settings

To backup your switch configuration:

1. Log into your switch management page (see "Access your switch management page" on page 7).

2. Click on **Tools**, click on **Config File Backup/Restore** and click on **via HTTP**.

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

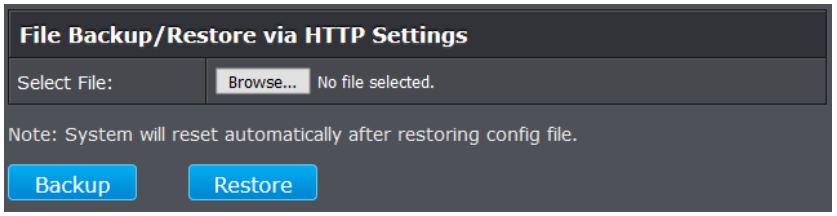
Note: *If prompted, choose the location on your local hard drive. If you are not prompted, the configuration file (config.bin) will be saved to your default downloads folder.*

To restore your switch configuration:

1. Log into your switch management page (see "Access your switch management page" on page 7).

2. Click on **Tools**, click on **Config File Backup/Restore** and click on **via HTTP**.

3. Next to **Select File,** depending on your web browser, click on **Browse** or **Choose File**.



4. A separate file navigation window should open.

5. Select the switch configuration file to restore and click **Restore**. (Default Filename: *config.bin*). If prompted, click **Yes** or **OK**.

6. Wait for the switch to restore settings.

Cable Diagnostics Test

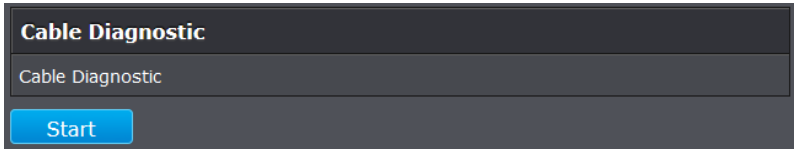
Tools > Cable Diagnostics

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

1. Log into your switch management page (see "Access your switch management page on page 7").

2. Click on **Tools** and click on **Cable Diagnostic**.

3. Click on the **Start** button to run the cable diagnostic.



The results will be displayed in the **Cable Diagnostic Table**.

Port Status

Port	Test Result
1	Healthy
2	Healthy
3	Healthy
4	Short
5	Short
6	Open

- **Test Results:** Displays the diagnostic results for each pair in the cable. One of the following cable status parameters is displayed:
  - **Healthy:** There is no problem detected with the cable.
  - **Open:** There is an open wire within the cable.
  - **Short:** Two wires are shorted together within the cable.
- **Clear:** The **Clear** button can be used to clear the Cable Diagnostic test results.

Enable IEEE 802.3az Power Saving Mode

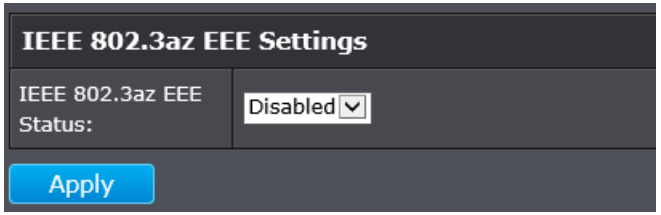
Tools > IEEE 802.3az EEE

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.

1. Log into your switch management page (see "Access your switch management page on page 7").

2. Click on **Tools** and click on **IEEE 802.3az EEE**

3. 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.



Reboot/Reset to factory defaults

Tools > Reboot

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

To reboot your switch:

You may want to reboot your switch if you are encountering difficulties with your switch and have attempted all other troubleshooting.

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.*

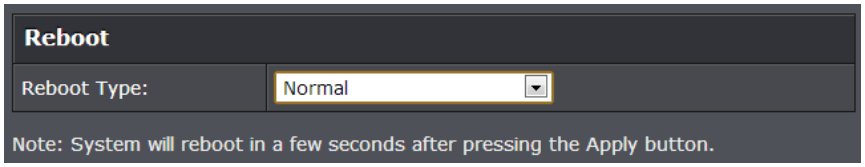
There is one method that can be used to reboot your switch.

- **Software Method (Switch Management Page):**

1. Log into your switch management page (see "Access your switch management page" on page 7).

2. Click on **Tools** and click on **Reboot.**

3. Click the **Reboot Type** drop-down list and select **Normal** and click **Apply** to initiate a reboot. Wait for the switch complete the rebooting process.



To reset your switch to factory defaults:

You may want to reset your switch to factory defaults if you are encountering difficulties with your switch and have attempted all other troubleshooting. Before you reset your switch to defaults, if possible, you should backup your switch configuration first, see "Backup and restore your switch configuration settings" on page 22.

There are two methods that can be used to reset your switch to factory defaults.

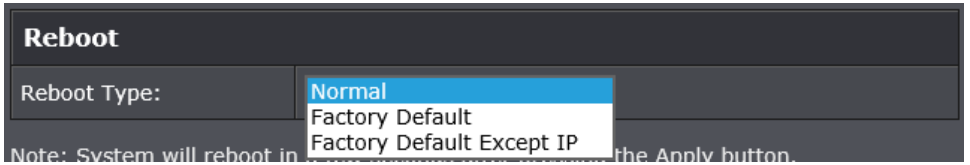
- **Hardware Method:** Using a paper clip, on the front panel of the switch, push and hold the **Reset** button more than 3 seconds and release. Located on the back panel of your switch, see "Product Hardware Features" on page 2. Use this method if you are encountering difficulties with accessing your switch management page.
- **Software Method (Switch Management Page):**

  1. Log into your switch management page (see "Access your switch management page" on page 7).

  2. Click on **Tools** and click on **Reboot.**

  3. Click the **Reboot Type** drop-down list and select the following option

     - **Factory Default:** Resets all switch configuration settings to factory defaults.
     - **Factory Default Except IP:** Resets all switch configuration settings to factory defaults and leaves the current IP address configuration



The switch factory default settings are below.

Administrator User Name	admin
Administrator Password	admin
Switch IP Address	192.168.10.200
Switch Subnet Mask	255.255.255.0

Switch Management Page Structure

Switch Info

System

- System Management
- IPv4 Setup
- IPv6 System Settings
- IP Access List
- Administration

Physical Interface

Bridge

- Trunk Config
  - Trunking
- Mirroring
- Loopback Detection
- IGMP Snooping
  - IGMP Snooping Settings
- Bandwidth Control
  - Storm Control
  - Rate Limiting
- VLAN
  - Tagged VLAN
  - Port Settings
  - Dynamic Forwarding Table
- QoS

Statistics

- Traffic Information

Tools

- Firmware Upgrade
  - via HTTP
- Config File Backup/Restore
  - via HTTP
- Cable Diagnostics
- IEEE 802.3az EEE
- Reboot

Logout

Technical Specifications

Standards

- IEEE 802.1p
- IEEE 802.1Q
- IEEE 802.3u
- IEEE 802.3x
- IEEE 802.3ab
- IEEE 802.3ad
- IEEE 802.3az
- IEEE 802.3an
- IEEE 802.3bz

Device Interface

- 8 x 10GBASE-T (10Gbps, 5Gbps, 2.5Gbps, 1Gbps, 100Mbps)
- 1 x RJ-45 console port
- LED indicators
- LED on/off button
- Reset button

Data Transfer Rate

- Fast Ethernet: 100Mbps (half duplex), 200Mbps (full duplex)
- Gigabit Ethernet: 2Gbps (full duplex)
- 2.5 Gigabit Ethernet: 5Gbps (full duplex)
- 5 Gigabit Ethernet: 10Gbps (full duplex)
- 10 Gigabit Ethernet: 20Gbps (full duplex)

Performance

- Switch fabric: 160Gbps
- RAM buffer: 2MB
- MAC Address Table: 16K entries
- Jumbo Frames: 9KB
- Forwarding rate: 119Mpps (64-byte packet size)

Management

- CLI (Console) for IP address settings and password configuration only
- HTTP web based GUI
- Enable/disable 802.3az Power Saving

- Cable diagnostic test
- IPv6: IPv6 Static IP

Link Aggregation

- Static link aggregation and 802.3ad dynamic LACP (Up to 4 groups)

Quality of Service (QoS)

- 802.1p Class of Service (CoS)
- Bandwidth Control per port
- Queue Scheduling: Strict Priority (All-High-Before-Low), Weighted Round Robin (WRR)

VLAN

- 802.1Q Tagged VLAN
- Asymmetric VLAN
- Up to 16 VLAN groups, ID Range 1-4094

Multicast

- IGMP Snooping v1, v2

Port Mirror

- One to one
- Many to one

Access Control

- Loopback Detection
- Trusted Host/IP Access List

Minimum Cable Requirements

- 10GBASE-T (10 Gbps): Cat 6 twisted pair @ 55m / 180 ft. (max.) / Cat 6a or Cat 7 twisted pair @ 100m / 328 ft. (max.)
- NBASE-T™ (5 Gbps): Cat 6 twisted pair @ 100m / 328 ft. (max.)
- NBASE-T™ (2.5 Gbps): Cat 5e twisted pair @ 100m / 328 ft. (max.)
- 1000BASE-T (1 Gbps): Cat 5e twisted pair @ 100m / 328 ft. (max.)
- 100BASE-TX (100 Mbps): Cat 5 twisted pair @ 100m / 328 ft. (max.)

Power

- Input: 100 – 240V AC, 50/60Hz, internal power supply
- Output: 12V DC, 3.5A
- Max. Consumption: 28.5W

Smart Fan / Acoustics

- Quantity: 2
- Noise Level: 39.5 dBA (max.)

MTBF

- 207,390 hours

Operating Temperature

- 0° – 50° C (32° – 122° F)

Operating Humidity

- Max. 90% non-condensing

Dimensions

- 330 x 230 x 44mm (13 x 9 x 1.73 in.)
- Rack mountable 1U height

Weight

- 2.31kg (5.01 lbs.)

Certifications

- CE
- FCC

Warranty

- Lifetime

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?
Answer:
1. Check your hardware settings again. See "Switch Installation" on page 4.
2. Make sure the Power and port Link/Activity and WLAN lights are lit.
3. Make sure your network adapter TCP/IP settings are set to *Use the following IP address* or *Static IP* (see the steps below).
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

Windows 7/8.1/10

a. Go into the **Control Panel**, click **Network and Sharing Center**.

b. Click **Change Adapter Settings**, right-click the **Local Area Connection** icon.

c. Then click **Properties** and click **Internet Protocol Version 4 (TCP/IPv4)**.

d. Then click **Use the following IP address,** and make sure to assign your network adapter an IP address in the subnet of 192.168.10.x. Click **OK**

Windows Vista

a. Go into the **Control Panel**, click **Network and Internet**.
b. Click **Manage Network Connections,** right-click the **Local Area Connection** icon and click **Properties**.
c. Click **Internet Protocol Version (TCP/IPv4)** and then click **Properties**.

d. Then click **Use the following IP address,** and make sure to assign your network adapter an IP address in the subnet of 192.168.10.x. Click **OK**

Windows XP/2000

a. Go into the **Control Panel**, double-click the **Network Connections** icon
b. Right-click the **Local Area Connection** icon and the click **Properties**.
c. Click **Internet Protocol (TCP/IP)** and click **Properties**.

d. Then click **Use the following IP address,** and make sure to assign your network adapter an IP address in the subnet of 192.168.10.x. Click **OK**

Note: *If you are experiencing difficulties, please contact your computer or operating system manufacturer for assistance.*

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

Note: *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 Prompt Method

Windows 2000/XP/Vista/7/8.1/10

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. Navigate to your **Applications** folder and open **Utilities**.
2. Double-click on **Terminal** to launch the command prompt.
3. In the command prompt, type ***ipconfig getifaddr <en0 or en1>*** to display the wired or wireless IP address settings.

Note: en0 *is typically the wired Ethernet and* ***en1*** *is typically the wireless Airport interface.*

Graphical Method

MAC OS 10.6/10.5

1. From the Apple menu, select **System Preferences**.
2. In System Preferences, from the **View** menu, select **Network**.
3. In the Network preference window, click a network port (e.g., Ethernet, AirPort, modem). If you are connected, you'll see your IP address settings under "Status:"

MAC OS 10.4

1. From the Apple menu, select **Location**, and then **Network Preferences**.
2. In the Network Preference window, next to "Show:", select **Network Status**. You'll see your network status and your IP address settings displayed.

Note: *If you are experiencing difficulties, please contact your computer or operating system manufacturer for assistance.*

How to configure your network settings to use a static IP address?

Note: *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.*

Windows 7/8.1/10

a. Go into the **Control Panel**, click **Network and Sharing Center**.

b. Click **Change Adapter Settings**, right-click the **Local Area Connection** icon.

c. Then click **Properties** and click **Internet Protocol Version 4 (TCP/IPv4)**.

d. Then click **Use the following IP address,** and assign your network adapter a static IP address. Click **OK**

Windows Vista

a. Go into the **Control Panel**, click **Network and Internet**.
b. Click **Manage Network Connections,** right-click the **Local Area Connection** icon and click **Properties**.
c. Click **Internet Protocol Version (TCP/IPv4)** and then click **Properties**.

d. Then click **Use the following IP address,** and assign your network adapter a static IP address. Click **OK**

Windows XP/2000

a. Go into the **Control Panel**, double-click the **Network Connections** icon
b. Right-click the **Local Area Connection** icon and the click **Properties**.
c. Click **Internet Protocol (TCP/IP)** and click **Properties**.

d. Then click **Use the following IP address,** and assign your network adapter a static IP address. Click **OK**

MAC OS 10.4/10.5/10.6

a. From the **Apple**, drop-down list, select **System Preferences**.
b. Click the **Network** icon.
c. From the **Location** drop-down list, select **Automatic**.
d. Select and view your Ethernet connection.

In MAC OS 10.4, from the **Show** drop-down list, select **Built-in Ethernet** and select the **TCP/IP** tab.
In MAC OS 10.5/10.6, in the left column, select **Ethernet**.

e. Configure TCP/IP to use a static IP.
In MAC 10.4, from the **Configure IPv4**, drop-down list, select **Manually** and assign your network adapter a static IP address. Then click the **Apply Now** button.
In MAC 10.5/10.6, from the **Configure** drop-down list, select **Manually** and assign your network adapter a static IP address . Then click the **Apply** button.

f. Restart your computer.

Note: *If you are experiencing difficulties, please contact your computer or operating system manufacturer for assistance.*

How to find your MAC address?

In Windows 2000/XP/Vista/7/8.1./10,

Your computer MAC addresses are also displayed in this window, however, you can type ***getmac –v*** to display the MAC addresses only.

In MAC OS 10.4,

1. **Apple Menu > System Preferences > Network**
2. From the **Show** menu, select **Built-in Ethernet**.
3. On the **Ethernet** tab, the **Ethernet ID** is your MAC Address.

In MAC OS 10.5/10.6,

1. **Apple Menu > System Preferences > Network**
2. Select **Ethernet** from the list on the left.
3. Click the **Advanced** button.
3. On the **Ethernet** tab, the **Ethernet ID** is your MAC Address.

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:

Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth fo 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.

Country Code selection feature to be disabled for products marketed to the US/CANADA

RoHS

This product is RoHS compliant.

Europe – EU Declaration of Conformity

This device complies with the essential requirements of the R&TTE Directive 2004/108/EC and 2006/95/EC.

EN 60950-1: 2006+A11: 2009+A1: 2010+A12: 2011+A2: 2013
EN 55032: 2012+AC: 2013
EN 61000-3-2: 2014
EN 61000-3-3: 2013
EN 55024: 2010

Directives:

EMC Directive 2014/30/EU
Low Voltage Directive 2014/35/EU
REACH Regulation (EC) No. 1907/2006
RoHS Directive 2011/65/EU
WEEE Directive 2012/19/EU

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.

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. Specific warranty periods are listed on each of the respective product pages on the TRENDnet website.

- AC/DC Power Adapter, Cooling Fan, and Power Supply carry a 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, or (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. International customers

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Refurbished product: Refurbished products carry a 90-day warranty after date of purchase. Please retain the dated sales receipt with purchase price clearly visible as evidence of the original purchaser's date of purchase. Replacement products may be refurbished or contain refurbished materials. If TRENDnet, by its sole determination, is unable to replace the defective product, we will offer a refund for the depreciated value of the product.

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TRENDnet
20675 Manhattan Place
Torrance, CA 90501. USA